

# Randwick City Council



## Tree Management Technical Manual

---



**TABLE OF CONTENTS**

<b>SCOPE AND PURPOSE</b>	<b>4</b>
<b>INTRODUCTION – USE OF THE MANUAL</b>	<b>5</b>
Randwick City Council’s Protected Trees .....	5
Private Trees .....	5
Public Trees .....	5
Significant Trees .....	5
Required Practices .....	5
Recommended Practices .....	6
Definitions .....	6
Appendices .....	6
Assumptions and Limiting Conditions .....	6
<b>SECTION 1: DEFINITIONS</b>	<b>7</b>
<b>SECTION 2: REMOVAL/PRUNING, REPLACEMENT AND PLANTING OF TREES</b>	<b>10</b>
Tree Removal/Pruning Considerations .....	10
Exemptions .....	12
Tree Removal .....	14
Provision of Evidence for Dangerous/Hazardous Trees .....	14
Tree Pruning .....	15
Pruning Techniques .....	15
Directional Pruning .....	15
Tip Pruning .....	16
Crown Lifting .....	16
Crown Thinning .....	17
Formative Pruning of Trees .....	17
Tree Replacement .....	18
Tree Planting and Maintenance .....	18
Planting Procedure .....	19
Maintenance Procedure .....	20
Recommended Tree Species .....	21
Tree/Arborist Reports .....	21
Trees on Development Sites .....	22
Site Plan .....	23
Verification of Tree Protection .....	23
Pre-construction Meeting .....	23
Protective Fencing for Designated Trees and Street Trees .....	24
Size and Type of Fence .....	24
Trunk Protection Measures .....	25
Tree Protection Zone .....	25
Mulching .....	26
Soil Compaction .....	26
Irrigation .....	26
Erosion Control .....	26
Street Trees and Development .....	27
Street Tree Removal .....	27
Street Tree Roots and Public/Private Infrastructure .....	28
<b>REFERENCES</b>	<b>30</b>
<b>APPENDICES</b>	<b>31</b>
Appendix A .....	31
Appendix B .....	33
Appendix C .....	44
Appendix D .....	45
Appendix E .....	46
Appendix F .....	48
Appendix G .....	50

## SCOPE AND PURPOSE

Randwick City Council has a very important resource in its *trees* and, as with the management of any resource, there are significant problems associated with the maintenance and retention of *trees* growing within the urban environment.

*Trees* are potentially the largest and most significant elements in the urban landscape. As such, they provide the greatest opportunity to define and develop a particular identity and character for the City, as well as being a source of shade and shelter, a provider of habitat and food source for native birds and other wildlife and providing a number of other environmental and commercial benefits – including enhanced property values.

*Trees* are also significant contributors to people's daily experiences and their absence or removal and the resultant loss of visual amenity has serious implications for the community's sense of well being.

Council is therefore committed to the protection and enhancement of this very valuable natural resource, while at the same time recognising that urban development presents a range of challenges and opportunities requiring careful planning and increasingly professional arboricultural management.

As a result of ongoing urban consolidation and development, large numbers of established and significant *trees* on both public and private property are becoming increasingly vulnerable. In order to protect these valuable community assets, Randwick City Council has adopted a suite of management documents including a Street Tree Masterplan, Street Tree Identification Manual and a Register of Significant Trees.

In addition, there are a range of specific tree management and preservation controls contained in Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013.

These documents are the primary regulatory tools used to provide protection to nominated *trees* throughout the City and for ensuring that these assets continue to remain significant contributors to the landscape, while at the same time recognising that they help define the unique character of the Randwick City area.

To help co-ordinate and facilitate the proper management of *trees* on both public and private property and to ensure that appropriate *tree* care standards are complied with in the maintenance and management of *tree* assets, Council has produced this Tree Management Technical Manual.

This manual is intended to be used as both a regulatory and reference document by Council officers, Council operational staff, contractors, property owners, strata managers and developers in relation to all *tree* management and maintenance procedures.

It defines the technical standards and Specifications necessary for the proper management of *trees* – particularly in relation to urban development and construction works – while at the same time providing recommendations for a range of works associated with *tree* management in the urban environment.

The manual does not contain Specifications or procedures for *tree* planting operations undertaken in central business districts or commercial centres. These are predominantly capital works projects that involve the planting of large *trees* (100-200 litres), coupled with the installation of site specific *tree* grates and/or *tree* guards. They often involve a more rigorous and detailed maintenance regime than that usually associated with the planting and maintenance of 25-litre *tree* stock.

## INTRODUCTION – USE OF THE MANUAL

### RANDWICK CITY COUNCIL’S PROTECTED TREES

This manual details the procedures and standards required for the proper management and preservation of *trees* within the City of Randwick.

Under the provisions of Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 (detailed in Appendix A and B of this manual) a person must not, on land to which these plans apply, ringbark, cut down, top, lop, prune, remove, poison, *tree* root prune, destroy or injure any *tree/s* covered by these documents without the consent of the Council.

*Trees* which fall into the following three categories are defined as ‘Protected Trees’ within the City of Randwick and must be maintained in accordance with the standards and requirements contained within this manual. A permit or development consent (whichever is applicable) must be obtained from Council prior to the pruning or removal of any ‘Protected Tree’.

#### ○ **Private Trees**

Any palm tree, cycad or tree fern of any size, any *tree* with a height of six (6) metres or more, any *tree* with a canopy width of four (4) metres or more, any *tree* with a circumference greater than one (1) metre measured one (1) metre above the ground – excluding *trees* listed as undesirable species in Appendix B5-2 of the Randwick City Council Development Control Plan 2013.

#### ○ **Public Trees**

Any *tree* on public land, regardless of size (public land means any land which the public use or are entitled to use for a public purpose including but not limited to a public reserve, a public place, a public road, crown land, community land, public open space, a public walkway and a common), any *tree* in bushland (bushland has the same meaning as that defined in *State Environmental Planning Policy No 19 – Bushland in Urban Areas*).

#### ○ **Significant Trees**

All *trees* listed in Randwick City Council’s Register of Significant Trees and in Schedule 5 – Parts 1-4 (Heritage Items, Heritage Conservation Areas, Archaeological sites, Aboriginal heritage) of the Randwick Local Environmental Plan 2012.

**Note:** Any *tree* with a height of less than six (6) metres, a canopy width of less than four (4) metres or a circumference less than one (1) metre measured one (1) metre above the ground may be pruned and/or removed without the consent of Council. This excludes palm trees, cycads or tree ferns of any size, which are protected by Part B5 of the Randwick Development Control Plan 2013.

### REQUIRED PRACTICES

- All **REQUIRED** practices are to be undertaken by the property owner, managing agent, strata manager, project supervisor or contractor wherever stipulated by Council - these are the minimum requirements by which the care and maintenance of a ‘Protected Tree’ are to be administered;
- The **REQUIRED** practices identified throughout this manual are considered reasonable measures that are consistent with best management practices in the *tree* care industry intended to promote healthy, structurally sound *trees*.

- In all circumstances the Director – City Services or Director – City Planning or their delegated representatives shall, if justified by specific on-site conditions such as conflict with utilities or services, have the discretion to modify or alter any condition, practice or standard stipulated within this manual.

## RECOMMENDED PRACTICES

- **RECOMMENDED** practices identified throughout this manual are NOT mandatory but provide additional proactive measures for the care of *trees* and include procedures such as fertilising, *tree* hazard reduction, planting *trees*, pruning techniques, etc.
- A **RECOMMENDED** practice may be required if it is so specified within the conditions of approval for a development consent or *tree* removal/pruning permit, or for the mitigation of injury or hazard.
- In all circumstances the Director – City Services or Director – City Planning or their delegated representatives shall, if justified by specific on-site conditions such as conflict with utilities or services, have the discretion to modify or alter any condition, practice or standard stipulated within this manual.

## DEFINITIONS

Words and terms that are particular to the arboricultural and construction industries are specifically defined in this manual to provide a uniform understanding of the terms and concepts used in the manual. Words that are defined within this document are noted in *italics* and are detailed in Section 1 – Definitions.

## APPENDICES

The appendices at the end of this manual provide supplementary information relating to practices referenced within the manual as well as sources of technical information for specific or problematic situations.

## ASSUMPTIONS AND LIMITING CONDITIONS

- No responsibility is assumed by Randwick City Council for matters legal in nature related to this manual. Any legal or technical description given is assumed to be correct.
- All care has been taken to obtain reasonable and relevant information from qualified and reliable sources in the preparation of this document.
- Visual material within this manual such as sketches, diagrams, photographs, etc, are not necessarily to scale and should not be construed as engineered data for construction.
- This document has been prepared utilising accepted contemporary standards of *tree* care and maintenance, evaluation and assessment procedures, diagnostic and reporting techniques and sound arboricultural practices as recommended by the sources listed in the 'References' section.

## SECTION 1 - DEFINITIONS

For the purposes of this manual and the interpretation of standards and procedures, the following definitions shall apply:

**arborist** means a person who holds the Australian Qualification Framework (AQF) Certificate IV in Horticulture (Arboriculture) or a person employed by Council as a qualified person for the purposes of arboricultural management.

**Australian Standard** means Australian Standard AS 4373 – 2007 – *Pruning of Amenity Trees*.

**buffer zone** relates to vegetation planted for the express purpose of providing protection for identified core habitats and remnant bushland strips.

**bushland** means land on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and/or floristics of the natural vegetation as defined in *State Environmental Planning Policy No 19 – Bushland in Urban Areas*.

**clearing native vegetation** means any one or more of the following:

- a) cutting down, felling, thinning, logging or removing native vegetation;
- b) killing, destroying, poisoning, ringbarking, uprooting or burning native vegetation;
- c) severing, topping or lopping branches, limbs, stems, roots or trunks of native vegetation;
- d) substantially damaging or injuring native vegetation in any other way.

**culturally significant tree/s** means trees which are significant features of the cultural landscape and which are listed in Council's Register of Significant Trees.

**dangerous** means a tree that has structural defects (ie, fallen branches, split trunk, advanced decay) that could result in the tree collapsing or falling without warning.

**dead** tree means a tree with no living vascular tissue.

**diameter at breast height (DBH)** means the diameter of the trunk of a tree measured at breast height (1.4m or 54 inches above ground level).

**exotic** means a tree/s that is not locally indigenous.

**hazardous** – refer to 'dangerous' above.

**height** means the distance measured vertically between the horizontal plane of the lowest point of the base of the tree/s which is immediately above ground level and the horizontal plane of the uppermost point of the tree/s.

**indigenous** means a tree/s or other vegetation being of a species that existed in, or on land in the vicinity of, the Randwick Local Government Area (LGA) before European settlement.

**injury** or **injuring** means damage to a tree and includes:

- a) lopping and topping;

- b) poisoning, including applying herbicides and other plant toxic chemicals to a tree or spilling (including washing off or directing water contaminated by) oil, petroleum, paint, cement, mortar and the like onto the root zone area;
- c) cutting and tearing of branches and roots that is not carried out in accordance with accepted arboricultural practices, does not qualify as 'pruning' (as defined within AS 4373 – 2007 – *Pruning of Amenity Trees*) or which is done for invalid reasons;
- d) ringbarking, scarring the bark when operating machinery, fixing objects (eg, signs) by nails, staples or wire, using tree climbing spikes in healthy trees (except for access to an injured tree worker) or fastening materials that circle and significantly restrict the normal vascular function of the trunk or branches;
- e) damaging a tree's root zone by compaction, excavation or asphyxiation (including unauthorised filling or stockpiling of materials);
- f) underscrubbing, particularly carried out by mechanical tools such as brushcutters and the like.

**lopping** means the cutting of branches or stems between branch unions or at internodes on trees.

**native vegetation** has the same meaning as in the *Native Vegetation Act 2003 (NV Act)*, and means any of the following types of indigenous vegetation:

- a) trees;
- b) understorey plants;
- c) groundcovers;
- d) plants occurring in a wetland.

**prune** or **pruning** means cutting branches from a tree/s in a planned and systematic manner that is carried out in accordance with the provisions of Australian Standard AS 4373 - 2007 - *Pruning of Amenity Trees*, and which consists of the following pruning types:

Crown maintenance\* pruning involving:

- a) General pruning
- b) Thinning
- c) Deadwooding
- d) Selective pruning
- e) Formative pruning

\*Crown maintenance pruning relates to pruning according to the growth habit of the tree/s without reducing the area of the crown, while retaining the structure and size of the tree/s.

Crown modification\* pruning involving:

- f) Reduction pruning
- g) Crown lifting
- h) Pollarding
- i) Remedial pruning
- j) Powerline clearance

\*Crown modification pruning relates to pruning that changes the structural appearance and habit of the tree/s.

**public land** has the same meaning as in the *Local Government Act 1993*.

**qualified arborist** means an Australian Qualification Framework level 5 (Diploma) arborist (AQF5). This is the minimum qualification accepted by Council for the purposes of the preparation of an arborist's report involving culturally significant tree/s.

**remnant tree** or **remnant vegetation** means a native tree or any patch of native vegetation which remains in the landscape on the original soil profile, after removal of most or all of the native vegetation in the immediate vicinity.

**remove** or **removal** means to cut down, fell, destroy, kill, take away, uproot or transplant a tree from its place of origin.

**significant tree** means a tree or trees which are significant features in the City's heritage or cultural landscape and which are listed in Council's Register of Significant Trees. They may be historic, unique, rare, large or have community support for their retention.

**topping** means cutting away part or all of the tree canopy, leaving a trunk and stubbed main branches.

**trade arborist** means a tradesperson who holds the Australian Qualification Framework (AQF) Certificate III in Horticulture (Arboriculture) or other national or international qualification considered equivalent by Council.

**tree** or **trees** means a perennial plant with at least one self-supporting woody or fibrous stem, being of any species whether indigenous, exotic or introduced which:

- a) is six (6) metres or more in height; and/or
- b) is four (4) metres or more in canopy width, and/or
- c) has a trunk diameter of one (1) metre or more measured at one (1) metre above ground level (or its equivalent in the case of multi-trunked trees); or
- d) is a palm tree (except *Syagrus romanzoffianum* - Cocos palm), cycad or tree fern of any species growing within the City of Randwick, irrespective of its size; or
- e) is any tree on public land of any size; or
- f) is any tree in bushland of any size.

**tree worker** means a tradesperson who holds the Australian Qualification Framework (AQF) Certificate II in Horticulture (Arboriculture) or other national or international qualification considered equivalent by Council.

