



# Independent Arboricultural Services



## Arboricultural Impact Assessment

Prepared For: Vincent Fairfax Family Foundation

Job Date: 5 April 2024

35A and 35B North Road  
Woodridge QLD 4114

IAS12700



## Independent Arboricultural Services - Disclaimer

The material contained in this document has been prepared on an independent basis free of any bias and represents the honest opinion of the consulting arborist.

Tissue or soil samples have not been collected nor submitted for testing unless otherwise stated. Excavation is limited to minor earthworks and we submit this assessment on the basis that all data is based on visual inspection of the tree/s and its/their location, species, health and condition at the time of writing unless otherwise stated. Measurements and tree locations noted in this report are approximate and have not been determined by survey unless information and analysis has been provided by the consultant or such information is otherwise noted. Please request a more detailed arborist report if further information and analysis is required. Depending on site requirements, specific alternate specialist advice including engineering consultancy and certification maybe required in combination with this assessment. This assessment contains arborist advice and associated general information only and does not purport to provide other site-specific specialist advice such as engineering certification unless arrangement to source such advice for inclusion in this assessment has been requested and authorised.

This report containing opinions, advice and recommendations based on information and data gathered from site inspections carried out by personnel from Independent Arboricultural Services as well as information provided by the client and/or its representatives, is to be relied on by the client in that context. It is assumed that all such information provided to Independent Arboricultural Services is correct. All recommended arboricultural works detailed in this assessment including pruning of tree canopy or roots, tree removal, tree transplantation or other associated works including stump grinding or the application of any prescribed treatment shall be carried out in accordance with applicable standards including Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites.

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The invoice for this report will be issued to the person or entity as per the address advised at the time of confirmation of appointment. Assessment in this report is based on plans provided at the time of confirmation of engagement and report preparation. Additional time required for re-assessment of report detail due to subsequent re-issue of plans after report preparation will be subject to an additional fee which will be charged at our hourly rate. This report shall not be conveyed to any third party including regulatory authority/s until full payment of this invoice is received by Independent Arboricultural Services and a finalised report has been issued unless agreement to do so has been granted.

Factors including the absence of historical records or local knowledge, recognition of the variability of the integrity of a tree as a naturally living organism as well as the impact of conditions within its surrounds to which it maybe subject including the impacts of mechanical force and the occurrence of weather events, do not allow an arborist to guarantee the age of a tree, or the length of time a tree/s may live or such time as it /they may fail. There is no warranty or guarantee, expressed or implied that the problems or deficiencies of the plants or property in question may not arise in the future.

## Executive Summary

Independent Arboricultural Services have been engaged by Vincent Fairfax Family Foundation (The Client) to assess potential impacts to the nominated vegetation resulting from proposed development at 35A and 35B North Road, Woodridge QLD 4114 (The *Subject Site*). Sam Gilbey (AQF Level 5) attended site on 5 April 2024 to undertake the assessment of the impact of the works.

The assessment of the impacts of proposed development on the identified trees in and around the development envelope, roads and services has been undertaken. Advice on both specific and general tree protection measures and Project Arborist Requirements have been detailed in this report. It is important as the design is refined, further reviews are undertaken by the Project Arborist and protection measures are further specified as required.

As part of the design process and operational works it is recommended that the following is undertaken,

Specific Tree Protection Measures include,

- Demolition of adjacent concrete sandpit edging within the TPZ of Tree 7 and 8 to exclude any works below existing grade. Removal of concrete footings may damage roots and impact structural stability of the tree.
- Existing shed and concrete slab/footpath within the TPZ to be removed in an outwards direction away from the stem of Tree 17, 18, and 23. No excavation below existing grade is permitted during demolition.
- Covered deck within the TPZ of Tree 7 and 8 to utilise pier and beam construction methodology. Pier holes to be vacuum excavated under the supervision of the Project Arborist. Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require the pier to be offset to reduce impacts to identified roots. Pier holes to be lined with builder's black plastic prior to concrete pour to isolate concrete from exposed roots.
- Meeting with construction team is to be held prior to works commencing to determine if pruning of Trees 7, 8, or 9 will be required to allow adequate clearance from the proposed structure during construction. Any required pruning works are to be conducted by a minimum AQF Level 3 Arborist, under the supervision of the Project Arborist.
- Required minor battering within the TPZ of Tree 7 is limited to minor levels of fill. No excavation below existing grade is permitted prior to installation of fill.
- Proposed new sandpit 'yarning circle' within the TPZ of Tree 7 and 8 to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.
- Route any required services outside the TPZ of retained trees. Should the alignment be required within the TPZ, vacuum excavation is to be utilised under the supervision of the Project Arborist.
- Proposed concrete slab for relocated storage shed within the TPZ of Tree 9 is to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.
- Required piers for the proposed shade sail, and/or fence within the TPZ of Trees 17, 18, 23, and 24 are to be hand/vacuum excavated under the supervision of the Project Arborist. Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.
- Proposed concrete footpath/refuse area/carport within the TPZ of Trees 17, 23, and 24 are to be constructed above current grade utilising a bed of level 2 structural soils/pea gravel/coarse river sand wherein the TPZ (50mm depth excavation is permitted to remove existing

turf/organic material prior to construction). Builder's black plastic to be used to line new concrete prior to pour.

- Undertake exploratory vacuum excavation on the alignment of required cut for construction of the proposed building footings within the TPZ of Tree 23. Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter to be inspected and managed accordingly. This may require project redesign to reduce impacts to encountered roots, or review of the viability for retention of the tree.
- Proposed landscaping within the TPZ of Trees 23 and 24 to be installed above current grade.

General Tree measures include,

- Ensure all approvals and permits are in place before works commence. This includes LCC permission prior to root zone interference within the TPZ of Trees 23, 24, and 54.
- Undertake a pre-start meeting with contractors before works commence.
- Tree Protection Fencing is to be erected before works commence and audited by the Project Arborist (Min AQF Level 5).
- Supervision by a Project Arborist (Min AQF Level 5) and Fauna Spotter/Catcher of the approved tree removals.
- Any works proposed within the TPZ of retained trees requires supervision of a minimum AQF5 Project Arborist.
- Tree Pruning is to be undertaken by a minimum AQF Level 3 Arborist.
- Laydown areas and site shed/office locations are to be identified/finalised and excluded from the Tree Protection Zones of retained trees and minimise public impact.
- Route vehicles and equipment outside of TPZs. If access is required within TPZ, mulch to a depth of 100mm and tree padding needs to be installed with the option of track mats as determined and signed off by a minimum AQF5 Project Arborist.
- Construction materials, spoil, stockpiles, tools and equipment are not permitted within the TPZs of retained trees.

# Table of Contents

Independent Arboricultural Services - Disclaimer .....	1
Executive Summary .....	2
Document Tracking & Information .....	5
Contact Details .....	6
Abbreviations .....	6
Map.....	7
Introduction .....	8
Arborist Comment .....	9
Project Hold Points .....	10
Conclusion.....	11
Tree Risk Summary .....	12
Risk Matrix .....	12
Risk Approach.....	13
Explanation of Terminology .....	13
Tree Protection Plan .....	15
Tree Species Locations.....	18
Tree Locations and Risk Rating .....	19
Tree Detail.....	20
Tree Retention Recommendations .....	24
Tree Removal Recommendations .....	30
Tree Protection Measures and Guidelines .....	31
Examples of Amended Protection Measures .....	32
Tree Management Plan (TMP) – Works Progress: Development Phase.....	33
Plans.....	34
Photos .....	53
Appendix 1: Tree Protection Signage .....	71
Appendix 2: Explanation of Terminology .....	72
Appendix 3: Normal Function of a Tree .....	74

Reference Page.....76

Company Details.....77

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## Abbreviations

<b>LCC</b>	Logan City Council	<b>RPA</b>	Root Protection Area
<b>DA</b>	Development Application	<b>TMP</b>	Tree Management Plan
<b>VPO</b>	Vegetation Protection Order	<b>CMP</b>	Construction Management Plan
<b>ULE</b>	Useful Life Expectancy	<b>VMP</b>	Vegetation Management Plan
<b>BLF</b>	Building Location Footprint	<b>AS</b>	Australian Standard
<b>BLE</b>	Building Location Envelope	<b>AS 4373: 2007</b>	Pruning of amenity trees
<b>TPZ</b>	Tree Protection Zone	<b>AS 4970: 2009</b>	Protection of trees on development sites
<b>SRZ</b>	Structural Root Zone	<b>DBH</b>	Diameter at Breast Height

All comments and recommendations in this report have been determined in accordance with Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites. All recommended tree work should be carried out in accordance with these standards.



**Sam Gilbey**

Consulting Arborist

## Map

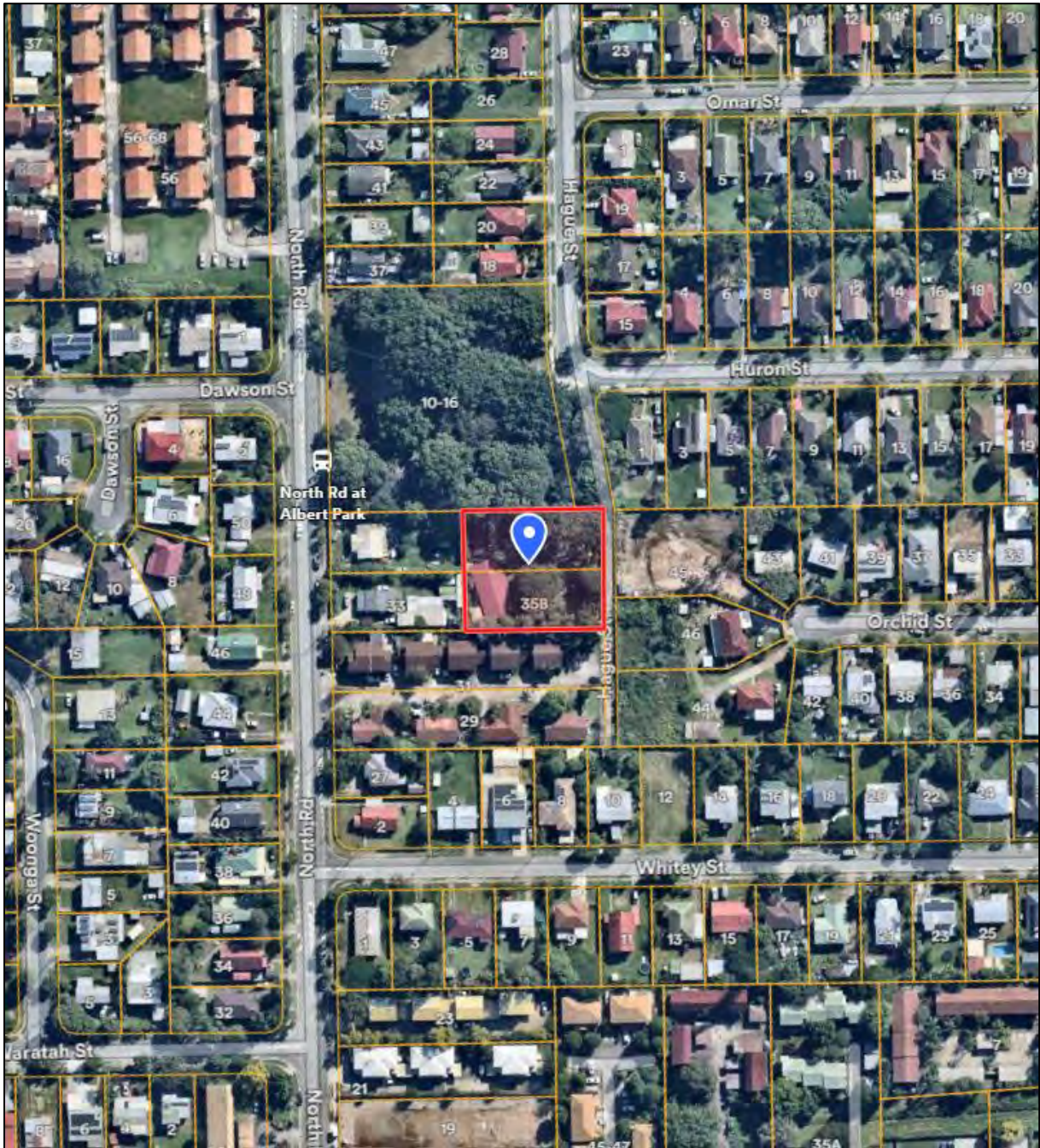


Figure 1: Subject Site (Nearmap® accessed 2024)

## Introduction

This report is based on a visual inspection carried out from the ground on 5 April 2024. No soil or tissue sampling has been conducted. Tree assessment and Qualitative Visual Tree Analysis has been carried out in accordance with TRAQ ISA guidelines. Data and information provided to the client by others has been incorporated into this report as appropriate.

All Arboricultural recommendations contained in this report have been determined in accordance with Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites.

For the purposes of this report reference to a Consulting or Project Arborist is held to mean an Arboricultural specialist who holds minimum Arboricultural qualifications of Dip Arb/AQF 5, appropriate professional insurances and has appropriate experience in the protection of trees on construction sites. Where tree work is specified, all recommended tree work is to be carried out in accordance with the above-mentioned standards by an appropriately trained and AQF qualified arborist practitioner/s with an up-to-date record of training and membership of a recognised Australian Arboricultural association, e.g. Qld Arboricultural Association (QAA), Arboriculture Australia (AA), or a recognised international Arboricultural association. No climbing spikes are to be used if pruning is to be carried out on live trees except in the instance of an emergency.

Qualifications of the report authors include Diploma of Arboriculture/AQF Level 5 and ISA Certified Arborist accreditation. Report authors hold current insurances and memberships including qualified memberships of Queensland Arboricultural Association (QAA), and Arboriculture Australia (AA) as well as current accreditation and membership of International Society of Arboriculture (ISA).

Independent Arboricultural Services is a qualified registrant on the QAA Register of Consulting Arborists.

