Michael Prendergast
JW Land

10 March, 2021

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Dear Michael,

Braddon Place - Block 4 Section 60 Braddon
Review of Potential Impacts on adjacent Heritage Places

Introduction
I am writing in response to your request for advice as to potential heritage impacts of the proposed Braddon Place development on adjacent heritage items.

We have reviewed the current design drawings, the ACT Heritage Register, inspected the relevant sites and read the Conservation Management Plan for Haig Park and report as follows:

Heritage Status
Block 4 Section 60 – the proposed site for the Braddon Place development is adjacent to two items listed on the ACT Heritage Register: 'Expansion' a Mosaic Mural Wall at the Rex Hotel on Block 9 Section 8 Braddon to the north of the subject block and Haig Park to the south.

1. 'Expansion' Mosaic Mural Wall

Statement Of Heritage Significance
The 'Expansion' Mosaic Mural Wall (the Mural) is of heritage significance as it demonstrates a high degree of creative achievement and is a notable example of Abstract Expressionist style artwork. The Mural has strong associations with the artist, Margo Lewers. The Mural was designed and constructed in 1960 by Margo Lewers, one of Australia's foremost Abstract Expressionist artists.

The Mural is a rare and unique example of a mosaic mural in Abstract Expressionist style in the ACT. While other examples are known in the wider Australian context, this is the only example recorded in the ACT and is the largest of three art murals constructed by Lewers.

Demonstrating a high degree of creative achievement, it is constructed from hand-cut, irregular shaped glass, vitreous and porcelain tiles laid closely on a cartoon. It demonstrates the principle attributes of the Abstract Expressionist style.

Applicable Heritage Guidelines
The guiding conservation objective is that the 'Expansion' Mosaic Mural Wall shall be conserved and appropriately managed in a manner respecting its heritage significance and the features intrinsic to that heritage significance, and consistent with a sympathetic and viable use or uses. Any works that have a potential impact on significant fabric (and / or other heritage values) shall be guided by a professionally documented assessment and conservation policy relevant to that area or component (i.e. a Statement of Heritage Effects – SHE). Any actions impacting on the significance of the 'Expansion' Mosaic Mural Wall are to be based on professional conservation planning.

The mural underwent repair works guided by a report prepared by Conservation Works Pty. Ltd in 2010 around the time of significant alterations and additions carried out at the Rex Hotel.

The guidelines do not specifically reference works on adjacent blocks, however, in our opinion, the proposed works on Block 4 would require referral to ACT Heritage acknowledging its proximity to the Mural and outlining proposed steps to be taken to minimise the potential for impact on the Mural.

In our opinion the development is unlikely to have any explicit impact on the Mural as long as sound construction and site management practices are followed, including

- high quality site boundary fencing and control measures
- control of water, dust and debris
- minimisation of construction vibration

In particular we recommend the following:

- prior to commencement submit a condition report on the Mural to ACT Heritage prepared by a suitably qualified heritage expert
- monitor the condition of the Mural during the works and stop work or modify processes to address any issues which may arise
- inspect the Mural on completion and carry out repairs if required under the direction of a suitable qualified conservation expert

2. Haig Park

I have read the updated CMP prepared by Navin Officer and endorsed by the ACT Heritage Council in December 2019.

Statement of Significance

Haig Park is a significant landscape feature of Canberra, dating from the founding years of the National Capital. It demonstrates the early establishment of plantings in the city for protection from climatic extremes and for landscape beautification. The Park is particularly significant for its designed function as an extensive urban 'shelterbelt', or windbreak, from dust-laden north-westerly winds. It was planted to protect the first buildings constructed in north Canberra at Civic and in the newly developing suburbs of Ainslie, Braddon and Turner.

Initially planted in 1921, Haig Park extended over 1780 metres and comprised 14 rows of mixed evergreen and deciduous tree species. Haig Park is the only remaining largely intact, originally planted shelterbelt in Canberra. It is not only a rare example of large-scale shelterbelt planting in an urban area of Canberra but is also rare nationally. Until the 1950s most urban development occurred to its south. Then, following expansion of the city further north, the Park became an integral component of the landscaped open space system between adjoining suburbs, in keeping with contemporary landscape and city planning principles.

The original design remains highly intact and is a distinctive landscape feature. The initial selection and patterns of tree species establish the historic significance of the Park, while changes to date remain faithful to the original design and contribute to its heritage significance.

The features intrinsic to the heritage significance of the place (description of the place) are identified in the 2000 ACT Heritage Register citation as:

a) Fourteen rows of trees planted to form a windbreak and shelterbelt and the associated landscape setting.

In addition to the above, this assessment has identified the following elements of Haig Park that are also of Heritage Significance:

• _the design of Haig Park as a former shelterbelt including: tree spacing to optimise tree health within the historic shelterbelt planting pattern; and the character (form and colour) of evergreen and deciduous trees and species variety between rows, and consistency of species within rows;

There appear to be no specific heritage related controls for development on adjacent sites. The CMP generally refers to increasing development density in the future and the need for Haig Park to provide a vital community green space for an increased population.

In our opinion there is a potential that the proposed development may have an impact on the health of the trees in the Park due to overshadowing and excavation affecting root zones. We note that on our advice an Arborist's report has been prepared by Homewood Consulting Pty. Ltd. which addresses these issues. In our opinion the report appears to be professional and thorough. With regard to overshadowing we note the arborist's advice *"the indirect impact from altered lighting conditions is expected to have negligible to no effect on long term tree viability"*.

Conclusion
In our opinion the potential impacts of the proposed development on the Mural and on Haig Park are likely to be minimal and can be mitigated by adherence to standard construction and site management practices and by the implementation of the identified tree protection zones.

The proposal, together with this report should be submitted to ACT Heritage for assessment as part of the DA process.

Yours sincerely,

David Hobbes
AAIA

HEALTH AND CONDITION TREE AUDIT

AT

BLOCK 4, SECTION 60, BRADDON ACT

Contact for site:
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Mob: [redacted]
Landscape Architect
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Report prepared by:
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Date of inspections: 23 February 2021

Date of report: 1 March, 2021

Executive Summary

This impartial report was requested by the Ben Skiperdene, Landscape Architect for Enviro Links Design. The purpose of the report is to demonstrate the findings of a detailed health and condition assessment audit of approximately eighty (80) trees on Block 4, Section 60, Braddon ACT, neighbouring boundary and the surrounding verges of Northbourne Avenue and Henty Street.

The aim of this report is to provide the required technical knowledge and options for the responsible parties to understand what the required outcomes are for the trees regarding the findings of the health and condition tree audit.

Any use of this document outside the purpose of the report must be authorised by the Consulting Arborist.

The site was assessed by means of a visual tree assessment (VTA) from the ground. While there are some limitations of undertaking tree assessments from the ground, it is still recognised internationally as the best and most efficient practice for undertaking tree assessments. The VTA took into account the health, structure and stability of the root plate, trunk and ground entry, canopy and branch unions and the overall landscape retention value of the trees.

Any required risk assessments were undertaken in line with the internationally recognised *Quantified Tree Risk Assessment (QTRA) methodology (Appendix A)* and the likelihood of tree or part of tree failure was guided by the arborist's qualifications, experience and the use of the *Beaufort Wind Scale rating (Appendix B)*.

To assist with categorising the landscape retention value of the tree in terms of significance and potential longevity, the *Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System (STARS) (Appendix C)* was used.

The *Significance of a Tree Assessment Rating System (STARS*) methodology was largely designed to calculate the retention value of trees on development sites. However, given the additional level of information it provides, it adds components to the assessment that can demonstrate the significance of the tree in the landscape and its potential Estimated Life Expectancy (ELE).

When the landscape significance and ELEs are place into the STARS matrix and then assessed against the significance of the individual tree in the landscape a landscape retention value is assigned. These categories are:

- Priority for retention (high)
- Consider for retention (medium)
- Consider for removal (low)
- Priority for removal (Very Low – Vlow)

These categories can be very useful to assist with which trees should be retained (and have money spent on them for their retention) and also provides another level of justification to remove trees in the landscape that are not in line with the long term usage and development of the landscape. This then allows for areas of other trees to be planted that would be more in line with the desired outcomes for the landscape.

The following is the breakdown of the retention values of the trees across the site, neighbouring boundary and nature strip:

- High retention value – seventeen (17) trees
- Moderate retention value – twenty-five (25) trees
- Low retention value – twenty (20) trees
- Very low (Vlow) retention value – fifteen (15) trees

Some of the trees across the site were dead or in reduced vitality and recommended to be removed. All information on each tree remaining within the assessed area can be found in *Appendix D, Tree Schedule*.

Generally, across the site, the soil profile appeared compacted in most areas. There was no additional mulching on any of the trees or what could be considered any particular care. Undertaking de-compaction of the soil profile is highly recommended. Watering and applying tree mulching circles to each tree to be retained would assist with increasing the overall tree health and condition across the site.

Once the usage is identified (for a known number of users across the site), then a follow up risk assessment would be prudent to ensure that the potential risk of harm thresholds are in line with required standards for the site.

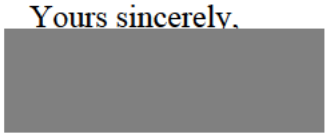
Trees on the nature strip were varied in health and condition, and some of these should be reassessed by the responsible authority for their suitability to be retained in the landscape. Several trees will more than likely require removal or large maintenance. These works should be carried out to the set standard for these used areas.

Having assessed the site, the trees and considered the options, the following is recommended:

- Seek endorsement/approval to remove all trees listed as very low and low priority, and have them removed.
- Undertake any listed pruning to assist with promoting longevity of individual trees or groups of trees across the site.
- Water and mulch trees to be retained and monitor health and condition of these trees.
- Request ACT Government undertake a follow up assessment of trees on the nature strip and schedule in any works required, and
- Undertake a follow up risk assessment once usage of the site is confirmed.

Please do not hesitate to contact me if you require any further information or clarification about the report.

Yours sincerely,



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Contents

1. Introduction

1.1 Aim and Purpose of the report

This impartial report was requested by the Ben Skiperdene, Landscape Architect for Enviro Links Design. The purpose of the report is to demonstrate the findings of a detailed health and condition assessment audit of approximately eighty (80) trees on Block 4, Section 60, Braddon ACT, neighbouring boundary and the surrounding verges of Northbourne Avenue and Henty Street.

The assessment was to:

- Document the overall health and condition of each tree within the set area,
- Classify life expectancy of the trees (their longevity) in their location, and
- Provide recommendations where there were additional works that could be undertaken to either prolong the life of the tree(s) or have them removed.

The assessment was to be undertaken by a suitably qualified arborist holding a minimum Certificate V in Arboriculture and take into account the significance of the site and the landscape.

The aim of this report is to provide the required technical knowledge and options to ensure the responsible parties can understand what the required outcomes are for the trees regarding the findings of the health and condition tree audit.

Any use of this document outside the purpose of the report must be authorised by the Consulting Arborist.

1.2 Location of the trees

The trees are located between Northbourne Avenue and Henty Street ACT, as shown in *Figures 1* and *2*.

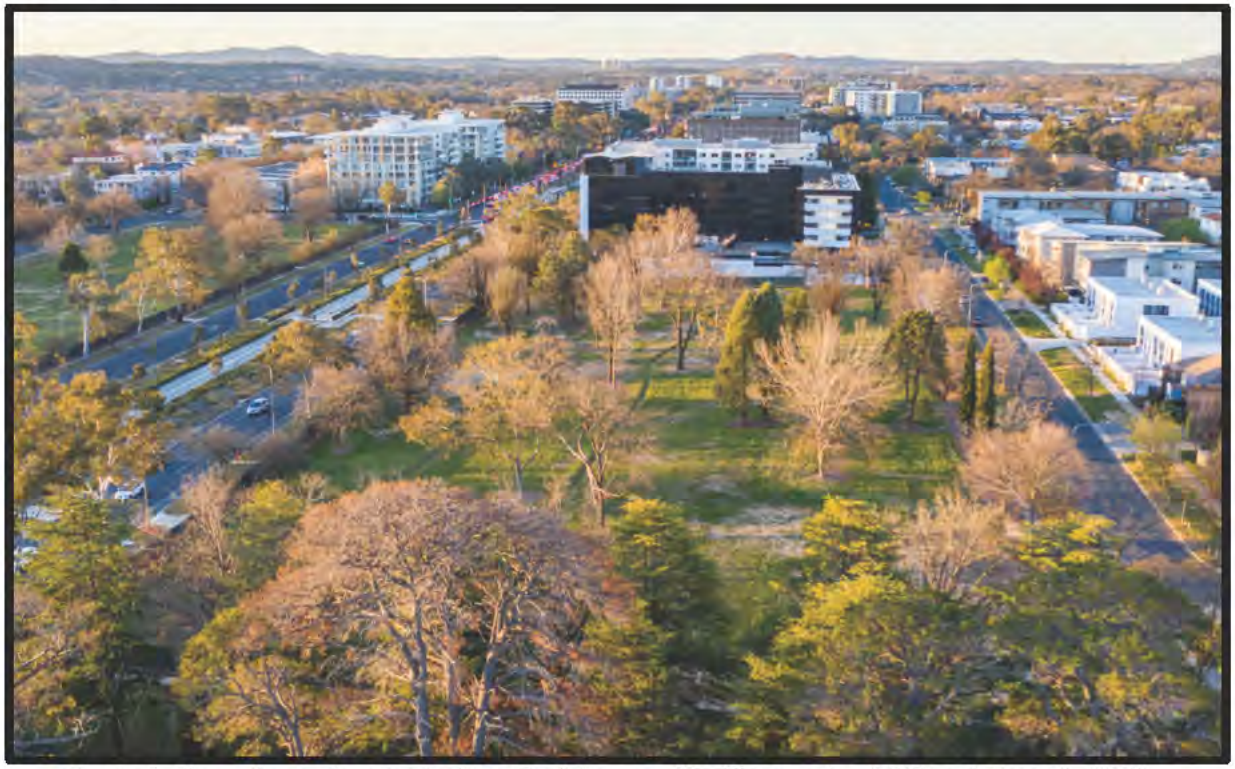

Figure 1. Shows the site location looking North between Northbourne Ave (LHS) and Henty St (RHS).

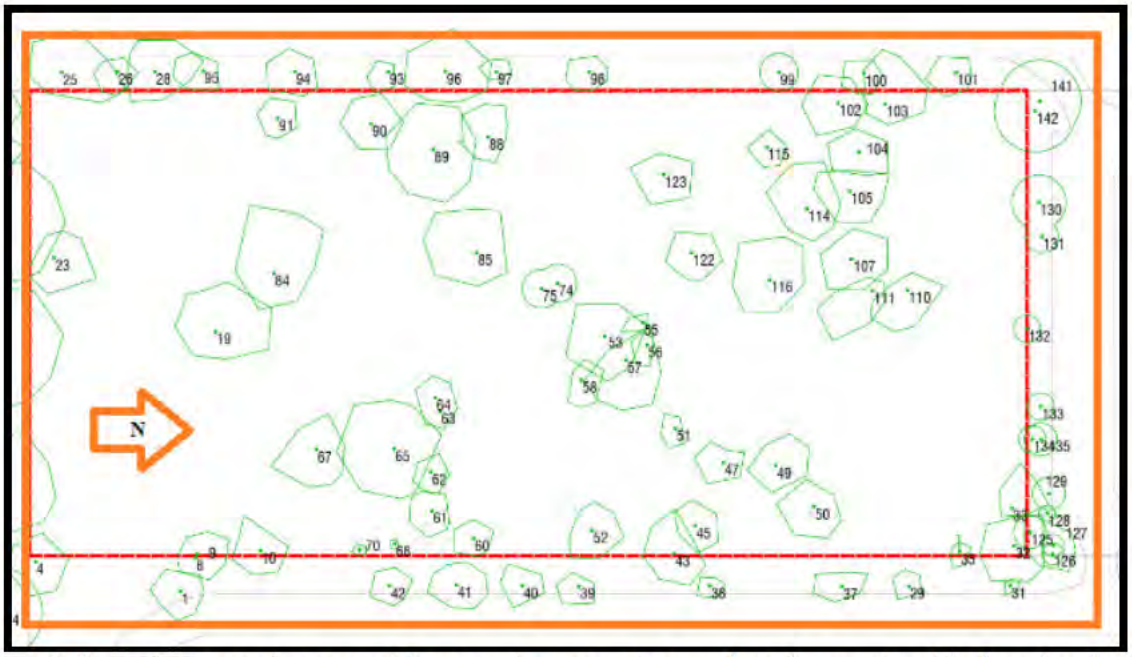

Figure 2. Shows the area to be assessed (in orange), previous tree numbers (in green) and the boundary border of the site (in red).

