

# Arboricultural Impact Assessment Report

# 14 Bellevue Street, Fairlight NSW 2094

Prepared for: Cassie Spencer

January 2023

Prepared By: Sam Knight Arborist - AQF Level 5



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# 2.0 INTRODUCTION

This Arboricultural Impact Assessment Report was prepared for Cassie Spencer in relation to development works proposed at 14 Bellevue Street, Fairlight.

The purpose of this report is to assess the current health and condition of individual trees within the site and any tree outside the site which could be affected by the proposed development. The report provides recommendations for amendments to the design or construction methodology where necessary to minimise any adverse impact on trees considered worthy of retention.

The report has been prepared in accordance with the State Environmental Planning Policy (Biodiversity and Conservation) 2021, Manly Local Environmental Plan (LEP) 2013, Manly Development Control Plan 2013 Amendment 14, and the Australian Standard 4373-2007 - Pruning of Amenity Trees'.

#### 3.0 METHODOLOGY

An assessment of any tree contained in this report was limited to a visual assessment from ground level. A summary of the findings from the assessment are detailed in the Tree Assessment Schedule included in Appendix C of this report. Information included in the table which will be relied upon throughout the report and form the basis of the discussions and recommendations includes:

- Species Name
- Height and Spread (metres)
- Diameter at Breast height (DBH)
- Diameter Above Root Buttress (DARB)
- · Health & Structure
- Form

- Age Class
- Landscape Significance
- Remaining Life Expectancy
- · Retention Value
- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)

(See Appendix A - Definition and Criteria for further explanation)

The height and canopy spread of each tree was estimated. The trunk Diameter at Breast Height (DBH) of each tree assessed has been estimated and is recorded in millimetres.

A smart phone was used for the purpose of providing photographic evidence and cross reference by person/s who have obtained this report for the purpose of reading and analysing the information that has been discussed throughout.

Aerial inspection, root or soil analysis, exploratory root trenching and internal diagnostic testing has not been undertaken.

# 4.0 LIMITATIONS

The findings of this report are based upon and limited to a visual examination of the tree from ground level without any climbing, internal testing or exploratory excavation.

This report reflects the health and structure of the tree at the time of inspection. SKTC cannot guarantee that a tree will be healthy and safe under all circumstances or for a specified period of time. There is no guarantee that problems or defects with the assessed tree, will not arise in the future. Liability will not be accepted for damage to person or property as a result of failure of the assessed tree.

This report must be read in its entirety. No part of this report may be referred to, verbally or in writing, unless taken in full context of the whole report.

# **5.0 SITE DESCRIPTION**

The subject site is a residential property known as 14 Bellevue Street, Fairlight. The site is an irregular rectangular shape with a total land size of approximately 254.6m<sup>2</sup>.

The site land is zoned category R1: General Residential pursuant to the *Manly Local Environmental Plan (LEP) 2013* and is legally defined as Lot 2 in Deposit Plan 587108.



# 5.1 Legislation and Planning Controls

The following legislative, planning controls and Council Policy apply to the subject property and the subject tree;

- State Environmental Planning Policy (Biodiversity and Conservation) 2021
- Manly Local Environmental Plan (LEP) 2013
- Manly Development Control Plan 2013 Amendment 14

#### 5.2 Tree Management Controls

Manly Development Control Plan 2013 Amendment 14, Section 3.3.2 Preservation of Trees or Bushland Vegetation defines a tree as being: *a palm or woody perennial plant, single or multi stem greater than 5m in height*.

#### 5.3 Heritage

The site is not listed as a heritage item or located within a Heritage Conservation Area.

# 5.4 Biodiversity Values

The site is not within or affected by any requirements under the NSW Biodiversity Conservation Act 2016.

# **6.0 OBSERVATIONS**

#### 6.1 Tree

A tree located in the rear yard of the site was inspected by Sam Knight on the 20 January 2023. The tree has been provided with an identification number for reference purposes denoted on Plan 1 - Tree Location Plan (Appendix F).

Tree 1 – has been identified as a *Eucalyptus scoparia* (Wallangarra White Gum) located on the northern boundary in the rear yard. The tree is listed as Exempt in *Section 3.3.2 Preservation of Trees or Bushland Vegetation* of the *Manly Development Control Plan 2013*.

The following data was collected for the subject tree. Definitions of each of the criteria assessed can be found in Appendix A of this report:

Tree No.	Species Name	Height (m)	Spead (m)	DBH (mm)	DARB (mm)	Age	Health	Structure	Comments
1	Eucalyptus scoparia	12	10	550	800	Mature	Good	Fair	Codominant leaders @2.5m – inclusion, large deadwood, majority of canopy overhangs neighbours yard, slight phototrophic lean towards north.