**trunk** means the main stem of the tree, as distinguished from the branches and roots.

**undesirable species** means plants that are listed in Appendix B5-2 of the Randwick City Council Development Control Plan 2013 which are deemed undesirable due to their location or as having characteristics which may lead to poisoning, weed infestation, brittle and dangerous wood, excessive spread of roots or bushland invasion.

**width** means the distance measured horizontally (in metres) between the two (2) widest points of a tree's canopy.

**wildlife corridors** are vegetative corridors that link habitat which is suitable for animals (fauna) to travel along in relative safety.

## SECTION 2 – REMOVAL/PRUNING, REPLACEMENT AND PLANTING OF TREES

Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 are designed to protect and preserve mature and significant *trees* growing within the City of Randwick. Council originally introduced a Tree Preservation Order in response to community concern that many *trees* within the City were being lost through property development and indiscriminate tree felling.

In order to provide additional protection to *trees* which have significant heritage value, Council has adopted a Register of Significant Trees. This Register contains a variety of *culturally significant trees* that have been recognised as having exemplary heritage/botanic/cultural/aesthetic values.

Council approval or development consent is required for the *pruning/removal* of all *trees* covered by Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013, with development consent specifically required for major *pruning* and/or *removal* of all *trees* listed in its Register of Significant Trees or which are located within Heritage Conservation Areas, where those tree works will have an impact on heritage significance or amenity.

### TREE REMOVAL/PRUNING CONSIDERATIONS

In general, the following works are prohibited under the provisions of Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013:

- a) *tree injury* as defined in this manual;
- b) unauthorised *tree removal* and/or *pruning*, including the *removal/pruning* of *trees* without specific Council consent or without Council's approval for the erection of a building or carrying out of a development activity; and
- c) *clearing native vegetation* on any land without first obtaining a consent from Council.

Residents or property owners wishing to *prune* and/or *remove trees* covered by Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 are **REQUIRED** to make written application for consent to undertake any such works. A Tree Permit Application form, which can be downloaded from Council's website, must be completed - providing the details of all works proposed to be undertaken.

A Development Application for Tree Works is specifically **REQUIRED** when applying to *prune/remove* any *tree* growing within a Heritage Conservation Area or which is listed on Council's Register of Significant Trees, where those tree works will have an impact on heritage significance or amenity, and this application can also be downloaded from Council's website.

The same procedure applies where a property owner wishes to judiciously *prune* a *tree* or *trees* on a neighbouring property which are covered by Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013.

Council can only approve an application to *remove* or significantly *prune* a *tree/s* on an adjoining property when that application is made by the owner of the tree/s or where consent for the lodging of any such application has been granted in writing by the owner of the *tree/s*.

Any relevant application form to *prune/remove tree/s* must be completed as prescribed and the appropriate application fee paid at the time of lodgement. A written determination will generally be mailed to the applicant within 10 days of lodgement.

Any approved *tree pruning/removal* works are only to be undertaken by professionally qualified *tree workers* or *arborists* and must comply with AS 4373 – 2007 *Pruning of Amenity Trees*.

In assessing whether or not to approve the *removal* or *pruning* of a *tree* or *trees*, Council will take into consideration (but not be limited to) the following:

- a) whether the *tree* has significant amenity or aesthetic value or is ecologically significant in the local or regional context, with particular emphasis placed on retaining *trees* listed on Council's Register of Significant Trees;
- b) the condition, maturity and Safe Useful Life Expectancy (SULE) of the tree/s with respect to the practicality of remedial actions (In the case of *trees* claimed to be *dangerous*, Council will only consider a report on the condition of a *tree* on private property prepared by an *arborist*, as defined in this manual);
- c) a report from a *qualified arborist*, as defined in this manual, where the tree is *culturally significant*;
- d) whether the *tree* is affected by the provisions of any other Act, Regulation or State Environmental Planning Policy applying to the land (refer to Appendix E);
- e) the potential hazards to persons and/or property in the context of:
  - i) the structural soundness of the particular *tree* (including condition of the canopy, amount of deadwood, any prolonged decline, significant and sustained insect attack, etc); and/or
  - ii) the characteristics and risk potential of the particular species; and/or
  - iii) siting issues such as ground conditions, building proximity, etc, which may give rise to a *hazardous* situation (particularly structural damage to public infrastructure and/or private property caused by the *tree/s*, its *trunk* or its root system); and/or
  - iv) ill health, such as allergies, where specific evidence is provided by an expert in the relevant medical field and a link between the ailment and the species is reasonably established; and/or
  - v) existing (or potential for) traffic obstruction in relation to proximity to a roadway, intersection or driveway, where pruning would be an insufficient remedy;
- f) the demonstrated need for reasonable solar access to windows, openings of a building, solar appliances, clothes drying and outdoor living areas;
- g) whether a *tree* should be replaced by a more suitable species given its location or proximity to services such as overhead powerlines, sewer or drainage pipes or the like;
- h) whether an amenity *tree* no longer fulfils its original purpose in the landscape;
- i) whether the species' natural propagation method is likely to create a nuisance in the landscape (eg, Camphor laurel, Hackberry, Sweet Pittosporum);
- j) whether the proposed work needs to be carried out by a suitably qualified and experienced person;
- k) whether appropriate additional (or replacement) planting has been or should be undertaken;
- l) the need for, and suitability of, soil erosion and siltation controls;
- m) whether permanent and/or temporary fencing or barriers are required prior to works commencing;

- n) whether another alternative measure is required to ensure protection of *trees* on-site and on adjoining land;
- o) whether a section 94 contribution is required towards the replacement of plantings within the same catchment;
- p) whether the *tree/s* provide habitat or are a significant component of the habitat of a species listed in Schedule 1 or 2 of the *Threatened Species Conservation Act (TSC Act) 1995* or in Part 13, Division 1, Subdivision A of the *Environmental Protection and Biodiversity Conservation Act 1999* and whether there is a need to assess the significance of the works in accordance with Section 5A of the *Environmental Planning and Assessment Act 1979*;
- q) whether, prior to the felling of a *tree*, special measures should be in place to reduce the potential for injury or death of animals likely to inhabit the *tree*. Such measures may include:-
- i) inspection of hollows and other potential habitat sites on the *tree*;
  - ii) sectional dismantling;
  - iii) supervision of works by an arborist and/or a licensed wildlife carer or handler.

Note: provided that no significant hazard or other safety issues also apply, the following shall not generally be considered as valid reasons to remove a *tree/s* or *native vegetation*:

- Leaf drop (into gutters and downpipes, pools, onto lawns, etc)
- To increase natural light – where that is the sole consideration
- To improve street lighting into private property
- To enhance views or reduce the height of *trees*
- To reduce shade created by a *tree/s* – particularly species such as *Ficus* or *Araucaria*
- To reduce fruit, resin or bird droppings falling onto driveways and/or cars
- Minor lifting of driveways, front fences, paths and footpaths by tree roots
- To erect a fence
- Bushfire hazard control which has not been verified by Council
- Potential damage to sewer mains or stormwater pipes - unless supported by written expert advice and only where reasonable alternatives are not feasible (eg, relocation or encasement of mains, replacement of damaged pipes in PVC plastic).

## EXEMPTIONS

The following works do not require a consent or permit from Council:

- a) The removal of *dead trees*, except where such *trees* provide habitat for species listed in Schedule 1 or 2 of the *Threatened Species Conservation Act 1995* - NB: Where the *tree* or *trees* provide habitat for animal species listed in Schedule 1 or 2 of the *Threatened Species Conservation Act 1995*, expert advice should be obtained in relation to fauna relocation prior to removal of the *tree*; or

b) The *removal* or trimming of *trees* in accordance with the *Electricity Supply (Safety Plans) Regulation 1997* and the *Electricity (Tree Preservation) Regulation 1995*; or

c) The *removal* or trimming of *trees* in accordance with Clauses 88, 107, 138 and 139 of the *Roads Act 1993*; or

d) The *removal* of noxious weeds within the meaning of the *Noxious Weeds Act 1993*; or

e) The following works are defined as exempt *tree* works and therefore do not require a consent from Council:

i) Deadwooding, formative pruning of young *trees* and powerline clearance, as defined in Clauses 7.2.2, 7.2.5 and 7.3.6 respectively of Australian Standard AS 4373 – 2007 - *Pruning of Amenity Trees* (refer specifically to Appendix F); or

ii) *Removal* of *trees* to give effect to a development in accordance with a consent – ie, the *removal* of *trees* and *vegetation* located within the alignment of a proposed road or service easement (in accordance with approved engineering plans), or within a proposed building footprint and up to two (2) metres from the external walls of buildings (on the same land parcel), provided that:

- The building or work is consistent with an approved development consent which allows their removal and the *trees* are not shown for retention;

or

iii) *Removal* of any *tree*, that in the opinion of Council or a *qualified arborist* is *dangerous*, only where the *tree's* instability is obvious and there is immediate danger and/or hazard - for example, structurally split *trunks*, *trees* or limbs which have been felled by storms, that are damaging buildings or blocking accessways.

Except for specified emergency situations, expert advice should always be obtained by the *tree* owner with respect to *dangerous trees* to confirm their condition and to ensure that they do not provide habitat for protected species. Otherwise, their cutting or *removal* might be in breach of the *Threatened Species Conservation Act 1995*.

Note: If appropriate, the branch *removal* option should be adopted in preference to complete *tree removal*; or

iv) The *pruning* or *removal* of any *tree/s* under the care, control and management of Randwick City Council in order to abate any potential or actual danger to persons and/or property, provided such works are carried out by persons authorised by the Council and in accordance with AS 4373 – 2007 – *Pruning of Amenity Trees*; or

v) Immediate *removal* of *trees* where this is essential for emergency access or emergency works by Council or a public authority; or

vi) *Removal* of a *tree(s)* which is a bushfire hazard where:

- The action is reasonably necessary to protect human life, buildings or other property from imminent danger of a bushfire burning in the vicinity of the *tree*; or
- Council has authorised its *removal* as part of a bushfire risk management plan adopted pursuant to the *Rural Fires Act 1997*; or

vii) *Removal* of the following 'undesirable species' as listed in Appendix B5-2 of the Randwick City Council Development Control Plan 2013:

<i>Ailanthus altissima</i>	Tree of Heaven
<i>Alnus jorullensis</i>	Evergreen Alder
<i>Bambusa</i> species	Bamboo species
<i>Celtis occidentalis</i>	Hackberry
<i>Cotoneaster</i> species	Cotoneaster
<i>Cupressocyparis x leylandii</i>	Leyland Cypress
<i>Erythrina</i> species	Coral tree
<i>Ficus elastica</i>	Rubber tree
<i>Lagunaria patersonia</i>	Norfolk Island Hibiscus
<i>Ligustrum</i> species	Privet
<i>Morus</i> species	Mulberry
<i>Nerium oleander</i>	Oleander
<i>Ochna serrulata</i>	Ochna
<i>Olea europa var. africana</i>	African Olive
<i>Populus</i> species	Poplars
<i>Salix</i> species	Willows
<i>Schefflera actinophylla</i>	Umbrella tree
<i>Syagrus romanzoffianum</i>	Cocos Palm
<i>Toxicodendron succedaneum</i>	Rhus tree

or

viii) The *removal* of a *tree* or *trees* where such works are provided for in a Plan of Management adopted by Randwick City Council in respect of *public land* under the *Local Government Act 1993*; or

ix) *Removal* of *vegetation* within 0.5 metres of the boundary between properties for the purpose of enabling survey to be carried out along that boundary by a registered surveyor, provided that the surveyed land exceeds one (1) hectare in area and no alternative survey method is feasible.

**Note:** The *removal* or disturbance of an Aboriginal relic is an offence under the *National Parks and Wildlife Act 1974*. A *tree* believed to be, or in the vicinity of, an Aboriginal relic should be examined by an appropriately qualified person and instruction taken before any work commences.

## TREE REMOVAL

It is **REQUIRED** that the *removal* of any *tree* should only ever be undertaken by an *arborist* or *tree worker* with appropriate training and the relevant insurances and any such works must be undertaken in a safe manner that complies with the appropriate WorkCover tree work Code of Practice and Australian Standard requirements.

## PROVISION OF EVIDENCE FOR DANGEROUS/HAZARDOUS TREES

Except for specified emergency situations, expert advice is **REQUIRED** to be obtained with respect to *dangerous trees* to confirm their condition and to ensure that they do not provide habitat for protected species. Otherwise, their cutting or removal might be in breach of the *Threatened Species Conservation Act 1995*.

Where a *dangerous tree* is *removed* (in an emergency situation) due to obvious instability or hazard (eg, following storm damage), it is **RECOMMENDED** that evidence of the *tree's* condition should be retained for a period of at least six (6) months after the event and produced at Council's request if needed. Such evidence should, where possible, include:

- i) Photographs of the *tree/s*; and
- ii) A report by a *qualified arborist*, or
- iii) A written statement from the State Emergency Service (SES), if the Service carried out the emergency *tree* works at the owner's request.

Where *trees* have died, been *removed* because of storm damage or *removed* as *undesirable species*, replacement *trees* of a suitable *native* or *indigenous* species are **REQUIRED** to be planted wherever possible to maintain *tree* cover within the City.

## TREE PRUNING

### PRUNING TECHNIQUES

There are a range of pruning practices that should be utilised when undertaking the *pruning* and/or ongoing maintenance of any particular *tree* or *trees* and the most beneficial of these are outlined below.

### Directional Pruning

Directional *pruning* is the *removal* of selected branches to branch collars or to a growing point. The branch collar is the point at which branches are naturally shed. It contains chemicals which inhibit the development of decay causing organisms and is part of the *tree's* protection system. It is essential that wherever possible *pruning* cuts be made to this point. This technique is shown in Figure 1.1 below.

