

ARBORICULTURAL IMPACT ASSESSMENT

&

TREE PROTECTION SPECIFICATION

 REF: L&Co24018 | 11 March 2025 | v2.2

 SITE ADDRESS | Northmead Public School, Moxhams Rd, Northmead NSW 2152

 PREPARED FOR | School Infrastructure NSW

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| EXECUTIVE SUMMARY 2 |
|---|
| INTRODUCTION |
| RESULTS |
| ARBORICULTURAL IMPACT ASSESSMENT 4 |
| REFERENCES |
| APPENDIX 1 METHODOLOGY |
| APPENDIX 2 TREE ASSESSMENT SCHEDULE |
| APPENDIX 3 TREE LOCATION PLAN |
| APPENDIX 4 PROPOSED DEVELOPMENT PLANS |
| APPENDIX 5 ARBORICULTURAL IMPACT ASSESSMENT PLANS |
| APPENDIX 6 TREE RETENTION/REMOVAL PLAN |
| APPENDIX 7 TREE PROTECTION PLAN |
| APPENDIX 8 TYPICAL TREE PROTECTION DETAIL |
| APPENDIX 9 TREE PROTECTION SPECIFICATION |
| APPENDIX 10 PLATES |
| APPENDIX 11 MITIGATION MEASURES43 |
| APPENDIX 12 LIMITATIONS & DISCLAIMERS |
| |



1.0 EXECUTIVE SUMMARY |

- 1.1 This Arboricultural Impact Assessment and Tree Protection Specification Report has been prepared to accompany a Review of Environmental Factors (REF) prepared for the Department of Education (DoE) relating to upgrades to Northmead Public School (the activity) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI).
- 1.2 The proposed activity for upgrades to Northmead Public School includes:
 - One (1) new single storey classroom building comprising of four (4) general learning spaces (GLS), two (2) special program spaces, a singular learning commons space and a singular multi-purpose space;
 - Minor internal alterations to an existing Admin Building (known as Building A); and
 - Removal of existing portable classroom buildings containing six (6) classrooms.
- 1.3 A total of thirty-three (33) trees were assessed for the impact assessment. The other 51 trees listed in the Tree Schedule were part of the Preliminary Impact Assessment Report (*Laurence & Co Consultancy* Dated 31.01.24). The tree population were a mix of Australian native and exotic species. All trees located on adjacent properties were assigned Retention Values of *Priority for Retention*.
- 1.4 The supplied plans show no works are proposed within the TPZs of Trees 15, 16, 19, 20, 21 27, 41, 44, 45, 46, 49, 50, 52, 53, 54, 97 & 98. However, the tree protection measures outlined in this report should be implemented to avoid indirect impacts.
- 1.5 The proposed works represent a *Minor Encroachment* (as defined by AS4970) on Trees 26, 47 & 48. However, a minor encroachment is considered acceptable by the standard when it is compensated for elsewhere and contiguous within the TPZ, as in the current cases and the trees can be retained. Further, the tree protection measures outlined in this report will reduce the likelihood of negative impacts on Trees 26, 47 & 48.
- 1.6 The supplied plans show the proposed electrical and hydraulic works are within the TPZ of Tree 51 represents *Major Encroachment* (as defined by AS4970). However, Clause 3.3.4 of AS-4970 does allow for major encroachments if design factors (e.g. tree sensitive construction methods) are used to minimise negative impacts and the tree can be retained if the tree sensitive construction methods and protection methods are carefully implemented under the supervision of the Project Arborist.
- 1.7 The proposed works are also within the SRZ of Tree 17 and represents a *Major Encroachment* (as defined by AS4970). Tree 17 will need to be removed as the TPZ encroachment is too large for its long-term viability, based on a consideration of its health, structure and the size of the encroachment. Tree 17 was assigned a Low Landscape Significance Value.
- 1.8 The supplied plans show the proposed hydraulic trenching is within the TPZ of Tree 40 and represents a *Major Encroachment* (as defined by AS4970). Tree 40 will need to be removed as the TPZ encroachment is too large for its long-term viability, based on a consideration of its health, structure and the size of the encroachment. Tree 40 was assigned a Moderate Significance Value.
- 1.9 The supplied plans show that the flood wall and foot excavations are within the SRZs of Trees 99-105. Works within the SRZ represent a *Major Encroachment* as defined by AS-4970 as root severance within the SRZ can lead to the destabilisation of the tree. The overall TPZ encroachment was estimated to be well over 50% and also represents a *Major Encroachment* as defined by AS-4970. Given the size and location of the encroachment, the long term structural and physiological viability of Trees 99-105 is highly likely to be compromised by the proposed encroachment unless root mapping by non-destructive methods can be used to place the piering around structural roots. The root mapping must be completed prior to the issue of the Construction Certificate. It should be noted that the root mapping may determine that the trees will need to be removed and/or the flood wall relocated. Given these trees are off site, removal will require permission from the tree owners and relevant consent authority.
- 1.10 The Construction Management Plan was provided in draft format only. In the current draft, trees will need to be removed that were not surveyed. These trees will need to be surveyed prior to the issue of the Construction Certificate and the plans be reviewed by the Project Arborist to minimise indirect impacts on the tree population.