3.1 Ownership of the trees

It is understood that the land falls under a lease held by developers JWLand, who are in the process of preparing a development application for submission to the ACT Government.

2. Methodology of assessment

2.1 Identification

Identifications were based on the previous tree assessment report and visual observations during the assessments. No samples were taken at the time of inspection.

2.2 Visual Tree assessment (VTA)

Each tree was assessed from the ground by means of a visual tree inspection (VTA). While there are some limitation of undertaking tree assessments from the ground, it is still recognised internationally as the best and most efficient practice for undertaking tree assessments by a qualified and competent arborist.

'*A visual inspection of a tree from the ground based on the principle that, when a tree exhibits apparently superfluous material in its shape, this represents repair structures to rectify defects or to reinforce weak areas in accordance with axiom of uniform stress (Mattheck & Breloer 1994, pp.12-13, 145). Such assessments should only be undertaken by suitably competent practitioners.'* (D. Draper & P. Richards, *Dictionary for managing trees in an urban environment*, 2009)

The VTA allows for an experienced arborist to undertake the assessments of a range of trees from the ground and identify those trees that may require additional (secondary) follow up inspections. This includes aerial inspections and/or more structural assessments using equipment including (but not limited to) a resistograph, picus sonic tomography or factometer.

Please note that no tree or soil samples were taken and no damage occurred during these assessments.

The VTA took into account the health, structure and stability of the root plate, trunk and ground entry, canopy and branch unions and the overall landscape value of the tree. The trees were assessed using the following methods.

2.2.1 Root plate, trunk and ground entry

The stability of the bases were checked by means of walking over the area and visually checking for any cracks/opening in the ground. Root plate movement was checked by feeling for any softening under foot or hollows in the ground and movement in the trunks at ground level. The roots were inspected for girdling, damaged roots and roots that were surfacing and/or causing damage to infrastructure. The ground area was visually checked for any signs of insects, fungi, toxicity and any other abnormalities found to be outside acceptable thresholds for the condition of the region, including compaction or recent toxic run off.

2.2.2 Canopy and branch unions

The canopies were checked for foliage coverage and loss, wildlife (existing and old), insect infestation damage and previous pruning wounds. The branch unions were checked for defects, damage, previous branch failures, insects, fungi and anything that would normally not be present.

2.3 Risk Assessment

Any risk component of the assessment was undertaken in accordance with the *Quantified Tree Risk Assessment methodology (QTRA) (Appendix A)*, and the likelihood of tree or part of tree failure was guided by the qualifications and experience of the Arborist and the use of the *Beaufort Wind Scale rating, (Appendix B*).

Any tree risk assessments undertaken during the health condition audit were largely to identify any urgent or high potential risk to users and property of the site and adjacent areas that would result in the tree requiring major pruning or removal for risk. These works can and have been used to assist with establishing the overall longevity of the trees.

2.4 Health and Condition

The health and condition of the trees were assessed by means of a visual tree assessment and assessed against the following criteria.

Overall Health (Vigour/Vitality)	What is the vigour of the tree as exhibited by crown density, crown cover, leaf colour, leaf size, leaf texture, presence of epicormic growth, ability to withstand predation by pest and diseases, resistance and degree of dieback?
Good (Excellent specimen)	Above average vigour, no decline, 0% dieback, full crown density, better than average leaf health, no pests or diseases.
Fair (The typical condition of the species)	Average vigour, average decline (what would be expected for that particular species of that age in that location), < 10% dieback, >90% crown foliage density, >90% leaf health, minimal or acceptable level of pests or diseases (where it is considered the tree's overall health or condition will not be affected or lead to irreversible decline) .
Fair/Poor	Below average vigour, more than average decline, 10-20% dieback, foliage deficiencies, 70-90% foliage density, 70-90% leaf health, pest or diseases at acceptable thresholds for assessing arborist.
Poor	Minimal vigour, substantial decline, 20-30% dieback, considerable foliage deficiencies, 50-70% leaf health, pest or diseases exceed thresholds for assessing arborist.
Very Poor	Irreversible decline 15-50% dieback; severe foliage deficiencies; 30-50% density; 30-50% leaf health; severe pests/diseases.
Dead	Tree holds < 15% foliage; branching is dead throughout canopy .

Overall Condition (Structure/Stability)	What is the condition of the tree as identified by the arborist in the way of defects?
Good (Exceptional specimen)	No damage or decay, visible basal/root flare, stable in ground, well tapered branches with sound open unions.
Fair (Standard tree – no observable major defects to suggest that there is an increased likelihood of tree or part of tree failure)	Minor damage or decay to root plate, trunk or primary branches or branch unions (1st or 2nd branch order or scaffolding branch), typically formed branch unions, minor branch end weight or over-extensions within thresholds.
Fair/Poor	Moderate damage or decay to root plate, trunk or primary branches or branch unions (1st or 2nd branch order or scaffolding branch), minimal basal/root flare, acute branch, past branch failure(s), moderate branch end-weight or over-extension approaching thresholds.
Poor	Major damage or decay to root plate, trunk or primary branches or branch unions (1st or 2nd branch order or scaffolding branch), no observable basal/root flare, acute branch unions starting to include bark, major branch end-weight or over-extension at or exceeds thresholds.
Very Poor	Excessive damage or decay to root plate, trunk, primary branch or branch unions (1st or 2nd branch order or scaffolding branch), excessive decay or hollows compromising the structural integrity, unstable in ground, excessive branch end-weight, severe included-bark unions, exceeding thresholds – failure probable.
Failed	Failure of root plate, trunk or primary branch (1st or 2nd branch order or scaffolding branch), active split between branch unions, severe damage to primary tree structure.

2.5 Age and Estimated Life Expectancy (ELE)

The age of the trees was based on visual observations, species, soil condition, location on the site, site knowledge, and the use of previous site maps/photos and aerial photography of the region. Other known 'like' species with ages growing in similar conditions and soil profiles were also used.

The Estimated Life Expectancy (ELE) was based on the stage of life that the tree is currently in or transitioning into, the age of the tree, its health and condition, the expected longevity of the species in its current environmental location on the site, longevity of the same species in other similar locations and previous failures of that species in a range of conditions. The ELE methodology can be found in *Appendix C, Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System (STARS).*

It should be noted that all trees are designed to self-optimise, but are also ultimately designed to fail as they transition though to their final stages of life (old maturity/senescence). The ELE of the tree is used to assist with recognising how long the tree should be useful in the location and provide insight into the recommendations of how to assist with prolonging the ELE. It should also be noted and understood that the wordings of 'useful and expected' can be subjective, due to individual appreciation and expectations of the longevity of a tree, and is difficult to quantify when the tree would become a nuisance and/or detract from the character of the landscape due to its form or increased risk in the landscape.

2.6 Landscape Significance Rating

The landscape significance rating was assessed against the assessment criteria set out in *Appendix C, Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System (STARS).*

2.7 Retention Value

Retention values are used to assist with establishing the significance of a tree or stand of trees in a landscape. Retention values can also assist with establishing a works priority for a landscape, particularly when managing a historical or heritage landscape that requires a transparent approach to decision making regarding retention or removal. Retention values also assist with prioritising works and demonstrating where resources should be spent in the landscape.

The tree retention value was based on the landscape significant value and ELE, shown in *Appendix C*, *Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System (STARS)*

The *Significance of a Tree Assessment Rating System (STARS)* methodology was largely designed to calculate the retention value of trees on development sites. However, given the additional level of information it provides, it adds components to the assessment that can demonstrate the significance of the tree in the landscape and its potential ELE.

When the landscape significance and ELEs are place into the STARS matrix and then assessed against the significance of the individual tree in the landscape, a landscape retention value is assigned. These can be very useful to assist with identifying which trees should be retained (and have money spent on them for their retention), and also provides another level of justification to remove trees in the landscape that are not in line with the long term usage and development of the landscape, allowing for areas of other trees to be planted that would be more in line with the desired outcomes for the landscape.

The following provides notes of the action that should be taken in each category of the tree retention values.

*"**Priority for retention (high)***

These trees are considered important for retention and should be retained and protected. Design modification or relocation of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standards AS4970 - Protection of Trees on Development Sites. Tree sensitive construction measures must be implemented e.g. pier and beam, low impact path implementation etc if works are to proceed within the Tree Protection Zone (TPZ).

Consider for retention (medium)

Trees of a medium retention value may be retained and protected. These are considered less critical (than high retention value trees); however their retention should remain a priority with removal considered only if all other alternatives have been considered and exhausted.

Consider for removal (low)

Trees of low retention value are not considered important for retention, nor require special works or design modification to be implemented for their retention.

Priority for removal (Very Low – Vlow)

These trees are considered hazardous, or in irreversible decline, or are weeds and should be removed irrespective of development."

(IACA significance of a Tree Assessment Rating System)

3. Observations and findings

The following is the breakdown of the retention values of the trees across the site, neighbouring boundary and nature strips.

High retention value – seventeen (17) trees

Moderate retention value – twenty-five (25) trees

Low retention value – twenty (20) trees

Very low (Vlow) retention value – fifteen (15) trees

Some of the trees across the site were dead or in reduced vitality where they are recommended to be removed. All information on each tree remaining within the assessed area can be found in *Appendix D, Tree Schedule*.

Generally, across the site, the soil profile appeared compacted in most areas. There was no additional mulching on any of the trees or what could be considered any particular care. Undertaking decompaction of the soil profile is highly recommended. Watering and applying tree mulching circles to each tree to be retained would assist with increasing the overall tree health and condition across the site.

Once the usage is identified (for a known number of users across the site), then a follow up risk assessment would be prudent to ensure that the potential risk of harm thresholds are in line with required standards for the site.

Trees on the nature strip were varied in health and condition, where some of these should be reassessed by the responsible authority for their suitability to be retained in the landscape. Several trees will more than likely require removal or large maintenance. These works should be carried out to the set standard for these used areas.

4. Recommendations

Having assessed the site, the trees and considered the options, the following is recommended:

- Seek endorsement/approval to remove all trees listed as *Very Low* and *Low* priority, and have them removed.
- Undertake any listed pruning to assist with promoting longevity of individual trees or groups of trees across the site to be retained across the site.
- Water and mulch trees to be retained and monitor health and condition of these trees,
- Request ACT Government undertake a follow up assessment of trees on the nature strip and schedule in any works required, and
- Undertake a follow up risk assessment once development plans for the site have been confirmed.

5. Expertise of Consultant

Education and experience:

- Diploma in Arboriculture, Ryde TAFE, Sydney NSW (2012)
- VALID Tree risk assessment workshop, Sydney NSW (2019)
- VALID Tree risk assessment workshop, Sydney NSW (2017)
- Tree Anatomy Workshop (Three-day workshop) training, Adelaide SA (2015)
- Tree Risk Assessment Qualification (TRAQ), Melbourne VIC (2014)
- Quantified Tree Risk Assessment (QTRA) training, Melbourne VIC (2014)
- Quantified Tree Risk Assessment (QTRA), Visual tree inspection (VTA) training, Melbourne VIC (2014)
- Diploma in Horticulture, Canberra Institute of Technology (CIT), ACT (2006)
- Certificate III in Arboriculture, CIT, ACT (2008)
- Certificate IV in Horticulture, CIT, ACT (2004)
- Certificate III in Horticulture, CIT, ACT (2003)
- Two-day intensive tree hazard risk assessment training and measuring risk from tree defects with resistograph and quantifying structural strengths of defective trees, IML in Canberra, ACT (2012).
- 15 years' experience in tree assessments and administering required works for the Federal and ACT Governments
- 25 years' experience in arboriculture, horticulture and maintenance works.

Conferences attended:

- International Society of Arboriculture (ISA) 2017 Canberra, ACT
- Treenet 2016 Adelaide, SA
- International Society of Arboriculture (ISA) 2015 Adelaide, SA
- International Society of Arboriculture (ISA) 2011 Parramatta, NSW
- International Society of Arboriculture (ISA) 2008 Brisbane, QLD
- Green X 2007 Penrith, NSW
- International Society of Arboriculture (ISA) 2006 Launceston, TAS
- Treenet 2005 Ryde, NSW

6. Bibliography

Handreck, K. and Black, N. *Growing media third edition*, 2002.
Draper, D. and Richards, P. *Dictionary for managing trees.* 2009.
Shigo, A. *A New Tree Biology*, 2002.
Mattheck, C. *The body language of trees,* 1995.
Mattheck, C and Kubler, H. *Wood-the internal optimization of trees*, 1997.

Web sites

Actmapi https://app.actmapi.act.gov.au/actmapi/index.html?viewer=basic

7. Appendices

Appendix A *Quantified Tree Risk Assessment (QTRA) methodology*

Appendix B *Beaufort Wind Scale rating*

Appendix C *IACA Significance of a Tree Assessment Rating System (STARS)*

Appendix D *Tree Schedule*

Arboricultural Impact Assessment

for

JW Land

Assessment of trees at Haig Park, Braddon

Prepared by

Homewood Consulting Pty Ltd

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Prepared for

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Consulting Arborist

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Diploma of Arboriculture

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3 March 2021

Executive Summary

Thirty-one trees were assessed in a section of Haig Park, Braddon in relation to the proposed construction of multi-level apartment buildings in Block 4, Section 60. An assessment of the impacts from construction works, and indirect impacts on the trees from the building shadow has been requested.

The table below summarises the impact of the proposed construction works on the assessed trees.

Arboricultural Impact	Tree Retention Value			
	High	Medium	Low	Third Party
Impact Removal	0	0	0	0
Impact Major - not viable	0	0	0	0
Impact Major - viable	0	0	0	4
Impact Minor	0	0	0	1
No Impact	0	0	0	22
Remove (tree condition)	0	0	0	4
Totals	**0**	**0**	**0**	**31**

- Four trees **have a major Tree Protection Zone (TPZ) encroachment** (more than 10% TPZ area and/or Structural Root Zone (SRZ) incursion) under the proposed design.
  - Trees 1, 4, 8 and 12 have a TPZ area encroachment of 24%, 13%, 20% and 14% respectively, and there is SRZ incursion to Tree 1. All **are expected to remain viable** under the proposed design with tree protection measures outlined below and in section 8. As all are third party owned, tree retention is required, and all efforts should be made to retain and protect these trees throughout the proposed works. It is recommended that:
    - A TPZ with standard provisions and exclusions is established for the portion of the trees TPZ that overlaps into Block 4, Section 60 from Haig Park. Implementing this recommendation will reduce TPZ encroachment to <10% (minor) and prevent SRZ incursion.
- Tree 16 **has a minor TPZ encroachment** (less than 10% TPZ area and no SRZ incursion) from the proposed design. This tree is expected to remain viable with standard TPZ provisions and exclusions.
- Trees 2, 3, 5-7, 9, 11, 13-15 and 17-28 **have no TPZ encroachment** from the proposed works and are expected to remain viable.
- Trees 10 and 29-31 **are recommended for removal due to poor condition,** regardless of the proposed design. The trees do not warrant retention and protection throughout the proposed works.