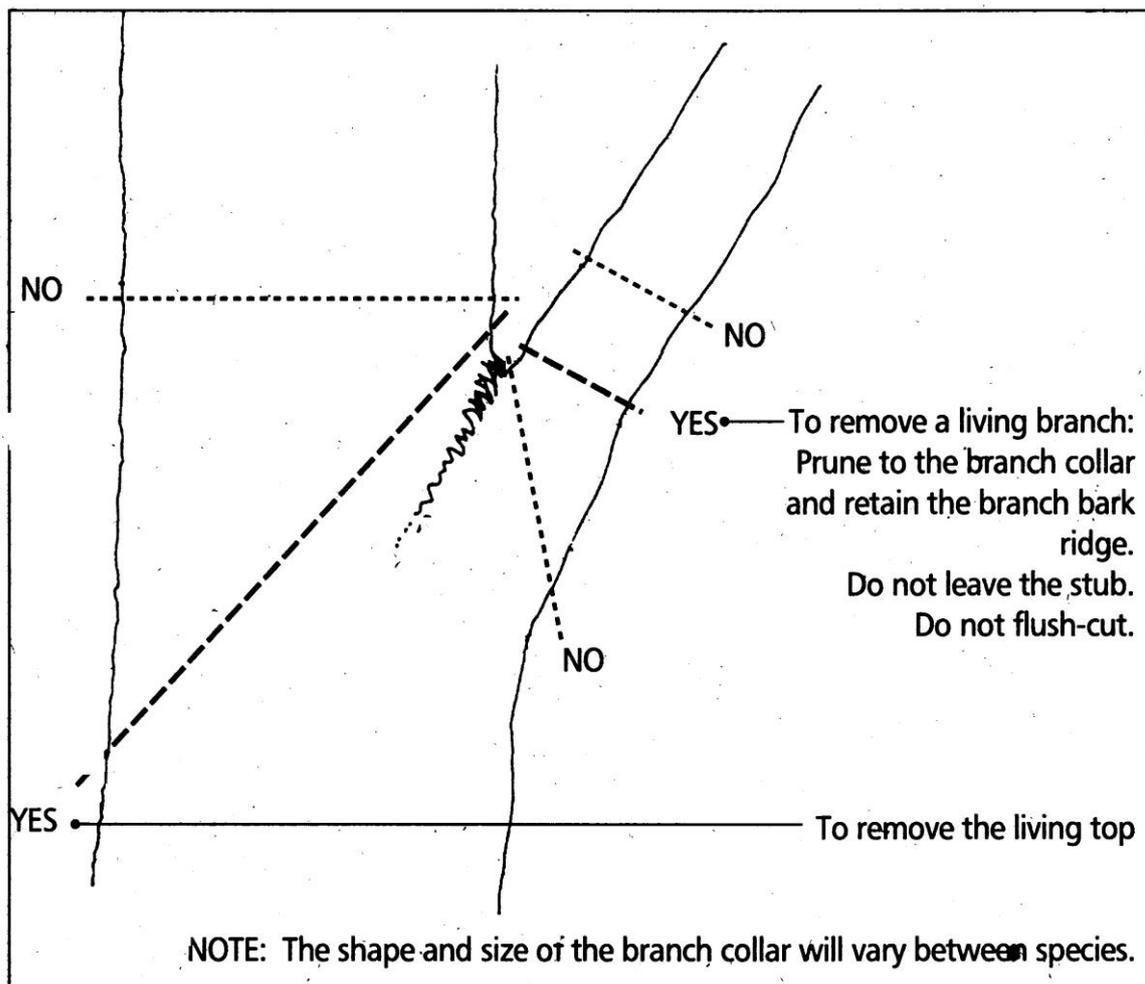


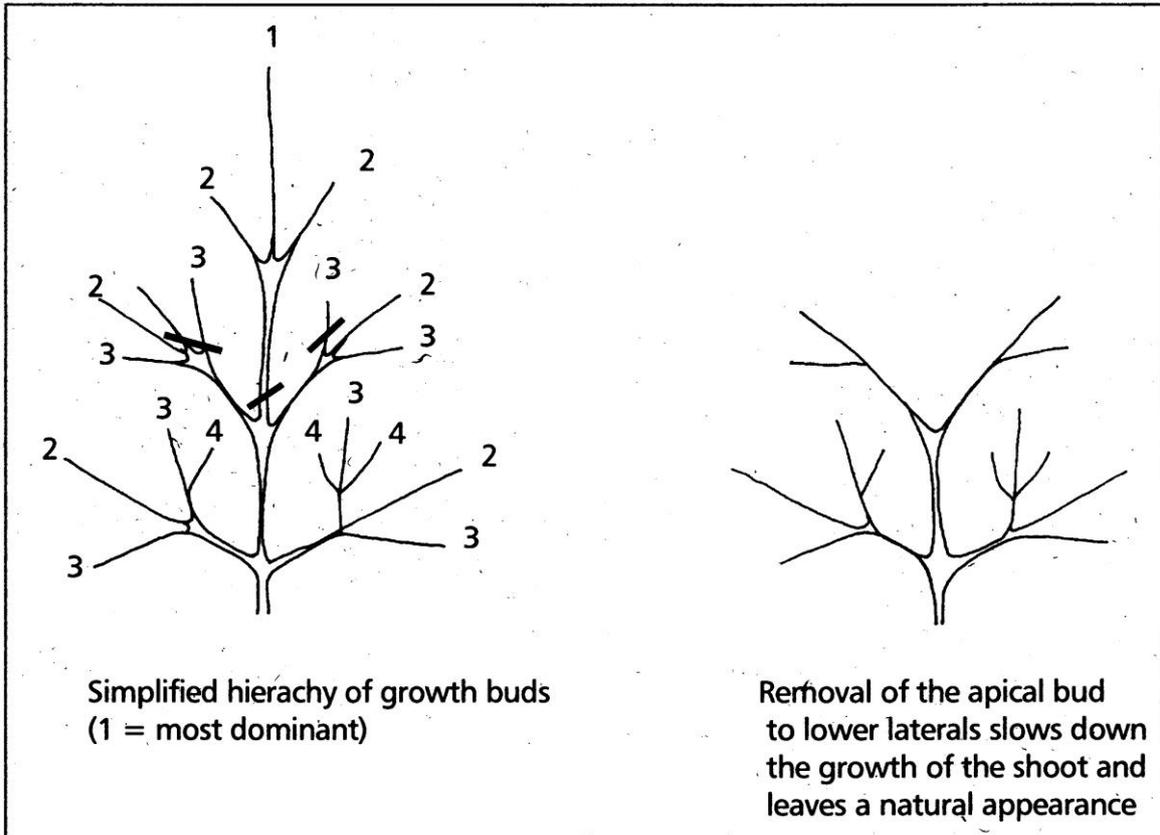
FIGURE 1.1 Positioning of pruning cuts

The purpose of directional *pruning* is to *remove* only the branch or branches causing the problem, be they growing into a building or residence or across a pathway or driveway.

This method, resulting in a more natural appearance to the *tree*, has several advantages over *lopping*:

- Minimal removal of branches
- Little or no increase in growth rate, and
- Minimal suckering from cut branches

Directional *pruning* is best achieved when the *tree* is a broad domed species with relatively closely spaced branches and when the *pruning* commences at an early stage.



**FIGURE 1.2** The principles of Tip Pruning

### Tip Pruning

Tip *pruning* is directional *pruning* where the tips of branches are reduced to lower lateral branches.

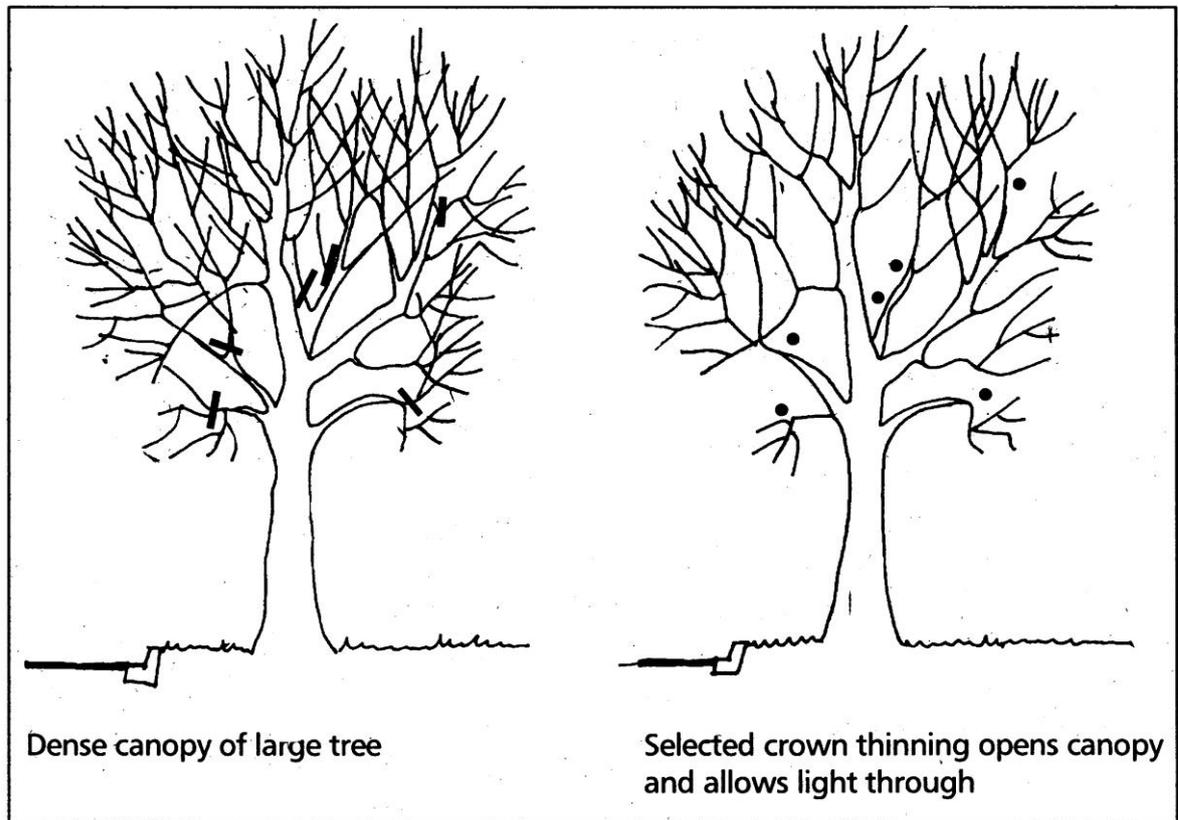
This procedure is useful for reworking *trees* consisting almost entirely of vertical shoots if a reasonable depth of crown remains between the required clearances for infrastructure or dropwires or pedestrian access. This technique reduces the apical dominance of the branches, hence slowing the growth rate or at least not invigorating the *tree*.

Adequate foliage is retained, benefiting both the *tree* and the landscape. The technique is shown in Figure 1.2. Many *tree* species respond better to minimal tip *pruning* than to the practice of creating a bare framework.

### Crown Lifting

Crown lifting is the *removal* of low branches over footpaths, driveways, paving, etc, to ensure adequate clearance and visibility. *Removal* of low branches forces growth toward the top of the *tree*. If these *trees* are also under service wires and powerlines, the net result can be a crown that is too small to work with.

Excessive *removal* of horizontal branches also reduces the functional value of the *tree* by *removing* the branches which shade and screen. On young *trees*, low branches feed the *trunk* and develop *trunk* strength. It is **RECOMMENDED** that crown lifting be done on a gradual basis and that clearances be kept to the minimum requirement.



**FIGURE 1.3** Crown Thinning

### Crown Thinning

The practice of *tree height* reduction has been curtailed in favour of a process of sympathetic thinning to allow more light penetration and wind movement. Thinning involves the *removal* of secondary branches back to the branch collar whilst retaining the main structural branches and hence the overall shape of the *tree*. This technique is illustrated in Figure 1.3 above.

### Formative Pruning of Trees

In many urban situations *trees* are planted in relatively confined locations surrounded by a variety of constraints such as underground services, close proximity to neighbouring properties, adjacent to buildings and structures, next to walkways and footpaths, underneath overhead powerlines and service wires, etc.

Even though many of these *trees* may not initially be interfering with structures and/or infrastructure, formative pruning should commence as soon as possible so as to minimise the impact of future growth. Selective pruning then will represent significant savings in the future.

No precise instructions can be given for *tree pruning* as all *trees* must be treated on an individual basis. Directional *pruning*, tip *pruning* and crown thinning are **RECOMMENDED** where there is sufficient depth of crown and/or suitable horizontal branches to allow these *pruning* types to be carried out.

Generally, though, experience with the *pruning of trees* has shown that minimal *pruning* in the early stages results in fewer problems and maintenance costs for the tree in the long term.

As stated previously, all *tree pruning* and associated works are **REQUIRED** to be carried out in accordance with the provisions of Australian Standard AS 4373 - 2007 - *Pruning of Amenity Trees*.

## TREE REPLACEMENT

The *removal* of healthy retainable *trees* from both private property and *public land* is often necessary in order to meet development objectives. However, the loss of *tree* canopy cover reduces public amenity and environmental benefits and should be compensated whenever possible.

Wherever possible, Council will determine that any *tree* approved for *removal* within private property is **REQUIRED** to be replaced with an appropriate number of suitable replacement *trees*. The number and species of *trees* shall be determined by the assessing Council officer and any such replanting determination will generally be required to be complied with within 21 days of the approved *tree* or *trees* being removed, or in the case of development, prior to the issue of a Final Occupation Certificate.

Any replacement planting will be **REQUIRED** to be nurtured and maintained in a healthy and vigorous state until maturity, especially when the removal of the original *tree* or *trees* impacts on neighbours or the streetscape.

Before planting any *tree* it is **RECOMMENDED** that the mature *height* and size of the tree be considered, particularly in relation to:

- services such as gas, water, sewerage, stormwater and domestic service wires
- buildings, footings, pathways
- solar access
- potential overhang into neighbouring properties
- species suitability to the site – *native* and *indigenous* coastal species are recommended

This replacement mechanism is necessary to ensure that *tree* canopy loss from development is compensated wherever possible by replacement plantings, whether on the development site itself or on adjacent *public land*.

## TREE PLANTING AND MAINTENANCE

A Council approved *tree* planting Specification applies to all *trees* planted by Council and all *tree* planting contractors who undertake work on behalf of Council are **REQUIRED** to comply with that Specification.

Where *trees* are **REQUIRED** to be planted by property owners as replacements for those approved for *removal* under the provisions of Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 or where *tree* planting is a condition of development consent, it is **RECOMMENDED** that property owners plant those *trees* in compliance with Council's *tree* planting Specification.

The Specification details the procedure **RECOMMENDED** for both *tree* planting and subsequent *tree* maintenance and provides the framework for *trees* to have an optimum chance of survival in the longer term.

All *trees* to be planted are **REQUIRED** to be sound, healthy, vigorous and free of diseases and insect pests and they are not to be *topped* or headed.