## Arborist Comment

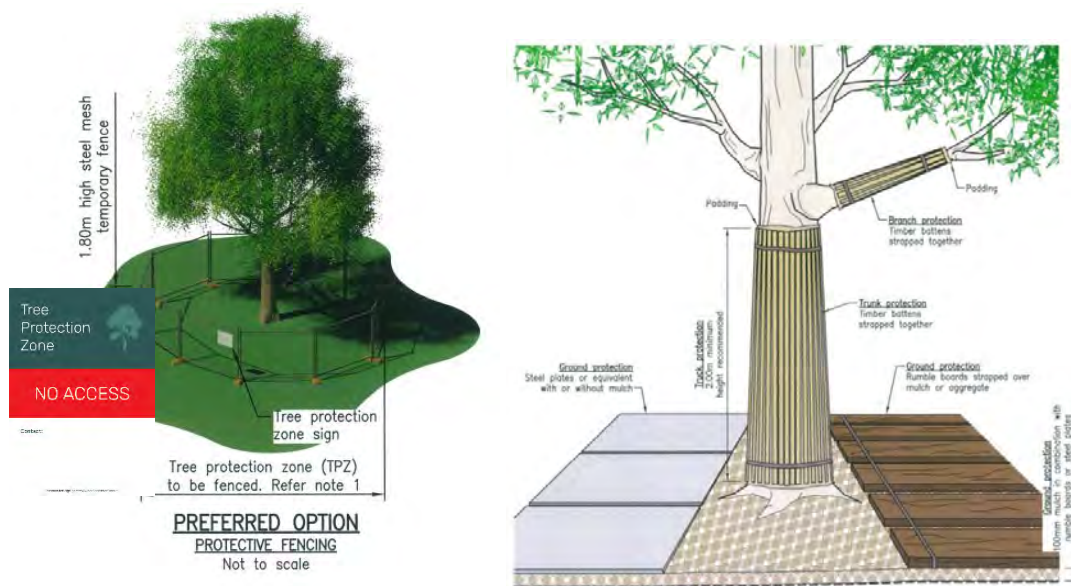
- Protection of retained trees during construction works
- Impact of the proposed works on nominated trees

### Protection of Retained Trees During Construction Works

An exclusion zone is to be established along the perimeters of retained trees and cordoned off with a physical barrier of wire mesh fence, 1.8m in height, which is securely anchored. The role of these fences is to prevent any damage to the complete tree including root system (SRZ & TPZ), stem and branch structure as well as the crown or canopy. Alternatively, and on approval of a minimum AQF5 Project Arborist, plastic mesh fencing, 1.2m in height, secured with star pickets and caps with straining wire can be utilised. All TPZ fencing will require appropriate signage to signify the relevant protection zones. This will require audit and sign off prior to operational works onsite.

### Impact of The Proposed Works on Nominated Trees

On review of the current plans, it is determined there may be capacity to retain fifty-three (53) of the seventy-two (72) assessed trees based on nil/minor or supervised major incursion into the TPZ. Nineteen (19) trees are currently required to be removed based on planned major incursion into the TPZ. Ensure LCC permission is in place prior to root zone interference within the TPZ of Trees 23, 24, and 54.



Tree Protection Fencing to be utilised. Where works will be undertaken close to and within Tree Protection Zones specific tree protection measures to be utilised a directed by the project Arborist.

## Project Hold Points

Engage an AQF5 minimum Project Arborist during the project life;

- Once tree protection fencing and signage has been established and finalised. Project Arborist (minimum AQF Level 5) to audit and sign off.
- Any works within the TPZ of retained trees is required.
- If tree roots are encountered over 50mm in diameter outside of TPZs of retained trees.
- Changes to the plans occur.
- On completion of the project to conduct a final audit and summary.

(Site audits/summary reports will be conducted at each hold point interval by the Project Arborist)

<b>Project Arborist Requirements</b>
1. Pre-Start Inspection and Audit of Tree Protection Fencing Before Works Commence
2. Any required Tree Works to be undertaken by a minimum AQF Level 3 Arborist under the Supervision of the Project Arborist (Min AQF Level 5). Tree Services Company to be a member of Queensland Arboricultural Association or Arboriculture Australia.
3. All works within the Tree Protection Zones of the retained vegetation to be supervised by the Project Arborist (Min AQF Level 5). Audit Reports to be completed and submitted by the Project Arborist. Any below ground incursion to be water excavated under low pressure, under the supervision of the Project Arborist.
4. All works to be excluded from the Structural Root Zone (SRZ) and supervised if located within Tree Protection Zone.
5. The Project Arborist to be consulted if changes to plans are made that affect any retained vegetation.
6. At the Completion of works, Project Arborist to undertake a site assessment and an audit report compile of any further remedial actions required.

## Conclusion

For all retained trees, with due care, implementation of appropriate work methodology as noted in this report and isolation of all TPZs of retained trees from construction works, the potential for ill-effect to retained/affected trees can be minimised in accordance with guidelines of AS4970:2009 – Protection of trees on development sites.

### **The following must occur:**

LCC approvals must be in place prior to the commencement of any tree work for future construction work. Approvals are required should the Project Arborist prescribe pruning such as crown clean, canopy lift and/or directional pruning.

- Project Arborist must be appointed and engaged to guide the protection of protected trees from project commencement, i.e. during Design Planning and during the construction period until its completion.
- **All Arboricultural reports, TMPs, VMPs & approvals must be included in the CMP**
- Exploratory low pressure water excavation is to be undertaken as specified.
- Arborist briefing of all engaged persons on their commencement as well as diligent work practice must occur during all approved future construction work.
- Root disturbance must be minimised to prevent accidental injury, compression and the creation of exposure points to allow future entry of pests and pathogens.
- **All work within any TPZ must be supervised by the Project Arborist.**

All work within TPZs must be carried out with due care to avoid mechanical impact with retained tree/s during the construction phase. Sleeving should be installed to provide an impervious barrier between exposed TPZ perimeter/s and new concreted areas to prevent chemical leaching into the surrounding soil of retained trees.

Reactionary processes, such as the emergence of deadwood, dieback etc. are likely to occur as a result of disturbance and/or injury to any retained tree on a construction site. Amended design plans and construction methodology can serve to avoid or minimise the likely emergence of such issues and therefore their associated future OH&S issues to the future occupants of the new dwellings and or pedestrian or vehicular traffic within the vicinity of retained tree/s. Any required pruning is to be undertaken by a minimum AQF Level 3 Arborist under the supervision of the Project Arborist (AQF Level 5).

## Tree Risk Summary

The Tree Locations figure (provided herein) displays the trees according to their assessed risk, using the colours shown in the Tree Risk Summary table:

Type	Extreme	High	Medium	Low
Amount	0	1	19	52

## Risk Matrix

### Risk Rating

Consequences /Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
	No injuries*	First Aid Treatment*	Medical treatment*	Serious or extensive injuries*	Death or large number of serious injuries*
Almost Certain	Low	Medium	High	High	Extreme
Likely	Low	Medium	Medium	High	High
Possible	Low	Low	Medium	Medium	High
Unlikely	Low	Low	Low	Medium	Medium
Rare	Low	Low	Low	Low	Medium

### Prioritising Risks - Table of Management Action

Risk Score	What should I do?
Extreme	Immediate action required
High	Action plan required, senior management attention needed
Medium	Specific monitoring or procedures required, management responsibility must be specified
Low	Manage through routine procedures. Unlikely to need specific application of resources

## Risk Approach

### Basic Assessment Process

- Identify potential risk
- Record observations including photographs
- Apply risk matrix score (see Risk Matrix above)
- Extreme and High-risk trees reported immediately
- Individual assessments to be carried out on high risk trees
- Recommendations are notated in Tree Detail Table
- Prioritize high occupancy areas/high value target area

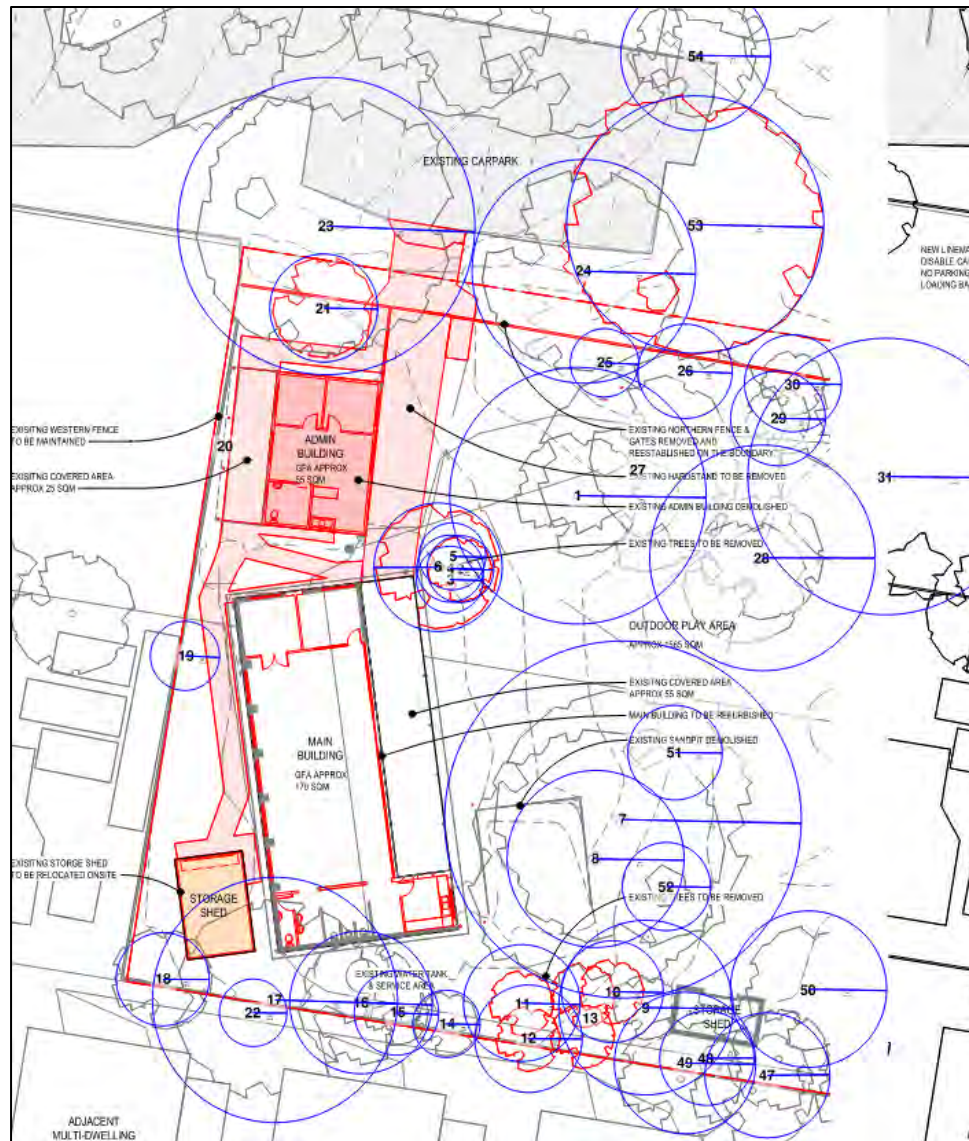
## Explanation of Terminology

Definition	Process Description
<b>Removal</b>	Complete tree removal leaving stump as close as possible to ground level. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Recommendation typically based on tree being assessed as representing a health and safety concern [Dead, dying, structurally unsound, unstable, poor form]
<b>Remove and grind</b>	Complete tree removal to include grinding of stump to a depth of 75 millimetres unless otherwise specified. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Stump site will be cleaned of all grinding debris and sawdust and backfilled with premium topsoil free from weeds.
<b>Crown Clean (Deadwood)</b>	Removal of all major/significant deadwood and dead branches up to [and including] 30 millimetres in diameter in trees overhanging pedestrian or vehicular areas or removal of dead branches > 50mm diameter in canopy of trees located in parkland or similar area unless otherwise specified.
<b>Crown Clean (General pruning)</b>	Recommended pruning process will include removal of broken, crossing, rubbing, diseased, stressed or dying branches or limbs with poor attachment. Additional work process may include pruning to define leaders, balance the crown, reduce weight load, or clear the tree from obstructions. In summary, to rectify, as far as is possible, any structural defects and eliminate undesirable growth or deadwood.
<b>Crown Reduction (Canopy reduction)</b>	Recommended pruning process may include light and general pruning typically to encompass removal of up to 15% but no more than 20% of the leaf-bearing crown. By definition the unique shape and form of the tree will not be altered or compromised by the pruning process. Typically, the consulting arborist will nominate the reduction percentage [%] appropriate to species, condition and assessment.
<b>Crown Raising (Canopy lift)</b>	Pruning processes maybe involve the raising of the tree's lower canopy to a height specified in metres. Typically, the process is performed to provide for pedestrian and or vehicular clearance and unless otherwise specified the default parameters will be to provide 2 metres clearance from ground level or as specified by local or state government regulation. From time to time pruning requirements may be altered to accommodate various site-specific requirements as advised by the consulting arborist accordingly.
<b>Crown Restoration</b>	Pruning process will encompass crown restoration and remedial works where the tree has been previously lopped or otherwise damaged. Not feasible when tree has extensive decay and should only be considered when there is evidence of healthy re- growth. When performed correctly the process of remedial pruning will most likely take several years to complete.

<b>Hanger Limb / Unattached branch</b>	Pruning process may be restricted to the removal of any hanger/s or dangerous/dead/dying limbs and will typically involve the removal of a single limb. In some instances, removal of an individual limb may be necessary to accommodate an obstruction and the consulting arborist will advise accordingly.
<b>Directional Pruning</b>	Pruning process will be restricted to pruning canopy away from buildings/service wires/property boundary and will typically be performed to avoid future growth in these areas. Where appropriate future growth will be directed away from obstruction by selected pruning so as to encourage the development of the growth of new leaders.
<b>Habitat Pruning</b>	When pruning deadwood from trees, simple techniques and methods can be employed to achieve hazard reduction whilst leaving food and habitat for tree dwelling fauna. Long pieces of deadwood can be reduced in length to limit potential hazard but still retain food for the insects and microorganisms. Stubs that have been left by old pruning or previous branch failure can be retained, and with the use of a hole-saw or chainsaw they may also be bored out to create a nesting hollow for native birds or small mammals. Source: Mosman Council
<b>Deadwood</b>	Dead branches within canopy of tree <sup>59F</sup> . Deadwood is a naturally occurring feature of most tree species and comprises dead or decaying branches within the canopy of a tree. Deadwood may have habitat value and require removal only according to the considered risk of its location, i.e. high use pedestrian area or damage to adjacent infrastructure.
<b>Decay</b>	The process of degradation of woody tissues by micro-organisms <sup>61F</sup>
<b>Compaction</b>	Results from loads or stress forces applied to the soil as well as shear forces. Both foot traffic and vehicle traffic exert both forces on soils. Vehicle traffic may cause significant compaction at depths of 150–200 mm (the area in which most absorbing roots are located). The degree of compaction will depend on weight of vehicles, number of movements, soil moisture levels and clay content. Soil handling, stockpiling and transporting also tend to lead to the breakdown of soil structure and thus to compaction. Vibration as a result of frequent traffic or adjacent construction activities will also compact soils <sup>55F</sup>
<b>Codominant Structure:</b>	Stems or trunks of about the same size originating from the same position from the main stem <sup>52F</sup> . When the stem bark ridge turns upward the union is strong; when the ridge turns inward the union is weak, a likely point of failure in storm or windy weather conditions or where increasing weight causes undue stress on the defective union <sup>53F</sup>

Source: AS4373-2003 Pruning of Amenity Trees & AS 4970-2009 Protection of Tree on Development Sites & Habitat Creation By Kieran O'Neill, Mosman Council.