2.0 INTRODUCTION |

2.1 Background

- 2.1.1 This Arboricultural Impact Assessment and Tree Protection Specification Report has been prepared to accompany a Review of Environmental Factors (REF) prepared for the Department of Education (DoE) relating to upgrades to Northmead Public School (the activity) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI). This report has determined the impact of the proposed works on the trees at Moxhams Rd, Northmead NSW 2152 and neighbouring properties and where appropriate, has provided tree sensitive construction methods to minimise negative impacts to the trees.
- 2.1.2 In preparing this report, the author is aware of and has considered the objectives of Parramatta Council's Parramatta's Part 5.3.4 (Tree and Vegetation Preservation) of Parramatta Development Control Plan (DCP) 2023, Australian Standard 4970 Protection of Trees on Development Sites (2009), Australian Standard 4373 Pruning of Amenity Trees (2007) and Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016).
- 2.1.3 Further methodology used in the preparation of this report is detailed in Appendix 1.
- 2.1.4 This Arboricultural Impact Assessment was based on an assessment of the following supplied documentation/plans only (Appendix 4):
 - Electrical Services Site plan Prepared by Services Consultants NDY. Dated 14.02.2025.
 - Preliminary Construction Management Plan Prepared by RP Infrastructure Dated 06.02.2025
 - Bulk Earthworks Site plan Prepared by Meinhardt. Dated 25.02.2025.
 - Civil Siteworks Site plan Prepared by Meinhardt. Dated 21.02.2025
 - Footing plan Prepared by Meinhardt. Dated 14.02.2025
 - Footing plan walkway Prepared by Meinhardt. Dated 14.02.2025
 - Hydraulic Services Existing Site Plan and Demolition Prepared by Accor. Dated 18.02.2025
 - Hydraulic Services Proposed Site Plan Prepared by Accor. Dated 06.03.2025
 - Building T Detail Sections 01 Prepared by Fulton Trotter Architects. Dated 19.02.2025
 - Landscape Plan Prepared by Ground Ink. Dated 17.02.2025
 - 6482Cservice Northmead PS (2763) Issue 2 Prepared by CMS Surveyors Pty Ltd. Dated 12.11.2024

2.2 The Proposal

- 2.3 The proposed activity for upgrades to Northmead Public School includes:
 - One (1) new single storey classroom building comprising of four (4) general learning spaces (GLS), two (2) special program spaces, a singular learning commons space and a singular multi-purpose space;
 - Minor internal alterations to an existing Admin Building (known as Building A); and
 - Removal of existing portable classroom buildings containing six (6) classrooms

3.0 RESULTS |

3.1 The Site

- 3.1.1 The project site is located at 52A Moxhams Road, Northmead and is legally described as:
 - Lot 1 DP 366405;
 - Lot 1 DP 176742;
 - Lot 1 DP 20061; and
 - Lot 1 DP 209810.
- 3.1.2 Northmead Public School is located on the southern side of Moxhams Road and on the western side of Kleins Road.
- 3.1.3 The site is a rectangular block with a mix of built structures, lawns, garden beds and playing fields. The site is generally level.

3.1.4 The Trees

3.1.5 A Visual Tree Assessment (VTA) (Mattheck & Breloer, 2003) has been undertaken on trees growing within the site to determine their health and structural condition (Appendix 2). A full VTA of trees located outside of the site boundaries was not undertaken due to limited access. The species and trunk diameter were recorded for the purposes of determining Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)



calculations only. The distance of each tree from the site boundary is an approximation due to limited access.

- 3.1.6 The Australian Standard 4970: *Protection of Trees on Development Sites* (2009) Clause 2.3.2, requires the allocation of a Tree Retention Value. This value is based on the Useful Life Expectancy (ULE) and Landscape Significance, which considers the tree's health, structural condition and site suitability. The Retention Value does not consider any proposed development works and is not a schedule for tree retention or removal. The trees have been allocated one of the following Retention Values:
 - Priority for Retention
 - Consider for Retention
 - Consider for Removal
 - Priority for Removal
- 3.1.7 The Australian Standard 4970: *Protection of Trees on Development Sites* (2009) also requires the calculation of the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for each tree (Appendix 1).
- 3.1.8 A total of thirty-three (33) trees and group trees were assessed which were a mix of Australian native and exotic species.
- 3.1.9 A search of the BioNet Atlas of NSW Wildlife Database was undertaken in February 2025. No individual threatened tree species that were listed within this database for the area were identified during the current field investigations of the site. The ecological significance and habitat value of the trees has not been assessed and is beyond the scope of this report.
- 3.1.10 Trees 15, 16, 17, 18, 19, 26, 27, 36, 37, 40, 41, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54 were within the site boundary and covered by the council's tree management controls.
- 3.1.11 Trees 20, 21, 97, 98, 99, 100, 101, 102, 103, 104 & 105 were located on adjacent properties. All trees on adjacent properties were allocated a Retention Value of *Priority for Retention*.

4.0 ARBORICULTURAL IMPACT ASSESSMENT |

- 4.1 Trees 15, 16, 19, 27, 41, 44, 45, 46, 49, 50, 52, 53 & 54
- 4.1.1 Trees 15, 16, 19, 27, 41, 44, 45, 46, 49, 50, 52, 53 & 54 are not directly impacted by the proposed activities. Refer to Appendix 2 for species identifications and further details.
- 4.1.2 The supplied plans show no works are proposed within the TPZs of Trees 15, 16, 19, 27, 41, 44, 45, 46, 49, 50, 52, 53 & 54. However, the following tree protection should be installed to avoid indirect impacts.
- 4.1.3 TPZ fencing should be installed prior to any site works (including demolition) and remain in place for the duration of the demolition and construction processes.
- 4.1.4 The area within the TPZ fencing should be mulched to a depth of 50mm with a non-toxic product (i.e. woodchips) with no fines.
- 4.1.5 Coir logs should be installed on the perimeter of the TPZ fencing to prevent runoff from the building works into the TPZ.
- 4.1.6 Materials, waste storage and temporary services should not be located within the TPZ fenced area. If works are required within the TPZ fenced area, then they should be supervised by the Project Arborist.
- 4.1.7 The tree protection measures must be inspected by the Project Arborist prior to the start prior of site works, including demolition.
- 4.1.8 Refer to AS4970 and Appendices 5, 6, 7 & 8 for further details for further details.
- 4.2 Tree 17
- 4.2.1 Tree 17 was identified as a *Sapium sebiferum* (Chinese Tallow Tree) and was allocated a Low Landscape Significance Value and a Retention Value of *Consider for Removal*.
- 4.2.2 The supplied hydraulic services plans show that the sewer works is within the SRZ of Tree 17 and will need to be removed.
- 4.2.3 Given the size and location of the encroachment, the long term structural and physiological viability of Tree 17 is highly likely to be compromised by the proposed encroachment and the tree will need to be removed to accommodate the works.
- 4.2.4 Refer to Appendix 5 for further detail.
- 4.2.5 Removal and replacement with a healthy advanced size specimen would replace the loss of amenity within a medium timeframe.
- 4.3 Tree 40
- 4.3.1 Tree 40 was identified as a *Schinus molle var. areira* (Peppercorn Tree) and was allocated a Moderate Landscape Significance Value and a Retention Value of *Consider for Retention*.
- 4.3.2 The supplied hydraulic services plans show that the cold-water trenching works are within the TPZ of Tree 40 and will need to be removed.