**Note:** Prior to the commencement of any excavation or *tree* planting activities, it is strongly **RECOMMENDED** that property owners and/or planting contractors undertake a search for underground services. Information on locating underground pipes, cables and other services can be obtained by telephoning Dial Before You Dig on 1100 or by logging onto [www.dialbeforeyoudig.com.au](http://www.dialbeforeyoudig.com.au)

## PLANTING PROCEDURE

This planting procedure applies to the planting and maintenance of 25-litre plant stock only and should be appropriately modified if planting larger stock.

Dimensions of planting holes are as specified in the Planting Detail (Figure 1.4). Planting holes are to be at least 600mm in diameter and no less than 500mm deep wherever possible.

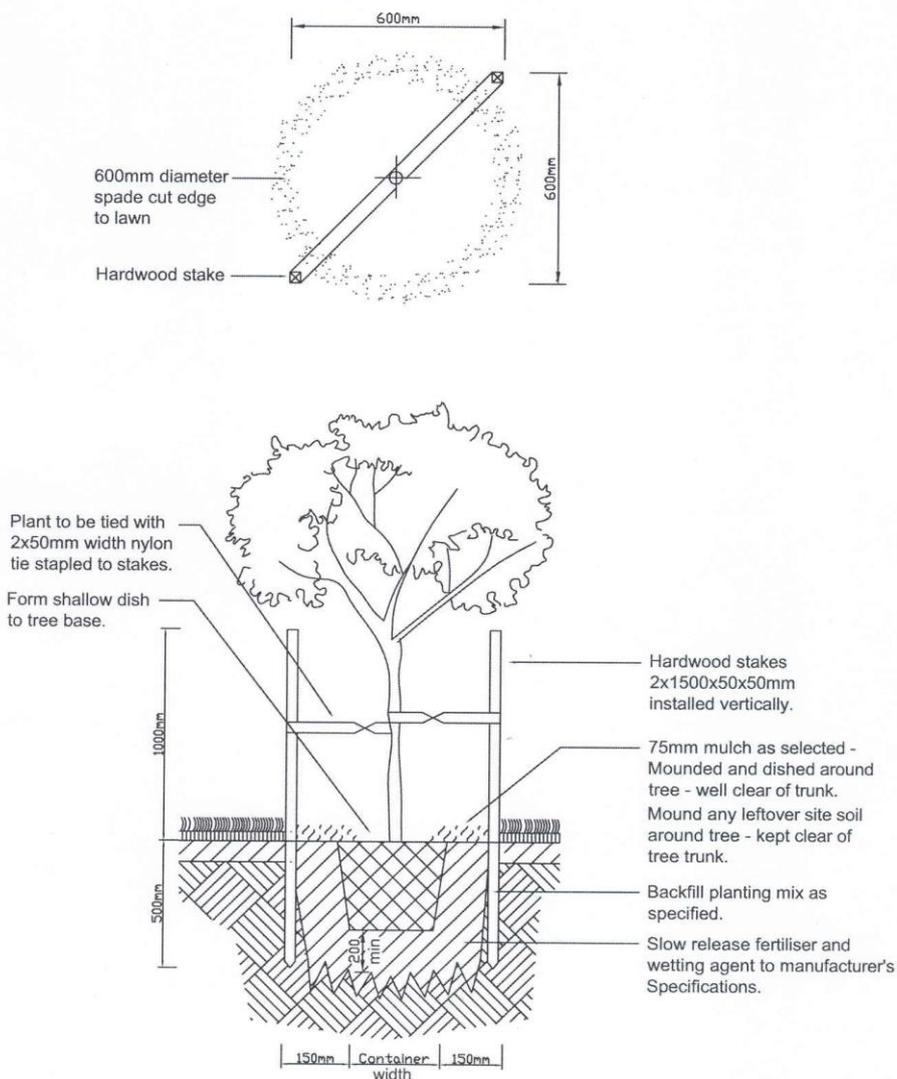
- (a) Excavate a hole as indicated in the Planting Detail. Break up the base and sides of the hole a further 100mm with, for example, a pick, mattock or crowbar;

**Note:** Excavation is measured in other than rock. It is not intended that rock be excavated to plant *trees*. If rock is encountered, an alternative planting site should be sought;

- (b) Remove plant from container, slightly tease the root ball and then place plant into hole. Top of root ball should be planted level with surrounding soil;
- (c) Backfill the hole, lightly firming down in 150mm layers. Soil mix shall be:
  - i) 80% site soil, and
  - ii) 20% humus (eg, organic matter, potting mix, garden soil mix);
- (d) Soil mix shall have a pH range of 5.5 to 6.5 and shall be free of noxious weeds and toxic materials detrimental to plant growth;
- (e) Wetting agent and slow release fertiliser are to be incorporated into the planting operation at the manufacturer's recommended rate;
- (f) Mound mulch on top of the soil surrounding the *tree* to a diameter of 500mm all around the *tree trunk* and to a depth of 75mm. Do not heap mulch around the *trunk* and ensure that it is 'dished' around the base of the *tree*;
- (g) All *trees* shall be formatively *pruned* at the time of planting to ensure that all sucker growth is removed and that *trees* have one central leader only. *Trees* should be underpruned to the extent that the canopy constitutes one third only of the *tree's* total height;
- (h) Stake the *trees* as shown on the attached Planting Detail using 2 x 50mm x 50mm x 1500mm hardwood stakes. *Trees* are to be supported with two lengths of 50mm wide nylon or hessian tie stapled to stakes;
- (i) Water in well after planting using at least 10 litres of water for each *tree*.

**MAINTENANCE PROCEDURE**

- (a) All *trees* are to be watered thoroughly and each *tree* shall receive an amount of water that will ensure healthy, vigorous growth – at least ten (10) litres of water per *tree* per watering episode;
- (b) Maintenance and watering of all planted *trees* are to continue for a period of at least six (6) months from the completion of planting of all designated *trees*; and
- (c) The contractor/property owner shall ensure that they undertake the weeding, adjustment and/or replacement of stakes and ties, minor pruning work and re-instatement of mulch as required during the establishment period – which shall be a minimum of six (6) months.



**FIGURE 1.4 Planting Detail**

## RECOMMENDED TREE SPECIES

Council **RECOMMENDS** the planting of *native* and *indigenous* plant stock whenever possible to provide habitat and food source for native birds and other fauna and to enhance *wildlife corridors* and *buffer zones* throughout the City area.

At the same time it recognises that *tree/shrub* species selection is often quite subjective and that it often depends on the age of a particular property or the precinct in which it is located or that it may simply depend on the property owner's personal preferences.

In order to complement the broad objectives of Council's Street Tree Masterplan it is **RECOMMENDED** that property owners and other stakeholders consider planting trees and shrubs contained within the Masterplan document. Listed *trees* are a mix of *native*, *exotic* and *indigenous* species.

These *tree/shrub* species are described in detail in Council's Street Tree Identification Manual and this can be downloaded as a PDF document from Council's website. The species nominated for planting in both documents are listed in Appendix E of this manual.

## TREE/ARBORIST REPORTS

Professional *arborists* are **REQUIRED** to prepare any *arborist's* report lodged with Council. The minimum accepted qualification for an *arborist* is the Australian Qualification Framework level 4 (AQF4).

Where *trees* are deemed by Council to be *culturally significant*, (ie, those listed in Randwick City Council's Register of Significant Trees) a report is **REQUIRED** to be prepared by a *qualified arborist*. The minimum accepted qualification for a *qualified arborist* is the Australian Qualification Framework level 5 (Diploma) (AQF5).

The following information is **REQUIRED** to be included in any arborist's report:

- a) name, address, telephone number, ABN, qualifications and experience of the *arborist* carrying out the inspection and reporting;
- b) address of the site containing *tree/s*;
- c) who the report was prepared for, date site inspected, date report prepared and the aims of the report;
- d) methods and/or techniques used in the inspection;
- e) a plan (to scale) accurately showing:
  - i) location of *tree/s* on the subject site and any adjoining *trees* which may be affected by any development or *tree* works. *Trees* identified on the plan shall be named and numbered;
  - ii) optimum and minimum *tree* protection zones - if recommended by the *arborist*;
  - iii) lot boundaries, dimensions and North point;
  - iv) proposed development including services, driveways and any alteration to existing and proposed soil levels and drainage, as well as distances (in mm) between *tree/s* and works.

- f) a table showing, for each *tree* to be *pruned/removed*:
- i) number of the *tree* - as indicated in the plan;
  - ii) species name;
  - iii) age class;
  - iv) *height*;
  - v) canopy *width*;
  - vi) *trunk* circumference at one (1) metre above ground level;
  - vii) health and condition, and estimated Safe Useful Life Expectancy.
- g) a discussion of other relevant information, including details of *tree* hollows for wildlife, *tree* structure/defects, root form and distribution, pests and diseases and/or a Tree Hazard Assessment;
- h) supporting evidence such as photographs and laboratory results to confirm the presence of soil pathogens or to support soil assessment, where relevant;
- i) proposed replacement plantings, landscaping and/or soil remediation;
- j) *tree* protection measures and a post-construction *tree* maintenance program which can be used as development consent conditions, should the application be approved;
- k) sources of information referred to in the report;
- l) measures to minimise impacts of proposed/approved development - eg, footing designs, excavation techniques, vents to atmosphere, etc;
- m) any other relevant matters or information such as Resistograph or Picus Sonic Tomograph reports.

Qualified *arborists* and their contact details may be obtained from the Institute of Australian Consulting Arboriculturists (IACA) on (02) 9682 7033 or on their website at [www.iaca.org.au](http://www.iaca.org.au) or from Arboriculture Australia on 1300 664 374 or (08) 8340 4909 or at [www.arboriculture.org.au](http://www.arboriculture.org.au)

These organisations are not specifically recommended and Council will accept arborist's reports from any registered member of a nationally recognised arboricultural organisation or association.

## TREES ON DEVELOPMENT SITES

This section details the negative impacts that development and construction can have on established *trees* and provides a range of measures designed to minimise the adverse impacts of development on retainable and *significant trees*.

Typical adverse impacts on *trees* that can occur during construction works include:

- mechanical injury to roots, *trunks* or branches by site machinery, scaffolding, vehicles, etc;

- compaction of soil by vehicular/pedestrian movement which degrades functioning *tree* roots and inhibits new root development, as well as contributing to fungal disease infiltration;
- changes in soil profile or soil level, which can sever or suffocate *tree* roots;
- alteration of the water table – either raising, lowering or re-directing water flow;
- microclimate changes – exposing previously sheltered *trees* to increased sun and wind.

For development on land which contains any *trees* which are covered by Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 or *trees* which are listed in Council's Register of Significant Trees and which are located within three (3) metres of any proposed development works (including neighbouring properties), there are a number of matters that are **REQUIRED** to be addressed prior to the commencement of any works.

On any such site the property owner may be **REQUIRED** through conditions of consent to ensure that a comprehensive *tree* report is prepared by a *qualified arborist* that assesses the impact of the proposed development on *trees* and *vegetation* both within the site itself and on adjoining properties.

That report must contain a *tree* protection plan (refer to Appendix F) as well as recommendations for mitigating any adverse impacts on *trees* designated for retention. Any such report must provide site specific details of both the Structural Root Zone (SRZ) and Tree Protection Zone (TPZ) areas surrounding any *trees* to be retained. The calculation of SRZ and TPZ radiuses must comply with the calculation methodologies detailed in Section 3 of Australian Standard AS 4970 – 2009 – *Protection of Trees on Development Sites*.

This report must also contain *tree* protection measures and a post-construction *tree* maintenance program which could be incorporated into development consent conditions.

In order to make sure that all these conditions are met and clearly understood by all parties and to ensure that retained *trees* are afforded appropriate protection, the following actions are **REQUIRED** to be strictly complied with:

### 1) Site Plan

On all site plans associated with the development, the property owner is **REQUIRED** to ensure that all *tree trunk* locations and the canopy *widths* of all *trees* or groups of *trees* to be preserved within the development (and adjoining properties, if appropriate) are clearly identified and accurately plotted on any such plans.

In addition, those plans shall clearly indicate to scale the extent and location of any *tree* protection zones to be erected around protected *tree/s*.

### 2) Verification of Tree Protection

The project manager or *arborist* may be **REQUIRED** as a condition of consent to verify, in writing, that all requested tree protection conditions (eg, *tree* protection fencing, *pruning*, erosion control) have been complied with prior to commencement and during the course of works.

### 3) Pre-construction Meeting

The applicant is requested in the first instance to review their conditions of development consent for clarification on tree matters, as requirements can vary from site to site.

The DA may require the property owner, construction supervisor and project *arborist* to meet with Council's Landscape Development Officer on-site prior to the commencement (or during critical stages) of works to review procedures, assess *tree* protection measures, and to ensure that the installation of *tree* protection zones has been complied with.

The property owner is advised to pay particular attention to issues such as site access and machinery access requirements, as well as soil/materials storage areas.

#### 4) Protective Fencing for Protected/Designated Trees and Street Trees

Wherever practicable, fenced enclosures are **REQUIRED** to be erected around *trees* to be protected to achieve three primary objectives:

- To keep canopies and branches clear from contact by equipment, materials and activities;
- To preserve *tree* roots and surrounding soil in a non-compacted state;
- To clearly identify the Tree Protection Zone where no soil disturbance or activities are permitted.



**FIGURE 1.5 Tree Protection Fence on Nature Strip**

##### ○ Size and Type of Fence

Fencing is **REQUIRED** to be constructed from 1.8-metre high chain link wire or welded mesh suspended by galvanised steel pipe or equivalent (Figure 1.5 above) and it is **RECOMMENDED** that it should be erected (wherever possible) directly underneath the dripline of any trees to be retained.

Fencing is **REQUIRED** to be erected before demolition, grading or construction works begin and shall remain in place until the completion of ALL works.

Signs are **REQUIRED** to be prominently displayed on these fences and must clearly display the following wording - 'Tree Protection Zone – Keep Out' (Figure 1.6 below).

The enclosed area is **REQUIRED** to be mulched, irrigated and kept free from building materials and/or contaminants and must not be used for storage of any building materials.

#### ○ Trunk Protection Measures

Where it is not possible or it is impractical to install *tree* protection fencing, *trunk* protection measures are **REQUIRED** to be undertaken. Lengths of timber (100mm x 50mm x 2000mm) should be used to protect the *tree's trunk* during construction works. The lengths of timber should be laid over geo-textile, underfelt or layers of hessian and fastened around the *trunk* at 200mm centres with hoop iron strapping or similar.