Additionally, Tree 4, 8 and 12 require clearance pruning to reduce branches from the final building footprint.

Concerns have been raised regarding the indirect impact of the proposed design on long term tree viability and an assessment of increased shadowing from new buildings has been requested. As a result, an estimated 65 additional trees that will not be directly impacted by construction activity have been assessed at a group level to determine any indirect impacts from altered lighting conditions.

The indirect impact from altered lighting conditions is expected to have negligible to no effect on long term tree viability due to the following:

- Increased shade is in the winter months only when trees are dormant.
- The vast majority of trees already experience this winter shading from surrounding park trees. It is only Trees 1-18 that will have increased winter shading.
- The proposed development will potentially reduce summer drought stress by providing protection from the prevailing northerly winds.

All retained trees require protection to ensure they remain viable throughout the works. A Tree Protection Plan (TPP) has been prepared which identifies trees to be removed and specifies tree protection measures for trees to be retained. The following is recommended:

1. In accordance with the TPP, establish a Tree Protection Zone for all trees to be retained prior to any works commencing.
    1.1 Where works are permitted within the TPZ, fencing is to be taken in to only the minimum amount necessary to allow the works to be completed.
    1.2 Where access for vehicles or machinery is required within the TPZ of trees to be retained, ground protection measures will be required in lieu of fencing.
    1.3 Where vehicles or machinery will be working adjacent to trees to be retained, protection for the trunk and branches will be required.
2. Clearance pruning is undertaken for Trees 4, 8 and 12 to create 2m clearance from the proposed development.
    2.1 All pruning is carried out prior to construction commencing and conforms to the Australian Standard 4373: *Pruning of Amenity Trees* (Standards Australia 2007). At least one fully qualified arborist (minimum AQF level 3) must be present on site at all times during pruning operations.
3. Mulch is applied to the rootzones of retained Haig Park trees to further promote tree longevity.
    3.1 Mulch must be applied to 100mm in depth consisting of composted wood chip.

Contents

Table 1: Table of Revisions

Rev No.	Report Date	Description	Author	Internal Review Date	Reviewed by
0	*01/03/2021*	*Draft report for submission to client*	*AMS*	*MNB*	*01/03/2021*
1	*03/03/2021*	*Final report for submission to client*	*AMS*	*MNB*	*01/03/2021*

1. Introduction

Homewood Consulting Pty Ltd has been engaged to provide an arboricultural impact assessment of trees located in Haig Park adjacent to Block 4, Section 60, Braddon in relation to proposed development including eight apartment blocks and a mixed-use commercial space. Additionally, concerns have been raised regarding the impact of altered lighting conditions to long term tree viability and assessment of increased shadowing from the proposed buildings has been requested.

This report has been prepared in accordance with Australian Standard 4970-2009 *Protection of Trees on Development Sites* and the *Tree Protection Act 2005*. It provides an assessment of the trees with regard to their health, structure and retention value in the landscape and identifies the impact of the proposed development on the future longevity of the trees.

The report recommends design and construction methods to minimise impacts on retained trees where there is encroachment into the Tree Protection Zone.

A Tree Protection Plan has been prepared which depicts Tree Protection Zones for trees to be retained and specifies the measures necessary to protect the trees throughout all stages of the proposed works.

2. Method

On Wednesday, 17 February 2021 Andrew Salo conducted a site inspection.

Data collected for the trees includes:

- Botanical Name
- Canopy Dimensions
- Diameter at Breast Height (DBH)
- Diameter above basal root flare
- Health
- Structure
- Useful Life Expectancy (ULE)
- Landscape Contribution
- Retention Value.

A ‘Visual Tree Assessment’ (VTA) was conducted for each tree. A VTA consists of a detailed visual inspection of a tree and its surrounding site, including a complete walk around the tree, looking at the buttress roots, trunk, branches and leaves. The tree is observed from a distance and close up to consider crown shape, landscape context and surroundings.

The assessment was conducted from ground level with no instruments used other than a diameter tape to measure trunk diameter. Any assessments of decay are qualitative only.

A feature survey plan has been supplied by geosurv (ref: 201145-1-DT, 16/02/21). The plotted trees have been aligned to the feature survey for greater location accuracy. Where plotted trees do not exist on the feature survey, tree locations were recorded using differentially corrected GPS (generally +/- 1.0m accuracy). These locations should be verified by a surveyor if decision making requires greater accuracy.

In addition to the construction impact assessment undertaken for the 31 trees adjacent to the works, an estimated 65 additional trees have been assessed at a group level to determine the impact from proposed altered lighting conditions.

All of the assessed trees are located within Haig Park adjacent to the subject site. No trees within Block 4 Section 60, Braddon have been assessed.

Table 2 shows the data collected for the trees (page 11). For definitions and descriptors of the data collected on site see Appendix 1.

3. Protection of Trees on Development Sites

The Tree Protection Zone (TPZ) is the principal means of protecting trees on development sites. It is a combination of the root area and crown area, which is isolated from construction disturbance, so that the tree remains viable. The TPZ incorporates the Structural Root Zone (SRZ), the area around the base of a tree required for the tree's stability in the ground; the woody root growth and soil cohesion in this area necessary to hold the tree upright. Further description of the TPZ and SRZ, and methods used for their calculation can be seen in Appendix 2.

3.1 Arboricultural impact

The arboricultural impact of a proposed design is determined based on the level of encroachment into the TPZ of a tree as specified in Australian Standard AS4970-2009. The broad types of impact are described below:

Table 2: Arboricultural Impact categories and descriptors

Category	Description
Impact - Removal	The tree is within the footprint of the proposed design and will require removal to facilitate the design. In order to successfully retain the tree, a design modification would be required.
Impact – Major, not viable	The proposed design has a Tree Protection Zone area encroachment greater than 10%, or it impacts the Structural Root Zone. While the tree does not require outright removal under the design, the proposed works are expected to have a significant impact on the tree such that it is expected to die or fail in the future as a result of the works. In order to successfully retain the tree, a design modification would be required which reduces the impact to an acceptable level, unless a non-destructive root exploration has demonstrated that root distribution is limited in the proposed area of works.
Impact – Major, viable	The proposed design has a Tree Protection Zone area encroachment greater than 10%, or impacts the Structural Root Zone. The tree is expected to remain viable because of one, or a combination of the following: • Alternative construction methods are proposed which reduce the impact on the tree • Site conditions have limited root development within the proposed area of works • The species is known to be particularly tolerant to root disturbance • A non-destructive root exploration was undertaken and demonstrated that root distribution was limited in the proposed area of works. The tree will require the establishment of a Tree Protection Zone prior to the commencement of works, which may require compensation for the area lost to encroachment.
Impact - Minor	The proposed design has a Tree Protection Zone area encroachment of less than 10%, and does not impact the Structural Root zone. The tree is expected to remain a viable landscape component with the establishment of a Tree Protection Zone prior to the commencement of works, which may require compensation for the area lost to encroachment.

Category	Description
No impact	The proposed design does not enter the Tree Protection Zone. The tree is expected to remain a viable landscape component with the establishment of a Tree Protection Zone prior to the commencement of works.
Remove tree (condition)	The tree is in such poor condition that it is recommended for removal, regardless of the proposed design. The tree does not warrant retention and protection throughout the proposed works.

4. Design Proposal

4.1 Existing Conditions

Located in Braddon, Block 4 Section 60 is bounded by Northbourne Avenue to the east, Henty Street to the west and Haig Park to the south. Northbourne Avenue is the major arterial road into the Canberra CBD and as such the site is in a prominent location. The site contains mature trees and mown lawn, while the topography is generally level (Figure 1 & Figure 2).

The portion of Haig Park to the south is a densely planted park with numerous mature trees. All trees within the park are listed on the ACT Tree Register (Nomination 56 PTR035) as the park has significant historical value (ACT Government City Services 2011). Additionally, as Canberra undergoes urban densification, the park is becoming an important urban green space (Navin Officer Heritage Consultants 2020). A retention value of 'third party ownership' has been assigned to all the assessed trees. In general, all trees owned by a third party must be retained and protected from any arboricultural impact unless otherwise negotiated with the tree owner and approved by local authorities.

Generally, the subject area of Haig Park receives full sun with the exception of shadows cast by surrounding vegetation. The prevailing winds are from the north and north west.

Figure 1: Haig Park trees adjacent to Block 4 Section 60.

Figure 2: 31 assessed trees in Haig Park (green points), group assessed trees (yellow polygon) and blue property boundaries.

4.2 Proposed Works

It is proposed to develop the site into a mixed use residential/commercial space (Figure 3). The proposed development includes:

- Removal of all on site vegetation
- Excavation for 2 basement car parking levels.
  - Excavation will be offset by 4.9m from the southern boundary.
- Construction of eight apartment buildings and one mixed residential/commercial building.
  - No buildings have been proposed to exceed 27.5m in height above natural grade.
- Construction of interconnecting green space between buildings and on ground level car parking.

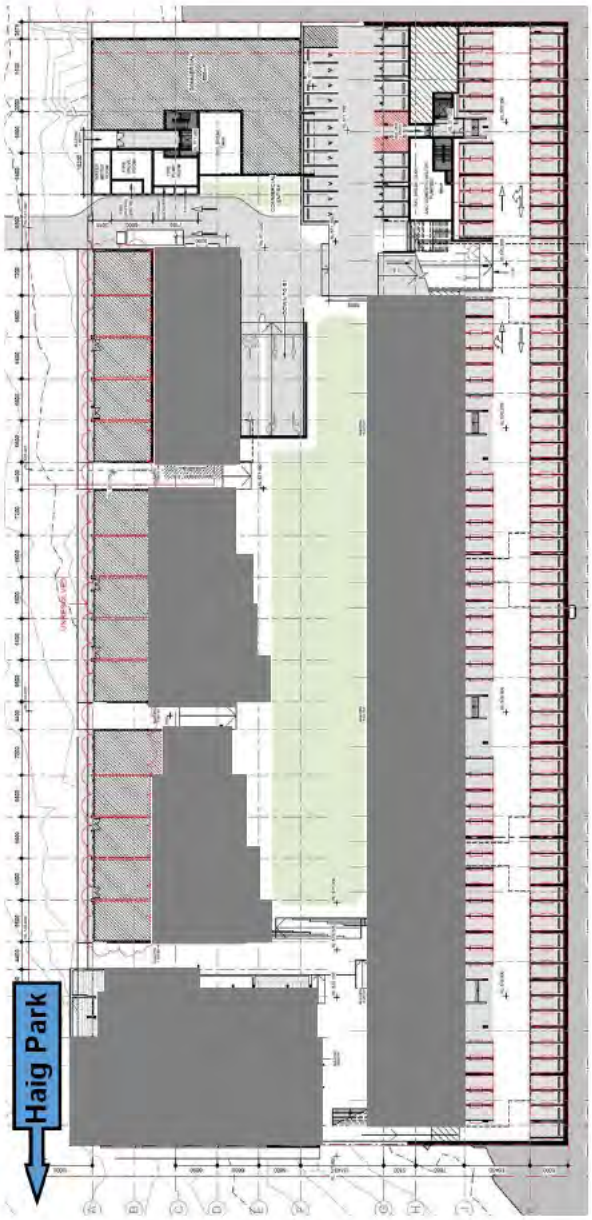


Figure 3: DA-21-03 Ground floor plan and the southern boundary with Haig Park to the left.

Development plans showing the proposed works have been prepared by Cox Architecture (ref: DA-21-01 to DA-21-08). Shadow diagrams have also been provided showing the shadows cast by the proposed development for both summer and winter solstices (Figure 3 & Figure 4, ref: DA-80-01/DA-80-02 and DA-80-90 to DA-80-94). These plans have been used to determine the impact of proposed works on the assessed trees.

Table 3 displays the assessment data for all trees, as well as the dimensions of the TPZs, SRZs and the arboricultural impact from the proposed design.

Section 6 shows the Arboricultural Impact Assessment Plan. TPZs and SRZs for the assessed trees are depicted to scale and the construction footprint of the proposed works is indicated.

Figure 4: Shadow diagram DA-80-02, winter solstice.

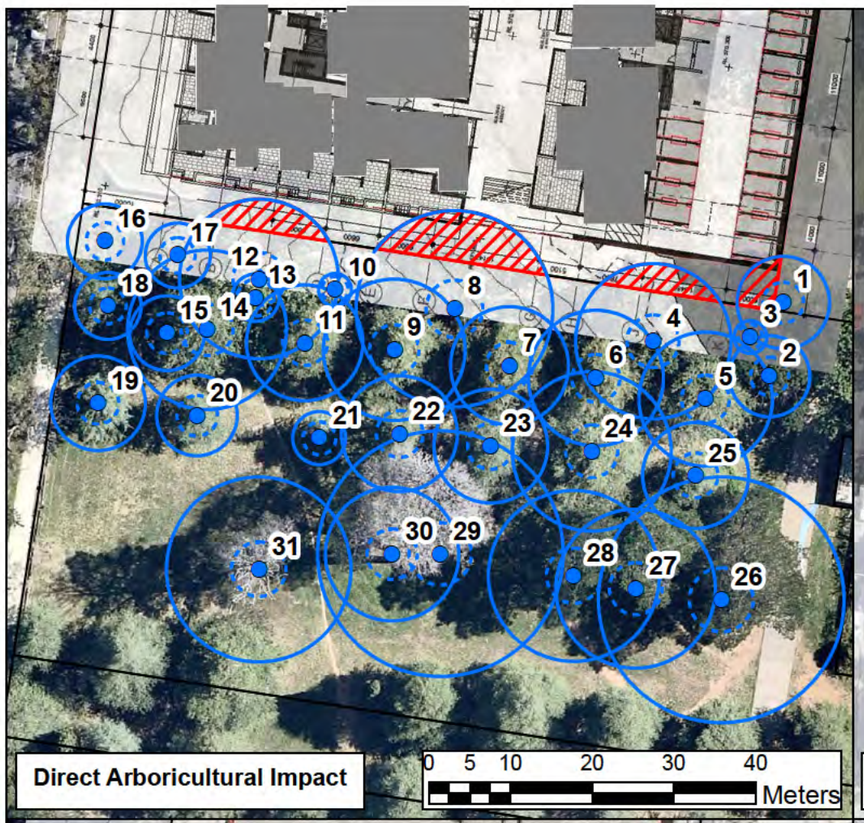
Figure 5: Shadow diagram DA-80-01, summer solstice.