- 4.3.3 Given the size and location of the encroachment, the long term structural and physiological viability of Tree 40 is highly likely to be compromised by the proposed encroachment and the tree will need to be removed to accommodate the works.
- 4.3.4 Refer to Appendix 5 for further detail.
- 4.3.5 Removal and replacement with a healthy advanced size specimen would replace the loss of amenity within a medium timeframe
- 4.4 Tree 18
- 4.4.1 Tree 18 was identified as a *Fraxinus excelsior* (European Ash) and was allocated a Moderate Landscape Significance Value and a Retention Value of *Consider for Retention*.
- 4.4.2 The supplied plans show the proposed building and sewer upgrades are within the TPZ of Tree 18. The TPZ encroachment is approximately 21.3% and represents *Major Encroachment* (as defined by AS4970) based on the cumulative impact of civil, earthworks and hydraulic works.
- 4.4.3 Refer to Appendix 5 for further detail.
- 4.4.4 This tree will need to be removed as the TPZ encroachment is too large for its long-term viability, based on a consideration of its health, structure and the size of the encroachment. Tree 18 was assigned a Moderate Landscape Significance Value.
- 4.4.5 Removal and replacement with a healthy advanced size specimen would replace the loss of amenity within a medium to long timeframe.

4.5 Trees 20, 21, 97 & 98

- 4.5.1 Trees 20, 21, 97 & 98 were given the Retention Value was adjusted to *Priority for Retention* given they were located outside of the site.
- 4.5.2 The supplied plans show no works are proposed within the TPZ of Trees 20, 21, 97 & 98. However, the following tree protection should be installed to avoid indirect impacts.
- 4.5.3 TPZ fencing should be installed prior to any site works (including demolition) and remain in place for the duration of the demolition and construction processes.
- 4.5.4 The area within the TPZ fencing should be mulched to a depth of 50mm with a non-toxic product (i.e. woodchips) with no fines.
- 4.5.5 Coir logs should be installed on the perimeter of the TPZ fencing to prevent runoff from the building works into the TPZ.
- 4.5.6 Materials, waste storage and temporary services should not be located within the TPZ fenced area. If works are required within the TPZ fenced area, then they should be supervised by the Project Arborist.
- 4.5.7 The tree protection measures must be inspected by the Project Arborist prior to the start prior of site works, including demolition.
- 4.5.8 Refer to AS4970 and Appendices 5, 6, 7 & 8 for further details for further details
- 4.6 Trees 26, 47 & 48
- 4.6.1 Trees 26, 47 & 48 were allocated a Moderate to High Landscape Significance Value and a Retention Value of *Priority for Retention*.
- 4.6.2 The supplied plans show that the flood wall construction is within the TPZ of Tree 26 and earthworks are in the TPZ of Trees 47 & 48. The TPZ encroachment is approximately 1.6%, 1.5% and 2% respectively and represents a *Minor Encroachment* as defined by AS-4970. A *Minor Encroachment* is considered acceptable by the standard when it is compensated for elsewhere and contiguous within the TPZ as in the current case and the trees can be retained.
- 4.6.3 Tree protection should be installed to avoid further indirect impacts.
- 4.6.4 TPZ fencing should be installed prior to any site works (including demolition) and remain in place for the duration of the demolition and construction processes.
- 4.6.5 The area within the TPZ fencing should be mulched to a depth of 50mm with a non-toxic product (i.e. woodchips) with no fines.
- 4.6.6 Coir logs should be installed on the perimeter of the TPZ fencing to prevent runoff from the building works into the TPZ.
- 4.6.7 Materials, waste storage and temporary services should not be located within the TPZ fenced area. If works are required within the TPZ fenced area, then they should be supervised by the Project Arborist.
- 4.6.8 The tree protection measures must be inspected by the Project Arborist prior to the start prior of site works, including demolition.
- 4.6.9 Refer to AS4970 and Appendices 5, 6, 7 & 8 for further details for further details.

4.7 Trees 36 & 37

4.7.1 Trees 36 & 37 were allocated Moderate to High Landscape Significance Value and Retention Values of *Consider for Retention* and *Priority for Retention*, respectively.