**FIGURE 1.6** Tree Protection Zone signage

### 5) Tree Protection Zone

Tree Protection Zones are areas specifically set aside to ensure that retained *trees* are adequately protected during development and construction activities. Each *tree* to be retained is **REQUIRED** to have a designated Tree Protection Zone segregating an area sufficiently large enough to protect the *tree* and its roots from disturbance or damage.

The **REQUIRED** Tree Protection Zone for any *tree* should wherever possible extend to at least the dripline of any protected *tree*. Where this is not possible the zone should extend as far as possible in all directions from the *trunk* of the *tree*.

The Tree Protection Zone shall be clearly shown on all site plans for the development.

- **Mulching**

Wherever *tree* protection fencing is installed, the area inside the Tree Protection Zone is **REQUIRED** to be mulched to a depth of at least 100mm or more using composted green waste mulch. The mulch should be free of weed seeds and other contaminants.

- **Soil Compaction**

During construction works there may be considerable traffic movement associated with general construction activities. Reducing traffic volumes and limiting machinery and vehicular access to specified tracks will reduce the effect on adjacent *trees*.

Should heavy and regular vehicular access be required onto the site, it is **RECOMMENDED** that an access track should be formed using large diameter railway ballast (100mm) over a geo-fabric or a corduroy of heavy timbers.

- **Irrigation**

Where the construction process reduces water availability to a retained *tree*, it is **REQUIRED** that temporary irrigation be provided to the *tree*'s root zone to maintain adequate soil moisture levels.

- **Erosion Control**

If a retained *tree* is adjacent to or in the immediate vicinity of a graded slope of eight degrees or more, approved erosion control or silt barriers are **REQUIRED** to be installed outside the Tree Protection Zone to prevent siltation and/or erosion within that zone.

Activities prohibited within the Tree Protection Zone include:

- Storage of building materials, refuse, excavated spoils or dumping of toxic materials on or around *trees* and *tree* roots. Toxic materials include, but are not limited to, paint, petroleum products, concrete, stucco mix, dirty or contaminated water or any other material which may be detrimental to *tree* health;
- The use of *tree trunks* as a winch support, anchorage, as a temporary power pole, sign post or other similar function;
- Severing of *tree* roots by utility trenching, foundation excavation, placement of kerbs and other miscellaneous excavation without Council approval;
- Soil, grade or drainage changes – particularly altering soil levels by any more than 200mm, as this could lead to the death of any adjacent vegetation.

Any approved excavation within a development site which is required for footings, structures, retaining walls, basement car parks, services, pipes, detention tanks, stormwater infiltration systems, paving, etc, shall be undertaken by hand and only under the direction of a *qualified arborist*, with all roots being cleanly cut where required.

## STREET TREES AND DEVELOPMENT

Where established Council owned street *trees* are designated for retention, protective fencing is **REQUIRED** to be constructed around any such *trees*. This fencing is to be erected before demolition, grading or construction works begin and shall remain in place until the completion of ALL works.

The fencing is **REQUIRED** to be constructed from 1.8-metre high chain link wire or welded mesh suspended by galvanised steel pipe or equivalent and it is **RECOMMENDED** that it should be erected (wherever possible) directly underneath the dripline extremity of any street *tree/s* to be retained.

Signs are **REQUIRED** to be prominently displayed on these fences which clearly display the following wording - 'Tree Protection Zone – Keep Out'.

The enclosed area underneath any street *tree* is **REQUIRED** to be mulched and kept free from building materials and/or contaminants and must not be used for storage of any building materials.

A refundable deposit in the form of cash, cheque or bank guarantee will often be **REQUIRED** to be lodged with Council to ensure compliance with relevant consent conditions and, ultimately, to ensure the retention of protected street *tree/s*.

This deposit will be eligible for refund at the completion of all site works, but only after a satisfactory inspection of any protected street *tree/s* has been completed by Council's Landscape Development Officer.

The contravention of any Council development consent conditions relating to a protected *tree* at any time during the course of works may result in Council claiming all or part of any lodged security in order to perform any rectification works required.

## STREET TREE REMOVAL

If Council authorises the *removal* of a street *tree* as part of a development approval, it shall detail the *tree removal/replacement* requirements in writing in the development consent document. This is often applicable where approved development includes the construction of a driveway crossover into a property.

The cost to the property owner to *remove* a Council *tree* asset is determined by calculating the amenity value of the subject *tree/s*, with this value then being amalgamated with the cost for Council to *remove* the *tree* and to replace it (where appropriate) with another *tree/s* at the completion of works.

The amenity value of a *tree* or *trees* is calculated by utilising the draft Australian Standard *DR 99307 – Amenity Trees – Guide to Valuation* (refer to Appendix G) with the *removal* and/or replacement component being calculated by the assessing Council officer.

Where the subject street *tree* is diseased or dying or is an 'undesirable species' no amenity value will be incorporated into any such calculation.

The total cost of such work is **REQUIRED** to be paid to Council by the property owner prior to any approved *removal/replacement* works being undertaken by Council.

Unless otherwise specified, all work undertaken on Council street tree assets shall only be performed by Council or its authorised agents.

All Council *tree* assets that are *removed* as part of Council's ongoing *tree* maintenance regime are to be *removed* in compliance with adopted Council policies and procedures and all such works are to comply with the appropriate Australian Standard.

### STREET TREE ROOTS AND PUBLIC/PRIVATE INFRASTRUCTURE

Conflicts often arise when Council street *trees* are growing adjacent to paving, driveways, footpaths, kerb and gutter and other public and private infrastructure. Careless or improper *removal* of these elements may cause severe injury to the roots and instability or even the death of affected *trees*.

The following measures must therefore be evaluated before the root cutting of any Council street *tree* asset is undertaken.

- Grinding raised footpath and/or driveway slabs
- Substituting concrete with asphalt where possible
- Re-directing the footpath or kerb and gutter around or away from *tree* roots
- Installing flexible or rubberised footpath sections

Where these options are not feasible and *tree* roots are required to be severed, the following procedure is **REQUIRED** to be complied with by both Council staff and/or contractors:

1. Roots less than 50mm in diameter may be severed without a Council *tree* officer or *arborist* in attendance but must be cleanly cut with appropriately sharp tools;
2. Roots greater than 50mm in diameter are only to be severed with the approval of a Council *tree* officer who has assessed the *tree/s* on-site;
3. All roots to be severed are to be cleanly cut with sharp tools such as secateurs, hand saws, long handled pruners, chainsaws, or specialised root *pruning* equipment;
4. Wherever possible, the roots to be *pruned* should be located and exposed using techniques such as hand digging, compressed air or water jetting, or mapped using non-invasive methods such as ground penetrating radar.

Prior to the root pruning of ANY Council tree asset, detailed calculation of the tree's Structural Root Zone (SRZ) area must be undertaken to determine whether any required root cutting is actually feasible.

It is generally accepted that twenty percent (20%) root loss can be tolerated by most tree species and that wind throw is unlikely where any excavation takes place outside Structural Root Zone offsets.

However, wherever possible, no root pruning activities should take place within the following recommended radial distances from any Council owned tree on public land:

Trunk Diameter @ DBH	Restricted Radial Distance
Less than 200mm	2 metres
Between 200mm – 400mm	3 metres
Greater than 400mm	4 metres

If the amount of root material requiring removal exceeds twenty percent of the Structural Root Zone area, particularly in the case of large *Ficus macrocarpa* var. 'Hillii' (Hill's Weeping figs), then a report is to be prepared for Council recommending the removal and replacement of any such tree/s because root pruning would not be a viable management option.

This procedure is certainly **REQUIRED** to be implemented in cases where public tree roots are causing damage to private property, where any such damage extends beyond simply causing minor damage to front fences, driveways, etc, to causing actual damage **WITHIN** the property.

A more detailed overview of the methodology utilised in the calculation of SRZ and TPZ radiuses is contained in Appendix F of this document.

When Council staff and/or contractors are removing footpath slabs, driveways, kerb and gutter, road pavement sections or foundations located above *tree* roots, the following procedure is **REQUIRED** to be adhered to wherever possible:

1. Break concrete, bitumen, sandstone, etc, into manageable pieces with a jackhammer, crowbar or mattock and load pieces onto a truck or loader;
2. Footpath slabs or driveway slabs should only be removed by a backhoe or bobcat if that machinery can undertake those works without driving on or manoeuvring over *tree* roots;
3. If hardscape materials are to be loaded onto a truck or loader those vehicles must remain on undisturbed footpath or the adjacent roadway during loading operations.

## **REFERENCES**

Ausgrid (2012), *Network Management Plan* - [www.ausgrid.com.au](http://www.ausgrid.com.au)

Ausgrid (2014), *Tree Trimming and Powerlines* – [www.ausgrid.com.au](http://www.ausgrid.com.au)

Australian Standard AS 4373 – 2007 – *Pruning of Amenity Trees*. Standards Association of Australia. Sydney.

Australian Standard AS 4970 – 2009 – *Protection of Trees on Development Sites*. Standards Association of Australia. Sydney.

Australian Standard (Draft) DR 99307 – *Amenity Trees – Guide to Valuation*, Standards Association of Australia. Sydney.

City of Palo Alto (2001), *Tree Technical Manual* (First Edition), Palo Alto, California.

Newcastle City Council (2005), *Newcastle DCP 2005*, Newcastle City Council.

Newcastle City Council (2007), *Newcastle Urban Forest* (draft policy), Newcastle City Council.

Newcastle City Council (2007), *Newcastle Urban Forest Technical Manual*, Newcastle City Council.

Randwick City Council (2004), *Randwick Street Tree Masterplan*, Randwick City Council.

Randwick City Council (2007), *Street Tree Identification Manual*, Randwick City Council.

Randwick City Council (2007), *Register of Significant Trees*, Randwick City Council.

Randwick City Council (2012), *Randwick Local Environmental Plan 2012*, Randwick City Council.

Randwick City Council (2013), *Randwick Comprehensive Development Control Plan 2013*, Randwick City Council.

Statewide (2003), *Best Practice Manual - Trees and Tree Root Management* (Version 2) – Statewide. Sydney.

## APPENDIX A

### Clauses 5.9 and 5.9AA – Randwick Local Environmental Plan 2012

#### 5.9 Preservation of trees or vegetation

- (1) The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation.
- (2) This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council.

**Note.** A development control plan may prescribe the trees or other vegetation to which this clause applies by reference to species, size, location or other manner.

- (3) A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation to which any such development control plan applies without the authority conferred by:
  - (a) development consent, or
  - (b) a permit granted by the Council.
- (4) The refusal by the Council to grant a permit to a person who has duly applied for the grant of the permit is taken for the purposes of the Act to be a refusal by the Council to grant consent for the carrying out of the activity for which a permit was sought.
- (5) This clause does not apply to a tree or other vegetation that the Council is satisfied is dying or dead and is not required as the habitat of native fauna.
- (6) This clause does not apply to a tree or other vegetation that the Council is satisfied is a risk to human life or property.
- (7) A permit under this clause cannot allow any ringbarking, cutting down, topping, lopping, removal, injuring or destruction of a tree or other vegetation:
  - (a) that is or forms part of a heritage item or that is within a heritage conservation area, or
  - (b) that is or forms part of an Aboriginal object or that is within an Aboriginal place of heritage significance, unless the Council is satisfied that the proposed activity:
    - (c) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area, and
    - (d) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area.

**Note.** As a consequence of this subclause, the activities concerned will require development consent. The heritage provisions of clause 5.10 will be applicable to any such consent.

- (8) This clause does not apply to or in respect of:
  - (a) the clearing of native vegetation:
    - (i) that is authorised by a development consent or property vegetation plan under the [Native Vegetation Act 2003](#), or
    - (ii) that is otherwise permitted under Division 2 or 3 of Part 3 of that Act, or

(b) the clearing of vegetation on State protected land (within the meaning of clause 4 of Schedule 3 to the [Native Vegetation Act 2003](#)) that is authorised by a development consent under the provisions of the [Native Vegetation Conservation Act 1997](#) as continued in force by that clause, or

(c) trees or other vegetation within a State forest, or land reserved from sale as a timber or forest reserve under the [Forestry Act 1916](#), or

(d) action required or authorised to be done by or under the [Electricity Supply Act 1995](#), the [Roads Act 1993](#) or the [Surveying and Spatial Information Act 2002](#), or

(e) plants declared to be noxious weeds under the [Noxious Weeds Act 1993](#).

**Note.** Permissibility may be a matter that is determined by or under any of these Acts.

(9) [Not applicable]

**Note.** See Part 3 of Schedule 1 to the [Native Vegetation Act 2003](#).

### **5.9AA Trees or vegetation not prescribed by development control plan**

(1) This clause applies to any tree or other vegetation that is not of a species or kind prescribed for the purposes of clause 5.9 by a development control plan made by the Council.

(2) The ringbarking, cutting down, topping, lopping, removal, injuring or destruction of any tree or other vegetation to which this clause applies is permitted without development consent.

## APPENDIX B

### Part B5 – Randwick Comprehensive Development Control Plan 2013

#### Preservation of Trees and Vegetation

**B5**

## 1 Introduction

A healthy urban forest provides significant aesthetic, ecological and environmental benefits to residents, workers and visitors of Randwick City. It is of vital importance to protect and enhance the City's urban environment through long term preservation and management of trees and other vegetation in our urban forest.

This DCP section applies to trees and other vegetation in Randwick City and supplements the RLEP Clause 5.9 (Preservation of Trees or Vegetation) by specifying additional types of tree works which require Council approval and providing detailed guidance for preparation of applications seeking Council approval.

This section of the DCP should be read in conjunction with:

- Part A - Introduction and other sections in Part B - General Controls (e.g. B4 – Landscaping and Biodiversity) ; and
- Other sections of the DCP for specific development types, locations or sites, if relevant to the DA.

### 1.1 Objectives

- To effectively protect the urban forest in Randwick City, with particular emphasis on retaining trees with cultural, heritage and natural significance.
- To encourage the preservation of trees and vegetation that contribute to native flora and fauna habitat.
- To establish a clear framework and requirements for the proper management of trees and other vegetation.

## 2 Tree works requiring Council approval

RLEP sets out circumstances where development consent is required for carrying out tree works, such as works proposed to a heritage item, in a heritage conservation area, or at locations with acid sulfate soils. Clause 5.9 of the RLEP requires listing of additional circumstances in a DCP where Council approval is also required.

In response to Clause 5.9, this DCP further specifies that the following tree works require Council approval, either in the form of development consent or a tree permit, to ensure the appropriate preservation and maintenance of trees or vegetation with aesthetic, environmental and cultural values.