#### 6.2 Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010) - Appendix B, the following findings were made for the subject tree.

#### Significance Scale:

- 1 High
- 2 Medium
- 3 Low

Significance Scale	1	2	3
Tree No.			1

#### 6.3 Tree Retention Values

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010) - Appendix B, the following Tree Retention Values were given for the subject tree.

#### **Retention Value**

High – Priority for Retention Medium – Consider for Retention Low – Consider for Removal Remove – Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	<b>Remove</b> Priority for Removal
Tree No.		1		

# 7.0 TREE PROTECTION ZONES

The Tree Protection Zone (TPZ) is a radial distance measure from the centre of the tree trunk at 1.4 metres height and are specified for the subject tree below. This has been calculated in accordance with the *Australian Standard AS4970 'Protection of trees on development sites'*.

The purpose of the TPZ is to ensure the tree's root area and crown area are protected during construction works. It is an area that is to be isolated from construction disturbances such as excavation, level changes, ripping of soil, trenching and movement of construction machinery, so that the tree remains viable into the future.

#### 7.1 Structural Root Zone

The Structural Root Zone is an area which provides a trees structural stability. This is a radial distance calculated by formula (D  $\times$  50)0.42  $\times$  0.64. A SRZ should not be less than 1.5 metres.

This area should be completely restricted from construction activities unless clearly demonstrated that the works will not adversely impact on stability or viability.

The SRZ does not apply to palms, other monocots, cycads and tree ferns.

#### 7.2 Incursion into TPZ

Encroachments into a TPZ may be possible where it is assessed by a suitable qualified Arborist and deemed to be acceptable without being detrimental to the ongoing vigour of a tree.

- <u>Minor Encroachment</u> of 10% or less of the TPZ area and outside of the Structural Root Zone (SRZ) is generally considered acceptable. However, the area lost should be compensated for elsewhere and only be restricted to one side of the tree. Other factors such as health, condition, age, species type and tolerance to disturbance, lean and stability must also be considered when establishing if the encroachment is acceptable and won't adversely impact on the tree.
- <u>Major Encroachment</u> of more than 10% of the TPZ and/or within the SRZ will require further investigation to establish if the tree will remain viable. Such investigation should involve root investigation and/or consideration of health, condition, age, species type and tolerance to construction disturbance.

#### 8.0 THE PROPOSAL

The proposed development includes:

- Alterations and additions to the exiting dwelling.

The following plans have been reviewed:

Drawing Number	Plan Name	Prepared/Drawn by	Dated	
33192-02	Site Survey	Frank M Mason & Co Pty Ltd		
DA 010	Site Plan	Hot House Architects	22/12/2022	
DA 100 Ground Floor Plan		Hot House Architects	22/12/2022	
DA 101	First Floor Plan	Hot House Architects	22/12/2022	
DA 110	Roof Plan	Hot House Architects	22/12/2022	
DA 200	Elevations	Hot House Architects	22/12/2022	
DA 300	Sections	Hot House Architects	22/12/2022	

# 9.0 IMPACT ASSESSMENT

The following TPZ and SRZ calculations have been made for the assessed tree. The encroachment into the TPZ of the tree has been nominated as either a 'Minor Encroachment', 'Major Encroachment', 'Within Footprint' or 'None' based on the criteria detailed in Section 6.0 of this report.

#### 9.1 TPZ Encroachment

Tree No.	SRZ (m)	TPZ (m)	TPZ Area (m²)	TPZ Encroachment (m²)	TPZ Encroachment (%)	Encroachment (AS4970)
1	3.1	6.6	137	14.2	10	Major Encroachment

#### 9.2 Trees with Major Encroachments from the Proposed Development

The supplied plans indicate the building extension and retaining walls encroach within 14.2m<sup>2</sup> of the TPZ of Tree 1 representing a 10% incursion. The proposed works are within the SRZ. Therefore, the development incursion has been deemed a Major Encroachment as defined by AS4970 and will require tree sensitive construction measures throughout the works.

Specifically, this should include hand excavations within the TPZ under the supervision of a Project Arborist. No roots are to be damaged or removed without approval from the Project Arborist to ensure the health and stability of the tree is not compromised. The new retaining wall should utilise pier footings within the SRZ that can be relocation around any tree roots if identified during installation.