- 4.7.2 The supplied hydraulics works show the proposed development is within the TPZ of Trees 36 & 37. The TPZ encroachment is approximately 11.0% and 12.5% respectively and represents a *Major Encroachment* as defined by AS-4970. However, Clause 3.3.4 of AS-4970 does allow for *Major Encroachments* if design factors (e.g. tree sensitive construction methods) are used to minimise negative impacts.
- 4.7.3 The proposed encroachment on Tree 37 it partially within the footprint of the existing demountables that are likely to have restricted root growth into the area of encroachment.
- 4.7.4 Given the good physiological condition of the trees and existing structures, the proposed development can be accommodated. However, given the size of encroachment the proposal represents a significant risk to the tree's long term structural and physiological viability and therefore the following tree sensitive construction methods and protection measures are carefully implemented under the supervision of the Project Arborist. Significant departures from the detailed tree sensitive construction methods and protection to result in a shortened ULE and/or tree removal.
- 4.7.5 The trenching should be conducted by hand where possible and electrical conduit placed around structural roots where possible. The works should be supervised by the Project Arborist.
- 4.7.6 The following tree protection measures must be installed to prevent further indirect impacts.
- 4.7.7 TPZ fencing should be installed parallel to the proposed encroachment line prior to any site works (including demolition) and remain in place for the duration of the construction. Coir logs should be installed inside of the TPZ fencing to prevent material runoff into the TPZ.
- 4.7.8 Materials, waste storage and temporary services should not be located within the TPZ fenced area. If works are required within the TPZ fenced area, then they should be supervised by the Project Arborist.
- 4.7.9 The tree protection measures must be inspected by the Project Arborist prior to the start of site works, including demolition.
- 4.7.10 Refer to AS4970 and Appendices 5, 6 & 7 for further details.

4.8 Tree 51

- 4.8.1 Tree 51 was identified as a *Platanus x hybrida* (London Plane Tree) and was allocated a High Landscape Significance Value and a Retention Value of *Priority for Retention*.
- 4.8.2 The supplied plans show the proposed electrical and hydraulic works are within the TPZ of Tree 51. The TPZ encroachment is approximately 16.1% and represents *Major Encroachment* (as defined by AS4970) based on the cumulative impact of electrical and hydraulic works. However, Clause 3.3.4 of AS-4970 does allow for major encroachments if design factors (e.g. tree sensitive construction methods) are used to minimise negative impacts and/or the presence of existing or past structures are likely to have been obstacles to root growth into the area of encroachment.
- 4.8.3 The trenching for the electrical works should be conducted by hand where possible and electrical conduit placed around structural roots where possible. The works should be supervised by the Project Arborist.
- 4.8.4 Refer to Appendix 5 for further detail.
- 4.8.5 However, given the size of encroachment the proposal represents a significant risk to the tree's long term structural and physiological viability and therefore the following tree sensitive construction methods and protection measures are carefully implemented under the supervision of the Project Arborist. Significant departures from the detailed tree sensitive construction methods and protection measures are likely to result in a shortened ULE and/or tree removal.
- 4.8.6 Tree protection should be installed to avoid further indirect impacts.
- 4.8.7 TPZ fencing should be installed prior to any site works (including demolition) and remain in place for the duration of the demolition and construction processes.
- 4.8.8 The area within the TPZ fencing should be mulched to a depth of 50mm with a non-toxic product (i.e. woodchips) with no fines.
- 4.8.9 Coir logs should be installed on the perimeter of the TPZ fencing to prevent runoff from the building works into the TPZ.
- 4.8.10 Materials, waste storage and temporary services should not be located within the TPZ fenced area. If works are required within the TPZ fenced area, then they should be supervised by the Project Arborist.
- 4.8.11 The tree protection measures must be inspected by the Project Arborist prior to the start prior of site works, including demolition.
- 4.8.12 Refer to AS4970 and Appendices 5, 6, 7 & 8 for further details for further details
- 4.9 Impact from the flood wall construction
- 4.9.1 **Trees 99, 100, 101, 102, 103, 104 & 105**
- 4.9.2 Trees 99, 100, 101, 102, 103, 104 & 105 have the Retention Value adjusted to *Priority for Retention* given they are located outside of the site.



- 4.9.3 The supplied plans show that the flood wall and foot excavations are within the SRZs of Trees 99-105. Works within the SRZ represent a *Major Encroachment* as defined by AS-4970 as root severance within the SRZ can lead to the destabilisation of the tree. The overall TPZ encroachment was estimated to be well over 50% and also represents a *Major Encroachment* as defined by AS-4970.
- 4.9.4 Given the size and location of the encroachment, the long term structural and physiological viability of Trees 99-105 is highly likely to be compromised by the proposed encroachment unless root mapping by non-destructive methods can be used to place the piering around structural roots. These works must be completed prior to the issue of the Construction Certificate. It should be noted that the root mapping may determine that the trees will need to be removed and/or the flood wall relocated.
- 4.9.5 Given these trees are off site, removal will require permission from the tree owners and relevant consent authority.
- 4.9.6 Refer to Appendix 5 for further detail.
- 4.10 Impact from the Construction Management Plan
- 4.11 The Construction Management Plan (CMP) was provided in draft format only and the location and construction of temporary fencing, roads and buildings should be reviewed by the Project Arborist to minimise indirect impacts on the tree population.
- 4.11.1 In the current draft, trees will need to be removed that were not surveyed. These trees will need to be surveyed prior to the issue of the Construction Certificate.
- 4.11.2 Refer to Appendix 5 for further detail.

4.12 Removal & Replacement Planting

- 4.12.1 Removal works should be carried out by a practising arborist. The practising arborist should hold a minimum qualification equivalent (using Australian Qualifications Framework) of Level 3 or above in arboriculture or its recognised equivalent. The practising arborist should have a minimum of 3 years of practical experience. Removal works should be undertaken in accordance with the Australian Standard 4373: Pruning of Amenity Trees (2007), Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation and codes.
- 4.12.2 Replacement tree planting should be provided when trees are removed. Replacement trees should be supplied as advanced size stock to help offset the loss of amenity resultant from the tree removals.
- 4.12.3 Replacement planting should be supplied in accordance with Australian Standard 2303: Tree Stock for Landscape Use (2015).