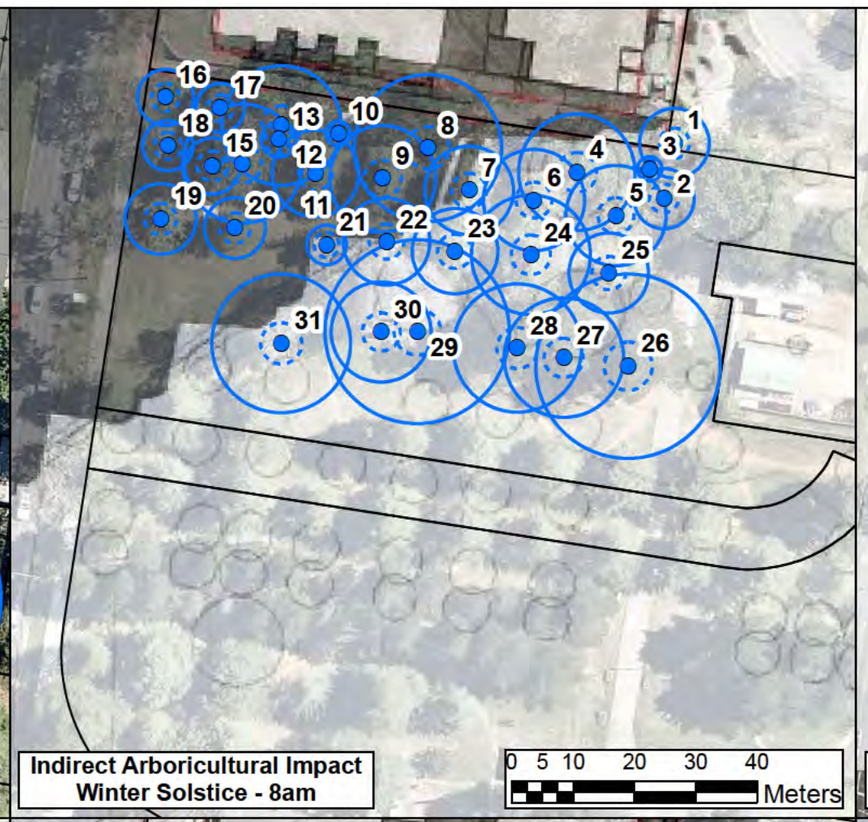
5. Tree Assessments

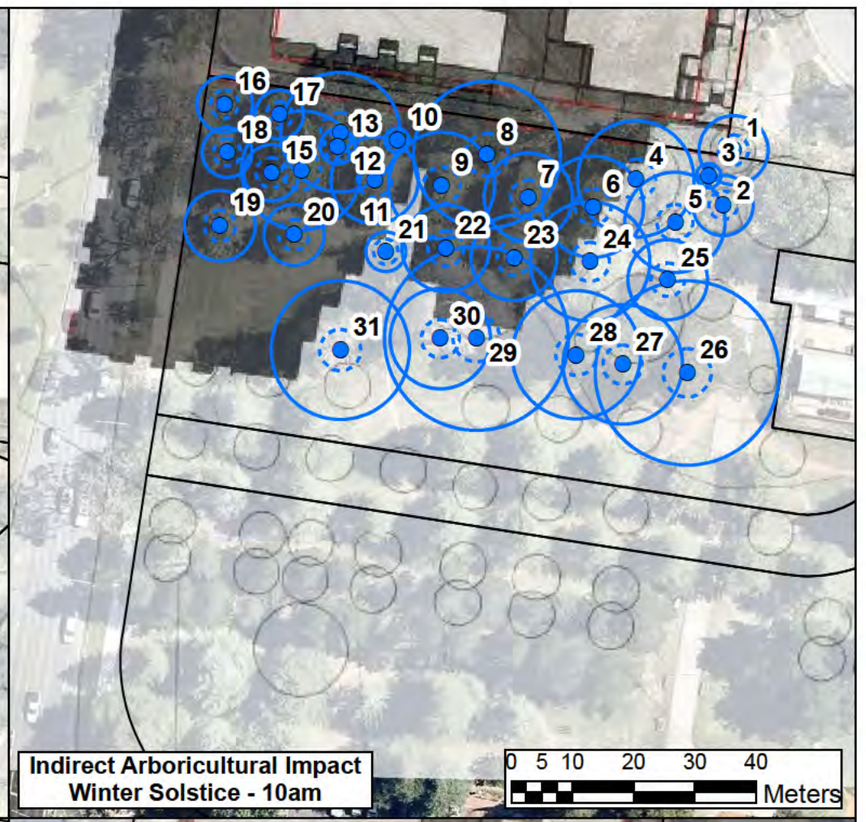
Table 3: Summary of tree assessments and arboricultural impact from the proposed design.

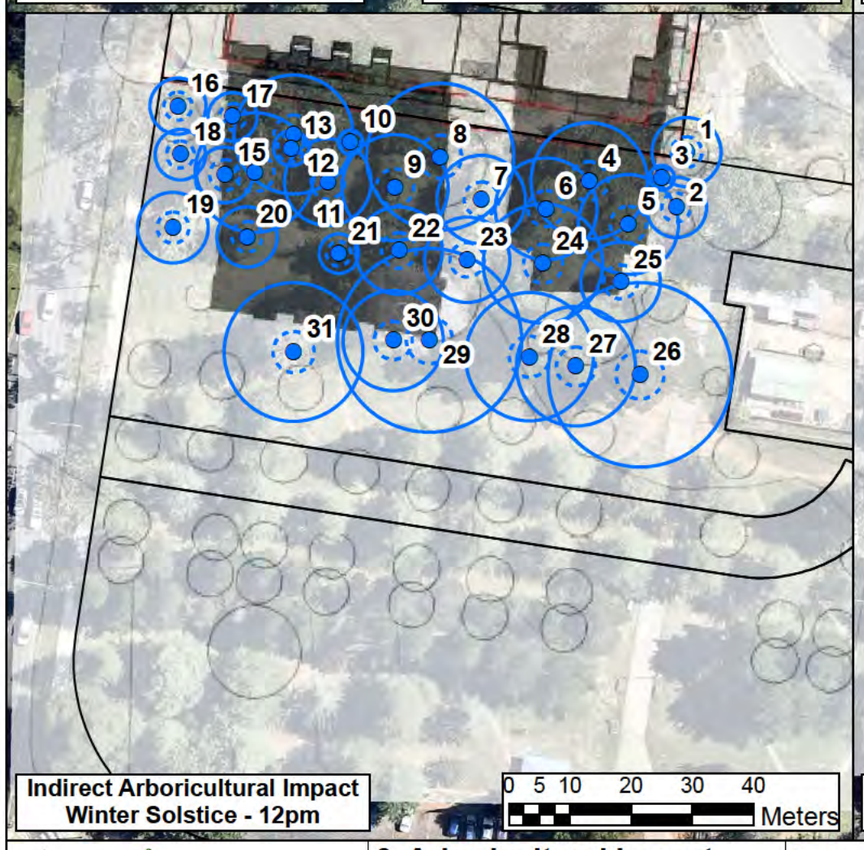
ID	Botanical Name	Origin	Height & Width (m)	DBH (cm)	Age Class	Health	Structure	ULE (yrs)	Retention Value	TPZ Radius (m)	SRZ Radius (m)	TPZ Encroachment (%)	TPZ Impact
1	*Ulmus glabra* 'Lutescens'	Exotic	8 x 7	47	Mature	Fair	Fair	10 - 20	3rd Party	5.6	2.5	24	Impact Major – viable
2	*Fraxinus* 'Raywood'	Exotic	11 x 9	41	Mature	Poor	Fair	5 - 10	3rd Party	4.9	2.3	0	No impact
3	*Fraxinus* 'Raywood'	Exotic	4 x 4	8	Semi mature	Good	Good	40+	3rd Party	2	1.5	0	No impact
4	*Quercus palustris*	Exotic	13 x 12	79	Mature	Fair	Good	10 - 20	3rd Party	9.5	3.2	13	Impact Major – viable
5	*Cedrus deodara*	Exotic	20 x 9	68	Mature	Fair	Good	10 - 20	3rd Party	8.2	2.9	0	No impact
6	*Cedrus deodara*	Exotic	18 x 13	69	Mature	Fair	Good	10 - 20	3rd Party	8.3	2.9	0	No impact
7	*Cedrus deodara*	Exotic	17 x 10	60	Mature	Fair	Fair	10 - 20	3rd Party	7.2	2.8	0	No impact
8	*Quercus palustris*	Exotic	17 x 16	100	Mature	Fair	Poor	5 - 10	3rd Party	12	3.5	20	Impact Major – viable
9	*Cedrus deodara*	Exotic	20 x 13	72	Mature	Fair	Good	10 - 20	3rd Party	8.6	3	0	No impact
10	*Juglans regia*	Exotic	7 x 5	16	Semi mature	Very Poor	Fair	1 - 5	3rd Party	2	1.6	0	Removal (tree condition)
11	*Cedrus deodara*	Exotic	19 x 10	59	Mature	Fair	Good	10 - 20	3rd Party	7.1	2.8	0	No impact
12	*Quercus palustris*	Exotic	17 x 18	81	Mature	Fair	Fair	10 - 20	3rd Party	9.7	3.2	14	Impact Major - viable
13	*Cupressus sempervirens*	Exotic	7 x 3	24	Mature	Poor	Fair	5 - 10	3rd Party	2.9	2.3	0	No impact
14	*Cedrus deodara*	Exotic	17 x 12	81	Mature	Fair	Good	10 - 20	3rd Party	9.7	3.2	0	No impact
15	*Cupressus sempervirens*	Exotic	11 x 4	38	Mature	Fair	Fair	10 - 20	3rd Party	4.6	2.5	0	No impact
16	*Pyrus calleryana*	Exotic	6 x 7	38	Mature	Good	Fair	10 - 20	3rd Party	4.6	2.3	1	Impact Minor

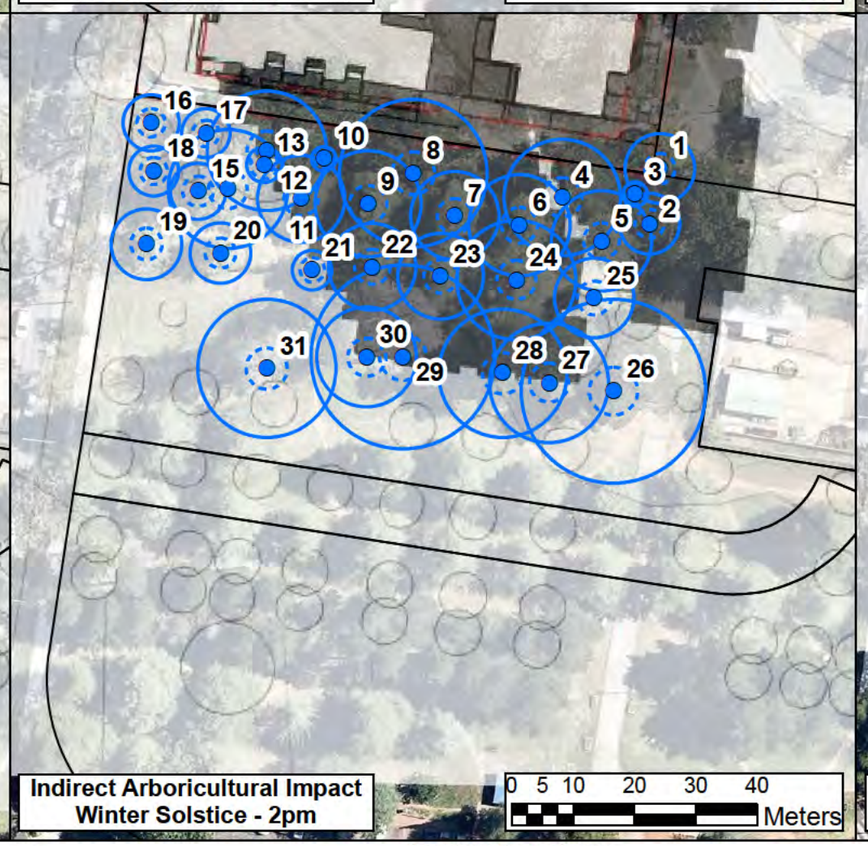
ID	Botanical Name	Origin	Height & Width (m)	DBH (cm)	Age Class	Health	Structure	ULE (yrs)	Retention Value	TPZ Radius (m)	SRZ Radius (m)	TPZ Encroachment (%)	TPZ Impact
17	*Fraxinus angustifolia* subsp. *Angustifolia*	Exotic	11 x 6	33	Mature	Fair	Fair	10 - 20	3rd Party	4	2.2	0	No impact
18	*Cedrus deodara*	Exotic	14 x 8	34	Semi mature	Fair	Good	10 - 20	3rd Party	4.1	2.2	0	No impact
19	*Cedrus deodara*	Exotic	14 x 9	48	Mature	Good	Good	20 - 40	3rd Party	5.8	2.6	0	No impact
20	*Cedrus deodara*	Exotic	12 x 8	41	Mature	Fair	Good	10 - 20	3rd Party	4.9	2.5	0	No impact
21	*Cedrus deodara*	Exotic	11 x 7	27	Semi mature	Fair	Fair	20 - 40	3rd Party	3.2	2	0	No impact
22	*Cedrus deodara*	Exotic	17 x 11	59	Mature	Fair	Good	10 - 20	3rd Party	7.1	2.9	0	No impact
23	*Cedrus deodara*	Exotic	18 x 12	58	Mature	Fair	Good	10 - 20	3rd Party	7	2.8	0	No impact
24	*Cedrus deodara*	Exotic	17 x 14	81	Mature	Fair	Good	10 - 20	3rd Party	9.7	3.2	0	No impact
25	*Cedrus deodara*	Exotic	19 x 11	54	Mature	Fair	Good	10 - 20	3rd Party	6.5	2.7	0	No impact
26	*Pinus radiata*	Exotic	23 x 17	134	Mature	Fair	Fair	10 - 20	3rd Party	15	3.9	0	No impact
27	*Pinus radiata*	Exotic	24 x 15	81	Mature	Fair	Fair	10 - 20	3rd Party	9.7	3.2	0	No impact
28	*Pinus radiata*	Exotic	24 x 14	87	Mature	Fair	Fair	10 - 20	3rd Party	10.4	3.3	0	No impact
29	*Pinus radiata*	Exotic	27 x 19	131	Mature	Dead	Poor	Zero	3rd Party	15	3.8	0	Removal (tree condition)
30	*Pinus radiata*	Exotic	21 x 13	68	Mature	Poor	Fair	1 - 5	3rd Party	8.2	3.1	0	Removal (tree condition)
31	*Pinus radiata*	Exotic	25 x 14	94	Mature	Very Poor	Poor	1 - 5	3rd Party	11.3	3.3	0	Removal (tree condition)

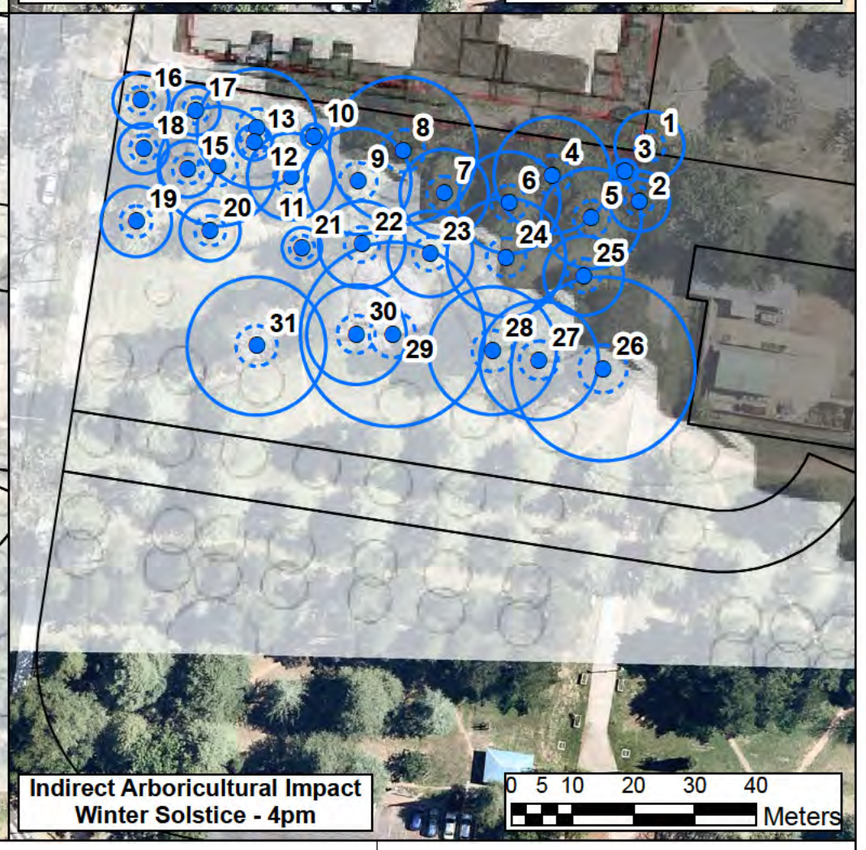












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HOMEWOOD
Belconnen ACT 2617
10/350 Settlement Road
Thomastown VIC 3074