Refer to Appendix B5-1 for a list of matters to be considered by Council when determining applications seeking development consent or a tree permit.

**An urban forest is the totality of all trees and shrubs on public and private land in and around urban areas (including bushland, open space, gardens and street trees) measured by its canopy cover.**

**Tree works are works affecting the form, structure or foliage of a tree including root cutting, crown lifting, reduction pruning, selective pruning, crown thinning, remedial or restorative pruning or complete tree removal.**

## Preservation of Trees and Vegetation

**B5**

### Development consent

- i) Development consent is required for tree works to any tree listed on Council's Register of Significant Trees.

### Tree permit

- i) A tree permit must be obtained for tree works proposed to any of the following (when development consent is not required):
- a) any palm tree, cycad or tree fern of any size;
  - b) any tree on 'public land' (as defined in the *Local Government Act 1993*) by any persons not authorised by Council;
  - c) any hollow bearing trees; or
  - d) any other tree with:
    - a height equal to or exceeding 6 metres;
    - a canopy width equal to or exceeding 4 metres;
    - for a single trunk tree species, a trunk circumference equal to or exceeding one (1) metre at a height of one (1) metre above ground level; or
    - for a multi-trunk tree species, a combined trunk circumference (measured around the outer girth of the group of trunks) equal to or exceeding one (1) metre at a height of one (1) metre above ground level.

### Exceptions

RLEP Clause 5.9 also specifies numerous exceptions where Council approval is not required, for example:

- if the tree is dying or dead, and is not required as the habitat of native fauna;
- if the tree is a risk to human life or property; or
- exceptions under other legislation.

This DCP identifies the following additional exceptions, such as works which are considered of a minor nature or where Council approval is not necessary. Prior written notification however must be made to Council before any work is carried out, providing information such as tree species, reasons for proposed works and digital photos.

The additional exceptions include:

- i) Tree works to undesirable species as listed in Appendix B5-2;
- ii) Minor or maintenance tree works, including :
  - a) crown thinning by a maximum 10% of the existing canopy in any two year period;
  - b) the pruning of deadwood more than 50mm in diameter;
  - c) the removal of live branches to a height of 2.5 metres from ground level; and

#### Note:

All trees listed on Council's Register of Significant Trees are considered to have historic, cultural and natural significance. The Register can be viewed at Council's website.

#### Note:

Refer to the website of Office of Environment and Heritage (OEH): <http://www.environment.nsw.gov.au/determinations/lossofhollowtreesktp.htm> and <http://www.environment.nsw.gov.au/resources/pnf/07353hollowtrees.pdf> for details on how to identify hollow bearing trees.

#### Note:

Refer to the information sheet prepared by the OEH (<http://www.environment.nsw.gov.au/resources/cpp/AssessHabitat.pdf>) for guidance on how to identify if a tree or vegetation is required as habitat of native fauna.

## Preservation of Trees and Vegetation

## B5

- d) formative pruning of young trees and powerline clearance, as defined in Australian Standard AS 4373 – 2007 - *Pruning of Amenity Trees*;

Note: For minor/maintenance works to a heritage item, in a heritage area or in an Aboriginal place of heritage significance, Council must be notified of and support in writing the proposed activity before any work is carried out.

Note:

Refer to RLEP Clause 5.10 Heritage Conservation (3)(a) for specific requirements.

- iii) The removal of any tree growing within two (2) metres of any building (excluding an outbuilding) measured horizontally from the closest point of the trunk at one (1) metre from ground level to the closest point of the vertical alignment of the building structure which may be the eave, guttering or fixed awning of the building.
- iv) Tree works to give effect to a development consent that permits the pruning or removal of the tree/s;

Note: If approval is given for the pruning and removal of tree/s as part of DA consent, tree works can only be carried out when construction work physically and substantially commences.

- v) Tree works on public land owned by or under the care, control and management of Council and carried out by persons authorised by Council;
- vi) Anything authorised by or under the *State Emergency and Rescue Management Act 1989* or *State Emergency Service Act 1989* in relation to an emergency (within the meaning of that Act) and that was reasonably necessary in order to avoid an actual or imminent threat to life or property; and
- vii) Any emergency fire fighting act or bush fire hazard reduction work within the meaning of the *Rural Fires Act 1997* that is authorised or required to be carried out under that Act.

Note:

Applicants must refer to other legislation and policies for requirements and controls where relevant, including the *National Park and Wildlife Act 1974 (NPW Act)*, *Threatened Species Conservation Act 1995 (TSC Act)*, *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, *State Environmental Planning Policy (SEPP) 19 Bushland in Urban Areas*, *SEPP 71 Coastal Protection and Recovery Plans* prepared by the NSW Office of Environment and Heritage. For example:

- Any proposed tree work involving a threatened species or an endangered population/ecological community or their habitats, are subject to Part 8A of the *NPW Act*, which requires any such work to be carried out with relevant approvals (e.g. development consent or a licence/certificate issued under the *TSC Act*).

- Under S5A of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*, where a development or activity (under Part 4 or 5 of the Act) is likely to significantly affect threatened species, populations, ecological communities or their habitats, assessment of likely impacts is required, which may also require a species impact statement prepared in accordance with the *TSC Act*. Refer to B4 of this DCP for controls on development in or near areas of biodiversity significance.
- *SEPP 19 – Bushland in Urban Areas* requires development consent for any disturbance of bushland zoned or reserved for public open space purposes. Tree works proposed in ‘bushland’ therefore could only be carried out with development consent.

### 3 Information required with applications

- i) Any application for a permit or development consent to carry out tree works must contain the following information, as a minimum:
  - a) written consent of the owner of the land where the tree is growing;
  - b) details of the reasons for the proposed tree works;
  - c) a description of the existing tree/s, including:
    - site plan showing the location of the tree/s to be removed or pruned, drainage and sewer pipes and mains, all buildings, paved areas and overhead powerlines;
    - species type (botanical name and common name, if known); and
    - approximate height, canopy spread and trunk diameter at one (1) metre above ground level of individual trees (or groups of trees). Trees to be inspected should be identified on site with tape, spray paint or non-permanent marker.
- ii) The following additional information is required when seeking development consent:
  - a) a description of existing trees (containing information as required above) on adjoining land:
    - within three (3) metres of the site boundaries (including street and park trees); or
    - where the canopy of a tree/s overhangs the site boundaries.
  - b) any proposed landscape treatments, identifying:
    - trees to be retained and protected;
    - methods of retention and/or protection during any works;

## Preservation of Trees and Vegetation

## B5

- proposed new plantings (species, mature heights and canopy spread);
  - altered soil levels, including cut and fill details;
  - site drainage, including siltation and erosion controls to be implemented where necessary; and
  - proposed horticultural details, including growing mediums, mulching and irrigation.
- iii) An Arborist's Report is required to be submitted with an application:
- a) for tree works to a tree on Council's Register of Significant Trees;
  - b) for tree works identified in Clause 5.9 (7) and 5.10 (2) of the RLEP, as activities requiring development consent; or
  - c) other circumstances where Council requires further information/clarification on the pruning or removal of the tree/s.

Refer to Appendix B5-3 for guidelines for preparing an Arborist's Report.

### Note:

Where a dangerous tree is removed in an emergency situation due to obvious instability or hazard (e.g. following storm damage), evidence of the tree's condition must be retained for a period of at least six (6) months after the event and provided to Council upon request.

### Such evidence should include:

- photographs of the tree/s; and/or
- a report by a qualified arborist; and/or
- a written statement from the State Emergency Service (SES), if the tree works are carried out by SES at the owner's request.

Except for specified emergency situations, expert advice from an arborist should always be obtained with respect to dangerous trees to confirm their condition and that they do not provide habitat for protected species.

Cutting or removal of threatened species, endangered communities, or their habitats, which pose a threat to life and property, can only be authorised to be done under the *State Emergency and Rescue Management Act 1989* or the *State Emergency Service Act 1989*. Otherwise, the action could be in breach of the *NPW Act* and penalty will apply.

## 4 Notification

In circumstances where an adjoining owner/s may be directly affected by a proposal relating to tree works, Council may determine to notify adjoining owner/s in accordance with the Public Notification section in Part A.

## Preservation of Trees and Vegetation

---

**B5**

However, if in the opinion of Council any proposed tree works are of a minor or ancillary nature and not likely to result in any adverse impacts on adjoining land, notification will not be required.

## 5 Penalties

Under Section 629 of the *Local Government Act 1993*, penalties may apply to the injury or unnecessary disturbance of plants in or from public place, including road reserves.

Under Sections 125 and 126 of the *Environmental Planning and Assessment Act 1979*, court action (in addition to any pecuniary penalty) may apply to the destruction of or damage to a tree or vegetation. Offenders may be required to rehabilitate the site, plant new trees and vegetation and maintain these until maturity,

Further penalties may also apply to the damage or removal of trees or vegetation covered by the *NPW Act*, *TSC Act* and the *EPBC Act*.

## Appendices

### Appendix B5-1: Matters Council considers for applications for a tree permit or development consent

The following matters are considered, but not limited to, when determining an application:

- i) whether the tree has significant amenity or aesthetic value or is ecologically significant, with particular emphasis placed on retaining trees listed on Council's Register of Significant Trees;
- ii) the condition, maturity and Safe Useful Life Expectancy (SULE) of the tree/s;
- iii) a report from a qualified arborist, if required;
- iv) whether the tree is affected by the provisions of any other Act, Regulation or State Environmental Planning Policy applying to the land;
- v) the potential hazards to persons and/or property in the context of:
  - a) the structural soundness of the particular tree (including condition of the canopy, amount of deadwood, any prolonged decline, significant and sustained insect attack, etc); and/or
  - b) the characteristics and risk potential of the particular species; and/or
  - c) siting issues such as ground conditions, building proximity, etc, which may give rise to a hazardous situation (particularly structural damage to public infrastructure and/or private property caused by the tree/s, its trunk or its root system); and/or
  - d) ill health, such as allergies, where specific evidence is provided by an expert in the relevant medical field and a link between the ailment and the species is reasonably established; and/or
  - e) existing (or potential for) traffic obstruction in relation to proximity to a roadway, intersection or driveway, where pruning would be an insufficient remedy;
- vi) the demonstrated need for reasonable solar access to windows, openings of a building, solar appliances, clothes drying and outdoor living areas;
- vii) whether a tree should be replaced by a more suitable species given its location or proximity to services such as overhead powerlines, sewer or drainage pipes or the like;
- viii) whether an amenity tree no longer fulfils its original purpose in the landscape;
- ix) whether the species' natural propagation method is likely to create a nuisance in the landscape (e.g. Camphor laurel, Hackberry and Sweet Pittosporum);
- x) whether the proposed work needs to be carried out by a suitably qualified and experienced person;
- xi) whether appropriate additional (or replacement) planting has been or should be undertaken;
- xii) the need for, and suitability of, soil erosion and siltation controls;
- xiii) whether permanent and/or temporary fencing or barriers are required prior to works commencing;

#### Note:

Relevant forms are 'Application for Permit to Prune/Remove Tree/s' and 'DA for Tree Works'. Both can be downloaded from Council's website.

## Preservation of Trees and Vegetation

## B5

- xiv) whether another alternative measure is required to ensure protection of trees on-site and on adjoining public land;
- xv) whether a tree or vegetation is or provides habitat of a threatened species or ecological communities listed in Schedule 1 or 2 of the *Threatened Species Conservation Act (TSC Act) 1995*;
- xvi) whether, prior to the felling of a tree, special measures should be in place to reduce the potential for injury or death of animals likely to inhabit the tree. Such measures may include:
  - a) inspection of hollows and other potential habitat sites on the tree;
  - b) sectional dismantling;
  - c) supervision of works by an arborist and/or a licensed wildlife carer or handler.

### Note:

Refer to the OEH website <http://www.environment.nsw.gov.au/threatenedspecies/> for threatened species identification (by region).

Note: Provided that no significant hazard or other safety issues are caused by the existing tree/s, the following should not generally be considered as valid reasons to remove a tree/s or native vegetation:

- i) leaf drop to gutters, downpipes, pools, lawns, etc.;
- ii) to increase natural light, where it is the sole consideration;
- iii) to improve street lighting into private property;
- iv) to enhance views or reduce the height of trees;
- v) to reduce shade created by a tree/s – particularly species such as *Ficus* or *Araucaria*;
- vi) to reduce fruit, resin or bird droppings falling onto driveways and/or cars;
- vii) minor lifting of driveways, front fences, paths and footpaths by tree roots;
- viii) to erect a fence;
- ix) bushfire hazard control, which has not been verified by Council; or
- x) potential damage to sewer mains or stormwater pipes, unless supported by written expert advice and only where reasonable alternatives are not feasible (e.g. relocation or encasement of mains and replacement of damaged pipes in PVC plastic).

## Preservation of Trees and Vegetation

## B5

### Appendix B5-2: Listing of undesirable species

Species name	Common name
<i>Ailanthus altissima</i>	Tree of Heaven
<i>Cotoneaster species</i>	Cotoneaster
<i>Erythrina species</i>	Coral tree
<i>Ficus elastica</i>	Rubber tree
<i>Ligustrum species</i>	Privet
<i>Nerium oleander</i>	Oleander
<i>Ochna serrulata</i>	Ochna
<i>Olea europa var. africana</i>	African Olive
<i>Schefflera actinophylla</i>	Umbrella tree
<i>Syagrus romanzoffianum</i>	Cocos Palm
<i>Alnus jorullensis</i>	Evergreen Alder
<i>Bambusa species</i>	Bamboo species
<i>Celtis occidentalis</i>	Hackberry
<i>Cupressocyparis x leylandii</i>	Leyland Cypress
<i>Lagunaria patersonia</i>	Norfolk Island Hibiscus
<i>Morus species</i>	Mulberry
<i>Populus species</i>	Poplars
<i>Salix species</i>	Willows
<i>Toxicodendron succedaneum</i>	Rhus tree

### Appendix B5-3: Guidelines for preparing an Arborist's Report

Where necessary, Council will require an arborist to prepare a tree/vegetation report and the minimum accepted qualification for an arborist is the Australian Qualification Framework level 4 (AQF4).

Where trees are listed on Council's Register of Significant Trees, a report must be prepared by a qualified arborist. The minimum accepted qualification for a qualified arborist is the Australian Qualification Framework level 5 (Diploma) (AQF5).