## Tree Protection Plan



• Demolition of adjacent concrete sandpit edging within the TPZ of Tree 7 and 8 to exclude any works below existing grade. Removal of concrete footings may damage roots and impact structural stability of the tree.

• Existing shed and concrete slab/footpath within the TPZ to be removed in an outwards direction away from the stem of Tree 17, 18, and 23. No excavation below existing grade is permitted during demolition.



- Covered deck within the TPZ of Tree 7 and 8 to utilise pier and beam construction methodology. Pier holes to be vacuum excavated under the supervision of the Project Arborist. Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require the pier to be offset to reduce impacts to identified roots. Pier holes to be lined with builder's black plastic prior to concrete pour to isolate concrete from exposed roots.

- Meeting with construction team is to be held prior to works commencing to determine if pruning of Trees 7, 8, or 9 will be required to allow adequate clearance from the proposed structure during construction. Any required pruning works are to be conducted by a minimum AQF Level 3 Arborist, under the supervision of the Project Arborist.

- Required minor battering within the TPZ of Tree 7 is limited to minor levels of fill. No excavation below existing grade is permitted prior to installation of fill.

- Proposed new sandpit 'yarning circle' within the TPZ of Tree 7 and 8 to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.

- Route any required services outside the TPZ of retained trees. Should the alignment be required within the TPZ, vacuum excavation is to be utilised under the supervision of the Project Arborist.

- Proposed concrete slab for relocated storage shed within the TPZ of Tree 9 is to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.

- Require piers for the proposed shade sail, and/or fence within the TPZ of Trees 17, 18, 23, and 24 are to be hand/vacuum excavated under the supervision of the Project Arborist. Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.



• Proposed concrete footpath/refuse area/carport within the TPZ of Trees 17, 23, and 24 are to be constructed above current grade utilising a bed of level 2 structural soils/pea gravel/coarse river sand wherein the TPZ (50mm depth excavation is permitted to remove existing turf/organic material prior to construction). Builder’s black plastic to be used to line new concrete prior to pour.

• Undertake exploratory vacuum excavation on the alignment of required cut for construction of the proposed building footings within the TPZ of Tree 23. Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter to be inspected and managed accordingly. This may require project redesign to reduce impacts to encountered roots, or review of the viability for retention of the tree.

• Proposed landscaping within the TPZ of Trees 23 and 24 to be installed above current grade.

• Ensure LCC permission is in place prior to root zone interference within the TPZ of Trees 23, 24, and 53.

## Tree Species Locations



Please Note: Tree Locations are an approximate only and not survey accurate. Circles indicate Tree Protection Zones as defined under AS4970:2009 – Protection of Trees on development sites.

## Tree Locations and Risk Rating



Please Note: Tree Locations are an approximate only and not survey accurate. Colours designated to the trees correspond with the relevant risk ratings.

## Tree Detail

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Height (m)	Spread (m)	Health	Form	Risk Rating	Comment
1	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	63	7.6	14	10	Fair	Typical	Medium	Co-dominant Limbs, Deadwood under 50mm
2	<i>Calliandra haematocephala</i>	Powderpuff plant	11	2.0	3	3	Fair	Poor	Low	Epicormic Growth, Phototropic, Previously Lopped
3	<i>Calliandra haematocephala</i>	Powderpuff plant	14	2.0	3	3	Fair	Poor	Low	Co-dominant Limbs, Epicormic Growth, Phototropic, Previously Lopped
4	<i>Calliandra haematocephala</i>	Powderpuff plant	9	2.0	3	3	Fair	Poor	Low	Epicormic Growth, Phototropic, Previously Lopped
5	<i>Calliandra haematocephala</i>	Powderpuff plant	12	2.0	3	3	Fair	Poor	Low	Epicormic Growth, Phototropic, Previously Lopped
6	<i>Melaleuca linariifolia</i>	Snow in Summer	32	3.8	6	5	Fair	Poor	Low	Co-dominant Limbs, Epicormic Growth, Phototropic, Previously Lopped
7	<i>Cinnamomum camphora</i>	Camphor Laurel	88	10.5	13	13	Fair	Typical	Medium	Co-dominant Limbs, Deadwood over 50mm, Weed species
8	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	43	5.2	12	12	Fair	Poor	Medium	Co-dominant Limbs, Deadwood over 50mm, Epicormic Growth, Previously Lopped
9	<i>Lophostemon suaveolens</i>	Swamp Box	43	5.2	13	10	Fair	Typical	Medium	Deadwood under 50mm, Phototropic
10	<i>Lophostemon suaveolens</i>	Swamp Box	25	3.0	13	4	Fair	Typical	Low	Co-dominant Limbs, Deadwood under 50mm
11	<i>Lophostemon suaveolens</i>	Swamp Box	28	3.4	13	5	Fair	Typical	Low	Deadwood under 50mm
12	<i>Lophostemon suaveolens</i>	Swamp Box	27	3.2	13	5	Fair	Typical	Low	Co-dominant Limbs, Deadwood under 50mm, Vine growth
13	<i>Dyopsis lutescens</i>	Golden Cane	-	2.0	8	10	Fair	Typical	Low	Co-dominant Limbs
14	<i>Lophostemon suaveolens</i>	Swamp Box	16	2.0	9	3	Fair	Typical	Low	Vine growth
15	<i>Lophostemon suaveolens</i>	Swamp Box	21	2.5	9	3	Fair	Typical	Low	Wound
16	<i>Lophostemon suaveolens</i>	Swamp Box	35	4.2	9	6	Fair	Typical	Low	Vine growth
17	<i>Melaleuca quinquenervia</i>	Common Paperbark	60	7.2	11	11	Fair	Typical	Low	Co-dominant Limbs, Included bark, Previously Lopped
18	<i>Alphitonia excelsa</i>	Soap Tree/Red Ash	23	2.8	5	4	Fair	Typical	Low	Deadwood under 50mm
19	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	16	2.0	3	3	Fair	Poor	Low	Phototropic
20	<i>Various spp.</i>	Group of Trees					Fair	Poor	Low	
21	<i>Syzygium paniculatum</i>	Magenta Cherry	26	3.2	6	6	Fair	Poor	Low	Co-dominant Limbs
22	<i>Ficus sp.</i>	Fig	12	2.0	6	4	Fair	Typical	Low	
23	<i>Corymbia torelliana</i>	Cadaghi	73	8.8	15	14	Good	Typical	Medium	Deadwood under 50mm, Weed species
24	<i>Corymbia torelliana</i>	Cadaghi	47	5.6	16	14	Good	Typical	Medium	Deadwood under 50mm, Weed species
25	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	17	2.0	8	5	Fair	Poor	Low	Co-dominant Limbs, Deadwood under 50mm
26	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	23	2.8	9	5	Fair	Poor	Low	Co-dominant Limbs, Deadwood under 50mm, Fungus/Fruiting Bodies, Phototropic, Previously Lopped
27	<i>Cupaniopsis anacardioides</i>	Tuckeroo	35	4.2	13	11	Fair	Typical	Low	Deadwood under 50mm, Wound

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Height (m)	Spread (m)	Health	Form	Risk Rating	Comment
28	<i>Spathodea campanulata</i>	African Tulip Tree	56	6.7	12	8	Fair	Typical	Medium	Deadwood under 50mm, Weed species
29	<i>Celtis sinensis</i>	Chinese Elm	23	2.8	10	8	Fair	Typical	Low	Deadwood under 50mm, Suppressed, Weed species
30	<i>Syagrus romanzoffiana</i>	Queen Palm	24	2.9	16	6	Fair	Typical	Medium	Dead fronds
31	<i>Corymbia torelliana</i>	Cadaghi	68	8.2	20	17	Fair	Typical	High	Deadwood over 50mm, Unattached Branches
32	<i>Spathodea campanulata</i>	African Tulip Tree	46	5.5	16	6	Fair	Typical	Low	Broken Limbs, Deadwood over 50mm
33	<i>Schinus terebinthifolius</i>	Broadleaved Pepper	30	3.6	7	10	Fair	Poor	Low	Epicormic Growth, Phototropic, Suppressed, Weed species
34	<i>Eucalyptus grandis</i>	Flooded Gum	34	4.1	18	13	Fair	Poor	Medium	Co-dominant Limbs, Deadwood under 50mm, Phototropic
35	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	37	4.5	15	11	Poor	Poor	Medium	Co-dominant Limbs, Deadwood over 50mm, Dieback, Epicormic Growth
36	<i>Grevillea robusta</i>	Silky Oak	17	2.0	12	5	Fair	Poor	Low	Deadwood under 50mm, Phototropic, Suppressed, Wound
37	<i>Eucalyptus curtisii</i>	Plunkett mallee	14	2.0	3	3	Poor	Poor	Low	Cavity, Deadwood over 50mm, Epicormic Growth, Habitat Features
38	<i>Syagrus romanzoffiana</i>	Queen Palm	25	3.0	15	6	Fair	Typical	Low	Dead fronds
39	<i>Senna siamea</i>	Kassod Tree	49	5.9	15	11	Fair	Poor	Low	Co-dominant Limbs, Deadwood under 50mm, Included bark
40	<i>Harpullia pendula</i>	Tulipwood	20	2.4	8	6	Fair	Typical	Low	Epicormic Growth, Phototropic, Wound
41	<i>Libidibia ferrea</i>	Leopard Tree	26	3.1	7	4	Fair	Poor	Low	Co-dominant Limbs
42	<i>Eucalyptus microcorys</i>	Tallow Wood	20	2.4	3	3	Poor	Poor	Low	Decay, Epicormic Growth, Previously Lopped
43	<i>Lophostemon suaveolens</i>	Swamp Box	38	4.6	14	6	Fair	Typical	Low	Deadwood under 50mm, Phototropic
44	<i>Lophostemon suaveolens</i>	Swamp Box	30	3.6	13	6	Fair	Typical	Low	Deadwood under 50mm, Phototropic
45	<i>Lophostemon suaveolens</i>	Swamp Box	35	4.2	14	6	Fair	Typical	Low	Deadwood under 50mm, Phototropic
46	<i>Araucaria cunninghamii</i> var. <i>cunninghamii</i>	Hoop Pine	42	5.0	18	10	Fair	Typical	Low	Deadwood under 50mm
47	<i>Lophostemon suaveolens</i>	Swamp Box	31	3.7	14	6	Fair	Typical	Low	Deadwood under 50mm
48	<i>Lophostemon suaveolens</i>	Swamp Box	23	2.8	10	6	Fair	Typical	Low	Deadwood under 50mm, Suppressed
49	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	35	4.2	9	6	Fair	Typical	Low	Co-dominant Limbs
50	<i>Ficus microcarpa</i> var. <i>hillii</i>	Hill's Weeping Fig	38	4.6	8	10	Fair	Typical	Low	Co-dominant Limbs, Deadwood under 50mm
51	<i>Ficus microcarpa</i> var. <i>hillii</i>	Hill's Weeping Fig	23	2.8	5	8	Fair	Typical	Low	Broken Limbs, Co-dominant Limbs, Deadwood under 50mm, Included bark
52	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	21	2.6	5	6	Fair	Typical	Low	Co-dominant Limbs
53	<i>Corymbia torelliana</i>	Cadaghi	63	7.6	16	14	Fair	Typical	Medium	Broken Limbs, Co-dominant Limbs, Deadwood under 50mm, Decay, Weed species
54	<i>Toona ciliata</i>	Australian Red Cedar	37	4.4	13	9	Good	Poor	Low	Deadwood over 50mm, Deadwood under 50mm, Suppressed
55	<i>Corymbia torelliana</i>	Cadaghi	46	5.5	16	12	Fair	Typical	Medium	Deadwood over 50mm, Deadwood under 50mm, Weed species

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Height (m)	Spread (m)	Health	Form	Risk Rating	Comment
56	<i>Corymbia torelliana</i>	Cadaghi	51	6.1	17	12	Good	Typical	Low	Deadwood over 50mm, Deadwood under 50mm, Unattached Branches, Weed species
57	<i>Grevillea robusta</i>	Silky Oak	26	3.1	16	5	Fair	Poor	Low	Deadwood under 50mm, One sided, Phototropic
58	<i>Corymbia torelliana</i>	Cadaghi	103	12.4	17	15	Fair	Typical	Low	Co-dominant Limbs, Deadwood over 50mm, Deadwood under 50mm, Kino flow, Unattached Branches, Weed species
59	<i>Toona ciliata</i>	Australian Red Cedar	21	2.5	5	3	Poor	Poor	Medium	Co-dominant Limbs, Deadwood over 50mm, Deadwood under 50mm, Decay, Dieback, Head died out, Phototropic, Poor crown morphology, Suppressed
60	<i>Toona ciliata</i>	Australian Red Cedar	26	3.1	6	5	Poor	Typical	Medium	Compacted Soil, Deadwood over 50mm, Deadwood under 50mm, Decay, Dieback, Epicormic Growth, Head died out, Poor crown density
61	<i>Toona ciliata</i>	Australian Red Cedar	17	2.0	5	4	Good	Poor	Low	Compacted Soil, Deadwood over 50mm, Decay, One sided, Phototropic, Suppressed
62	<i>Toona ciliata</i>	Australian Red Cedar	11	2.0	5	2	Good	Poor	Low	Deadwood under 50mm, Suppressed
63	<i>Corymbia torelliana</i>	Cadaghi	49	5.9	13	13	Fair	Poor	Medium	Deadwood over 50mm, Deadwood under 50mm, One sided, Unattached Branches, Weed species
64	<i>Corymbia torelliana</i>	Cadaghi	54	6.5	16	15	Fair	Typical	Medium	Deadwood over 50mm, Deadwood under 50mm, Unattached Branches, Weed species
65	<i>Corymbia torelliana</i>	Cadaghi	45	5.4	15	15	Fair	Typical	Low	Deadwood under 50mm, Unattached Branches, Weed species
66	<i>Toona ciliata</i>	Australian Red Cedar	29	3.5	7	5	Fair	Typical	Low	Deadwood under 50mm
67	<i>Toona ciliata</i>	Australian Red Cedar	27	3.2	5	4	Poor	Poor	Medium	Deadwood over 50mm, Deadwood under 50mm, Decay, Dieback, Head died out, Poor crown density, Suppressed
68	<i>Toona ciliata</i>	Australian Red Cedar	31	3.7	5	6	Poor	Poor	Medium	Deadwood over 50mm, Deadwood under 50mm, Decay, Dieback, Head died out, Poor crown density, Suppressed
69	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	61	7.3	7	7	Fair	Typical	Low	Weed species
70	<i>Toona ciliata</i>	Australian Red Cedar	26	3.1	7	5	Good	Poor	Low	Deadwood over 50mm, Deadwood under 50mm, Suppressed
71	<i>Toona ciliata</i>	Australian Red Cedar	18	2.2	7	5	Poor	Poor	Medium	Deadwood over 50mm, Deadwood under 50mm, Decay, Dieback, Head died out, Suppressed
72	<i>Jacaranda mimosifolia</i>	Jacaranda	25	3.0	8	7	Fair	Poor	Low	Deadwood under 50mm, Decay, One sided, Phototropic, Suppressed