6. Arboricultural Impact Assessment Plan

Project: Block 4 Sec ion 60, Braddon/Haig Park
Base design by: JW Land/Cox Architecture (Drawing No DA-80-90)
Projec ion: GDA 1994 MGA Zone 55

Legend

- Trees - Retained
- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Major TPZ Encroachment - More than 10% TPZ encroachment and/or SRZ incursion
- Minor TPZ Encroachment - Less than 10% TPZ encroachment AND no SRZ incursion
- Property Boundaries

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7. Arboricultural Impact Assessment

7.1 Arboricultural Impact Assessment from proposed construction works

Table 4: Summary of impact from the proposed design

Arboricultural Impact	Tree Retention Value			
	High	Medium	Low	Third Party
Impact Removal	0	0	0	0
Impact Major - not viable	0	0	0	0
Impact Major - viable	0	0	0	4
Impact Minor	0	0	0	1
No Impact	0	0	0	22
Remove (tree condition)	0	0	0	4
Totals	**0**	**0**	**0**	**31**

Of the 31 trees assessed:

- Four trees **have a major Tree Protection Zone (TPZ) encroachment** (more than 10% TPZ area and/or Structural Root Zone (SRZ) incursion) under the proposed design.
  - Trees 1, 4, 8 and 12 have a TPZ area encroachment of 24%, 13%, 20% and 14% respectively, and there is SRZ incursion to Tree 1. All **are expected to remain viable** under the proposed design with tree protection measures outlined below and in section 8. As all are third party owned, tree retention is required, and all efforts should be made to retain and protect these trees throughout the proposed works. It is recommended that:
    - A TPZ with standard provisions and exclusions is established for the portion of the trees TPZ that overlaps into Block 4, Section 60 from Haig Park. Implementing this recommendation will reduce TPZ encroachment to <10% (minor) and prevent SRZ incursion.
- Tree 16 **has a minor TPZ encroachment** (less than 10% TPZ area and no SRZ incursion) from the proposed design. This tree is expected to remain viable with standard TPZ provisions and exclusions.
- Trees 2, 3, 5-7, 9, 11, 13-15 and 17-28 **have no TPZ encroachment** from the proposed works and are expected to remain viable.
- Trees 10 and 29-31 **are recommended for removal due to poor condition,** regardless of the proposed design. The trees do not warrant retention and protection throughout the proposed works.

Additionally, Tree 4, 8 and 12 require clearance pruning to reduce branches from the final building footprint.

7.2 Indirect Assessment from shadow cast by new buildings

The construction of large structures in proximity of established trees can impact the environmental aspects (e.g., wind, lighting, soil hydrology etc.) that influence trees. The proposed development of Block 4 Section 60 will alter the way wind and light interact with the trees in Haig Park particularly those located along the boundary of the site (Trees 1-18).

A review of shadow diagrams shows changes to lighting conditions will occur entirely in winter months with summer months having little to no change. In winter, Trees 1-31 will be shaded through various times of the day however, it is Trees 1-18 that will be most influenced by the winter shading. All but the canopy tips of remaining trees (19-31 and additional trees assessed as a group) would already be shaded in winter by Trees 1-18 (Figure 5). Trees 19-31 and the additional group of trees will effectively have no altered lighting as a result of the proposed development.

Additionally, winter is a period of dormancy for trees when they generally are not actively growing. Their requirements for light, air, water and nutrients are greatly reduced (Evert & Eichhorn, 2013). Reduced winter lighting to Trees 1-18, as a result of the proposed buildings is expected to have a negligible effect on tree health.

Figure 6: Most trees already shaded in winter from boundary trees.

The proposed development will also alter the way the prevailing north westerly winds impact the trees, again in particular to Trees 1-18. The buildings will create a 'wind break' reducing the severity of winds impacting the trees. Increased movement of the air around a plant will result in higher transpiration rates and can exacerbate drought stress (USGS 2016). The proposed development could benefit tree health by reducing drought stress from wind.

7.3 Arboricultural Impact Assessment Summary

The indirect impacts from the altered aspect (light and wind) are relatively minor and not expected to adversely impact any Haig Park trees' health or Useful Life Expectancy (ULE). As a precaution, it is recommended that mulching of trees rootzones are undertaken in conjunction with the governing authority to further ensure the trees of Haig Park long term viability.

There is a far greater potential for adverse impacts to trees from physical damage from construction activities outlined in section 7.1. With recommendations outlined in section 8 however, all trees are expected to remain long term viable components of the landscape.

8. Recommended Tree Protection Measures

In order to protect retained trees and ensure they remain viable; the following is recommended:

1. Establish a Tree Protection Zone for all trees to be retained as shown on the Tree Protection Plan.
    - 1.1 Where works are permitted within the TPZ, fencing is to be taken in to only the minimum amount necessary to allow the works to be completed.
    - 1.2 Where access for machinery is required within the TPZ of trees to be retained, ground protection measures will be required.
    - 1.3 Where machinery will be working adjacent to trees to be retained, protection for the trunk and branches will be required.
2. Clearance pruning is carried out on Trees 4, 8 and 12 to create 2m clearance from the proposed development.
    - 2.1 All pruning is carried out prior to construction commencing and conforms to the Australian Standard 4373: *Pruning of Amenity Trees* (Standards Australia 2007). At least one fully qualified arborist (minimum AQF level 3) must be present on site at all times during pruning operations.
3. Mulch is applied to the rootzones of retained Haig Park trees to further promote tree longevity.
    - 3.1 Mulch must be applied to 100mm in depth consisting of composted wood chip.

Further description of the tree protection measures listed can be seen in Appendix 3.

Standard Tree Protection Measures

Tree Protection Fencing

-Fencing must be to a minimum height of 1.8m high and consist of chain wire mesh panels held in place with concrete feet. Fencing must comply with Australian Standard AS 4687-2007 Temporary fencing and hoarding.

-Fixed signs are to be provided on all visible sides of the TPZ fencing stating 'Tree Protection Zone - Keep Out'

-Where works are permitted within the TPZ, fencing is taken in to only the minimum amount necessary to allow the works to be completed.

Ground Protection

-Where temporary access for machinery is required within the TPZ, ground protection measures will be required to prevent root damage and soil compaction.

-Ground protection measures may include a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rock below rumble boards.

Trunk and Branch Protection

-If trees cannot be isolated from vehicle or machinery by TPZ fencing, trunk and branch protection will be required to prevent mechanical damage.

-Protection may consist of padding surrounding the trunk or branch, held in place with batons strpped together, or similar.

-Boards must be strapped to trees, not nailed or screwed.

TPZ Maintenance

-The area within the TPZ should be mulched, to a depth of 100mm. Where the existing landscape within the TPZ is to remain unaltered mulch may not be required.

-Soil moisture levels should be regularly monitored by the project arborist and if necessary supplementary irrigation applied.

Prohibited activities within the TPZ

-machine excavation including trenching
-excavation for silt fencing
-cultivation
-storage
-preparation of chemicals, including cement products
-parking of vehicle and plant
-refuelling
-dumping of waste
-wash down and cleaning equipment
-placement of fill
-lighting of fires
-soil level changes
-temporary or permanent installation of utilities and signs
-physical damage to the tree

Working within the TPZ

Works and activities within the TPZ must be supervised by the Project Arborist. Any additional encroachment that becomes necessary as the site works progress must be reviewed by the Project Arborist and be acceptable to the determining authority before being carried out. This includes landscaping, underground service installation and scaffolding.

Landscaping

Soft and hard landscaping within Tree Protection Zones should be assessed by the Project Arborist at the design stage and prior to the commencment of works. In general:

-No grade changes within the TPZ of trees to be retained. If a level surface is required, no more than 100mm of fill (e.g. topsoil or crushed rock) should be used.

-There should be no soil preparation for landscaping (cultivation,replacement of existing substrate or compaction) within the TPZ of trees to be retained.

-Excavation for planting holes, fence posts, garden edging, etc. should be undertaken manually within the TPZ of trees to be retained. If large roots are encountered these are to be retained unscathed and the location of the landscape component shifted. Any small roots are to be CLEANLY pruned by the project arborist, at right angles, using sharp, clean tools. Paths should be constructed from a permeable or porous material within the TPZ of trees to be retained. Paths must be constructed at or above grade with minimal compaction of the material. There should be no compaction of the subgrade.

Underground Services

Underground services within Tree Protection Zones should be assessed by the project arborist at the design stage, and prior to the commencement of works.

-All underground services (including water, electricity, gas and telephone) should be located outside of the TPZ of trees to be retained.

-If underground services are to be routed within an established TPZ, they should be installed by directional boring with the top of the bore to be a minimum depth of 600mm below the existing grade.

-Bore pits should be located outside of the TPZ or manually excavated under the direct supervision of the Project Arborist.

Scaffolding

Where scaffolding is required it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimised. Ground below the scaffolding should be protected by boarding (e.g. scaffold board or plywood sheeting). Where access is required, a board walk or other surface material should be installed to minimize soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed.

Recommended Tree Protection Measures

1. Prior to any works commencing establish Tree Protection Zone (TPZ) fencing.

1.1 Where works are permitted within the TPZ, fencing is to be taken in to only the minimum amount necessary to allow the works to be completed.

1.2 Where access for vehicles or machinery is required within the TPZ of trees to be retained, ground protection measures will be required in lieu of fencing.

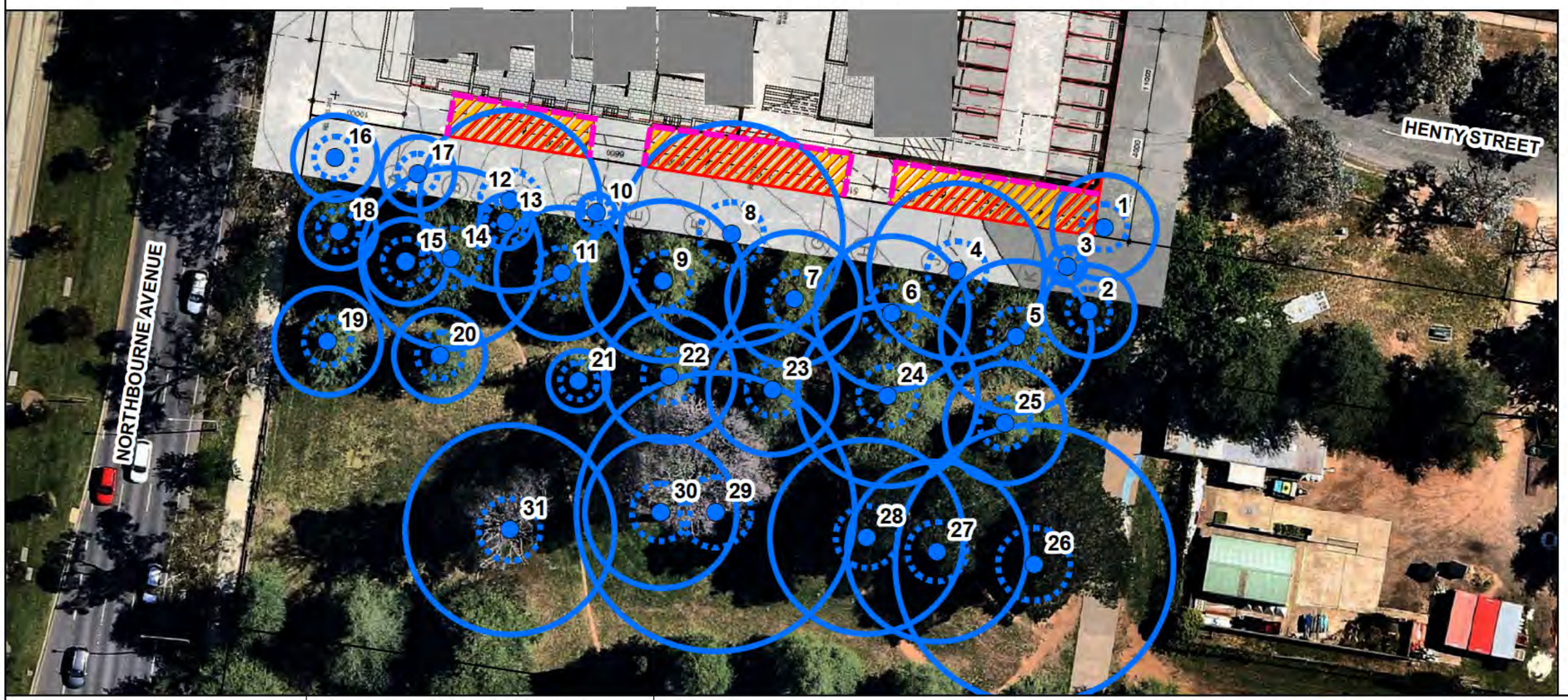
1.3 Where vehicles or machinery will be working adjacent to trees to be retained, protection for the trunk and branches will be required.

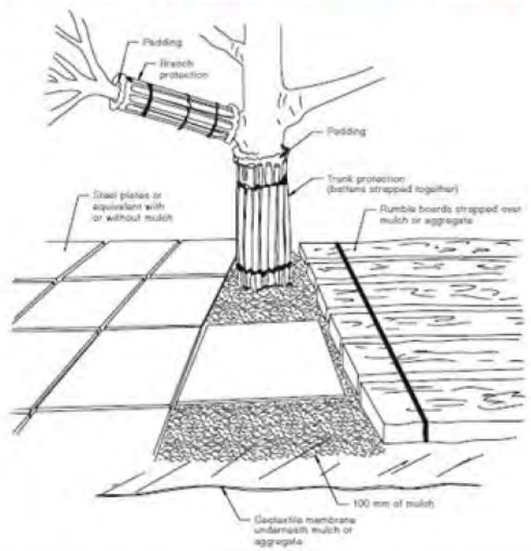
2. Clearance pruning is carried out on Trees 4, 8 and 12 to create 2m clearance from the proposed development.

2.1 All pruning is carried out prior to construction commencing by a qualified arborist (minimum AQF level 3) and conforms to Australian Standard 4373 - *Pruning Amenity Trees* (Standards Australia 2007) and the *Tree Protection Act 2005*.

3. Mulch is applied to the rootzones of retained Haig Park trees to further promote tree longevity.

3.1 Mulch must be applied to 100mm in depth consisting of composted wood chip.





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HOMEWOOD
Belconnen ACT 2617
10/350 Settlement Road Thomastown VIC 3074

9. Tree Protection Plan

Project: Block 4 Section 60, Braddon/Haig Park
Base design by: JW Land/Cox Arcitecture (Drawing No DA-21-03)
Projection: GDA 1994 MGA Zone 55

Legend

- Trees - Retained
- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Major TPZ Encroachment - More than 10% TPZ encroachment and/or SRZ incursion
- Minor TPZ Encroachment - Less than 10% TPZ encroachment AND no SRZ incursion
- TPZ Fencing
- Ground Protection if temporary access to TPZ is required.
- Property Boundaries

0 5 10 20 30 40 Meters

Drawn: AMS
Page: A3
Date: 3/03/2021

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Appendix 1. Data Collection Definitions & Descriptors

Tree assessments are based on the assessor's experience and opinion of the tree.