The following information is required to be included in any Arborist's Report:

- i) name, address, telephone number, ABN, qualifications and experience of the arborist who inspected the tree/s and prepared the report;
- ii) address of the site, where the tree/s are located;
- iii) who the report was prepared for, date site inspected, date report prepared and the aims of the report;
- iv) methods and/or techniques used in the inspection;
- v) a plan (to scale) accurately showing:
  - a) location of tree/s on the subject site and any adjoining trees which may be affected by any development. Trees identified on the plan shall be named and numbered;
  - b) optimum and minimum tree protection zones - if recommended by the arborist;
  - c) lot boundaries, dimensions and North point;
  - d) proposed development including services, driveways and any alteration to existing and proposed soil levels and drainage, as well as distances (in mm) between tree/s and works.
- vi) a table showing, for each tree to be pruned/removed:
  - a) number of the tree - as indicated in the plan;
  - b) species name;
  - c) conservation status (whether or not is a threatened species or a component of Endangered Ecological Community);

## Preservation of Trees and Vegetation

## B5

- d) age class;
- e) height;
- f) canopy width;
- g) trunk circumference at one (1) metre above ground level;
- h) health and condition, and estimated Safe Useful Life Expectancy.
- vii) a discussion of other relevant information, including details of tree hollows for wildlife, tree structure/defects, root form and distribution, pests and diseases and/or a Tree Hazard Assessment;
- viii) supporting evidence such as photographs and laboratory results to confirm the presence of soil pathogens or to support soil assessment, where relevant;
- ix) proposed replacement plantings, landscaping and/or soil remediation;
- x) tree protection measures and a post-construction tree maintenance program which can be used as development consent conditions, should the application be approved;
- xi) sources of information referred to in the report;
- xii) measures to minimise impacts of proposed/approved development - eg, footing designs, excavation techniques, vents to atmosphere, etc;
- xiii) any other relevant matters or information such as Resistograph or Picus Sonic Tomograph reports.

Qualified arborists and their contact details may be obtained from the Institute of Australian Consulting Arboriculturists (IACA) ([www.iaca.org.au](http://www.iaca.org.au)) or from Arboriculture Australia ([www.arboriculture.org.au](http://www.arboriculture.org.au)).

These organisations are not specifically recommended and Council will accept arborist's reports from any registered member of a nationally recognised arboricultural organisation or association.

### Appendix B5-4: Definitions

**Dead tree** means a tree with no living vascular tissue.

**Destroy** means any activity leading to the death, disfigurement or mutilation of a tree.

**Height** means the distance measured vertically between the horizontal plane of the lowest point of the base of the tree/s which is immediately above ground level and the horizontal plane of the uppermost point of the tree/s.

**Injury or injuring** means damage to a tree and includes:

- a) lopping and topping;
- b) poisoning, including applying herbicides and other plant toxic chemicals to a tree or spilling (including washing off or directing water contaminated by) oil, petroleum, paint, cement, mortar and the like onto the root zone;
- c) cutting and tearing of branches and roots that is not carried out in accordance with accepted arboricultural practices, does not qualify as 'pruning' (as defined within AS 4373 – 2007 – Pruning of Amenity Trees), or which is done for invalid reasons;
- d) ringbarking, scarring the bark when operating machinery, fixing objects (eg, signs) by nails, staples or wire, using tree climbing spikes in healthy trees marked for retention (except for access to an injured tree worker) or fastening materials that circle and

## Preservation of Trees and Vegetation

**B5**

significantly restrict the normal vascular function of the trunk or branches;

- e) damaging a tree's root zone by compaction, excavation or asphyxiation (including unauthorised filling or stockpiling of materials);
- f) underscrubbing, particularly carried out by mechanical tools such as brushcutters and the like.

**Lopping** means the cutting of branches or stems between branch unions or at internodes on trees.

**Prune or pruning** means cutting branches from a tree/s in a planned and systematic manner that is carried out in accordance with the provisions of Australian Standard AS 4373 - 2007 - Pruning of Amenity Trees, and which consists of the following pruning types:

- a) Crown maintenance pruning involving:
  - General pruning
  - Thinning
  - Deadwooding
  - Selective pruning
  - Formative pruning

(Crown maintenance pruning relates to pruning according to the growth habit of the tree/s without reducing the area of the crown, while retaining the structure and size of the tree/s.)

- b) Crown modification pruning involving:
  - Reduction pruning
  - Crown lifting
  - Pollarding
  - Remedial pruning
  - Powerline clearance

(Crown modification pruning relates to pruning that changes the structural appearance and habit of the tree/s.)

**Remove or removal** means to cut down, fell, destroy, kill, take away, uproot or transplant a tree from its place of origin.

**Topping** means cutting away part or all of the tree canopy, leaving a trunk and stubbed main branches.

**Tree works** are works affecting the form, structure or foliage of a tree including root cutting, crown lifting, reduction pruning, selective pruning, crown thinning, remedial or restorative pruning or complete tree removal.

**Trunk** means the main stem of the tree, as distinguished from the branches and roots.

**Undesirable species** are plants listed in this control which are deemed undesirable due to characteristics which may lead to poisoning, weed infestation, brittle and dangerous wood, excessive spread of roots or bushland invasion.

**Width** means the distance measured horizontally (in metres) between the two (2) widest points of a tree's canopy.

## APPENDIX C

### LEGISLATION, PLANNING INSTRUMENTS AND COUNCIL DOCUMENTS APPLYING TO TREE REMOVAL/PRUNING

Applications for tree pruning and/or removal need to comply with the provisions of a range of legislation, planning instruments and Council policies, control plans and documents including, but not limited to, the following:

- *National Parks and Wildlife Act 1974* - fauna, fauna habitat, protected plants
- *Threatened Species Conservation Act 1995* – State legislation covering ecological communities, critical habitat, endangered and vulnerable species, key threatening processes, recovery plans
- *Environmental Protection and Biodiversity Conservation Act 1999* – Commonwealth legislation covering ecological communities, critical habitat, endangered and vulnerable species, key threatening processes, recovery plans
- *Environmental Planning and Assessment Act 1979* – State legislation which works in conjunction with the *Threatened Species Conservation Act 1995* and the *National Parks and Wildlife Act 1974* in relation to endangered or threatened organisms
- *Native Vegetation Act 2003* - clearing native vegetation, regional vegetation management plans, property agreements
- *Rural Fires Act 1997* - authorised removal of fire hazards
- *New South Wales Heritage Act 1977* (Sections 129A and 139) - sites under conservation orders, relics
- *Noxious Weeds Act 1993* – clearing/removal of noxious weeds
- *State Environmental Planning Policy (SEPP) No 19 – Bushland in Urban Areas*
- Randwick Local Environmental Plan (LEP) 2012
- Randwick Comprehensive Development Control Plan (DCP) 2013
- Clause 5.9 of the Randwick Local Environmental Plan 2012 and Part B5 of the Randwick Development Control Plan 2013 – [www.randwick.nsw.gov.au](http://www.randwick.nsw.gov.au) / Council Services / Greening Our City / Trees / Preservation of trees and vegetation
- Randwick Street Tree Masterplan – [www.randwick.nsw.gov.au](http://www.randwick.nsw.gov.au) / Council Services / Greening Our City / Trees / Street Tree Masterplan
- Street Tree Identification Manual – [www.randwick.nsw.gov.au](http://www.randwick.nsw.gov.au) / Council Services / Greening Our City / Trees / Street Tree Identification Manual
- Register of Significant Trees – [www.randwick.nsw.gov.au](http://www.randwick.nsw.gov.au) / Council Services / Greening Our City / Trees / Significant Tree Register

## APPENDIX D

### AUSTRALIAN STANDARD – AS 4373 - 2007 - PRUNING OF AMENITY TREES

Committees of experts from industry, government, consumers and other relevant stakeholders prepare Australian Standards. The requirements and recommendations contained in any published Standard reflect the latest scientific and industry knowledge and expertise.

Australian Standards are continually reviewed after their publication and are regularly updated to reflect changing technology and improved industry standards. For further information on *AS 4373 – 2007 – Pruning of Amenity Trees* or to purchase a copy of that document, log onto [www.standards.org.au](http://www.standards.org.au)

The objective of *AS 4373 – 2007 – Pruning of Amenity Trees* is to provide arborists, tree workers, government departments, property owners and contractors with a guide that defines uniform tree pruning procedures and practices in order to minimise any adverse or negative impacts that pruning may have on trees.

The Standard promotes practices that reduce the risk of hazard development, branch failure, disease infection and premature tree death. Procedures recommended in the Standard are guided by the theories of branch attachment and compartmentalisation of wounds and decay in trees. Discredited practices such as lopping, topping and flush cutting are unacceptable and are excluded from the Standard.

Although guidelines on root pruning are not included in the document, a general outline of the practice is included.

There are three procedures detailed in *AS 4373 – 2007 - Pruning of Amenity Trees* from which a property owner is exempt from having to receive a permit or consent from Council to undertake. These are formative pruning of young trees, deadwooding and powerline clearance.

A brief outline of these practices is detailed below but a comprehensive description of all three pruning techniques is contained within *AS 4373 – 2007 - Pruning of Amenity Trees*.

- **Formative pruning of young and developing trees**

This involves the removal of selected branches on trees less than six (6) metres in height and/or four (4) metres in canopy width to enhance the form and structure of a tree.

- **Deadwooding**

Deadwooding involves the removal of any dead branches within the canopy of a tree. The removal of ALL dead branches larger than 50mm in diameter from within the canopy of any tree is strongly recommended by Council.

- **Powerline Clearance**

This pruning involves the removal of tree branches from around overhead powerlines and domestic service wires to maintain statutory clearances.

The clearance required for service wires is half a metre (500mm) all round. Property owners should refer to Ausgrid for statutory powerline clearance requirements but are strongly advised never to undertake any such works themselves.

**Pruning branches away from overhead powerlines and service wires should only ever be undertaken by fully qualified professionals.**

## APPENDIX E

## RECOMMENDED SPECIES LIST - CHARACTERISTICS SUMMARY

Species	Mature Dimensions (metres)	Native/ Exotic	Evergreen/ Deciduous	Potential Root Problems	Fruit/Leaf Drop Severity	Typical Lifespan (years)
<i>Acmena smithii</i> (Lilly Pilly)	10m x 5m	Native	Evergreen	Minor	Severe	70+
<i>Agonis flexuosa</i> (Willow Myrtle)	6m x 5m	Native	Evergreen	Minor	Minor	40-70
<i>Albizia julibrissin</i> (Silk Tree)	5m x 4m	Exotic	Deciduous	Minor	Minor	40-70
<i>Angophora costata</i> (Sydney Red Gum)	18m x 9m	Native	Evergreen	Moderate	Minor	70+
<i>Angophora hispida</i> (Dwarf Apple Gum)	4m x 3m	Native	Evergreen	Minor	Minor	40-70
<i>Araucaria heterophylla</i> (Norfolk Island Pine)	25m x 10m	Native	Evergreen	Moderate	Minor	70+
<i>Backhousia citriodora</i> (Sweet Verbena Tree)	10m x 4m	Native	Evergreen	Minor	Minor	40-70
<i>Banksia aemula</i> (Wallum Banksia)	4m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Banksia ericifolia</i> (Heath Banksia)	3m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Banksia integrifolia</i> (Coastal Banksia)	9m x 6m	Native	Evergreen	Moderate	Minor	70+
<i>Banksia marginata</i> (Silver Banksia)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Banksia robur</i> (Swamp Banksia)	2m x 1m	Native	Evergreen	Minor	Minor	<40
<i>Banksia serrata</i> (Old Man Banksia)	7m x 4m	Native	Evergreen	Minor	Minor	40-70
<i>Banksia spinulosa</i> (Hairpin Banksia)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Bauhinia x blakeana</i> (Orchid Tree)	6m x 5m	Exotic	Evergreen	Moderate	Moderate	40-70
<i>Brachychiton acerifolius</i> (Illawarra Flame Tree)	10m x 5m	Native	Deciduous	Minor	Minor	70+
<i>Brachychiton discolor</i> (Lacebark)	10m x 6m	Native	Deciduous	Minor	Minor	70+
<i>Brachychiton populneus</i> (Kurrajong)	10m x 6m	Native	Evergreen	Minor	Minor	70+
<i>Buckinghamia celsissima</i> (Ivory Curl Flower)	5m x 3m	Native	Evergreen	Minor	Moderate	40-70
<i>Callicoma serratifolia</i> (Black Wattle)	10m x 4m	Native	Evergreen	Minor	Moderate	40-70
<i>Callistemon citrinus</i> (Crimson Bottlebrush)	4m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Callistemon Harkness</i> (Harkness Bottlebrush)	6m x 4m	Native	Evergreen	Minor	Minor	<40
<i>Callistemon 'Kings Park Special'</i> (KPS Bottlebrush)	5m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Callistemon pearsonii</i> (Pearson's Bottlebrush)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Callistemon pinifolius</i> (Green Bottlebrush)	2m x 1.5m	Native	Evergreen	Minor	Minor	<40
<i>Callistemon salignus</i> (White Bottlebrush)	6m x 4m	Native	Evergreen	Moderate	Minor	40-70
<i>Callistemon viminalis</i> (Weeping Bottlebrush)	8m x 5m	Native	Evergreen	Moderate	Minor	40-70
<i>Calodendron capense</i> (Cape Chestnut)	8m x 6m	Exotic	Evergreen	Moderate	Moderate	70+
<i>Ceratonia siliqua</i> (Carob Tree)	7m x 5m	Exotic	Evergreen	Moderate	Moderate	70+
<i>Ceratopetalum apetalum</i> (Coachwood)	10m x 5m	Native	Evergreen	Minor	Moderate	70+
<i>Corymbia citriodora</i> (Lemon-scented Gum)	20m x 10m	Native	Evergreen	Moderate	Minor	70+
<i>Corymbia eximia</i> (Yellow Bloodwood)	10m x 5m	Native	Evergreen	Minor	Minor	40-70
<i>Corymbia ficifolia</i> (WA Flowering Gum)	6m x 4m	Native	Evergreen	Minor	Minor	40-70
<i>Corymbia gummifera</i> (Red Bloodwood)	9m x 6m	Native	Evergreen	Minor	Minor	70+
<i>Corymbia maculata</i> (Spotted Gum)	20m x 10m	Native	Evergreen	Moderate	Moderate	70+
<i>Cupaniopsis anacardioides</i> (Tuckeroo)	6m x 5m	Native	Evergreen	Moderate	Minor	40-70
<i>Decussocarpus falcatus</i> (Yellow Wood)	12m x 7m	Exotic	Evergreen	Severe	Severe	70+
<i>Delonix regia</i> (Royal Poinciana)	8m x 7m	Exotic	Deciduous	Moderate	Moderate	40-70
<i>Elaeocarpus reticulatus</i> (Blueberry Ash)	7m x 4m	Native	Evergreen	Minor	Moderate	40-70
<i>Eucalyptus botryoides</i> (Bangalay)	20m x 9m	Native	Evergreen	Moderate	Minor	70+
<i>Eucalyptus cinerea</i> (Argyle Apple)	8m x 6m	Native	Evergreen	Moderate	Minor	40-70
<i>Eucalyptus globoidea</i> (White Stringybark)	10m x 6m	Native	Evergreen	Moderate	Minor	40-70
<i>Eucalyptus haemastoma</i> (Scribbly Gum)	8m x 6m	Native	Evergreen	Minor	Minor	70+
<i>Eucalyptus leucoxydon</i> (Yellow Gum)	8m x 5m	Native	Evergreen	Minor	Minor	40-70
<i>Eucalyptus luehmanniana</i> (Yellow Top Mallee Ash)	4m x 3m	Native	Evergreen	Minor	Minor	40-70
<i>Eucalyptus mannifera</i> (Red Spotted Gum)	10m x 6m	Native	Evergreen	Minor	Minor	70+
<i>Eucalyptus obtusiflora</i> (Port Jackson Mallee)	3m x 2m	Native	Evergreen	Minor	Minor	40-70
<i>Eucalyptus piperita</i> (Sydney Peppermint Gum)	9m x 5m	Native	Evergreen	Minor	Minor	70+
<i>Eucalyptus punctata</i> (Grey Gum)	12m x 7m	Native	Evergreen	Moderate	Moderate	70+
<i>Eucalyptus robusta</i> (Swamp Mahogany)	18m x 10m	Native	Evergreen	Severe	Moderate	70+
<i>Eucalyptus sideroxydon</i> (Mugga Mugga Ironbark)	15m x 8m	Native	Evergreen	Moderate	Moderate	70+
<i>Eucalyptus sieberi</i> (Silvertop Ash)	9m x 5m	Native	Evergreen	Moderate	Moderate	70+
<i>Eucalyptus squamosa</i> (Scaly Bark Gum)	9m x 5m	Native	Evergreen	Minor	Minor	40-70
<i>Feijoa sellowiana</i> (Fruit Salad Tree)	4m x 3m	Exotic	Evergreen	Minor	Moderate	40-70