#### 10.0 RECOMMENDATIONS

#### 10.1 Tree Retention

**Tree 1** can be retained and protected.

#### 10.2 Tree Protection Measures

**Trees 1** is to be protected in accordance with "Australian Standard 4970 – 2009 Protection of Trees on Development Sites (AS4970-2009)" and specific recommendations detailed within this report below.

### 10.3 Tree Trunk Protection

Tree trunk protection should be installed around **tree 1** prior to the commencement of construction activities including any demolition works.

Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Hardwood planks (50mm x100mm or similar) shall be placed over the padding and around the trunk of the tree at 150mm centres. The planks shall be secured with 8-gauge wire at 300mm spacing. Trunk protection shall extend a minimum height of 2 metres or to the maximum possible length permitted by the first branches.

#### 10.4 Project Arborist

A Project Arborist, with minimum AQF Level 5 qualifications, shall be appointed prior to the commencement of any construction activities. The Project Arborist will be responsible for specifying, monitoring and certification of all tree protection measures for any activities proposed around existing trees located within the limit of the construction.

The Contractor shall provide site access to the Project Arborist at all times. The Project Arborist may provide advice on the existing trees; however, all communications will be formalised between the Contractor and the Principal's representative.

#### 10.5 Excavation within TPZ

Any excavations undertaken within the TPZ which have been approved by the Project Arborist shall be undertaken using non-destructive methods (such as by hand) to ensure no tree roots greater than 40mm diameter are damaged, pruned or removed.

If any roots greater than 40mm diameter are located during excavation, further advice shall be obtained by the Project Arborist before further works continues where the root has been identified. Root pruning must not be undertaken without prior approval from the Project Arborist.

#### 10.6 Demolition works within Tree Protection Zone

Demolition of paved areas within the Tree Protection Zones of trees to be retained shall be undertaken under the supervision of a qualified arborist (Australian Qualification Framework Level 5]. The pavement surface within the TPZ shall be broken into manageable sections and lifted by equipment working within the footprint of the existing paved area. The machine shall work within the footprint of the existing paved surfaces to avoid compaction of the underlying soil.

#### 10.7 Canopy and Root Pruning

Care shall be taken when operating heavy machinery near trees to avoid damage to tree canopies (foliage and branches). The Project Arborist shall be contacted if there is potential conflict between tree canopies and construction activities (including machinery).

Any canopy or root pruning required shall be undertaken in accordance with AS 4373-2007 *Pruning of Amenity Trees,* under the direct supervision of the Project Arborist.

Temporary root protection, including hessian or similar biodegradable material, shall be installed under the supervision of the Project Arborist to prevent roots from drying out, where roots are exposed during demolition or construction works.

Where root pruning is required, roots shall be severed at the face of the excavation by hand using clean, sharp pruning implements. All excavations within the TPZ of any tree/s shall be undertaken under the supervision of the Project Arborist.

#### 10.8 Tree Damage

In the event that any tree is damaged during construction, the Project Arborist shall be notified as soon as possible to inspect and provide advice for remedial action that may minimise any adverse impact.

Should you wish to discuss this report, please contact me on 0414 482 575.

Sam Knight
Consulting Arborist
Diploma of Horticulture (Arboriculture) - AQF Level 5
ISA Tree Risk Assessment Qualification (TRAQ)
Quantified Tree Risk Assessment (QTRA)



# APPENDIX A – DEFINITIONS AND CRITERIA

**Age Class:** 

Young (Y) Trees that are well established but at a juvenile stage.

Semi-Mature (SM) Trees growth stage that is between immaturity and full size.

Mature (M) Trees at full size but with some capacity for further growth.

Senescent (S) Trees that are about to enter decline or already declining to death.

<u>Health</u>: Ability of a tree to sustain its life processes. This is independent of the condition of a tree but may impact upon it. Vigour can appear to alter rapidly with change of seasons (seasonality) e.g. dormant, deciduous or semi-deciduous trees. Vigour can be categorized as Normal Vigour, High Vigour, Low Vigour and Dormant Tree Vigour.

<u>Good</u>: Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

<u>Fair</u>: Accelerated growth of a tree due to incidental or deliberate artificial changes to its growing environment that are seemingly beneficial, but may result in premature aging or failure if the favourable conditions cease, or promote prolonged senescence if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous pollarding practices over the life of the tree.

<u>Poor</u>: Reduced ability of a tree to sustain its life processes. This may be evident by the atypical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their functions with reduced resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

<u>Dormant</u>: A tree determined by existing turgidity in lowest order branches in the outer extremity of the crown, with good bud set and formation, and where the last extension growth is distinct from those most recently preceding it, evident by bud scale scars. Normal vigour during dormancy is achieved when such growth is evident on a majority of branches throughout the crown.