1.1 Botanical name

The scientific name identifying the genus and species of the tree. Each species has only one scientific name.

1.2 Common Name

The colloquial name for a tree species, usually in plain English. Common names for a species are often local or regional and each species can have multiple common names.

1.3 Tree dimensions

Tree height and canopy width in metres (estimated unless stated otherwise).

1.4 DBH

Diameter of the trunk at breast height (1.4m above ground level) measured using a diameter tape. Used to calculate the Tree Protection Zone radius.

1.5 Basal diameter

Diameter of the trunk above the root buttress, measured using a diameter tape. Used to calculate the Structural Root Zone radius.

1.6 Health

Category	Description
Very Good	The tree is demonstrating excellent or exceptional growth. The tree exhibits a full canopy of foliage and is free of pest and disease problems.
Good	The tree is demonstrating good or exceptional growth. The tree exhibits a full canopy of foliage and has only minor pest or diseases problems.
Fair	The tree is in reasonable condition and growing well. The tree exhibits an adequate canopy of foliage. There may be some deadwood present in the crown. Some grazing by insects or possums may be evident.
Poor	The tree is not growing to its full capacity; extension growth of the laterals is minimal. The canopy may be thinning or sparse. Large amounts of deadwood may be evident throughout the crown. Significant pest and disease problems may be evident or there may be symptoms of stress indicating tree decline.
Very Poor	The tree appears to be in a state of decline. The tree is not growing to its full capacity. The canopy may be very thin and sparse. A significant volume of deadwood may be present in the canopy or pest and disease problems may be causing a severe decline in tree health.
Dead	The tree is dead.

1.7 Structure

Category	Description
Good	The tree has a well-defined and balanced crown. Branch unions appear to be sound, with no significant defects evident in the trunk or the branches. Major limbs are well defined. The tree is considered a good example of the species.
Fair	The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance, and some branch unions may be exhibiting minor structural faults. If the tree has a single trunk, it may be on a slight lean or exhibiting minor defects.
Poor	The tree may have a poorly structured crown. The crown may be unbalanced or exhibit large gaps. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. The tree may have suffered root damage.
Very Poor	The tree has a poorly structured crown. The crown is unbalanced or exhibits large gaps with possibly large sections of deadwood. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. Branches may exhibit large cracks that are likely to fail in the future. The tree may have suffered major root damage.
Has Failed	A section of the tree has failed or is in imminent danger of failure and the tree is no longer a viable specimen.

1.8 Age Class

Category	Description
Mature	Tree has reached the expected size for the species at the site.
Semi-mature	Established tree that has not yet reach the expected size for the species at the site.
Young	Recently planted tree or juvenile self-sown tree (generally less than 5 years old).

1.9 Useful Life Expectancy (ULE)

Category	Description
40+ years	The tree is in excellent condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component in excess of 40 years.
20 - 40 years	The tree is in good condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 20-40 years.
10 - 20 years	The tree is in fair condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 10-20 years.
5 - 10 years	The tree is in fair to poor condition or it is not a long lived species. Removal and replacement may be required within the next 10 years.
1 - 5 years	The tree is in poor condition due to advanced decline or structural defect. Removal and replacement may be required within the next 5 years.
0 years	The tree is dead or is considered hazardous in the location. Removal may be required.

1.10 Tree Origin

Category	Description
Exotic	The species originates in a country other than Australia.
Australian Native	The species originates within Australia.
Indigenous	The species originates within the local environs.

1.11 Contribution to the Landscape

Category	Description
High	Generally, a large tree which is a significant component of the local landscape and provides canopy cover to the site. May offer shade and other amenities such as screening. The tree may assist with erosion control, offer a windbreak or perform a vital function in the location (e.g.: Habitat, shade, flowers or fruit).
Medium	Generally, a medium sized tree or group of small-medium trees which provide a moderate contribution to the local landscape and canopy cover. The tree may offer screening in the landscape or serve a particular function in the location.
Low	The tree offers little in the way of screening, amenity or canopy cover.
Negligible	The tree offers extremely little to nothing in the way of screening, amenity or canopy cover.

1.12 Tree Retention Value

Term	Description
Very High	Tree of exceptional quality in good condition. A prominent landscape feature and/or of historic, cultural, ecological or other significance. Has the potential to be a long-term landscape component where managed appropriately. All efforts should be made to retain the tree and protect from arboricultural impact.
High	Tree of high quality in good to fair condition. Generally, a prominent landscape feature. Has the potential to be a medium to long-term landscape component where managed appropriately. All efforts should be made to retain the tree and protect from arboricultural impact.
Medium	Tree of moderate quality in fair condition. Generally, a modest landscape feature. May have a health or structural issue that can be resolved with arboricultural input or may refer to a medium to small tree in good condition. Has the potential to be a medium to long-term landscape component where managed appropriately. Where practical, design modifications should be considered in order to retain and protect from arboricultural impact.
Low	Either: Tree of low quality in poor condition. Generally, provides little amenity value. Unlikely to be a long or medium term landscape component. The tree may be considered a weed species, structurally unsound, dead/dying/diseased, nearing the end of its ULE or may not be suitable for the site. Or: small tree of good or fair condition which is easily replaced in the landscape through planting of advanced stock.
Third party ownership	The tree is located outside of the subject site and is owned by a third party. It may be owned by a private entity (residential) or public body (council). Third party owned trees must be retained and protected from arboricultural impact, unless a mutually acceptable outcome is negotiated with the tree owner and relevant authorities.

Appendix 2. Tree Protection Zones & Structural Root Zones

All parts of the tree may be damaged by development and damage to any one part of the tree may affect its functioning as a whole.

Root damage is the most common cause of damage to trees on development sites. Roots may be directly damaged when removed, wounded, crushed or torn during grading, excavation or trenching. Soil compaction from foot traffic and vehicle traffic indirectly damages tree roots, resulting in loss of pore space within the soil which is essential for the exchange of gases between the soil and atmosphere and for soil drainage.

Trunks of trees may be wounded mechanically during demolition and construction work. This not only predisposes a tree to potential decay, but it also interferes with the transport of water, nutrients and sugars throughout the tree. Serious impacts may structurally weaken the tree.

The canopy of trees can be damaged through incorrect pruning techniques or mechanical injury by trucks, cranes, excavators etc. The removal of leaves reduces the level of photosynthesis and reduces the tree's capacity to function normally and to withstand stresses. Incorrect pruning and mechanical damage can produce wounds that are susceptible to infection by wood decay organisms.

For trees to be retained and their requirements met, procedures must be in place to protect trees at every stage of the development process. This needs to be taken into account at the earliest planning stage of any outdoor event or design of a development project where trees are involved.

2.1 Tree Protection Zones

The most common method of protecting trees during construction is by establishing a Tree Protection Zone (TPZ). The TPZ is an area isolated from construction disturbance area, so that the tree remains viable. The TPZ radius has been calculated according to the Australian Standard (AS 4970-2009) for the subject trees. This method calculates the TPZ as 12 times the trunk diameter at 1.4m above ground level (DBH).

A TPZ should not be less than 2m nor greater than 15m, except where additional crown protection is required. The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1m outside of the crown projection.

2.2 Structural Root Zones

The Structural Root Zone (SRZ) is the minimum volume of roots required by the tree to remain stable in the ground. If the SRZ is breached the chances of windthrow are significantly increased. Windthrow is an event where the entire tree fails/falls over.

It is important to note that the SRZ is not related to tree health. It refers to the physical volume of roots required for the tree to remain stable in the ground (Figure 6). It is in no way related to the physiological requirements of the tree but is the minimum volume of roots required for the tree to remain standing (Mattheck and Breloer 1994).

According to AS 4970-2009 the SRZ radius of the trees has been calculated using the equation:

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

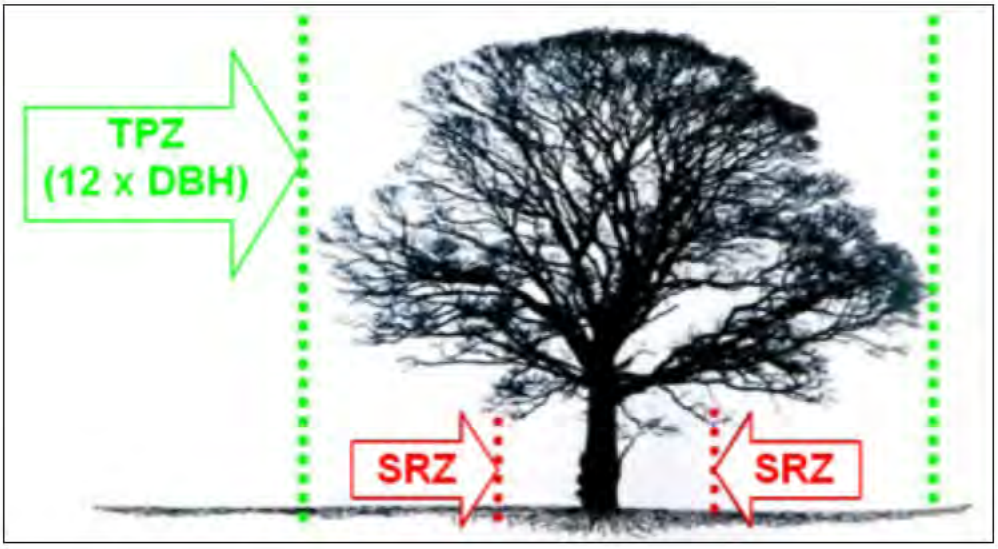


Figure 7: The SRZ = minimum volume of roots required to maintain tree stability (Biddle 1998).

2.3 TPZ and SRZ encroachment

It may be possible to encroach into or make variations to the standard TPZ. Encroachment includes (but is not limited to) excavation, compacted fill and machine trenching.

Table 5: Levels of TPZ encroachment as defined by AS 4970-2009

Level of Encroachment	Description / Definition	Requirements
Minor	Encroachment of less than 10% of the TPZ and outside the SRZ is deemed to be minor encroachment.	Detailed root investigations should not be required but the encroachment must be compensated with an extension to the TPZ elsewhere (Figure 7). Variations must be made by the Project Arborist considering other relevant factors including tree health, vigour, stability, species sensitivity and soil characteristics.
Major	Encroachment of more than 10% of the TPZ or into the Structural Root Zone (SRZ) is deemed to be major encroachment.	The Project Arborist must demonstrate that the trees would remain viable. This may require root investigation by non-destructive methods and/or consideration of relevant factors of tree health, vigour, stability, species sensitivity and soil characteristics. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ.

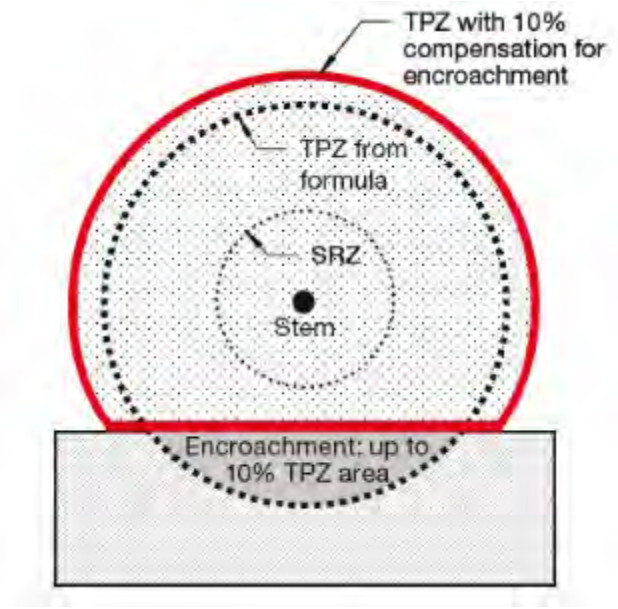


Figure 8: Example of minor TPZ encroachment and compensatory offset (image from AS 4970-2009).

Appendix 3. Tree Protection Measures

3.1 Tree Protection Fencing

The Tree Protection Zone is delineated on site by a physical barrier of protective fencing that is a minimum of 1.8m high. It is installed around retained trees prior to site establishment and retained intact until completion of the works (Figure 8). Once erected, protective fencing must not be removed or altered without approval by the Project Arborist. The TPZ fence should be secured to restrict access.

Where TPZ fencing is impractical - e.g. if site access is required through the TPZ, other tree protection measures should be used, including ground protection and/or trunk and branch protection (see 3.8 and 3.9).

Figure 9: TPZ fencing is erected around retained trees prior to site works.

3.2 Signs

Signs identifying the TPZ should be placed around the edge of the TPZ and be clearly visible from within the development site (Figure 9).

Figure 10: Example of a TPZ warning sign clearly displayed on TPZ fencing.

3.3 Activities restricted within the TPZ

Activities restricted within the TPZ include but are not limited to:

- machine excavation including trenching
- excavation for silt fencing
- cultivation and landscaping
- storage of materials
- preparation of chemicals, including preparation of cement products
- parking of vehicles and plant
- refuelling
- dumping of waste
- wash down and cleaning of equipment
- placement of fill
- lighting of fires
- soil level changes
- temporary or permanent installation of utilities and signs
- physical damage to the tree.

3.4 TPZ Maintenance

The fenced TPZ area should be mulched to retain soil moisture throughout the period of works. The mulch must be maintained to a depth of 50-100mm. Where the existing landscape within the TPZ is to remain unaltered (e.g. garden beds or turf) mulch may not be required.

Soil moisture levels should be regularly monitored by the Project Arborist. Temporary irrigation or watering may be required within the TPZ. An above-ground irrigation system should be installed and maintained by a competent individual.

All weeds should be removed by hand without soil disturbance or should be controlled with appropriate use of herbicide.

3.5 Working within the TPZ

Some works and activities within the TPZ may be permitted by the determining authority. These must be directly supervised on site by the Project Arborist. Any additional encroachment that becomes necessary as the site works progress must be reviewed by the Project Arborist and be acceptable to the determining authority before being carried out.

3.6 Landscaping

Soft and hard landscaping within Tree Protection Zones should be assessed by the Project Arborist at the design stage, and prior to the commencement of works. In general:

- There should be no grade changes within the TPZ of trees to be retained. If a level surface is required, no more than 100mm of fill (e.g. topsoil or crushed rock) should be used.
- There should be no soil preparation for landscaping (cultivation, replacement of existing substrate or compaction) within the TPZ of trees to be retained.

- Excavation for planting holes, fence posts, garden edging, etc. should be undertaken manually within the TPZ of trees to be retained. If significant roots (greater than 30mm diameter) are encountered these are to be retained unscathed and the location of the landscape component shifted. Any small roots are to be cleanly pruned by the Project Arborist, at right angles, using sharp, clean tools.

3.7 Underground services

Underground services within Tree Protection Zones should be assessed by the Project Arborist at the design stage, and prior to the commencement of works.

- All underground services (including water, sewage, electricity, gas and communications) should be located outside of the TPZ of trees to be retained.
- If underground services are to be routed within an established TPZ, they should be installed by directional boring with the top of the bore to be a minimum depth of 800mm below the existing grade.
- Bore pits should be located outside of the TPZ or manually excavated under the direct supervision of the Project Arborist.

3.8 Ground Protection

If temporary access for machinery is required within the TPZ, ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Examples of ground protection include track mats (Figure 10) and rumble boards strapped over mulch or crushed rock (Figure 11). Depending on weather conditions, geotextile fabric may be required to prevent mulch and crushed rock mixing into the site soils.

Figure 11: Track mats.

Figure 12: Rumble boards over crushed rock.