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5.0 REFERENCES |

Mattheck & Breloer (2003), *The Body Language of Trees – A Handbook for Failure Analysis*. NSW Office of Environment and Heritage's Atlas of NSW Wildlife (2011), *BioNet Atlas of NSW Wildlife*. Standards Australia (2009) Protection of Trees on Development Sites AS4970. Standards Australia (2007) Pruning of Amenity Trees AS4373. Standards Australia (2015) Tree Stock for Landscape Use AS2303.



6.0 APPENDIX 1 | METHODOLOGY

- 6.1 This report was based on data from a site inspection conducted between 05.10.23, 11.2.25 &27.2.25. The recommendations in this report are based on and limited to observations from these site inspections.
- 6.2 The subject tree(s) was assessed using the Visual Tree Assessment methodology described in *The Body Language of Trees – A Handbook for Failure Analysis* (Mattheck et al., 2003). Subject trees were assessed from the ground only to provide an Arboricultural Impact Assessment and Tree Protection Specification report. No internal diagnostic testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.
- 6.3 The dimensions of the subject tree(s) are an approximation only.
- 6.4 The location of the subject tree(s) was determined from the location plan provided. Trees not shown on this plan have been plotted in their approximate location only.
- 6.5 Tree Protection Zones & Structural Root Zones for the subject tree(s) was based on methods outlined in Australian Standard 4970: *Protection of Trees on Development Sites* (2009).
- 6.6 The health of the subject tree(s) was determined by assessing:
 - Foliage size and colour
 - Pest and disease infestation
 - Extension growth
 - Crown density
 - Deadwood size and volume
 - Presence of epicormic growth
- 6.7 The structural condition of the subject tree(s) was assessed by:
 - Visible evidence of structural defects or instability
 - Evidence of previous pruning or physical damage
- 6.8 The Useful Life Expectancy (ULE) is used to estimate a tree's longevity in its growing environment. The ULE is based on a tree's species, health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (modified from Barrell, 2001):
 - 40 years +
 - 15-40 years
 - 5-15 years
 - Less than 5 years
- 6.9 The Landscape Significance is based on a qualitative assessment of a tree's cultural, environmental and aesthetic value. This provides a relative measure of a tree's Landscape Significance and can be used to determine its Retention Value. Trees are rated under the following categories:
 - Very High
 - High
 - Moderate
 - Low
 - Insignificant



9 | 45

| VERY HIGH | The subject tree is listed as a Heritage Item under the Local Environmental Plan with a local or state level of significance. |
|-------------------|--|
| | The subject tree is listed on Council's Significant Tree Register. |
| | The subject tree is a remnant tree. |
| HIGH | The subject tree creates a 'sense of place' or is considered 'landmark' tree. |
| | The subject tree is of local, cultural or historical importance or is widely known. |
| | The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species or forms part of an Endangered Ecological Community associated with the subject site, as defined under the provisions of the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999. |
| | The subject tree is known to provide habitat to a threatened species. |
| | The subject tree is an excellent representative of the species in terms of aesthetic value. |
| | The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality. |
| | The subject tree forms part of the curtilage of a heritage item with a known or documente association with that item. |
| MODERATE | The subject tree makes a positive contribution to the visual character or amenity of the area. |
| | The subject tree provides a specific function such as screening or minimising the scale c a building. |
| | The subject tree has a known habitat value. |
| | The subject tree is a good representative of the species in terms of aesthetic value. |
| LOW | The subject tree is an environmental pest species or is exempt under the provisions of the local Council's Tree Management Controls. |
| | The subject tree makes little or no contribution to the amenity of the locality. |
| | The subject tree is a poor representative of the species in terms of aesthetic value. |
| INSIGNIFICAN T | The subject tree is declared a Noxious Weed under the Noxious Weeds Act. |

for Assessment of Landscape Significance.



- 6.10 The Retention Value is based on a tree's ULE and Landscape Significance. The subject tree(s) has been allocated one of the following Retention Values:
 - Priority for Retention
 - Consider for Retention
 - Consider for Removal
 - Priority for Removal

| | VERY HIGH | HIGH | MODERAT E | LOW | INSIGNIFICAN T | | | | | | |
|-------------------|----------------------------|------------------------------|------------------------------|------------------|-------------------------|--|--|--|--|--|--|
| 40 years + | Priority for Retention | Priority fo | or Retention | Conside r for | Priority for Removal | | | | | | |
| 15-40 years | | Priority for Retention | Consider for Retention | Remova I | nomovar | | | | | | |
| 5-15 years | Co | onsider for Reter | ntion | | | | | | | | |
| Less than 5 years | Consider for Removal | Priority for Removal | | | | | | | | | |

The above table was provided by Anna Hopwood of TreelQ™

- 6.11 The Tree Protection Zone (TPZ) is the area above and below ground required to preserve the vigour and long-term viability of the tree. The TPZ is based on scientific research and is generally considered by the arboricultural industry as the area required to provide adequate tree protection during construction. The TPZ is the primary means of protecting trees on development sites (Australian Standard 4970:*Protection of Trees on Development Sites*, 2009).
- 6.12 Works within the TPZ should be avoided. However, *Minor Encroachments,* defined in AS4970 as less than 10% of the TPZ area, are considered acceptable when it is compensated for elsewhere and contiguous within the TPZ. A *Major Encroachment,* defined in AS4970 as greater than 10% of the TPZ area or within the Structural Root Zone (SRZ), may require root investigations by non-destructive methods and tree sensitive construction methods.
- 6.13 The TPZ is the area within a circle that is centred on the trunk. The radius of the TPZ is calculated by the following formula:

- 6.14 The SRZ is the minimum area around the base of the tree required for the tree's stability. The SRZ only relates to tree stability and not the vigour and long-term viability of the tree.
- 6.15 The SRZ is the area within a circle that is centred on the trunk. The radius of the SRZ is calculated by the following formula:

SRZ= (Dx50)^{0.42} x 0.64 where D= Trunk diameter (m) above the root buttress

- 6.16 Encroachment into SRZ (i.e. severance of structural roots >25mmØ) may lead to the destabilisation of the tree and the long-term viability must be demonstrated in such cases. This may require root investigations by non-destructive methods.
- 6.17 For further details on the TPZ and SRZ please refer to Australian Standard 4970: *Protection of Trees on Development Sites* (2009).