**Structure**: A tree's crown form and growth habit, as modified by its environment (aspect, suppression by other trees, soils), the stability and viability of the root plate, trunk and structural branches (first (1st) and possibly second (2nd) order branches), including structural defects such as wounds, cavities or hollows, crooked trunk or weak trunk/branch junctions and the effects of predation by pests and diseases. These may not be directly connected with vigour, and it is possible for a tree to be of normal vigour but in poor condition. Structure can be categorized as:

<u>Good</u> - Tree is of good habit, with crown form not severely restricted for space and light, physically free from the adverse effects of predation by pests and diseases, obvious instability or structural weaknesses, fungal, bacterial or insect infestation and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it for its basic survival do not alter greatly. This may be independent from or contributed to by vigour.

<u>Fair</u> - Tree is of good habit or misshapen, a form not severely restricted for space and light, has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or is faltering due to the modification of the environment essential for its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from or contributed to by vigour.

<u>Poor</u> - Tree is of poor habit or misshapen, a form that may be severely restricted for space and light, exhibits symptoms of advanced and irreversible decline such as fungal, or bacterial infestation, major die-back in the branch and foliage crown, structural deterioration from insect damage e.g. termite infestation, or storm damage or lightning strike, ring barking from borer activity in the trunk, root damage or instability of the tree,

or damage from physical wounding impacts or abrasion, or from altered local environmental conditions and has been unable to adapt to such changes and may decline further to death regardless of remedial works or other modifications to the local environment that would normally be sufficient to provide for its basic survival if in good to fair condition. Deterioration physically, often characterised by a gradual and continuous reduction in vigour but may be independent of a change in vigour, but characterised by a proportionate increase in susceptibility to, and predation by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processes, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be independent from or contributed to by vigour.

<u>Diameter at Breast Height (DBH):</u> The DBH is a measurement of the tree trunk at 1.4 metres above ground level. A diameter tape is used to measure the circumference of the trunk which provide a diameter conversion. The DBH is used for calculating the Tree Protection Zone and Structural Root Zone of individual trees.

#### **Tree Protection Zone (TPZ):**

This is an area around a tree both above and below ground that should be restricted from construction disturbance to ensure a tree remains viable. The area is a radial distance which is 12x the DBH measures from the centre of the tree trunk. A TPZ should not be less than 2 metres or greater than 15 metres.

Encroachments into a TPZ may be possible where it is assessed by a suitable qualified Arborist and deemed to be acceptable without being detrimental to the ongoing vigour of a tree.

<u>A Minor Encroachment</u> of 10% or less of the TPZ area and outside of the Structural Root Zone (SRZ) is generally considered acceptable. However, the area lost should be compensated for elsewhere and only be restricted to one side of the tree. Other factor such as health, condition, age, species type and tolerance to disturbance, lean and stability must also be considered when establishing if the encroachment is acceptable and won't adversely impact on the tree.

<u>A Major Encroachment</u> of more than 10% of the TPZ area will require detailed investigation to establish if the tree will remain viable. Such investigation should involve root investigation and consideration of health, condition, age, species type and tolerance to disturbance, lean and stability.

#### Structural Root Zone (SRZ):

The Structural Root Zone is an area which provides a trees structural stability. This is a radial distance calculated by formula (D  $\times$  50)0.42  $\times$  0.64. A SRZ should not be less than 1.5 metres.

This area should be completely restricted from construction activities unless clearly demonstrated that the works will not adversely impact of stability or viability.

#### **Useful Life Expectancy (ULE):**

A useful life expectancy has been determined for individual trees based on an assessment of current estimated age, species characteristics and potential life span, any known impacts, level of impact that the proposed development will have on the tree, species tolerance to development impacts. The ratings are:

Long – 40 years +
Medium – 15-40 years
Short – 5-15 years
Transient – less than 5 years
Dead or immediately hazardous (defective or unstable)

This rating has been determined based an assessment of the tree at the time of inspection and any information made available during the assessment. Unknown impacts or adverse actions following initial inspection of individual trees do not form part of the final ratings.

# APPENDIX B – IACA SIGNIFICANCE OF A TREE, ASSESSMENT RATING SYSTEM (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High, Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

#### **Tree Significance - Assessment Criteria**

#### 1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register.
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due
  to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values:
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ tree is appropriate to the site conditions.