3.9 Trunk and Branch Protection

Where trees cannot be isolated from vehicles or machinery by TPZ fencing, trunk and branch protection may be required to prevent mechanical damage. Protection may consist of

padding surrounding the trunk or branch, held in place with batons strapped together, or similar (Figure 12). Boards are to be strapped to trees, not nailed or screwed.

Crown protection may also include pruning, tying-back of branches or other measures. If pruning is required, it must be undertaken by a qualified arborist and as per the specifications of AS 4373-2007 *Pruning of Amenity Trees* and should be undertaken before the establishment of the TPZ.

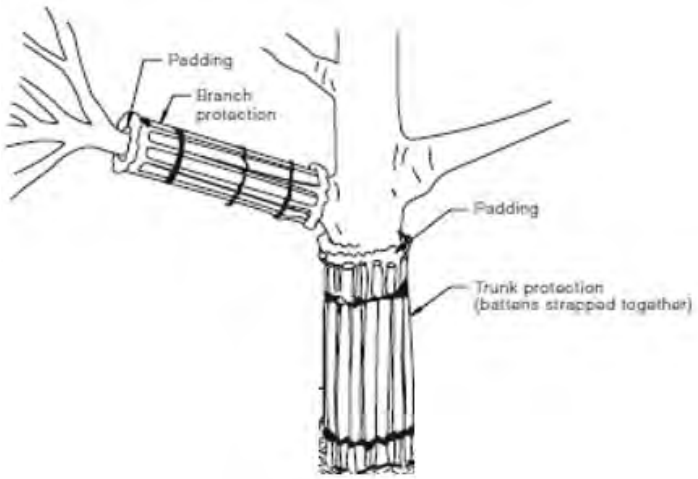


Figure 13: Example of trunk and branch protection (Source: AS 4970-2009).

3.9.1 Scaffolding

Where scaffolding is required it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimised. The ground below the scaffolding should be protected by boarding (e.g. scaffold board or plywood sheeting Figure 13). Where access is required, a board walk or other surface material should be installed to minimise soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed.

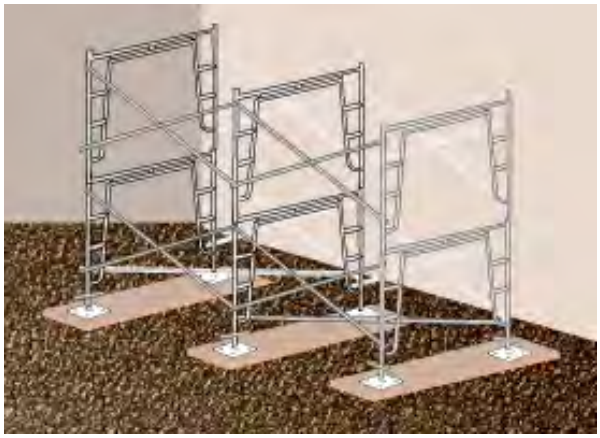


Figure 14: Scaffold on boarding.

Tree Number: 1 **Botanical Name:** *Ulmus glabra 'Lutescens'*

Common Name:	Golden Elm		
Origin:	Exotic		
Height & Width (m):	8 x 7		
DBH (cm)	47		
TPZ Radius (m):	5.64	**TPZ Impact:**	24%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	Major
ULE:	10 to 20 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 2 **Botanical Name:** *Fraxinus 'Raywood'*

Common Name:	Claret Ash		
Origin:	Exotic		
Height & Width (m):	11 x 9		
DBH (cm)	41		
TPZ Radius (m):	4.92	**TPZ Impact:**	0%
Health:	Poor	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	5 to 10 years		
Landscape Contribution:	Medium		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 3 **Botanical Name:** *Fraxinus 'Raywood'*

Common Name:	Claret Ash		
Origin:	Exotic		
Height & Width (m):	4 x 4		
DBH (cm)	8		
TPZ Radius (m):	2	**TPZ Impact:**	0%
Health:	Good	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	40+ years		
Landscape Contribution:	Low		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 4 **Botanical Name:** *Quercus palustris*

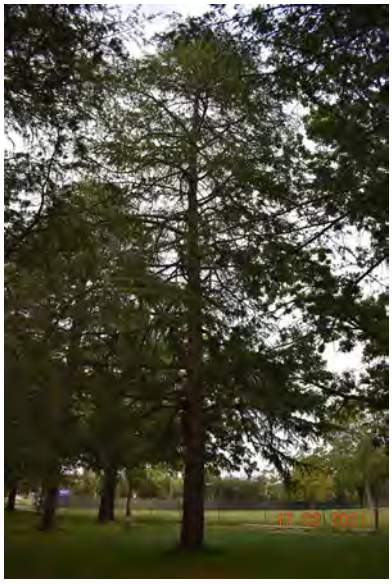
Common Name:	Pin Oak		
Origin:	Exotic		
Height & Width (m):	13 x 12		
DBH (cm)	79		
TPZ Radius (m):	9.48	**TPZ Impact:**	13%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	Major
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 5 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	20 x 9		
DBH (cm)	68		
TPZ Radius (m):	8.16	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 6 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	18 x 13		
DBH (cm)	69		
TPZ Radius (m):	8.28	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			



Tree Number: 7 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	17 x 10		
DBH (cm)	60		
TPZ Radius (m):	7.2	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 8 **Botanical Name:** *Quercus palustris*

Common Name:	Pin Oak		
Origin:	Exotic		
Height & Width (m):	17 x 16		
DBH (cm)	100		
TPZ Radius (m):	12	**TPZ Impact:**	20%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Poor	**(AS 4970):**	Major
ULE:	5 to 10 years		
Landscape Contribution:	High		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 9 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	20 x 13		
DBH (cm)	72		
TPZ Radius (m):	8.64	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 10 **Botanical Name:** *Juglans regia*

Common Name:	Walnut		
Origin:	Exotic		
Height & Width (m):	7 x 5		
DBH (cm)	16		
TPZ Radius (m):	2	**TPZ Impact:**	0%
Health:	Very Poor	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	Less than 5 years		
Landscape Contribution:	Low		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 11 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	19 x 10		
DBH (cm)	59		
TPZ Radius (m):	7.08	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 12 **Botanical Name:** *Quercus palustris*

Common Name:	Pin Oak		
Origin:	Exotic		
Height & Width (m):	17 x 18		
DBH (cm)	81		
TPZ Radius (m):	9.72	**TPZ Impact:**	14%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	Major
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 13 **Botanical Name:** *Cupressus sempervirens*

Common Name:	Italian Cypress		
Origin:	Exotic		
Height & Width (m):	7 x 3		
DBH (cm)	24		
TPZ Radius (m):	2.88	**TPZ Impact:**	0%
Health:	Poor	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	5 to 10 years		
Landscape Contribution:	Low		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:	Unable to measure trunk, DBH estimated		

Tree Number: 14 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	17 x 12		
DBH (cm)	81		
TPZ Radius (m):	9.72	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 15 **Botanical Name:** *Cupressus sempervirens*

Common Name:	Italian Cypress		
Origin:	Exotic		
Height & Width (m):	11 x 4		
DBH (cm)	38		
TPZ Radius (m):	4.56	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	Low		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:	Unable to measure trunk, DBH estimated		

Tree Number: 16 **Botanical Name:** *Pyrus calleryana*

Common Name:	Callery Pear		
Origin:	Exotic		
Height & Width (m):	6 x 7		
DBH (cm)	38		
TPZ Radius (m):	4.56	**TPZ Impact:**	1%
Health:	Good	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	Minor
ULE:	10 to 20 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 17 **Botanical Name:** *Fraxinus angustifolia subsp. angustifolia*

Common Name:	Desert Ash		
Origin:	Exotic		
Height & Width (m):	11 x 6		
DBH (cm)	33		
TPZ Radius (m):	3.96	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 18 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	14 x 8		
DBH (cm)	34		
TPZ Radius (m):	4.08	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 19 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	14 x 9		
DBH (cm)	48		
TPZ Radius (m):	5.76	**TPZ Impact:**	0%
Health:	Good	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	20 to 40 years		
Landscape Contribution:	Medium		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 20 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	12 x 8		
DBH (cm)	41		
TPZ Radius (m):	4.92	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 21 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	11 x 7		
DBH (cm)	27		
TPZ Radius (m):	3.24	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	20 to 40 years		
Landscape Contribution:	Medium		
Individual Significance:	Moderate		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 22 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	17 x 11		
DBH (cm)	59		
TPZ Radius (m):	7.08	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 23 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	18 x 12		
DBH (cm)	58		
TPZ Radius (m):	6.96	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 24 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	17 x 14		
DBH (cm)	81		
TPZ Radius (m):	9.72	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 25 **Botanical Name:** *Cedrus deodara*

Common Name:	Deodar Cedar		
Origin:	Exotic		
Height & Width (m):	19 x 11		
DBH (cm)	54		
TPZ Radius (m):	6.48	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Good	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 26 **Botanical Name:** *Pinus radiata*

Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	23 x 17		
DBH (cm)	134		
TPZ Radius (m):	15	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 27 **Botanical Name:** *Pinus radiata*

Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	24 x 15		
DBH (cm)	81		
TPZ Radius (m):	9.72	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 28 **Botanical Name:** *Pinus radiata*

Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	24 x 14		
DBH (cm)	87		
TPZ Radius (m):	10.44	**TPZ Impact:**	0%
Health:	Fair	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	10 to 20 years		
Landscape Contribution:	High		
Individual Significance:	Valuable		
Retention Value:	**Third party ownership**		
Comments:			

Tree Number: 29 **Botanical Name:** *Pinus radiata*

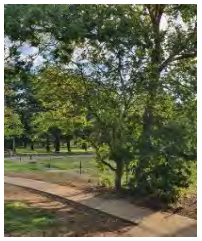
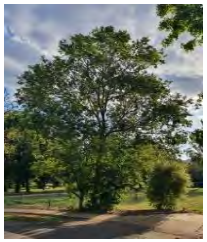
Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	27 x 19		
DBH (cm)	131		
TPZ Radius (m):	15	**TPZ Impact:**	0%
Health:	Dead	**TPZ Enchroachment**	
Structure:	Poor	**(AS 4970):**	No impact
ULE:	0 years		
Landscape Contribution:	Medium		
Individual Significance:	Negligible		
Retention Value:	**Third party ownership**		
Comments:			

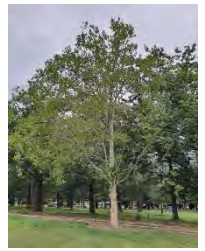
Tree Number: 30 **Botanical Name:** *Pinus radiata*

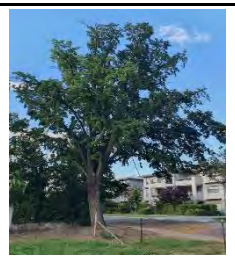
Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	21 x 13		
DBH (cm)	68		
TPZ Radius (m):	8.16	**TPZ Impact:**	0%
Health:	Poor	**TPZ Enchroachment**	
Structure:	Fair	**(AS 4970):**	No impact
ULE:	Less than 5 years		
Landscape Contribution:	Medium		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:			

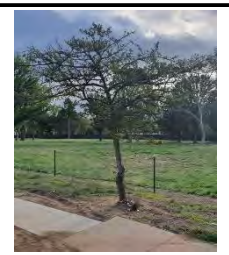
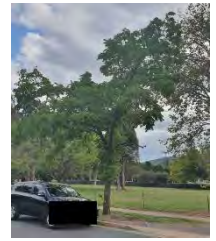
Tree Number: 31 **Botanical Name:** *Pinus radiata*

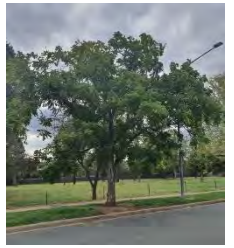
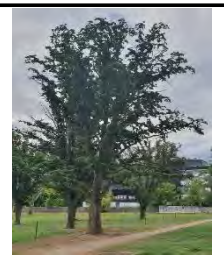
Common Name:	Monterey Pine		
Origin:	Exotic		
Height & Width (m):	25 x 14		
DBH (cm)	94		
TPZ Radius (m):	11.28	**TPZ Impact:**	0%
Health:	Very Poor	**TPZ Enchroachment**	
Structure:	Poor	**(AS 4970):**	No impact
ULE:	Less than 5 years		
Landscape Contribution:	Medium		
Individual Significance:	Low		
Retention Value:	**Third party ownership**		
Comments:			

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
1	*Juglans nigra*	7.6	43	46	130	3	5	5	4	M	P	F P	15-40	High	High	Tree has had pest infestation and has reduced foliage coverage. Minor dead wood. Monitor health and condition.	GM	
8	*Crataegus laevigata*	4.4	19	21	65	3	3	3	1	M	F	F P	15-40	Medium	Medium	Shaded from Tree 9 overhanging path with small thorns. Not official streetscape planting.	R	
9	*Ulmus parvifolia*	14.4	45	55	135	6	5	7	6	M	F	F	15-40	Medium	Medium	Not official streetscape planting. Suckers at base. Wood protective paddling at base to 1m.		
10	*Liquidambar styraciflua*	11.8	38	42	130	6	5	6	6	M	F	F P	15-40	Medium	Medium	Branching extension overhanging footpath. Not official streetscape planting.	GM	

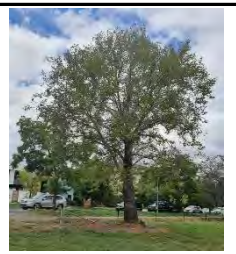
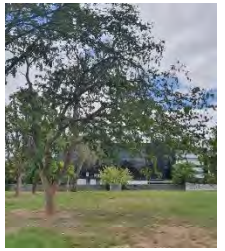
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
19	*Ulmus parvifolia*	18	69	86	227	13	5	5	10	M	P	P	15-40	Medium	Vlow	In decline and has had root plate movement, look to have removed. Bees present at time of inspection at 6m hollow.	R	
23	*Platanus x acerifolia*	18	44	54	150	6	5	7	5	M	F	F	40+	Medium	High			
25	*Eucalyptus mannifera*	18	90	108	305	9	8	8	9	M	FP	P	15-40	High	High	Official streetscape planting. Dead wood overhanging road, request dead wood to be removed. Monitor vitality.	GM	
26	*Crataegus 'smithiana'*	6	34	37	103	2	5	4	4	M	F	P	1-15	High	Low	Official streetscape planting. Trunk rot and starting to fall apart, overhanging footpath.		

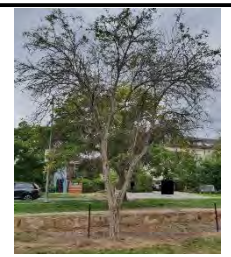
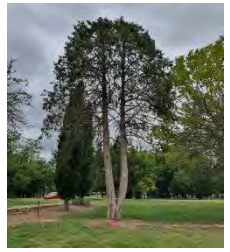
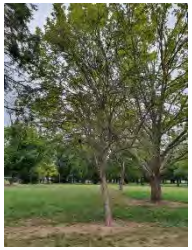
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
28	*Eucalyptus mannifera*	19	52	77	215	9	6	7	7	M	F	FP	15-40	High	High	Official streetscape planting. Bird chewing in branching attachment at 6 and 8m		
29	*Juglans nigra*	5	22	27	70	1	2	2	2	YM	P	P	1-15	High	Low	Tree has poor structure, look to have removed as part of rejuvenation works.	R	
32	*Ulmus procera*	14	72	84	240	6	5	7	6	M	F	FP	15-40	Medium	Medium	Dead wood overhanging footpath.		
33	*Ulmus parvifolia*	10	31	35	100	7	3	8	2	YM	FP	FP	15-40	Medium	Medium	Tree is on slight lean and has asymmetrical form.		