7.0 APPENDIX 2 | TREE ASSESSMENT SCHEDULE

| Tree No. | Species | Height (m) | Radial Crown Spread (m) | DBH comb. (mm) | Radial TPZ (m) | TPZ Area (m²) | Radial SRZ (m) | Health Rating | Structural Rating | Age Class | ULE (years) | L/Sign | Retention Value | Comments | TPZ Encroachment (%) |
|-------------|---|---------------|----------------------------------|----------------------|----------------------|---------------------|----------------------|------------------|----------------------|----------------|----------------|----------|---------------------------|--|----------------------------|
| 15 | Sapium sebiferum (Chinese Tallow Tree) | 7 | 4 | 112 | 2 | 13 | 1.5 | Fair | Fair | Late Mature | 5-15 | Low | Consider for Removal | Crossing branches. Crown density 50-75%. Small (<25mmø) deadwood in high volumes. Girdled roots. Co-dominant inclusions, major. | No Encroachment |
| 16 | Sapium sebiferum (Chinese Tallow Tree) | 8 | 4 | 225 | 3 | 23 | 1.8 | Good | Good | Mature | 5-15 | Low | Consider for Removal | Mechanical damage to exposed surface roots. | No Encroachment |
| 17 | Sapium sebiferum (Chinese Tallow Tree) | 6 | 4 | 125 | 2 | 13 | 1.5 | Fair | Fair | Late Mature | 5-15 | Low | Consider for Removal | Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. Wound(s), early signs of decay. | 31.0% (Within SRZ) |
| 18 | <i>Fraxinus excelsior</i> (European Ash) | 15 | 8 | 513 | 6 | 119 | 2.6 | Fair | Fair | Late Mature | 5-15 | Moderate | Consider for Retention | Crown density 50-75%. Small (<25mmø) epicormic growth in high volumes. Mechanical damage to exposed surface roots. Co- dominant inclusions, major. Wound(s), early signs of decay. Order branch cavity, minor. | 21.3% |
| 19 | <i>Morus sp.</i> (Mulberry tree) | 7 | 4 | 175 | 2 | 14 | 1.7 | Fair | Fair | Late Mature | <5 | Low | Priority for Removal | Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in moderate volumes. | No Encroachment |
| 20 | <i>Eucalyptus sp.</i> (Gum tree) | 16 | 8 | 355 | 4 | 57 | 2.2 | | | | | | | Set back 500 | No Encroachment |
| 21 | <i>Liquidamber styraciflua</i> (Liquidamber) | 11 | 4 | 200 | 2 | 18 | 1.8 | | | | | | | Set back 300 | No Encroachment |

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| Tree No. | Species | Height (m) | Radial Crown Spread (m) | DBH comb. (mm) | Radial TPZ (m) | TPZ Area (m²) | Radial SRZ (m) | Health Rating | Structural Rating | Age Class | ULE (years) | L/Sign | Retention Value | Comments | TPZ Encroachment (%) |
|-------------|---|---------------|----------------------------------|----------------------|----------------------|---------------------|----------------------|------------------|----------------------|-----------------|----------------|----------|---------------------------|---|----------------------------|
| 26 | Corymbia maculata (Spotted Gum) | 20 | 8 | 800 | 10 | 290 | 3.1 | Good | Fair | Mature | 15-40 | High | Priority for Retention | Not full VTA | 1.6% |
| 27 | <i>Eucalyptus</i> <i>saligna</i> (Sydney Blue Gum) | 30 | 12 | 650 | 8 | 191 | 2.9 | Good | Good | Mature | 40+ | High | Priority for Retention | Not full VTA | No Encroachment |
| 36 | Eucalyptus microcorys (Tallowwood) | 10 | 4 | 250 | 3 | 28 | 1.9 | Fair | Good | Semi- mature | 5-15 | Moderate | Consider for Retention | Crossing branches. Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. | 11.0% |
| 37 | <i>Cinnamomum camphora</i> (Camphor Laurel) | 25 | 11 | 1200 | 14 | 651 | 3.7 | Good | Good | Mature | 15-40 | High | Priority for Retention | Small (<25mmø) & medium (25-75mmø) epicormic growth in high volumes. Limited crown clearance. Structures within SRZ. | 12.5% |
| 40 | Schinus molle var. areira (Peppercorn Tree) | 12 | 8 | 1000 | 12 | 452.4 | 3.4 | Fair | Poor | Senescent | 5-15 | Moderate | Consider for Retention | Props Crown density 50- 75%. Localised crown death. Wound(s), early signs of decay. Trunk cavity(s), major. | 20% |
| 41 | Lophostemon confertus (Brush Box) | 15 | 8 | 600 | 7 | 163 | 2.8 | Good | Good | Mature | 15-40 | High | Priority for Retention | Small (<25mmø) deadwood in low volumes. Pavement over roots. | No Encroachment |
| 44 | Lophostemon confertus (Brush Box) | 6 | 4 | 212 | 3 | 20 | 1.8 | Fair | Good | Semi- mature | 5-15 | Low | Consider for Removal | Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. | No Encroachment |
| 45 | <i>Tristaniopsis laurina</i> (Water gum) | 9 | 5 | 361 | 4 | 59 | 2.2 | Fair | Fair | Late Mature | 5-15 | Moderate | Consider for Retention | Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. Co- dominant inclusions, minor. | No Encroachment |
| 46 | <i>Tristaniopsis laurina</i> (Water gum) | 9 | 5 | 361 | 4 | 59 | 2.2 | Fair | Fair | Late Mature | 5-15 | Low | Consider for Removal | Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. Co- dominant inclusions, minor. | No Encroachment |