<b>Table Legend:</b>			
<b>Health</b>	<b>Form</b>	<b>Aged Class</b>	<b>Further Detail</b>
Good: Trees foliage is in exceptional condition and can be considered an excellent specimen of its species. No pests or diseases are present.	Good: Trees structure is exceptional and can be considered an excellent specimen of its species. No visible defects are present.	Juvenile: Tree will generally grow rapidly in this phase of its life cycle.	Diameter at Breast Height (DBH) measured at 1.4m above ground level. Diameter at Root Flare (DRF) measured at the base of the tree, at the trunk / root system transition zone. Diameter = circumference divided by $\pi$
Fair: Trees foliar condition is satisfactory but may be exhibiting some signs of stress such as tip dieback or chlorosis, pests or diseases may be present but not adversely affecting the tree.	Typical: Trees structure is normal for the species; some minor structural constraints may be present.	Mature: Tree has reached maturity and is producing flowers, fruits and seeds. Tree continues to grow.	Tree Protection Zone (TPZ) defined as metres radius. Calculated being $DBH \times 12$ (minimum 2.0m and no greater than 15m).
Poor: Foliage density is sparse or largely discoloured, tree health is at or approaching a critical value which may be irreversible, pests or diseases are highly prevalent throughout the crown.	Poor: Structure is a poor example of its species and exhibits a combination of structural issues.	Full to Late Maturity: Tree has reached the maximum height for its species, elongation has stopped but the trunk continues to thicken, overall growth rate is starting to slow, foliar density may be starting to thin.	Structural Root Zone (SRZ) displaced as metres radius. Calculation being $(DRF \times 50)^{0.42} \times 0.64$ (never less than 1.5m or greater than 15m).
Dead: Tree is in advanced decline or completely dead.	Dead: Tree is in advanced decline or completely dead.	Senescent: Tree has / is starting to retract in size through dieback and shedding of limbs. Trees in this age class may be ecologically valuable, as their structure contains habitat necessary for native fauna.	

## Tree Retention Recommendations

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
1	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	63	7.6	MINOR	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
7	<i>Cinnamomum camphora</i>	Camphor Laurel	88	10.5	MAJOR	Retain and Protect – <ul style="list-style-type: none"> <li>Demolition of adjacent concrete sandpit edging to exclude any works below existing grade. Removal of concrete footings may damage roots and impact structural stability of the tree.</li> <li>Covered deck within the TPZ to utilise pier and beam construction methodology.</li> <li>Pier holes to be vacuum excavated under the supervision of the Project Arborist.</li> <li>Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require the pier to be offset to reduce impacts to identified roots.</li> <li>Pier holes to be lined with builder’s black plastic prior to concrete pour to isolate concrete from exposed roots.</li> <li>Meeting with construction team is to be held prior to works commencing to determine if pruning will be required to allow adequate clearance from the proposed structure during construction.</li> <li>Any required pruning works are to be conducted by a minimum AQF Level 3 Arborist, under the supervision of the Project Arborist.</li> <li>Route any required services outside the TPZ. Should the alignment be required within the TPZ, vacuum excavation is to be utilised under the supervision of the Project Arborist.</li> <li>Services to be slid underneath/between exposed roots, with pruning to occur only once all other options have been exhausted.</li> <li>Undertake the removal of deadwood in the crown.</li> <li>Required minor battering within the TPZ is limited to minor levels of fill. No excavation below existing grade is permitted prior to installation of fill.</li> <li>Proposed new sandpit ‘yarning circle’ within the TPZ to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.</li> </ul>
8	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	43	5.2	MAJOR	Retain and Protect – <ul style="list-style-type: none"> <li>Demolition of adjacent concrete sandpit edging to exclude any works below existing grade. Removal of concrete footings may damage roots and impact structural stability of the tree.</li> <li>Covered deck within the TPZ to utilise pier and beam construction methodology.</li> </ul>

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
						<ul style="list-style-type: none"> <li>Pier holes to be vacuum excavated under the supervision of the Project Arborist.</li> <li>Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require the pier to be offset to reduce impacts to identified roots.</li> <li>Pier holes to be lined with builder's black plastic prior to concrete pour to isolate concrete from exposed roots.</li> <li>Meeting with construction team is to be held prior to works commencing to determine if pruning will be required to allow adequate clearance from the proposed structure during construction.</li> <li>Any required pruning works are to be conducted by a minimum AQF Level 3 Arborist, under the supervision of the Project Arborist.</li> <li>Route any required services outside the TPZ. Should the alignment be required within the TPZ, vacuum excavation is to be utilised under the supervision of the Project Arborist.</li> <li>Services to be slid underneath/between exposed roots, with pruning to occur only once all other options have been exhausted.</li> <li>Undertake the removal of deadwood in the crown.</li> <li>Required minor battering within the TPZ is limited to minor levels of fill. No excavation below existing grade is permitted prior to installation of fill.</li> <li>Proposed new sandpit 'yarning circle' within the TPZ to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.</li> </ul>
9	<i>Lophostemon suaveolens</i>	Swamp Box	43	5.2	MAJOR	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Proposed concrete slab for relocated storage shed to be constructed above current grade. Maximum 50mm depth excavation is permitted prior to construction to remove existing grass and other organic material.</li> <li>Meeting with construction team is to be held prior to works commencing to determine if pruning will be required to allow adequate clearance from the proposed structure during construction.</li> <li>Any required pruning works are to be conducted by a minimum AQF Level 3 Arborist, under the supervision of the Project Arborist.</li> </ul>
15	<i>Lophostemon suaveolens</i>	Swamp Box	21	2.5	NIL	Retain and Protect
16	<i>Lophostemon suaveolens</i>	Swamp Box	35	4.2	NIL	Retain and Protect
17	<i>Melaleuca quinquenervia</i>	Common Paperbark	60	7.2	MAJOR	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Existing shed and concrete slab/footpath within the TPZ to be removed in an outwards direction away from the stem of the tree. No excavation below existing grade is permitted during demolition.</li> </ul>

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
						<ul style="list-style-type: none"> <li>Proposed concrete footpath to be constructed above current grade utilising a bed of level 2 structural soils/pea gravel/coarse river sand wherein the TPZ (50mm depth excavation is permitted to remove existing turf/organic material prior to construction). Builder's black plastic to be used to line new concrete prior to pour.</li> <li>Required piers for the proposed shade sail, and fence within the TPZ are to be hand/vacuum excavated under the supervision of the Project Arborist.</li> <li>Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.</li> </ul>
18	<i>Alphitonia excelsa</i>	Soap Tree/Red Ash	23	2.8	MAJOR	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Existing shed and concrete slab/footpath within the TPZ to be removed in an outwards direction away from the stem of the tree. No excavation below existing grade is permitted during demolition.</li> <li>Required piers for the proposed shade sail within the TPZ are to be hand/vacuum excavated under the supervision of the Project Arborist.</li> <li>Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.</li> </ul>
19	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	16	2.0	MINOR	Retain and Protect
22	<i>Ficus sp.</i>	Fig	12	2.0	NIL	Retain and Protect
23	<i>Corymbia torelliana</i>	Cadaghi	73	8.8	MAJOR	<p>Retention status pending Project Arborist review of exploratory vacuum excavation –</p> <ul style="list-style-type: none"> <li>Existing concrete slab/footpath within the TPZ to be removed in an outwards direction away from the stem of the tree. No excavation below existing grade is permitted during demolition.</li> <li>Proposed concrete footpath to be constructed above current grade utilising a bed of level 2 structural soils/pea gravel/coarse river sand wherein the TPZ (50mm depth excavation is permitted to remove existing turf/organic material prior to construction). Builder's black plastic to be used to line new concrete prior to pour.</li> <li>Undertake exploratory vacuum excavation on the alignment of required cut for construction of the proposed building footings. Roots encountered under 50mm diameter to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter to be inspected and managed accordingly. This may require project redesign to reduce impacts to encountered roots, or review of the viability for retention of the tree.</li> <li>Ensure LCC permission for root zone interference (or removal – pending results of exploratory vacuum excavation) is in place prior to works commencing.</li> <li>Required piers for the proposed fence within the TPZ are to be hand/vacuum excavated under the supervision of the Project Arborist.</li> </ul>

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
						<ul style="list-style-type: none"> <li>Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.</li> <li>Proposed landscaping within the TPZ to be installed above current grade.</li> </ul>
24	<i>Corymbia torelliana</i>	Cadaghi	47	5.6	MAJOR	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Proposed concrete footpath, refuse area, vehicle access, and carport to be constructed above current grade utilising a bed of level 2 structural soils/pea gravel/coarse river sand wherein the TPZ (50mm depth excavation is permitted to remove existing turf/organic material prior to construction). Builder's black plastic to be used to line new concrete prior to pour.</li> <li>Ensure LCC permission for root zone interference is in place prior to works commencing.</li> <li>Required piers for the proposed fence within the TPZ are to be hand/vacuum excavated under the supervision of the Project Arborist.</li> <li>Roots encountered under 50mm diameter are to be cut cleanly by the Project Arborist. Roots encountered over 50mm diameter will require pier to be offset to avoid impacts to identified roots. Builder's black plastic to be used to line new concrete prior to pour.</li> <li>Proposed landscaping within the TPZ to be installed above current grade.</li> </ul>
27	<i>Cupaniopsis anacardioides</i>	Tuckeroo	35	4.2	NIL	Retain and Protect
28	<i>Spathodea campanulata</i>	African Tulip Tree	56	6.7	NIL	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
31	<i>Corymbia torelliana</i>	Cadaghi	68	8.2	NIL	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
34	<i>Eucalyptus grandis</i>	Flooded Gum	34	4.1	NIL	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
35	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	37	4.5	NIL	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
36	<i>Grevillea robusta</i>	Silky Oak	17	2.0	NIL	Retain and Protect
37	<i>Eucalyptus curtisii</i>	Plunkett mallee	14	2.0	NIL	Retain and Protect
38	<i>Syagrus romanzoffiana</i>	Queen Palm	25	3.0	NIL	<p>Retain and Protect –</p> <ul style="list-style-type: none"> <li>Undertake the removal of dead palm fronds</li> </ul>
39	<i>Senna siamea</i>	Kassod Tree	49	5.9	NIL	Retain and Protect
40	<i>Harpullia pendula</i>	Tulipwood	20	2.4	NIL	Retain and Protect

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
41	<i>Libidibia ferrea</i>	Leopard Tree	26	3.1	NIL	Retain and Protect
42	<i>Eucalyptus microcorys</i>	Tallow Wood	20	2.4	NIL	Retain and Protect
43	<i>Lophostemon suaveolens</i>	Swamp Box	38	4.6	NIL	Retain and Protect
44	<i>Lophostemon suaveolens</i>	Swamp Box	30	3.6	NIL	Retain and Protect
45	<i>Lophostemon suaveolens</i>	Swamp Box	35	4.2	NIL	Retain and Protect
46	<i>Araucaria cunninghamii</i> var. <i>cunninghamii</i>	Hoop Pine	42	5.0	NIL	Retain and Protect
47	<i>Lophostemon suaveolens</i>	Swamp Box	31	3.7	NIL	Retain and Protect
48	<i>Lophostemon suaveolens</i>	Swamp Box	23	2.8	NIL	Retain and Protect
49	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	35	4.2	NIL	Retain and Protect
50	<i>Ficus microcarpa</i> var. <i>hillii</i>	Hill's Weeping Fig	38	4.6	NIL	Retain and Protect
51	<i>Ficus microcarpa</i> var. <i>hillii</i>	Hill's Weeping Fig	23	2.8	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake remedial pruning</li> </ul>
52	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	21	2.6	MAJOR	Retention status pending Project Arborist review of finalised sandpit 'yarning circle' location
54	<i>Toona ciliata</i>	Australian Red Cedar	37	4.4	MINOR	Retain and Protect – <ul style="list-style-type: none"> <li>Ensure LCC permission for root zone interference is in place prior to works commencing.</li> </ul>
55	<i>Corymbia torelliana</i>	Cadaghi	46	5.5	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
56	<i>Corymbia torelliana</i>	Cadaghi	51	6.1	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
57	<i>Grevillea robusta</i>	Silky Oak	26	3.1	NIL	Retain and Protect
58	<i>Corymbia torelliana</i>	Cadaghi	103	12.4	NIL	Retain and Protect
59	<i>Toona ciliata</i>	Australian Red Cedar	21	2.5	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
60	<i>Toona ciliata</i>	Australian Red Cedar	26	3.1	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
61	<i>Toona ciliata</i>	Australian Red Cedar	17	2.0	NIL	Retain and Protect
62	<i>Toona ciliata</i>	Australian Red Cedar	11	2.0	NIL	Retain and Protect
63	<i>Corymbia torelliana</i>	Cadaghi	49	5.9	NIL	Retain and Protect –

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
						<ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> <li>Undertake a crown lift</li> </ul>
64	<i>Corymbia torelliana</i>	Cadaghi	54	6.5	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> <li>Undertake a crown lift</li> </ul>
65	<i>Corymbia torelliana</i>	Cadaghi	45	5.4	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake a crown lift</li> </ul>
66	<i>Toona ciliata</i>	Australian Red Cedar	29	3.5	NIL	Retain and Protect
67	<i>Toona ciliata</i>	Australian Red Cedar	27	3.2	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
68	<i>Toona ciliata</i>	Australian Red Cedar	31	3.7	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
69	<i>Heptapleurum actinophyllum</i>	Umbrella Tree	61	7.3	NIL	Retain and Protect
70	<i>Toona ciliata</i>	Australian Red Cedar	26	3.1	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
71	<i>Toona ciliata</i>	Australian Red Cedar	18	2.2	NIL	Retain and Protect – <ul style="list-style-type: none"> <li>Undertake the removal of deadwood in the crown</li> </ul>
72	<i>Jacaranda mimosifolia</i>	Jacaranda	25	3.0	NIL	Retain and Protect