#### 2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street.
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

#### 3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

#### **Environmental Pest / Noxious Weed Species**

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

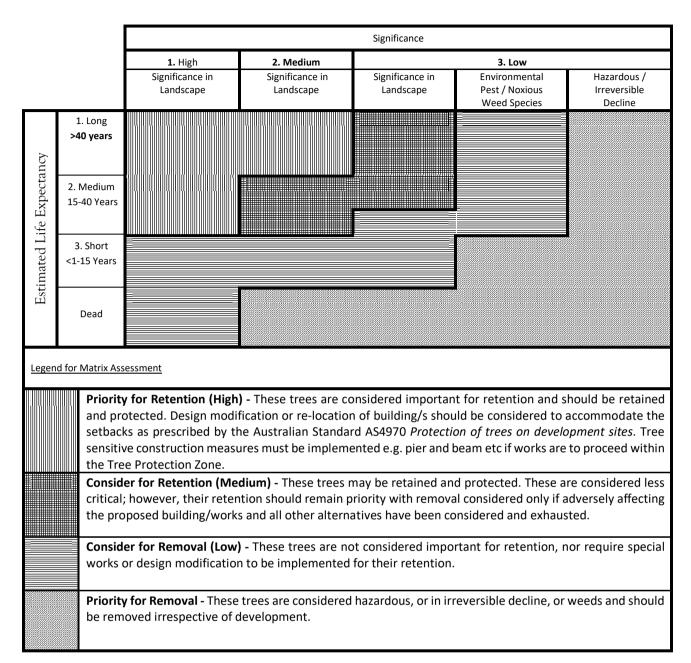
#### Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

#### The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

#### Tree Retention Value - Priority Matrix.



#### **USE OF THIS DOCUMENT AND REFERENCING**

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, <a href="https://www.iaca.org.au">www.iaca.org.au</a>

#### **REFERENCES**

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, Footprint Green Tree Significance & Retention Value Matrix, Avalon, NSW Australia, <a href="https://www.footprintgreen.com.au">www.footprintgreen.com.au</a>

# **APPENDIX E - PLANS**

Plan 1 – Tree Location Plan

Plan 2 - Tree Protection Zone & Structural Root Zone

#### **PLAN 1 - Tree Locations**

#### Plan has been overlaid on the Site Survey prepared by Frank M Mason & Co Pty Ltd dated 24-11-2022

This plan should be read in conjunction with the Arboricultural Impact Assessment for 14 Bellevue Street, Fairlight

Prepared by Sam Knight Tree Consultancy on the 27-01-2023



#### **LEGEND**

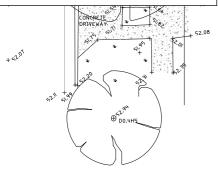
Tree Location

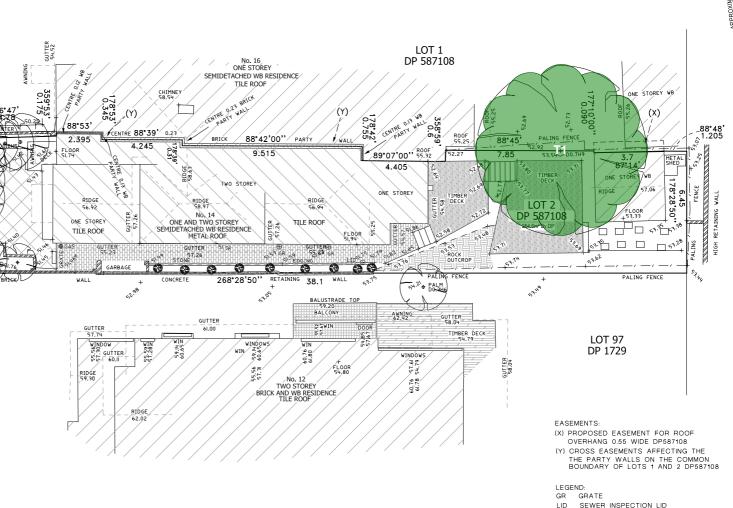


Tree Identification Number

**T1** 







#### NOTES:

- The Boundaries shown hereon have been compiled from Plans available from the Department of Lands and are subject to survey.
- The relationship between features and boundaries is diagrammatic only.
- No investigation has been made of underground services on or adjacent to this land.
- 4. Restriction on building may apply to this land.
- 5. Origin of levels PM 921 adopted as RL 41.072 A.H.D.
- Bearings shown hereon are related to magnetic meridian Add 9° 30' to each bearing to relate to approximate True North.



PRIOR TO ANY EXCAVATION ON SITE

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PLAN SHOWING RELATIVE HEIGHTS AND FEATURES OF LOT 2 DP 587108 BEING LAND AT FAIRLIGHT IN THE LGA OF MANLY

SEWER VENT

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