| Tree No. | Species | Height (m) | Radial Crown Spread (m) | DBH comb. (mm) | Radial TPZ (m) | TPZ Area (m²) | Radial SRZ (m) | Health Rating | Structural Rating | Age Class | ULE (years) | L/Sign | Retention Value | Comments | TPZ Encroachment (%) |
|-------------|---|---------------|----------------------------------|----------------------|----------------------|---------------------|----------------------|------------------|----------------------|----------------|----------------|----------|---------------------------|---|----------------------------|
| 47 | <i>Tristaniopsis laurina</i> (Water gum) | 9 | 5 | 426 | 5 | 82 | 2.4 | Fair | Fair | Late Mature | 5-15 | Moderate | Consider for Retention | Small (<25mmø) deadwood in moderate volumes. Co-dominant inclusions, minor. Wound(s), early signs of decay. Trunk cavity(s), minor. | 1.5% |
| 48 | Ficus macrophylla (Moreton Bay Fig) | 20 | 15 | 1500 | 15 | 707 | 4.1 | Good | Good | Mature | 15-40 | High | Priority for Retention | Crown density 75-95%. Wound(s), early signs of decay. Limited crown clearance. Structures within SRZ. | 2.0% |
| 49 | Corymbia citriodora (Lemon Scented Gum) | 30 | 14 | 800 | 10 | 290 | 3.1 | Good | Good | Mature | 40+ | High | Priority for Retention | Structures within SRZ. | No Encroachment |
| 50 | Eucalyptus microcorys (Tallowwood) | 14 | 8 | 495 | 6 | 111 | 2.6 | Good | Fair | Mature | 15-40 | Moderate | Consider for Retention | Co-dominant inclusions, major. Structures within SRZ. Pavement over roots. | No Encroachment |
| 51 | <i>Platanus x</i> <i>hybrida</i> (London Plane Tree) | 20 | 10 | 500 | 6 | 113 | 2.6 | Good | Good | Mature | 15-40 | High | Priority for Retention | Structures within SRZ. Pavement over roots. | 16.1% |
| 52 | Callistemon viminalis (Weeping Bottlebrush) | 7 | 5 | 160 | 2 | 13 | 1.6 | Good | Good | Mature | 5-15 | Moderate | Consider for Retention | Small (<25mmø) & medium (25-75mmø) deadwood in moderate volumes. Pavement over roots. | No Encroachment |
| 53 | Callistemon viminalis (Weeping Bottlebrush) | 7 | 5 | 160 | 2 | 13 | 1.6 | Good | Good | Mature | 5-15 | Moderate | Consider for Retention | | No Encroachment |
| 54 | <i>Callistemon viminalis</i> (Weeping Bottlebrush) | 7 | 5 | 154 | 2 | 13 | 1.6 | Good | Good | Mature | 5-15 | Moderate | Consider for Retention | | No Encroachment |



| Tree No. | Species | Height (m) | Radial Crown Spread (m) | DBH comb. (mm) | Radial TPZ (m) | TPZ Area (m²) | Radial SRZ (m) | Health Rating | Structural Rating | Age Class | ULE (years) | L/Sign | Retention Value | Comments | TPZ Encroachment (%) |
|-------------|---|---------------|----------------------------------|----------------------|----------------------|---------------------|----------------------|------------------|----------------------|-----------|----------------|--------|--------------------|-------------------------------------|------------------------------------|
| 97 | <i>Atractocarpus fitzalanii</i> (Native Gardenia) | 5 | 4 | 300 | 4 | 41 | 2.1 | | | | | | | Set Back 300 | No Encroachment |
| 98 | <i>Grevillea robusta</i> (Silky Oak) | 12 | 5 | 300 | 4 | 41 | 2.1 | | | | | | | | No Encroachment |
| 99 | <i>Morus sp.</i> (Mulberry tree) | 7 | 4 | 150 | 2 | 13 | 1.6 | | | | | | | | Within Development Footprint |
| 100 | Buxus sempervirens (European box) | 4 | 1 | 100 | 2 | 13 | 1.5 | | | | | | | Hedge of 10 plus trees on boundary. | Within Development Footprint |
| 101 | Populus nigra 'Italica' (Lombardy Poplar) | 18 | 5 | 427 | 5 | 83 | 2.4 | | | | | | | | 42.8% (Within SRZ) |
| 102 | <i>Photinia glabra</i> (Chinese Hawthorn) | 4 | 4 | 200 | 2 | 18 | 1.8 | | | | | | | | 12.7% (Within SRZ) |
| 103 | <i>Melaleuca bracteata</i> (Black Tea Tree) | 6 | 4 | 100 | 2 | 13 | 1.5 | | | | | | | | 35.0% (Within SRZ) |
| 104 | <i>Cinnamomum</i> <i>camphora</i> (Camphor Laurel) | 15 | 9 | 1100 | 13 | 547 | 3.6 | | | | | | | | 40.2% (Within SRZ) |
| 105 | <i>Cinnamomum</i> <i>camphora</i> (Camphor Laurel) | 15 | 8 | 700 | 8 | 222 | 3.0 | | | | | | | | 23.2% (Within SRZ) |