## Tree Removal Recommendations

Tree No.	Botanical Name	Common Name	DBH (cm)	TPZ (m)	Impact	Recommendation
2	<i>Calliandra haematocephala</i>	Powderpuff plant	11	2.0	MAJOR	Remove and Replace
3	<i>Calliandra haematocephala</i>	Powderpuff plant	14	2.0	MAJOR	Remove and Replace
4	<i>Calliandra haematocephala</i>	Powderpuff plant	9	2.0	MAJOR	Remove and Replace
5	<i>Calliandra haematocephala</i>	Powderpuff plant	12	2.0	MAJOR	Remove and Replace
6	<i>Melaleuca linariifolia</i>	Snow in Summer	32	3.8	MAJOR	Remove and Replace
10	<i>Lophostemon suaveolens</i>	Swamp Box	25	3.0	MAJOR	Remove and Replace
11	<i>Lophostemon suaveolens</i>	Swamp Box	28	3.4	MAJOR	Remove and Replace
12	<i>Lophostemon suaveolens</i>	Swamp Box	27	3.2	MAJOR	Remove and Replace
13	<i>Dypsis lutescens</i>	Golden Cane	-	2.0	MAJOR	Remove and Replace
14	<i>Lophostemon suaveolens</i>	Swamp Box	16	2.0	MAJOR	Remove and Replace
20	Various spp.	Group of Trees	-	-	MAJOR	Remove and Replace
21	<i>Syzygium paniculatum</i>	Magenta Cherry	26	3.2	MAJOR	Remove and Replace
25	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	17	2.0	MAJOR	Remove and Replace
26	<i>Melaleuca viminalis</i>	Weeping Bottle Brush	23	2.8	MAJOR	Remove and Replace
29	<i>Celtis sinensis</i>	Chinese Elm	23	2.8	NIL	Remove and Replace based on weed status and future vehicle movements
30	<i>Syagrus romanzoffiana</i>	Queen Palm	24	2.9	NIL	Remove and Replace based on weed status and future vehicle movements
32	<i>Spathodea campanulata</i>	African Tulip Tree	46	5.5	NIL	Remove and Replace based on weed status
33	<i>Schinus terebinthifolius</i>	Broadleaved Pepper	30	3.6	NIL	Remove and Replace based on weed status
53	<i>Corymbia torelliana</i>	Cadaghi	63	7.6	MAJOR	Remove and Replace

# Tree Protection Measures and Guidelines

**Note 1:** TPZ perimeter fencing should be grouped where perimeters overlap and appropriate.

**Note 2:** Signage is to be installed in accordance with Australian Standard AS 4970-2009 Protection of trees on development sites as illustrated below.

**Protective Fencing**

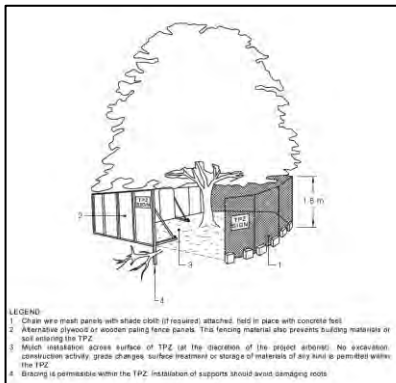


Figure 2

**Examples of Trunk, Branch & Ground Protection**

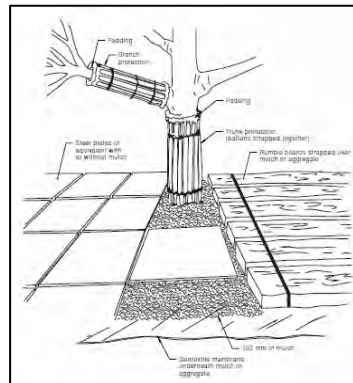


Figure 3

**Tree Protection Zone Signage**

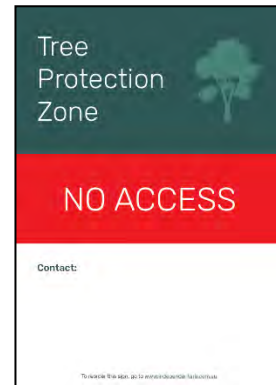


Figure 4

**Example of Fauna Friendly Rigid Style Temporary Fencing**






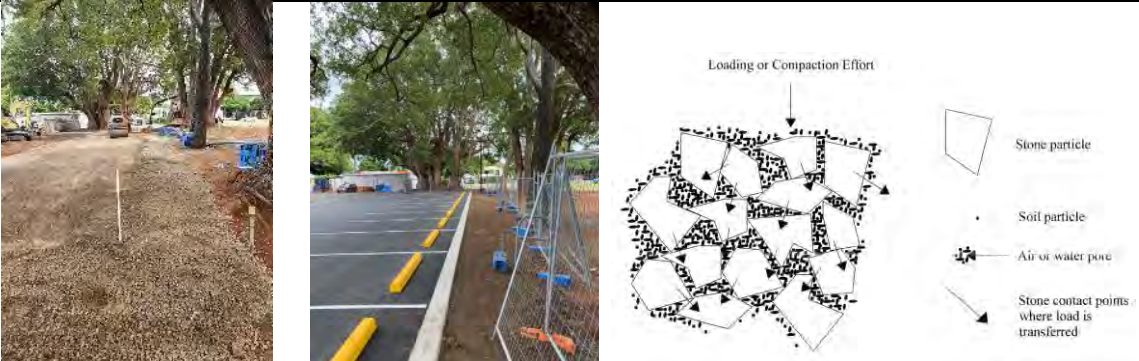




Figure 5



Figure 6

Source: AS4970-2009 Protection of Trees on Development Sites

## Examples of Amended Protection Measures

Examples	Photos
<p>Example of the use low pressure water excavation for the installation of conduits</p>	
<p>Example of the use of black plastic to line pier holes</p>	
<p>Example of the use of black plastic to line concrete</p>	
<p>Example of the use of Structural Soil. Structural Soils – (Source: Cornell University)</p>	 <p style="text-align: center;">Loading or Compaction Effort</p> <ul style="list-style-type: none"> <li> Stone particle</li> <li> Soil particle</li> <li> Air or water pore</li> <li> Stone contact points where load is transferred</li> </ul>

## Tree Management Plan (TMP) – Works Progress: Development Phase

Stage	Tasks	Specific Outcomes
<b>Pre-construction Phase</b>		
Prepare and finalise Arboricultural Impact Assessments for submission to Council	Project Arborist to be appointed Review tree details in all approved Arboricultural reports following any new issue of plans	Submit Arboricultural reports including Arboricultural Impact Assessment for final Council Approval
Project Arborist to conduct Prestart Meeting with all representatives involved in construction	Prior to meeting: TPZ temporary protection/fencing installed <b>Arboricultural Report, TMP &amp; Council approval copies to be included in CMP</b> and made available to onsite crews	Prestart Certification and approvals in place & available onsite with CMP
<b>Commencement - Construction Phase</b>		
Initial Site Preparation	Project Arborist to supervise all tree work. <b>Construction crew or others are not to remove any part of a tree.</b> Arborist prestart site inspection.	Compliance Certification of Arboricultural works for lodgement to Council  Arborist certification of TPZ measures.
Prestart Toolbox Meeting	All relevant onsite crews to be briefed by Project Arborist prior to commencement of <u>each</u> work phase. Project Arborist <u>must</u> be notified and onsite at all times when construction works are within or close to TPZ. Note: Onsite attendance of Project Arborist is a condition for issue of Arboricultural Site Audit Statement/s.	Arborist Site Audit Reporting system to be in place. Copies of Arboricultural Report to be retained onsite.  <u>Arboricultural Site Audit Statement/s will not be issued retrospectively</u>
<b>Construction Phase</b>		
Site Establishment	Project Arborist to monitor tree health during establishment phase including bulk earthworks, changes in hydrology etc.	Instigate remedial tree care measures if required
Construction work	Site Manager to liaise with and ensure Project Arborist is advised in time to allow them to be present for all work carried out within TPZ area including any work likely to affect identified tree/s. Any deviation/s from approved plans to be approved by Project Arborist. <b>Project Arborist to provide ongoing Site Audit Certification of all work within TPZ</b>	Any remedial tree works to be carried out by qualified arborists under supervision of Project Arborist.  Project Arborist is responsible for issue of Arborist Site Audit Reports.
Practical Completion	Project Arborist to carryout review of tree health and vigour and advise on TPZ fencing.	On Project Arborist approval, carryout removal of remaining temporary tree protection measures
<b>Post Construction Phase</b>		
Final Arborist inspection	Carryout tree health review and provide recommendations for required tree care.	Issue of final Arborist Site Audit Compliance Statement for inclusion in final DA documentation and sealing.

# Plans

## THE FAMILY PLACE COMMUNITY CENTRE

35A NORTH ROAD, WOODRIDGE, QLD, 4114



THESE DRAWINGS ARE ARCHITECTURAL ONLY. THEY MUST BE READ IN CONJUNCTION WITH THE TOWN PLANNING REPORT AND DOCUMENTATION PRODUCED BY THE OTHER SPECIALIST CONSULTANTS.

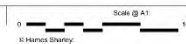
DRAWING LIST	
NO.	SHEET TITLE
SD001	COVER SHEET
SD010	LOCATION PLAN
SD020	SITE ANALYSIS
SD030	AREA DIAGRAMS
SD040	SHADOW DIAGRAMS - WINTER SOLSTICE
SD041	SHADOW DIAGRAMS - EQUINOX
SD042	SHADOW DIAGRAMS - SUMMER SOLSTICE
SD050	DESIGN INTENT
SD060	MATERIALITY INTENT
SD100	SITE PLAN
SD110	LANDSCAPE INTENT PLAN
SD210	FLOOR PLAN
SD230	ROOF PLAN
SD400	ELEVATIONS - NORTH & EAST
SD401	ELEVATIONS - SOUTH & WEST
SD500	SECTIONS
SD551	PERSPECTIVE 1 - ENTRY
SD552	PERSPECTIVE 2 - COVERED WALKWAY
SD553	PERSPECTIVE 3 - VERANDAH