## RECOMMENDED SPECIES LIST - CHARACTERISTICS SUMMARY

Species	Mature Dimensions (metres)	Native/ Exotic	Evergreen/ Deciduous	Potential Root Problems	Fruit/Leaf Drop Severity	Typical Lifespan (years)
<i>Ficus macrophylla</i> (Moreton Bay fig)	20m x 25m	Native	Evergreen	Severe	Excessive	70+
<i>Ficus rubiginosa</i> (Port Jackson fig)	18m x 14m	Native	Evergreen	Severe	Excessive	70+
<i>Ficus superba</i> var. <i>henneana</i> (Deciduous Fig)	10m x 8m	Native	Deciduous	Severe	Excessive	70+
<i>Flindersia australis</i> (Australian Teak)	12m x 5m	Native	Evergreen	Moderate	Minor	70+
<i>Fraxinus griffithii</i> (Evergreen Ash)	6m x 4m	Exotic	Evergreen	Minor	Minor	40-70
<i>Geijera parviflora</i> (Wilga)	6m x 4m	Native	Evergreen	Minor	Minor	40-70
<i>Gleditsia triacanthos</i> 'Sunburst' (Honey Locust)	8m x 6m	Exotic	Deciduous	Minor	Minor	40-70
<i>Glochidion ferdinandi</i> (Cheese Tree)	10m x 6m	Native	Evergreen	Moderate	Moderate	40-70
<i>Grevillea banksii</i> (Banks's Grevillea)	4m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Grevillea</i> 'Honey Gem' (Honey Gem Grevillea)	3m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Grevillea linearifolia</i> (Spider Grevillea)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Grevillea</i> 'Misty Pink' (Misty Pink Grevillea)	3m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Harpulia pendula</i> (Tulipwood)	10m x 6m	Native	Evergreen	Minor	Minor	40-70
<i>Hibiscus tileaceus</i> 'Rubra' (Red-leafed Hibiscus)	5m x 4m	Native	Evergreen	Moderate	Moderate	40-70
<i>Hibiscus tileaceus</i> (Cottonwood)	7m x 5m	Native	Evergreen	Moderate	Moderate	40-70
<i>Hymenosporum flavum</i> (Native Frangipani)	6m x 3m	Native	Evergreen	Minor	Minor	40-70
<i>Jacaranda mimosifolia</i> (Jacaranda)	10m x 8m	Exotic	Deciduous	Moderate	Moderate	70+
<i>Koelreutaria paniculata</i> (Golden Rain Tree)	7m x 5m	Exotic	Deciduous	Moderate	Moderate	40-70
<i>Lagerstroemia indica</i> (Crepe Myrtle)	5m x 4m	Exotic	Deciduous	Minor	Minor	40-70
<i>Leptospermum flavescens</i> (Tantoon)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Leptospermum laevigatum</i> (Coastal Tea Tree)	3m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Leptospermum petersonii</i> (Lemon-scented Tea Tree)	4m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Leptospermum squarrosus</i> (Pink Tea Tree)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Leptospermum trinervium</i> (Flaky Barked Tea Tree)	3m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Livistona australis</i> (Cabbage Tree Palm)	20m x 3m	Native	Evergreen	Minor	Moderate	70+
<i>Lophostemon confertus</i> (Brushbox)	10m x 6m	Native	Evergreen	Moderate	Moderate	70+
<i>Magnolia grandiflora</i> (Bull Bay Magnolia)	10m x 7m	Exotic	Evergreen	Moderate	Moderate	70+
<i>Melaleuca armillaris</i> (Bracelet Honey Myrtle)	5m x 4m	Native	Evergreen	Minor	Minor	<40
<i>Melaleuca decora</i> (White Cloud Tree)	8m x 4m	Native	Evergreen	Moderate	Minor	40-70
<i>Melaleuca ericifolia</i> (Swamp Paperbark)	5m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Melaleuca hypericifolia</i> (Red Flowering Paperbark)	2m x 2m	Native	Evergreen	Minor	Minor	<40
<i>Melaleuca linariifolia</i> (Snow-in-Summer)	6m x 4m	Native	Evergreen	Moderate	Minor	40-70
<i>Melaleuca styphelioides</i> (Prickly Paperbark)	6m x 4m	Native	Evergreen	Moderate	Minor	40-70
<i>Metrosideros</i> 'Thomasii' (New Zealand Xmas Tree)	7m x 4m	Native	Evergreen	Moderate	Moderate	40-70
<i>Michelia champaca</i> (Golden Champa)	8m x 4m	Exotic	Evergreen	Moderate	Moderate	70+
<i>Myoporum acuminatum</i> (Western Boobialla)	4m x 3m	Native	Evergreen	Minor	Minor	<40
<i>Nyssa sylvatica</i> (Tupelo)	8m x 5m	Exotic	Deciduous	Moderate	Moderate	40-70
<i>Olea europaea</i> var. <i>communis</i> (European Olive)	5m x 3m	Exotic	Evergreen	Moderate	Moderate	70+
<i>Pistacia chinensis</i> (Chinese Pistachio)	6m x 3m	Exotic	Deciduous	Minor	Minor	40-70
<i>Pittosporum rhombifolium</i> (Qld Pittosporum)	8m x 3m	Native	Evergreen	Minor	Minor	40-70
<i>Platanus x hybrida</i> (London Plane)	20m x 15m	Exotic	Deciduous	Severe	Severe	70+
<i>Polyscias elegans</i> (Silver Basswood)	10m x 5m	Native	Evergreen	Moderate	Moderate	70+
<i>Pyrus calleryana</i> (Callery Pear)	6m x 4m	Exotic	Deciduous	Moderate	Moderate	40-70
<i>Sapium sebiferum</i> (Chinese Tallowwood)	8m x 5m	Exotic	Deciduous	Severe	Moderate	40-70
<i>Schinus areira</i> (Peppercorn)	10m x 8m	Exotic	Evergreen	Moderate	Minor	70+
<i>Stenocarpus sinuatus</i> (Qld Firewheel Tree)	8m x 3m	Native	Evergreen	Minor	Minor	40-70
<i>Synoum glandulosum</i> (Scented Rosewood)	8m x 4m	Native	Evergreen	Minor	Minor	40-70
<i>Syzygium australe</i> (Scrub Cherry)	10m x 6m	Native	Evergreen	Moderate	Moderate	40-70
<i>Syzygium luehmannii</i> (Small-leafed Lilly Pilly)	8m x 4m	Native	Evergreen	Moderate	Moderate	40-70
<i>Syzygium paniculatum</i> (Brush Cherry)	10m x 5m	Native	Evergreen	Moderate	Moderate	40-70
<i>Tibouchina granulosa</i> (Purple Glory Bush)	5m x 3m	Exotic	Evergreen	Minor	Minor	<40
<i>Tristaniopsis laurina</i> (Water Gum)	8m x 5m	Native	Evergreen	Moderate	Minor	40-70
<i>Ulmus parvifolia</i> (Chinese Elm)	12m x 8m	Exotic	Deciduous	Moderate	Moderate	70+
<i>Waterhousia floribunda</i> (Weeping Lilly Pilly)	10m x 6m	Native	Evergreen	Moderate	Moderate	40-70
<i>Westringia fruticosa</i> (Coastal Rosemary)	1.5m x 1.5m	Native	Evergreen	Minor	Minor	<40

## APPENDIX F

### TREE PROTECTION PLAN

A Tree Protection Plan details the measures that are to be put into place to protect designated trees from injury and damage during development and construction works. A designated tree is a tree on a development site, adjacent land or public land which is required to be retained and protected as a condition of development consent.

#### Requirements for Tree Protection Plans

In order for Council to be able to adequately assess the appropriateness or otherwise of proposed tree protection measures involving protected trees on both development sites and adjacent private property and/or public land, a Tree Protection Plan providing the following information must be submitted to Council:

- A site plan (to scale) accurately showing:
  - i) location of tree/s on the subject site and any adjoining trees which may be affected by any development. Trees identified on the plan should be numbered;
  - ii) all trees which are to be removed and their details;
  - iii) all trees to be retained (protected trees) specifying tree number, species, common name, height, canopy width, DBH, general condition;
  - iv) optimum and minimum tree protection zones;
  - v) location and description of tree protection measures to be installed;
  - vi) lot boundaries, dimensions and North point;
  - vii) proposed development including services, driveways, and any alteration to existing soil levels and drainage.
- Detailed calculation of the Structural Root Zone (SRZ) and Tree Protection Zone (TPZ) radiuses of any protected tree/s.

Tree Protection Zones are areas specifically set aside to ensure that retained trees are adequately protected during development and construction activities. This zone must comprise an area sufficiently large enough to protect a designated tree or trees and their roots from disturbance or damage.

The TPZ for any tree should wherever possible extend to at least the dripline of any protected tree. Where this is not possible the zone should extend as far as possible in all directions from the trunk of the tree.

Generally, the TPZ radius should be calculated by multiplying the subject tree/s diameter at breast height (DBH) by a factor of twelve.

The Structural Root Zone of any particular tree/s is the minimum area required to ensure the stability and long-term viability of the tree/s.

The calculation of the SRZ and TPZ radiuses of protected trees must comply with the procedures and calculation methodologies detailed in Section 3 of Australian Standard AS 4970 – 2009 – *Protection of Trees on Development Sites*.

- A tree management plan detailing measures to ensure the health and stability of protected trees, including any proposed canopy or root pruning, excavation works, site controls on waste disposal, vehicular access, storage of materials and installation of utilities.

As a general rule, however, no excavation works should be undertaken within the following recommended radial distances from protected Council-owned trees on public land.

Trunk Diameter @ DBH	Restricted Radial Distance
Less than 200mm	2 metres
Between 200mm – 400mm	3 metres
Greater than 400mm	4 metres

**Note:** The property owner, construction supervisor and project arborist are required to meet with Council's landscape development officer on-site prior to the commencement of any development/ construction works to discuss procedures, review any proposed tree protection plan, assess tree protection measures and to ensure that the installation of tree protection zones has been complied with.

## APPENDIX G

### DRAFT AUSTRALIAN STANDARD – DR 99307 – Amenity Trees – Guide to Valuation

This draft Standard provides a framework for calculating the monetary value that can be attributed to any tree within the landscape. It utilises a number of factors that are relevant in determining the amenity that a tree provides to the community and its horticultural importance in the surrounding environment.

These factors include the size of the tree, its useful life expectancy, importance in the landscape, presence of other trees, relation to the setting, form and any special factors that may be relevant to any particular tree.

The special factors considered include a tree's historical associations, botanic rarity, exceptional landscape value, etc. A special factors rating is particularly important when assessing the amenity value of any tree/s listed within Council's Register of Significant Trees.

Incorporated into each amenity valuation is a pre-determined \$AUS increment value, which in the case of valuations for trees within the Randwick LGA is \$50 – as recommended in *DR 99307 – Amenity Trees – Guide to Valuation*.

For each of the applicable assessment factors a tree is given a score of between one and four and the assigned points for each factor are then multiplied together to give a total. This total is then multiplied by the pre-determined increment value to give the actual amenity value of the tree in \$AUS.

The table below details the factors incorporated into a tree's amenity valuation as well as a brief rating correlating to the points that can be allocated to each tree.

#### TREE VALUATION FACTORS

Factor	Points			
	1	2	3	4
1. Size of Tree	Small	Medium	Large	Very Large
2. Useful Life Expectancy	10-20 years	20-40 years	40-100 years	100+ years
3. Importance in landscape	Little	Some	Considerable	Great
4. Presence of other Trees	Many	Some	Few	None
5. Relation to Setting	Barely Suitable	Fairly Suitable	Very Suitable	Esp. Suitable
6. Form	Poor	Fair	Good	Esp. Good
7. Special factors	None	One	Two	Three

**Total score = 1 x 2 x 3 x 4 x 5 x 6 x 7 x \$50AUS**

This valuation method only takes into account the amenity value of the tree and does not incorporate any costs associated with the removal and/or replacement of any such tree.