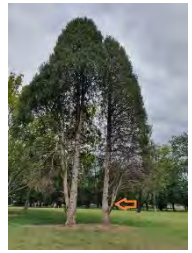
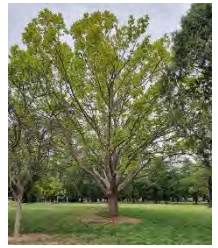
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
35	*Crataegus laevigata*	4	16	21	55	2	2	3	1	M	F	F	1-15	Medium	Low	Overhanging path with small thorns.		
37	*Juglans nigra*	9	30	34	90	5	4	3	3	M	F	FP	15-40	High	High	Failed branch on north facing side of tree.		
38	*Juglans nigra*	6	25	26	75	3	2	2	2	M	P	FP	1-15	High	Low	Tree has poor structure, look to have replaced as part of rejuvenation works.		
39	*Juglans nigra*	9	27	33	90	4	5	3	3	M	F	F	15-40	High	High	No major branching on eastern side of tree.		

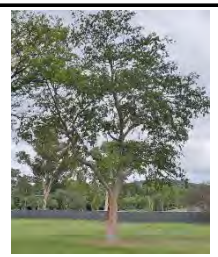
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
40	*Juglans nigra*	9	27	34	90	3	4	4	3	M	FP	F	15-40	High	High	Leaves have been eaten by pest. Monitor vitality. Small scar at base on west facing side of trunk.		
41	*Juglans nigra*	10	41	45	120	6	5	4	5	M	F	F	15-40	High	High	Two scars on trunk on south side of tree.		
42	*Juglans nigra*	9	35	39	105	4	5	3	4	M	FP	FP	15-40	High	High	Scar at base on south side of trunk.		
43	*Ulmus procera*	15	69	79	230	7	7	6	6	M	FP	P	1-15	Medium	Low	Tree holds only epicormic growth. Look to have removed due to reduced vitality and die back. If not removed, look to undertake general maintenance and have dead wood removed overhanging footpath	R	

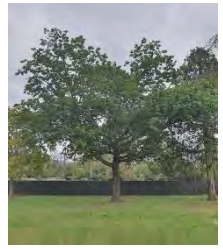
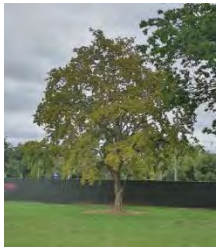
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
45	*Ulmus procera*	15	50	60	165	6	3	6	5	M	FP	FP	1-15	Medium	Low	Minor canopy die back in previous years. Monitor vitality.	M	
47	*Ulmus procera*	12	55	62	162	3	3	3	5	M	FP	P	1-15	Medium	Low	Minor canopy die back. Monitor vitality.	M	
49	*Ulmus procera*	14	65	71	162	5	5	5	5	M	FP	F	15-40	Medium	Medium	Minor canopy die back. Monitor vitality.	M	
50	*Ulmus procera*	14	66	69	195	4	7	7	5	M	VP	P	1-15	Medium	Vlow	Tree has had major decline and only has epicormic growth. Look to have removed.	R	

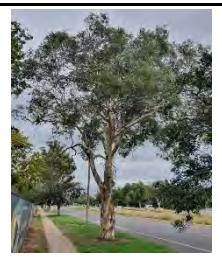
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
51	*Cupressus funebris*	11	39	45	128	3	3	3	3	M	F	F	15-40	Medium	Medium	Check heritage status for protection.		
52	*Platanus x acerifolia*	15	76	93	260	7	5	7	7	M	FP	F	15-40	Medium	Medium			
53	*Ulmus procera*	21	79	93	258	8	8	9	8	M	FP	F	15-40	Medium	Medium	Monitor vitality		
57	*Ulmus parvifolia*	17	49	55	155	8	0	11	5	M	F	P	15-40	Medium	Medium	Retain only as stand. Asymmetrical canopy and protected from adjacent tree.		

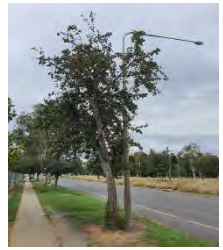
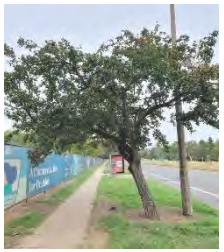
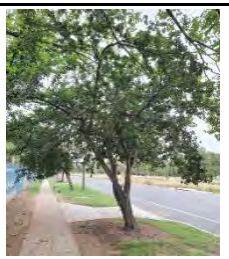
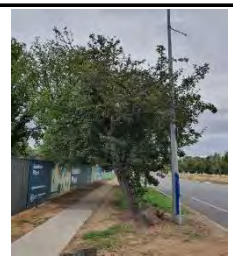
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
60	*Crataegus laevigata*	8	29	36	97	4	4	3	3	M	P	F	1-15	Medium	Low	In decline, look to have removed.		
61	*Cupressus arizonica*	16	72	83	258	4	4	4	4	M	F	FP	15-40	Medium	Medium	Codominant leader at 1m.		
62	*Crataegus laevigata*	8	22	26	70	3	3	3	3	M	P	F	1-15	Low	Low	In declining health, look to have removed. Check heritage height requirements for approval.		
63	*Cupressus funebris*	18	62	63	188	3	3	4	1	M	F	FP	15-40	Medium	Medium	Tree has failed branch hung up in canopy, look to have failed branch removed. Treat trees 63 and 64 as one tree for stand stability. Continue to monitor acute branch unions.	GM	

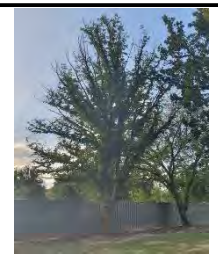
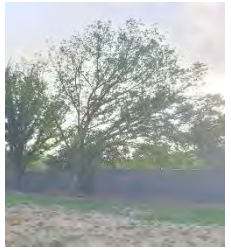
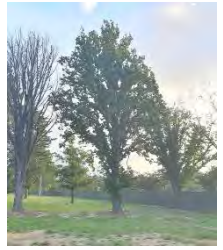
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
64	*Cupressus funebris*	17	54	57	170	3	4	1	4	M	F	F P	15-40	Medium	Medium	Treat trees 63 and 64 as one tree for stand stability.		
65	*Platanus x acerifolia*	17	66	72	210	10	10	10	10	M	F	F	40+	Medium	High			
67	*Ulmus parvifolia*	14	47	54	150	5	7	7	5	M	F P	F	15-40	Medium	Medium	Monitor vitality.		
68	*Cupressus sempervirens*	13	39	39	122	2	2	2	2	M	F	F	15-40	Medium	Medium			

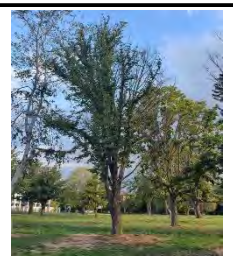
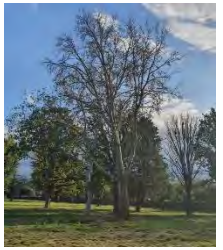
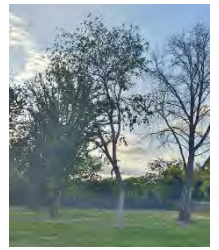
Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
70	*Cupressus sempervirens*	13	42	50	132	2	2	2	2	M	F	F	15-40	Medium	Medium	Twin trunked from below ground.		
74	*Ulmus procera*	20	50	60	165	3	3	5	4	M	F	F	15-40	Medium	Medium			
75	*Liquidambar styraciflua*	18	35	47	120	2	4	5	5	M	F	F	1-15	Medium	Low	Treat trees 74 and 75 as one tree for stand stability.		
84	*Ulmus parvifolia*	21	59	75	197	7	6	7	12	M	F	F	15-40	Medium	Medium	Monitor stability after Tree 19 is removed.		

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
85	*Cedrus atlantica*	12	81	96	265	5	5	5	5	OM	D	VP	1-15	Low	Vlow	Tree is dead and becoming unstable, have tree removed.	R	
88	*funebris*	18	74	79	225	3	5	5	6	M	F	P	15-40	Medium	Medium	Codominant leader at 5m with bark inclusion. Monitor vitality and stability of branching union and tree.	M	
89	*Quercus palustris*	16	68	88	225	8	8	10	10	M	FP	F	1-15	Medium	Low	Dead leader. Likely to have trunk rot in upper trunk. Monitor vitality and further decline.	M	
90	*Acer sp. possibly A. buergerianum*	12	46	53	142	5	5	5	5	M	F	F	15-40	Medium	Medium	Check species maybe Acer buergerianum.		

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
91	*Crataegus laevigata*	5	33	34	95	4	4	3	3	M	FP	F	1-15	Medium	Low	Monitor declining health, or look to have removed. Check heritage height requirements for approval.		
94	*Crataegus 'smithiana'*	6	43	46	113	3	5	4	5	M	F	F	15-40	High	High	Official streetscape planting.		
96	*Eucalyptus mannifera*	14	69	78	220	8	6	6	7	M	FP	F	15-40	High	High	Official streetscape planting. Dead wood overhanging path. Fruiting fungal body at 3m with trunk rot beneath branch overhanging footpath.		
97	*Crataegus 'smithiana'*	5	23	28	78	3	3	1	3	M	F	F	15-40	High	High	Official streetscape planting.		

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
98	*Crataegus 'smithiana'*	8	33	42	114	2	5	3	3	M	F	F P	15-40	High	High	Official streetscape planting.		
99	*Crataegus 'smithiana'*	6	31	36	99	3	5	6	3	M	F	F	15-40	High	High	Official streetscape planting.		
100	*Crataegus 'smithiana'*	6	31	34	100	4	5	4	3	M	F	F	15-40	High	High	Official streetscape planting.		
101	*Crataegus 'smithiana'*	7	37	45	111	4	4	5	4	M	F	F P	15-40	High	High	Official streetscape planting. Root plate movement.		

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
102	*Ulmus procera*	14	69	74	205	5	5	4	5	M	F P	F P	1-15	M e d i u m	L o w	Tree holds dead wood and has major decline in the past. Monitor vitality.	M	
103	*Ulmus procera*	14	75	65	223	11	5	4	11	M	F	P	1-15	M e d i u m	L o w	Asymmetrical canopy with branching overhanging path.		
104	*Quercus robur*	19	76	74	220	5	7	6	5	M	F	F P	15-40	M e d i u m	M e d i u m	Tree holds poor form and some hanging branches. Possibly fastigata.		
105	*Ulmus procera*	16	68	72	203	5	6	6	3	M	D	P	1-15	L o w	V l o w	Tree is dead, look to have removed.	R	

Id	Species	Height (m)	V T A										S T A R S			Comments / Recommendations	Work type	Photo
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
107	*Ulmus procera*	17	63	69	197	6	4	5	5	M	P	P	1-15	Low	Vlow	Tree has large amounts of dead wood and half the canopy dead, look to have tree removed.	R	
110	*Platanus x acerifolia*	21	91	110	310	7	8	3	7	M	D	P	1-15	Low	Vlow	Tree is dead, look to have removed. Possibly orientalis.	R	
111	*Ulmus parvifolia*	19	47	54	150	5	11	6	11	M	P	P	1-15	Medium	Vlow	Tree is in decline, look to have removed. Asymmetrical canopy, will look in poor form/structure when adjacent dead tree, Tree 110, is removed.	R	
114	*Cupressus arizonica*	17	98	95	305	7	7	5	8	M	FP	FP	1-15	Medium	Low	Sparse canopy with multiple branching to same point of trunk at 1m from ground level.		

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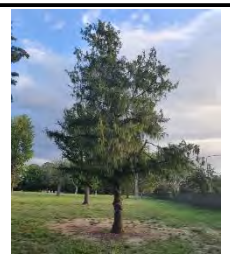
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
115	*Cupressus funebris*	10	35	42	120	4	4	4	3	M	F	F	15-40	Medium	Medium			
116	*Quercus bicolor*	19	64	75	203	7	6	6	9	M	FP	FP	15-40	Low	Low	Asymmetrical canopy.		
122	*Ulmus procera*	15	51	57	163	6	4	5	4	M	FP	FP	15-40	Medium	Medium	Minor dieback, monitor vitality.	M	
123	*Ulmus procera*	16	55	62	176	6	5	4	3	M	FP	FP	15-40	Medium	Medium	Minor dieback. Monitor vitality.	M	

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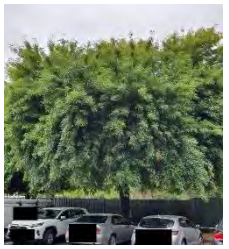
			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
129	*Ulmus parvifolia*	0	35	62	175	5	4	3	3	Y M	F	F P	15-40	L o w	L o w	Codominant at base sucker outside boundary line, will not be impacted by any development on proposed site.		
130	*Fraxinus pennsylvanica*	13	54	65	180	8	5	9	9	M	F	F P	15-40	M e d i u m	M e d i u m	Branching extensions overhanging car parking.		
131	*Ilex aquifolium*	6	32	36	110	3	3	3	3	M	P	F P	1-15	L o w	L o w	Holy tree has been engulfed by adjacent tree. Either have adjacent tree pruned or look to have tree removed.		
132	*Acer negundo*	10	32	39	100	6	3	5	6	Y M	F	P	1-15	L o w	V l o w	Pest/weed species, not protected.		

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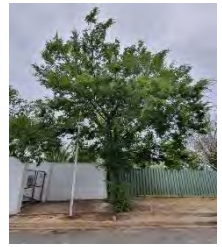
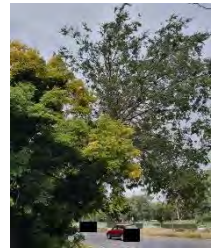
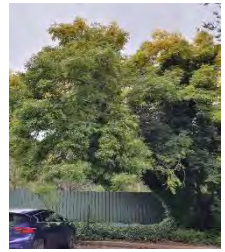
134	*Ulmus procera*	7	36	42	110	2	5	4	3	Y M	F	P	1-15	Low	Vlow	Second tree of Ulmus parvifolia counted with Tree 134.		
135	*Ulmus parvifolia*	9	26	33	83	5	1	4	4	Y M	F	P	1-15	Low	Vlow	Sucker growth in inappropriate location.		
141	*Ulmus parvifolia*	13	47	57	150	7	6	5	10	M	F	P	1-15	Medium	Low	Unbalanced canopy with branch extension overhanging path and access driveway.		
142	*Fraxinus syn. oxycarpa*	10	73	85	230	7	4	7	5	M	F	FP	1-15	Medium	Low	Unbalanced canopy with branching extension overhanging car parking.		

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			DBH (cm)	Flare ø (cm)	Circ at 1m (cm)	Canopy width north (m)	Canopy width south (m)	Canopy width east (m)	Canopy width west (m)	Maturity	Vitality	Structure	ELE	Significance	Retention			
125	*Ulmus parvifolia*	0	0	0	0	0	0	0	0	0	0	0	0	0	Vlow	Collected under point 200 as several suckers		
126	*Ulmus parvifolia*	0	0	0	0	0	0	0	0	0	0	0	0	0	Vlow	Collected under point 200 as several suckers		
127	*Ulmus parvifolia*	0	0	0	0	0	0	0	0	0	0	0	0	0	Vlow	Collected under point 200 as several suckers		
128	*Ulmus parvifolia*	0	0	0	0	0	0	0	0	0	0	0	0	0	Vlow	Collected under point 200 as several suckers		
200	*Ulmus procera*	6	10-20	10-20	0	0	0	0	0	YM	F	P	15-40	Low	Vlow	Several suckers noted as Trees 125, 126, 127 and 128. Will not be impacted by development due to size and not overhanging property boundary.