THE FAMILY PLACE

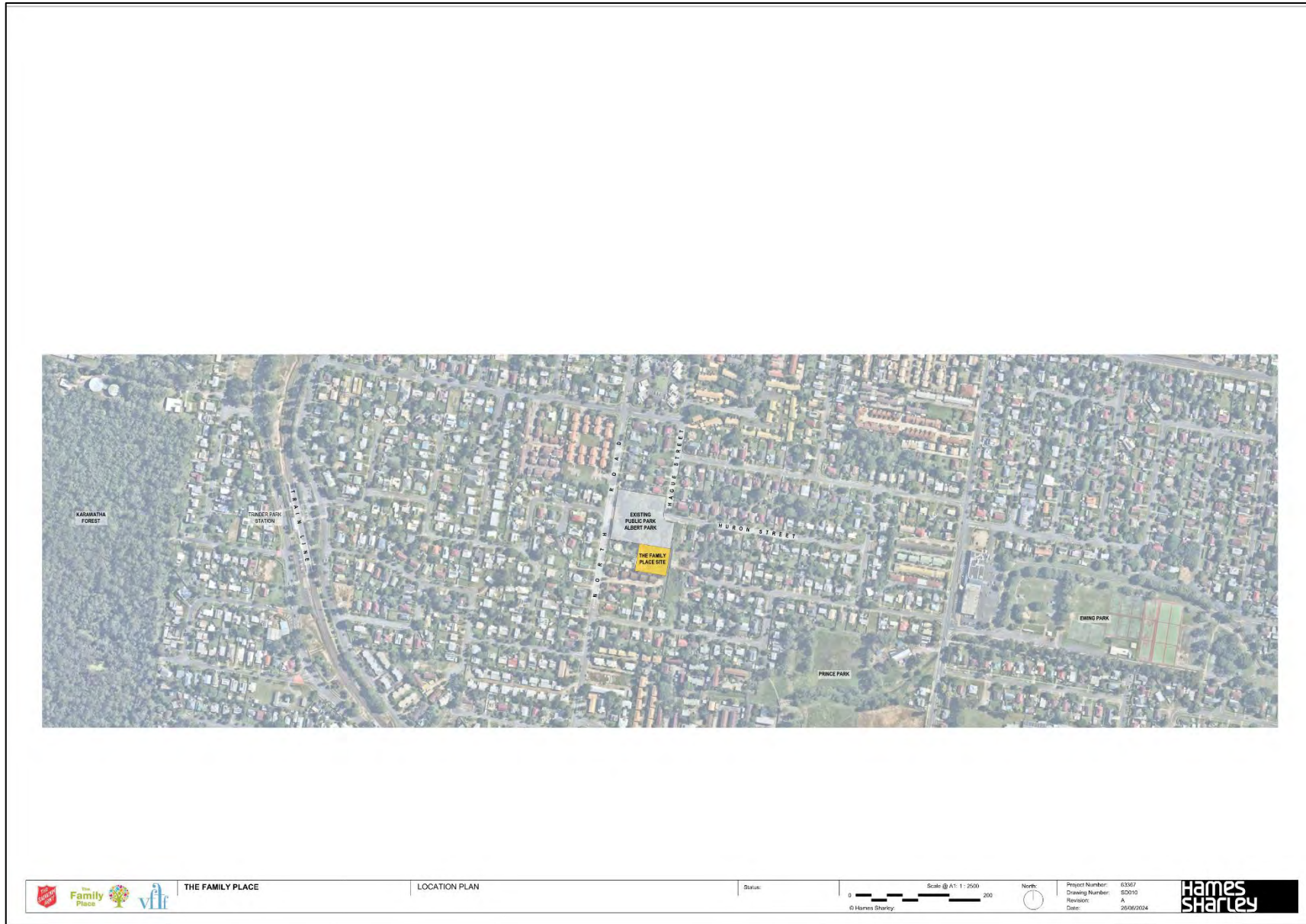
COVER SHEET

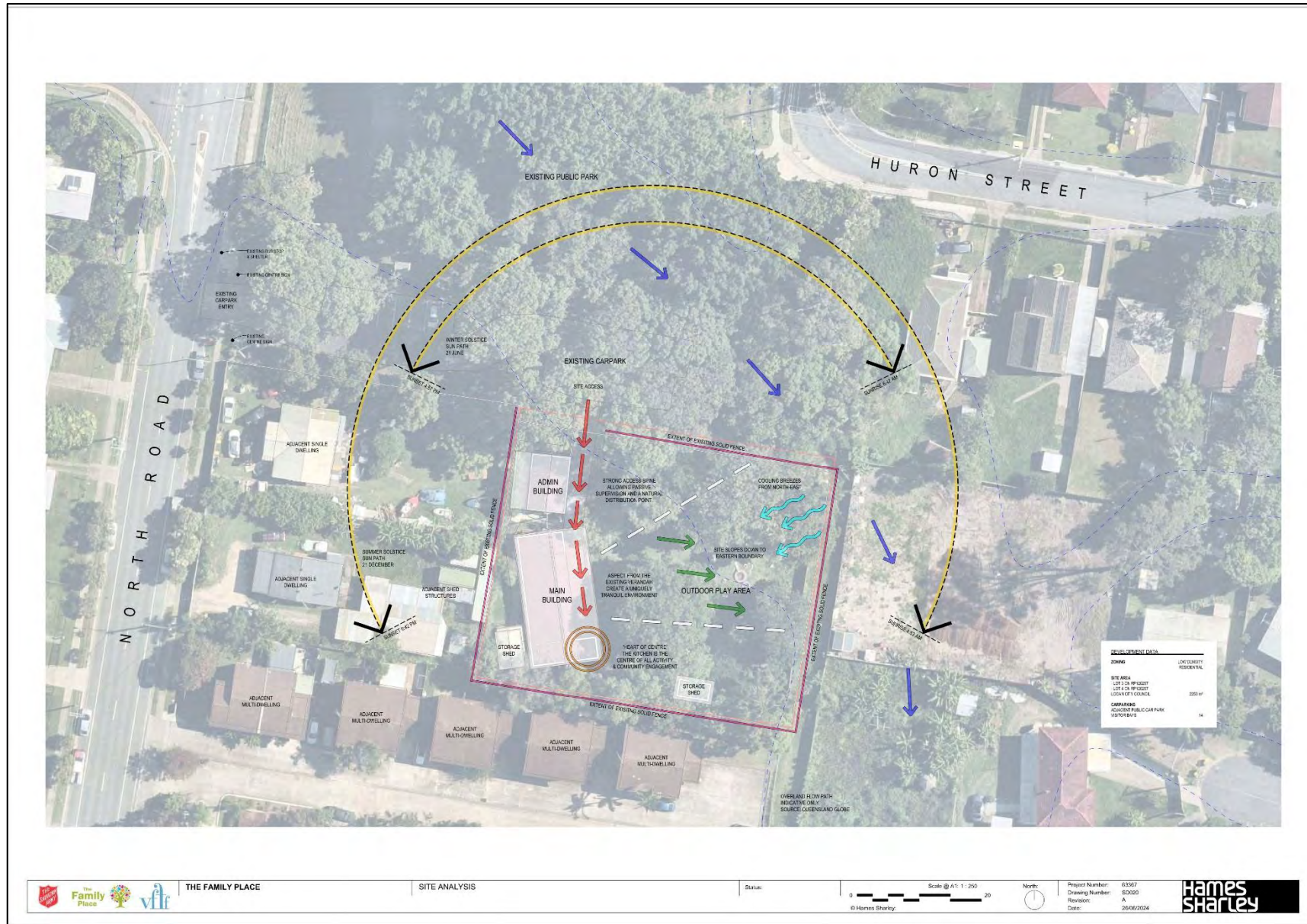
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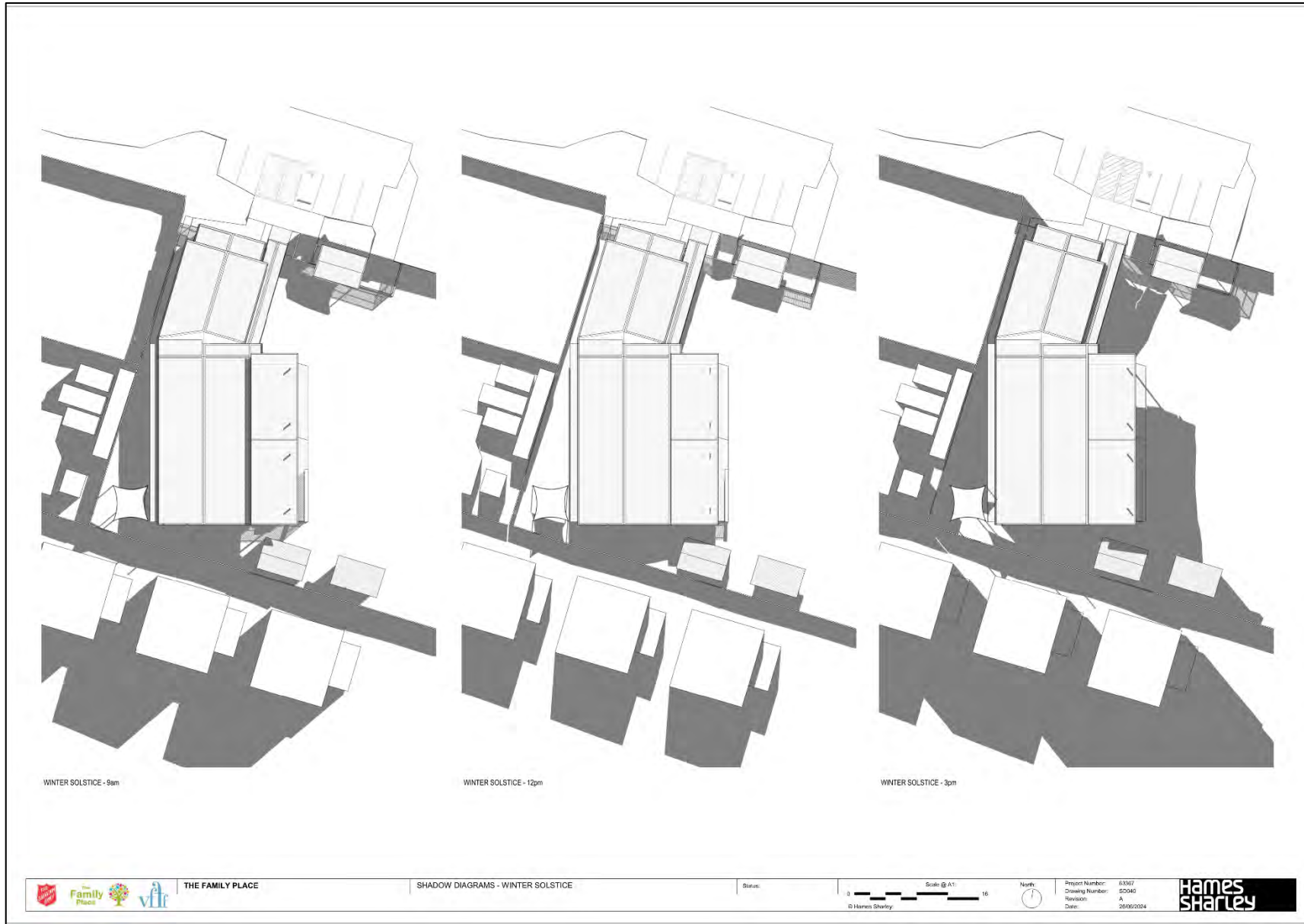
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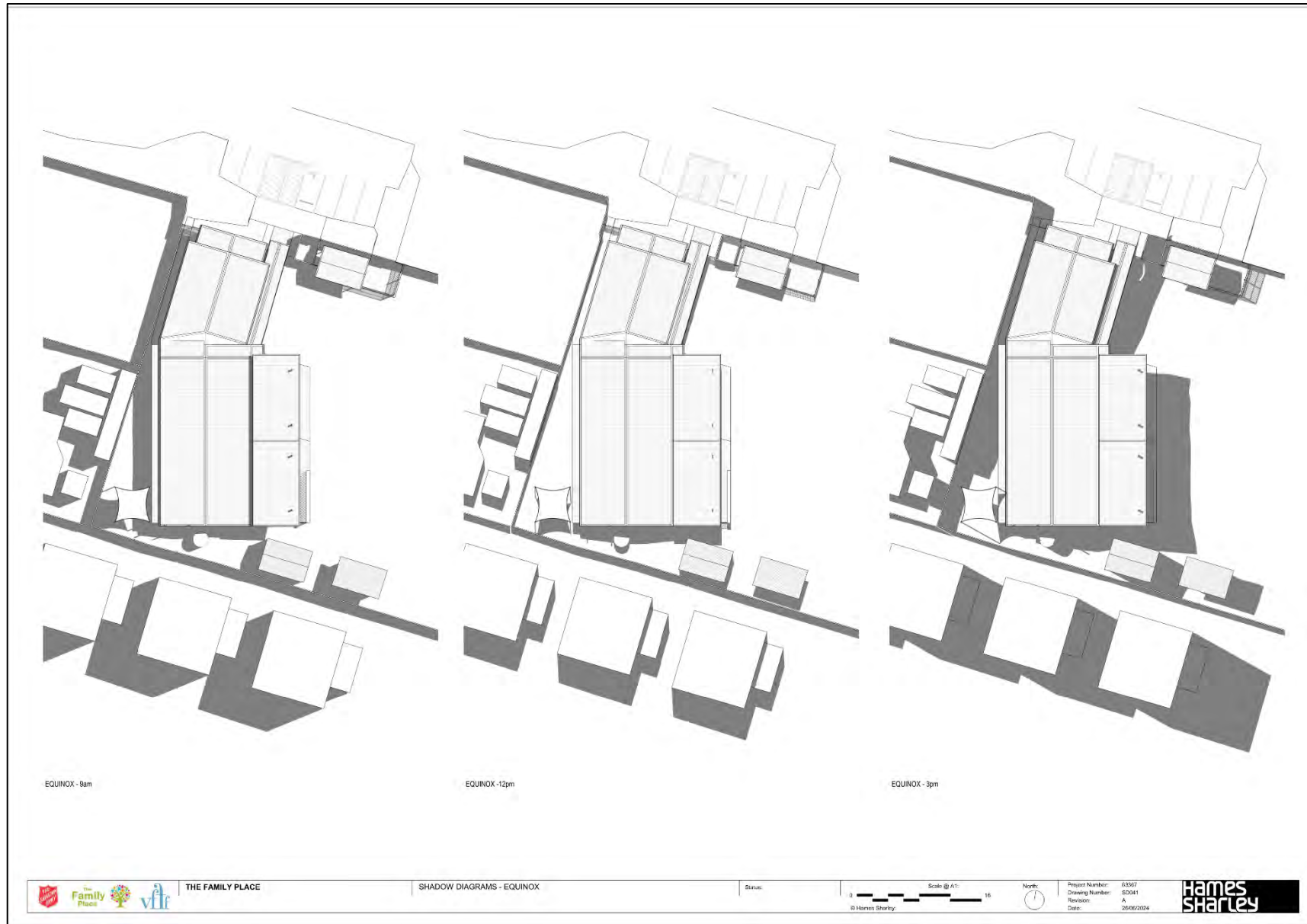


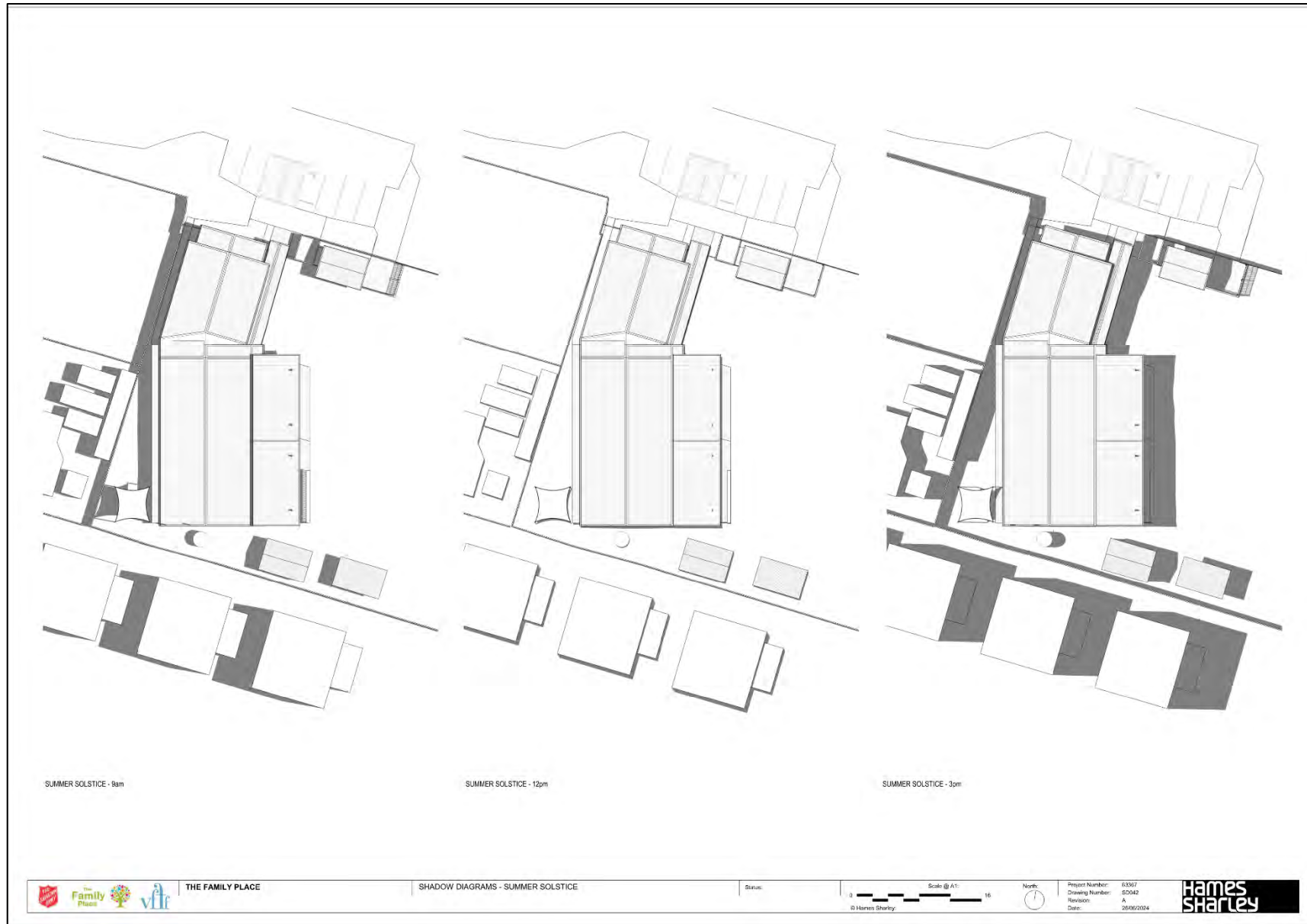














## RETAIN THE DNA OF THE FAMILY PLACE




CHILD SCALE




CONNECTION TO CULTURE  
INTRODUCE CONCEPTS SUCH AS 'YARNING CIRCLES' INTO THE NEW SANDPIT DESIGN




HAND-MADE




MOMENTS OF JOY  
STRENGTHEN EXISTING CENTRES  
MOMENTS OF TRANQUILITY & JOY




CONNECTION TO NATURE  
STRENGTHEN THE EXISTING  
CONNECTION TO OUTPLAY SPACE



COMMUNITY FUNCTIONS  
DESIGN TO FACILITIES ON-GOING  
COMMUNITY FUNCTIONS



HOMELY FEEL  
SCALE IS RESIDENTIAL IN NATURE




WARM NATURAL  
MATERIAL PALETTE



HUMAN CONNECTION  
BETWEEN STAFF & VISITORS


HOME

CONNECTION



COMMUNITY ENGAGEMENT  
COMMUNITY PAINTED MURAL ON ENTRY  
ELEVATION TO ALLOW A SENSE OF OWNERSHIP

COMMUNITY



THE FAMILY PLACE

DESIGN INTENT


Status:

Scale @ A1: 1:10



© Hames Sharley

Project Number: 63367  
Drawing Number: SD050  
Revision: A  
Date: 29/08/2024



**PAINTED WEATHER BOARD**  
SUCH AS JAMES HARDIE -LINEA

**EXISTING ROOF SHEETING**  
APPEARS TO BE COLORBOND RED MANOR

**DECORATIVE PAVEMENT TREATMENT**  
SUCH AS COLOUR CONCRETE STENCIL PAVING LOCK

**VERANDAH, WALKWAYS, AWNINGS & CARPORT**  
LIGHT COLOUR ROOF SHEETING  
SUCH AS COLORBOND SURFMIST

**COLOURED BROOM FINISH CONCRETE**  
SUCH AS BORAL -JOLIVE

**EXISTING BAMBOO FENCING**  
& SITE SIGN

**BRICK FINISH CONCRETE**  
UNCOLOURED -FOR VEHICLE  
ACCESS & CARPORT

**LIGHT COLOURED BRICK**  
SUCH AS NATIONAL MASONRY -MACADAMIA

**DECORATIVE FENCING & GATES**

**TIMBER LOOK DECKING**  
SUCH AS MODWOOD

**WALL FINISHES**

**ROOF FINISHES**

**FENCING & GATES**

**PAVEMENT & DECKING**

**THE FAMILY PLACE**

**MATERIALITY INTENT**

Status: \_\_\_\_\_

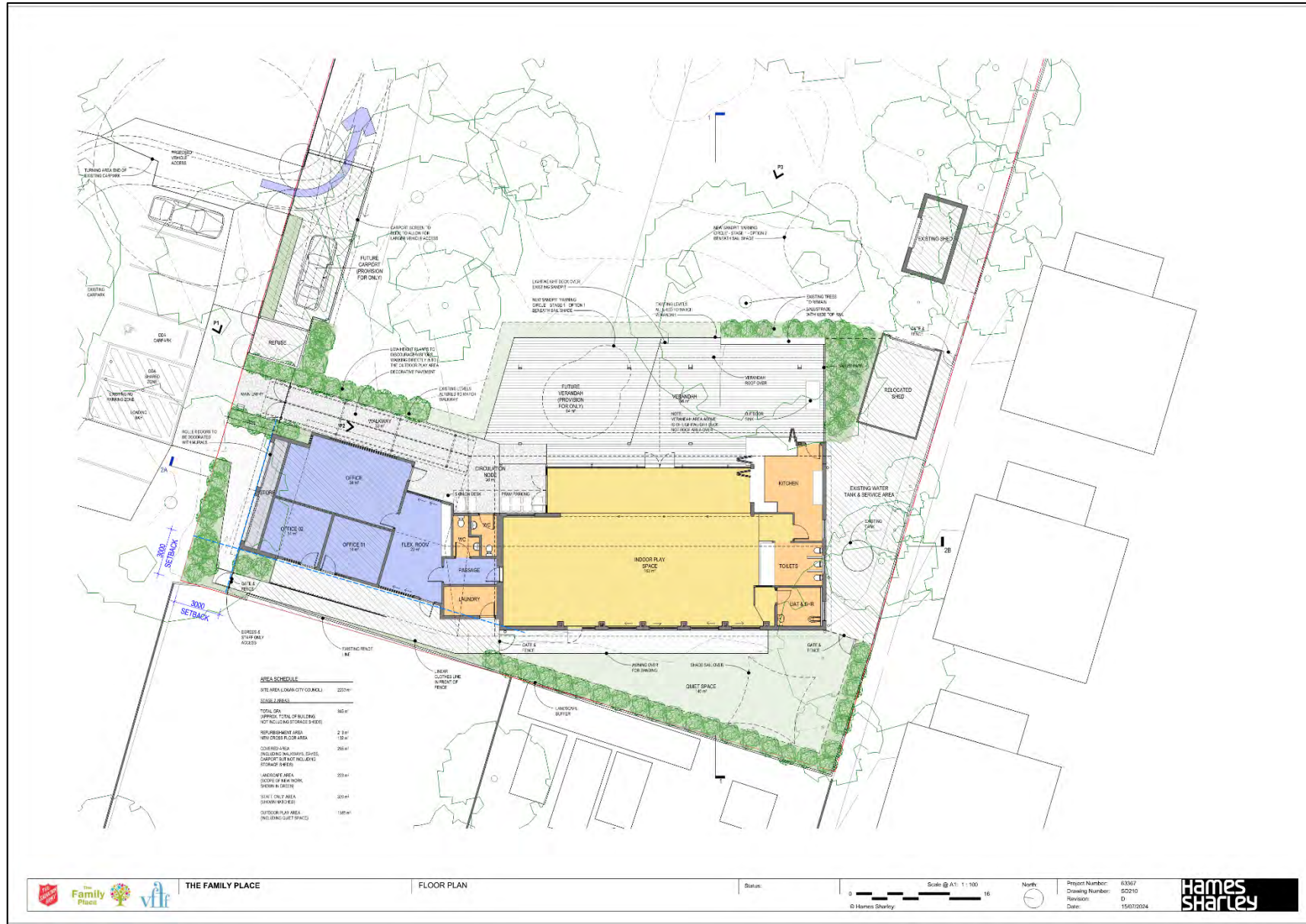
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Drawing Number: 50060  
Revision: A  
Date: 28/06/2024

**Hames Sharley**

















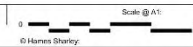
PERSPECTIVE 1 - ENTRY



THE FAMILY PLACE

PERSPECTIVE 1 - ENTRY

Status:



Project Number: 63367  
Drawing Number: S0561  
Revision: B  
Date: 28/06/2024





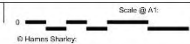
PERSPECTIVE 2 - COVERED WALKWAY



THE FAMILY PLACE

PERSPECTIVE 2 - COVERED WALKWAY

Status:



Scale @ A1:

Project Number: 63367  
Drawing Number: S0562  
Revision: B  
Date: 28/06/2024





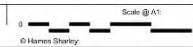
PERSPECTIVE 3 - VERANDAH



THE FAMILY PLACE

PERSPECTIVE 3 - VERANDAH

Status:



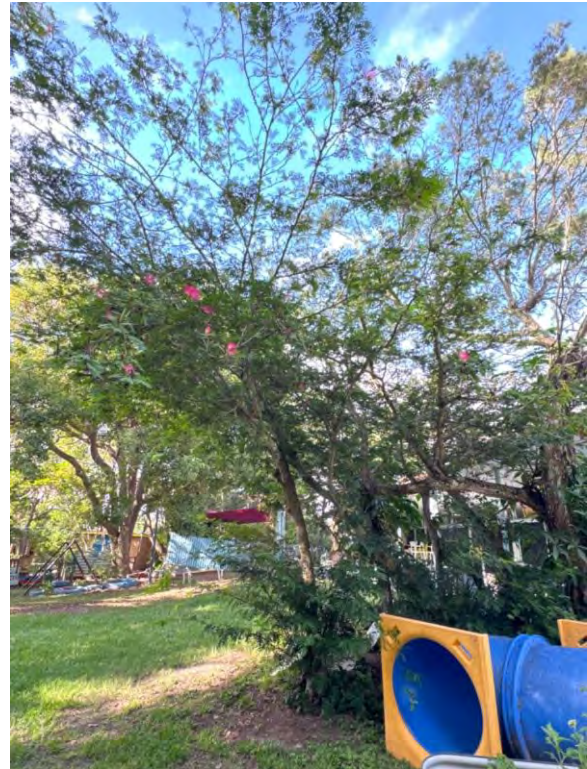
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Drawing Number: S0563  
Revision: B  
Date: 28/06/2024



## Photos



Tree 1



Tree 2



Tree 3



Tree 4



Tree 5



Tree 6



Tree 7



Tree 8



Tree 9



Tree 10



Tree 11



Tree 12



Tree 13



Tree 14



Tree 15



Tree 16



Tree 17



Tree 18



Tree 19



Tree 20



Tree 21



Tree 22



Tree 23



Tree 24



Tree 25



Tree 26



Tree 27



Tree 28



Tree 29



Tree 30



Tree 31



Tree 32



Tree 33



Tree 34



Tree 35



Tree 36



Tree 37



Tree 38



Tree 39



Tree 40



Tree 41



Tree 42



Tree 43



Tree 44



Tree 45



Tree 46



Tree 47



Tree 48



Tree 49



Tree 50



Tree 51



Tree 52



Tree 53



Tree 54



Tree 55



Tree 56



Tree 57



Tree 58



Tree 59



Tree 60



Tree 61



Tree 62



Tree 63



Tree 64



Tree 65



Tree 66



Tree 67



Tree 68



Tree 69



Tree 70

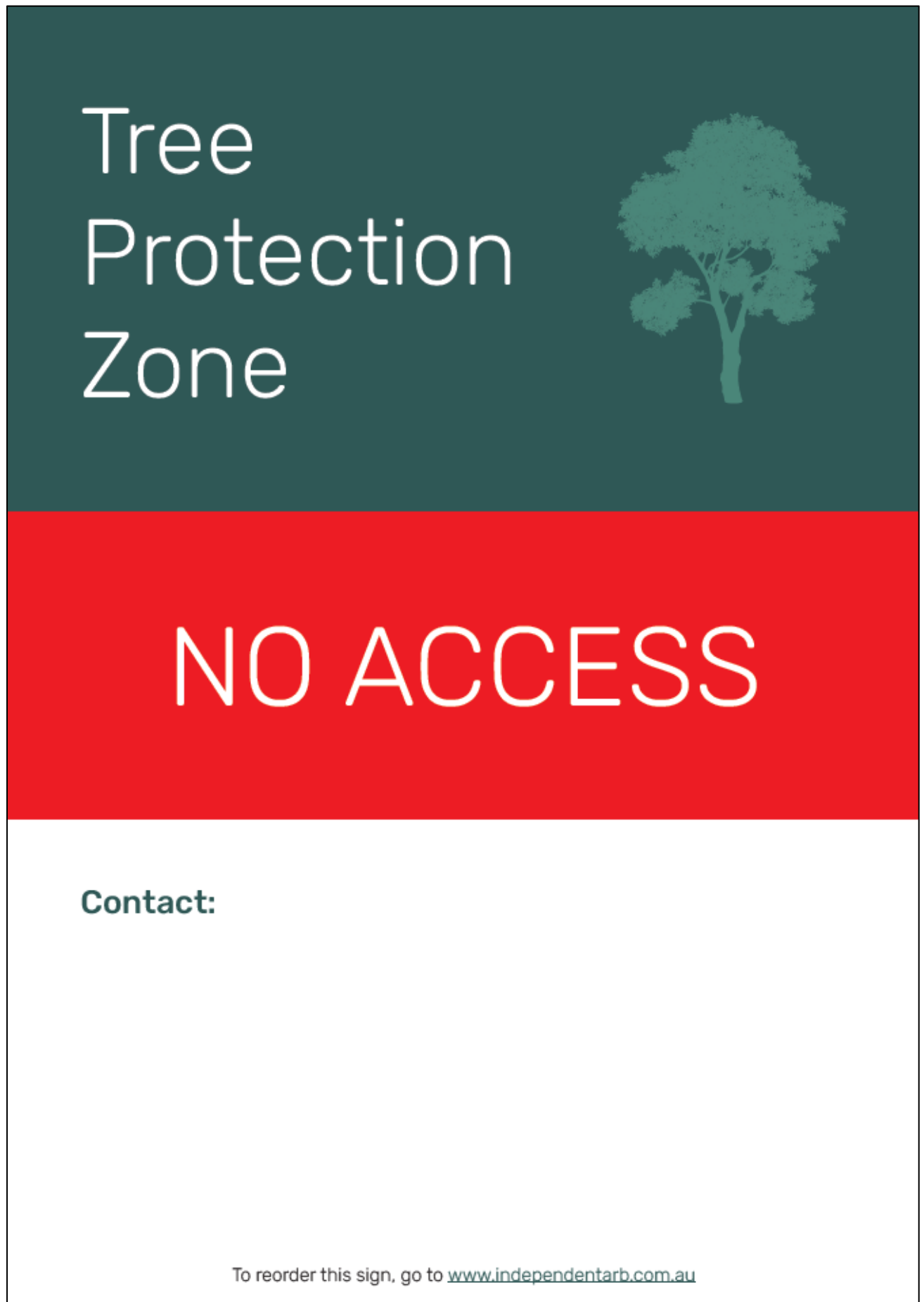


Tree 71



Tree 72

## Appendix 1: Tree Protection Signage



## Appendix 2: Explanation of Terminology

Definition	Process Description
<b>Removal</b>	Complete tree removal leaving stump as close as possible to ground level. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Recommendation typically based on tree being assessed as representing a health and safety concern [Dead, dying, structurally unsound, unstable, poor form]
<b>Remove and grind</b>	Complete tree removal to include grinding of stump to a depth of 75 millimetres unless otherwise specified. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Stump site will be cleaned of all grinding debris and sawdust and backfilled with premium topsoil free from weeds.
<b>Crown Clean (Deadwood)</b>	Removal of all major/significant deadwood and dead branches up to [and including] 30 millimetres in diameter in trees overhanging pedestrian or vehicular areas or removal of dead branches > 50mm diameter in canopy of trees located in parkland or similar area unless otherwise specified.
<b>Crown Clean (General pruning)</b>	Recommended pruning process will include removal of broken, crossing, rubbing, diseased, stressed or dying branches or limbs with poor attachment. Additional work process may include pruning to define leaders, balance the crown, reduce weight load, or clear the tree from obstructions. In summary, to rectify, as far as is possible, any structural defects and eliminate undesirable growth or deadwood.
<b>Crown Reduction (Canopy reduction)</b>	Recommended pruning process may include light and general pruning typically to encompass removal of up to 15% but no more than 20% of the leaf-bearing crown. By definition the unique shape and form of the tree will not be altered or compromised by the pruning process. Typically, the consulting arborist will nominate the reduction percentage [%] appropriate to species, condition and assessment.
<b>Crown Raising (Canopy lift)</b>	Pruning processes maybe involve the raising of the tree's lower canopy to a height specified in metres. Typically, the process is performed to provide for pedestrian and or vehicular clearance and unless otherwise specified the default parameters will be to provide 2 metres clearance from ground level or as specified by local or state government regulation. From time to time pruning requirements may be altered to accommodate various site-specific requirements as advised by the consulting arborist accordingly.
<b>Crown Restoration</b>	Pruning process will encompass crown restoration and remedial works where the tree has been previously lopped or otherwise damaged. Not feasible when tree has extensive decay and should only be considered when there is evidence of healthy re- growth. When performed correctly the process of remedial pruning will most likely take several years to complete.
<b>Hanger Limb / Unattached branch</b>	Pruning process may be restricted to the removal of any hanger/s or dangerous/dead/dying limbs and will typically involve the removal of a single limb. In some instances, removal of an individual limb may be necessary to accommodate an obstruction and the consulting arborist will advise accordingly.
<b>Directional Pruning</b>	Pruning process will be restricted to pruning canopy away from buildings/service wires/property boundary and will typically be performed to avoid future growth in these areas. Where appropriate future growth will be directed away from obstruction by selected pruning so as to encourage the development of the growth of new leaders.

<p><b>Habitat Pruning</b></p>	<p>When pruning deadwood from trees, simple techniques and methods can be employed to achieve hazard reduction whilst leaving food and habitat for tree dwelling fauna. Long pieces of deadwood can be reduced in length to limit potential hazard but still retain food for the insects and microorganisms. Stubs that have been left by old pruning or previous branch failure can be retained, and with the use of a hole-saw or chainsaw they may also be bored out to create a nesting hollow for native birds or small mammals. Source: Mosman Council</p>
<p><b>Deadwood</b></p>	<p>Dead branches within canopy of tree. Deadwood is a naturally occurring feature of most tree species and comprises dead or decaying branches within the canopy of a tree. Deadwood may have habitat value and require removal only according to the considered risk of its location, i.e. high use pedestrian area or damage to adjacent infrastructure.</p>
<p><b>Decay</b></p>	<p>The process of degradation of woody tissues by micro-organisms</p>
<p><b>Compaction</b></p>	<p>Results from loads or stress forces applied to the soil as well as shear forces. Both foot traffic and vehicle traffic exert both forces on soils. Vehicle traffic may cause significant compaction at depths of 150–200 mm (the area in which most absorbing roots are located). The degree of compaction will depend on weight of vehicles, number of movements, soil moisture levels and clay content. Soil handling, stockpiling and transporting also tend to lead to the breakdown of soil structure and thus to compaction. Vibration as a result of frequent traffic or adjacent construction activities will also compact soils</p>
<p><b>Codominant Structure:</b></p>	<p>Stems or trunks of about the same size originating from the same position from the main stem<sup>52F</sup>. When the stem bark ridge turns upward the union is strong; when the ridge turns inward the union is weak, a likely point of failure in storm or windy weather conditions or where increasing weight causes undue stress on the defective union.</p>

Source: AS4373-2003 Pruning of Amenity Trees & AS 4970-2009 Protection of Tree on Development Sites & Habitat Creation By Kieran O'Neill, Mosman Council.

## Appendix 3: Normal Function of a Tree

**Background Note:** The following diagrams and explanatory notes are useful to illustrate the structure of a tree in a normal growing environment. This information is taken from AS4970-2009 Protection of trees on development sites which has been released subsequently to AS4373-2007 Pruning of amenity trees.

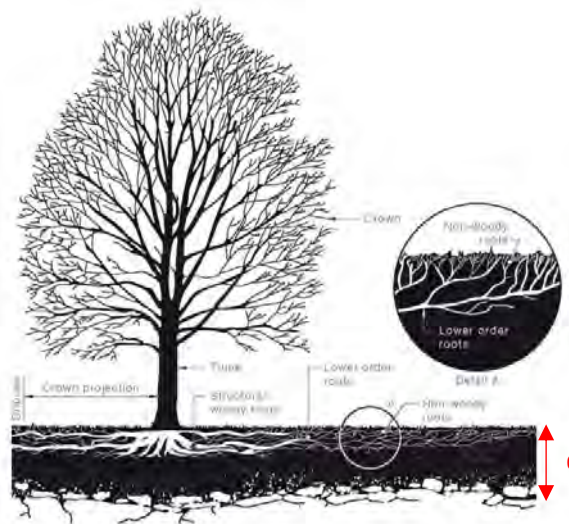


Figure 7: Structure of a tree in a normal growing environment

### Leaves

The main function of leaves is photosynthesis, that is, the production of sugars. The sugars produced by the leaves (and any other green tissue) are the source of chemical energy for all living cells in the entire plant and as such are essential for the normal functioning and survival of the tree. Anything that directly or indirectly damages the leaves will interfere with photosynthesis.

### Trunks and branches

Branches and trunks are composed of many tissues with specialized functions including the bark (protection), phloem (transport of sugars from the leaves), vascular cambium (growth of new transport tissues), sapwood (transport of water and nutrients from the roots), heartwood (strength and structural support) and rays (internal transport and storage of sugars). Damage to branches or trunks may allow infection by plant pathogens (disease causing organisms), disrupt the movement of vital materials and structurally weaken the tree.

### Roots

The main functions of roots include the uptake of water and nutrients, anchorage, storage of sugar reserves and the production of some plant hormones required by the shoots. For roots to function, they must be supplied with oxygen from the soil. The root system of trees consists of several 'types' of roots found in different parts of the soil and is generally much more extensive than commonly thought. The importance of roots is easily overlooked because they are not visible, that is 'out of sight, out of mind'. Damage to the root system is a common cause of tree decline and death and is the most common form of damage associated with development sites.

Root systems consist of three main parts:

1. The structural woody roots (anchorage, storage and transport);
2. Lower order roots (anchorage, storage and transport); and
3. Non-woody roots (absorption of water and nutrients, extension, synthesis of amino acids and growth regulators) (see Figure).

In addition to lateral root spread being underestimated, root depth in trees has also been grossly exaggerated. Deep root systems or taproots are the exception rather than the rule. Most roots of most trees are found in the very top of the soil. The vast majority of these roots are small non-woody absorbing roots which grow upward into the very surface layers of the soil and leaf litter. This delicate, non-woody system, because of its proximity to the surface, is very vulnerable to injury.”

#### Explanatory Note: The importance of gas exchange in soils

The fact that tree roots require oxygen to function is often misunderstood. Accessibility to available oxygen and water within the soil structure is dependent on the integrity of soil structure within their surrounds; when soils are compacted there is little space between soil aggregates with soil volume and total pore space, especially macropore space diminished. In turn, good soil oxygenation and gas exchange (Lonsdale) levels allow for successful function of tree roots. Oxygen levels in soils will typically decrease as soil depth increases and /or soils are heavily compacted.

Macropore is the term used to describe the relatively large space between soil particles that is usually air filled and allows for water movement and root penetration. Micropore is the term used to describe the space between soil particles that is relatively small and likely to be water filled.

Compaction results from loads or stress forces applied to the soil as well as shear forces. When soil within the root zone of a plant, including a tree, is compacted through either pedestrian or vehicular traffic, or by the heavy weight of stored materials or machinery, the ability of water and oxygen to penetrate the soil around the roots of living plants is compromised. Whilst tree roots are typically found in the top 600mm of the soil horizon, vehicle traffic, in particular may cause significant compaction at depths of 150–200 mm (the area in which most absorbing roots are located). (Refer Tree Function Note above).

The degree of soil compaction will depend on weight of vehicles, number of movements, soil moisture levels and clay content. Soil handling, stockpiling and transporting also tend to lead to the breakdown of soil structure and thus to soil compaction. Vibration, as a result of frequent traffic or adjacent construction activities, will also cause compaction of soil.

Contrary to the commonly held myth that all trees have tap roots, tree roots are typically located within the top 600mm of soil. Just as leaves perform the vital function of photosynthesis, tree roots are vital for the primary functions of anchorage, storage, absorption and conduction. Larger tree roots fulfil the main functions of anchorage, storage and conduction and smaller more fibrous tree roots, which grow primarily at the end of the main woody roots, fulfil a vital role in absorbing oxygen, essential mineral elements and moisture from the soil, often through a symbiotic relationship with soil borne fungi referred to as Mycorrhizae; the extent of root loss has the potential to jeopardise any or all of these main functions and most importantly may compromise the structural integrity of an established tree and its associated potential OH&S risk of failure occurring; any OH&S risk of potential failure in a high use area such as public roads, is noteworthy for all the wrong reasons and should be of major concern and avoided at all times. (Refer Appendix 2, Tree Function Note).

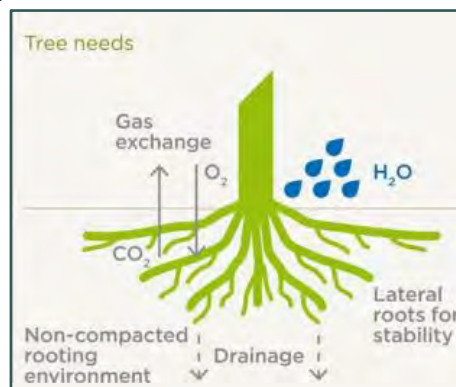


Figure 8: Gas exchange in woody tissues: the diffusion of gases into and out of a particular region (Jaluzot)

## Reference Page

1. Standards Australia (2007): AS 4737-2007 Pruning of Amenity Trees. SAI Global
2. Standards Australia (2009): AS 4970-2009 Protection of Trees on Development Sites. SAI Global
3. Standards Australia (2012): AS4454-2012 Composts, Soil Conditioners and Mulches. SAI Global
4. Standards Australia (2018): AS4419:2018 Soils for Landscaping and Garden Use. SAI Global
5. Standards Australia (2018): AS2303: 2018 Tree Stock for Landscape Use. SAI Global
6. Shigo, A.L. (1986): *A New Tree Biology*. Shigo & Trees, Associates, Durham, New Hampshire.
7. Mattheck K, Breloer H. (1994): *The body language of trees, a handbook for failure analysis*, London, England.
8. Shigo, A.L. (1991): *Modern Arboriculture*. Shigo & Trees, Associates, Durham, New Hampshire.
9. Bassuk, N., Grabosky, J., Trowbridge, P., & Urban, J. (1996): *Structural Soil*. Urban Horticulture Institute, Cornell University.
10. Matheny, N. & Clark, J. R. (1998): *Trees and Development, A Technical Guide to Preservation of Trees During Land Development*. ISA
11. Lonsdale, D. (1999): *Principles of Tree Hazard Assessment and Management, 5th Impression*. Stationery Office Books.
12. Costello, L. R., & Jones, K. S. (2003): *Reducing Infrastructure Damage by Tree Roots, A Compendium of Strategies*. ISA
13. Costello, L. R., Perry, E. J., Matheny, N. P., Henry, J. M., & Geisel, P. M. (2003): *Abiotic Disorders of Landscape Plants, A Diagnostic Guide*. ISA
14. Clark, R. (2003): *Specifying Trees, A Guide to Assessment of Tree Quality*. NATSPEC
15. Harris, R. W., Clark, J. R., Matheny, N. P. (2004): *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines. 4<sup>th</sup> Edition*. Prentice Hall
16. Jol, H. M. (2008): *Ground Penetrating Radar Theory and Application 1st Edition*. Elsevier
17. Urban, J. (2008): *Up by Roots, Healthy Soils and Trees in the Built Environment*. ISA
18. Pallardy, S. G. (2010): *Physiology of Woody Plants, 3rd Edition*. Elsevier
19. Strouts, R.G., & Winter T.G. (2013): *Diagnosis of Ill-Health in Trees, 7th Impression*. Stationery Office Books.
20. Leake, S., & Haege, E. (2014): *Soils for Landscape Development. Selection, Specification, and Validation*. CSIRO
21. Roberts, J., Jackson, N., & Smith, M. (2015): *Tree Roots in the Built Environment, 2nd Impression*. Stationery Office Books.
22. Slater, D. (2017): *Assessment of Tree Forks Course Notes*. Arboriculture Association
23. Hirons, A. & Thomas, P. A. (2018): *Applied Tree Biology*. Wiley Blackwell
24. International Society of Arboriculture (2017): *Tree Risk Assessment Manual, 2nd Edition*. ISA
25. Bond, J. (2020): *Urban Tree Health*. Urban Forest Analytics LLC
26. Nearmap. ([www.nearmap.com.au](http://www.nearmap.com.au)); accessed 2024.

# Company Details

## Independent Arboricultural Services

Independent Arboricultural Services, incorporated in May 2007, offers a completely independent arborist consulting and reporting service. Its directors and associated consultants bring extensive arboricultural knowledge gained over many years to this company. All consulting staff hold AQF Level 5 (Diploma of Arboriculture). Specialised advice when required, such as provision of survey mapping or engineering advice and certification is sourced from reputable professional providers according to site requirements as per Australian Standard 4970-2009.

## Statement of Goal

To deliver continual improvement through the use of world's best arboricultural practices, supported by ongoing education and exposure to leading industry experts and research throughout the world.

## Mission Statement

To provide timely, relevant and actionable consulting advice and practice based on the latest available and best scientific arboricultural knowledge.

## Environmental Statement

Independent Arboricultural Services supports long term environmental sustainability sustainable sourced paper and ensuring all inks cartridges are recycled where possible.

Independent Arboricultural Services actively seeks to maintain a positive carbon footprint status and to that end is committed to protecting and preserving the environment, continuing to carry out tree planting, transplanting and replacement planting where practical, having planted in excess of 4000 trees in the first 2 years after its inception in May 2007 alone. Arboricultural recommendations involving the removal of tree/s will include replanting at a minimum ratio of 2 trees for any tree removed where possible. All arboricultural recommendations are made in accordance with world's best arboricultural practice and within the Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 – Protection of trees on development sites so as to ensure optimal outcomes for all living trees.

Independent Arboricultural Services acknowledges the benefits of healthy trees with good vigour and vitality and actively promotes better understanding in the general community of the contribution that trees make to reducing greenhouse gasses, the contribution of trees to better water retention and the prevention of soil erosion, the ability of trees to provide protection to infrastructure by diffusing strong winds in weather events and the contribution of trees to general liveability within the urban environment.

It is an acknowledged fact that air temperature beneath a tree canopy can be in excess of 5° Celsius lower than the surrounding ambient air temperature thereby reducing reliance on greenhouse gas producing air conditioners and coal fired power sources.