8.0 APPENDIX 3 | TREE LOCATION PLAN





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Appendix 1 – Preliminary Site Establishment Plan



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Preliminary Construction Management Plan 6/02/2025 Page 19 of 20

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fulton trotter BUILDING T - DETAIL ------SCHEMATIC DESIGN ARCHITECTS BRISBANE SYDNEY www.fultontrotter.com.au . . . FIGHT Schemen (2004) Control (2004)
 FIGHT Schemen (2004)
 FIGHT 100 NSW -7058ND01 JW NORTHMEAD PUBLIC SCHOOL BARCIERS Discourses Anti-Transition Anti-Transition Anti-Transition Part Schedular Res-Lensible Test MOXHAMS ROAD, NORTHMEAD, NSW M Route In 80 194084-40 901 (36509710) NPS-FTA-BOOT-ZZ-DR-A-4203 01

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10.0 APPENDIX 5 | ARBORICULTURAL IMPACT ASSESSMENT PLANS

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Impact Assessment Plan







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17

36

EXISTING AUTHORITY SEWER TO BE -RETAINED

INSTALL BRANCH WITH ISOLATION VALVE AND CAPPED END FOR FUTURE FIRE HYDRANT WATER SUPPLY EXTENSION



NEW SEWER SUSPENDED FROM SOFFIT OF SLAB (UNDERSLUNG IN SUB-FLOOR VOID)

REFER TO PATTERN BOOK DESIGN FOR -FINAL LOCATIONS ON SERVICES CONNECTIONS TO THE BUILDING CORE

EXISTING SEWER TO BE RETAINED -

ls FFL37.55 51,36,75 t. 16

\$1.15.5

51.35.63 -58,36.50 -

41

37

40

EXISTING SEWER TO BE RETAINED

EXISTING EXTERNAL FIRE HYDRANT TO BE RETAINED. OFFERS COVERAGE TO PROPOSED BUILDING

EXISTING SEWER TO BE RETAINED

LOCATE EXISTING COLD WATER SUPPLY AND EXTEND TO PROPOSED BUILDING

EXISTING WATER SUPPLY TO BE RETAINED

INSTALL BRANCH WITH ISOLATION VALVE AND CAPPED END FOR FUTURE FIRE HYDRANT WATER SUPPLY EXTENSION 025 COLD WATER SUPPLY INGROUND FOR

NEW BUILDING

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11.0 APPENDIX 6 | TREE RETENTION/REMOVAL PLAN





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13.0 APPENDIX 8 | TYPICAL TREE PROTECTION DETAIL

Tree Protection Detail - TPZ Fencing





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Tree Protection Detail - Ground Protection

must be installed by licensed irrigator and soil moisture levels monitored by

the Project Arborist.

Required if temporary access for machinery is required within the TPZ to protect roots and prevent soil compaction.



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Tree Protection Detail - Scaffolding within TPZ





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14.0 APPENDIX 9 | TREE PROTECTION SPECIFICATION

14.1 Appointment of Project Arborist

14.1.1 Prior to commencement of works a Project Arborist should be engaged to monitor compliance with the protection measures. The Project Arborist will inspect tree protection measures and prepare a compliance certification for the principal certifying authority prior to the release of compliance certification. Contractors and site workers are to receive these specifications at least 3 days prior to commencing works. Contractors and site workers working within the TPZ should sign the site log confirming they have read and understood these specifications prior to commencing works.

14.2 Compliance

14.2.1 The Project Arborist will conduct regular site visits to certify the works are compliant with this specification. A compliance document will be prepared by the Project Arborist following each site inspection. The compliance document will include evidence of compliance with the tree protection measures detailed in this specification.

14.3 **Tree & Vegetation Removal**

- 14.3.1 Tree and vegetation removal will be undertaken prior to installation of tree protection measures. Tree removal works should be undertaken in accordance with the *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work* (2016).
- 14.3.2 Tree and vegetation removal must not damage trees to be retained.

14.4 Tree Protection Zone

- 14.4.1 Trees that are to be retained must be protected prior to and during construction from works that could negatively impact their health and structural integrity. The following works should not occur within the TPZ unless authorised by the Project Arborist:
 - Modification of existing soil levels, excavations and trenching
 - Mechanical removal of vegetation
 - Movement of naturally occurring rock
 - Storage of materials, plant/equipment and building of sheds
 - No signage or hoarding shall be fixed to the trees
 - Preparation of building materials, refuelling or disposal of waste materials and chemicals
 - No lighting of fires
 - No pedestrian or vehicular traffic
 - Temporary or permanent location of services, or works required for their installation
 - Any other activities that may damage the tree



14.6 **Tree Protection Fencing**

14.6.1 The TPZ fencing must be positioned at the perimeter of the TPZ and may be combined to form a single area where the TPZs of multiple trees overlap. The approximate location of the TPZ fencing is outlined in the Arboricultural Impact Assessment with the exact location determined by consultation between the Principal Contractor/Project Manager and the Project Arborist prior to the commencement of works. Fencing may be setback to allow for demolition/construction access and for the installation of pavements only where appropriate ground protection is installed and approved by the Project Arborist. The TPZ fencing must be at least 1.8m above grade and made of wire mesh panels that are supported by concrete feet and fastened together to prevent sideways movement. Tree damage, including any low branches, must be avoided during the installation of the tree protection fencing. The TPZ fencing must include signage to identify the TPZ fencing and include the Project Arborist contact details.

14.7 Site Management

14.7.1 Materials, waste storage and temporary services should not be located within the TPZ.

14.8 Works within the Tree Protection Zones

- 14.8.1 In certain situations, works within the TPZ may be authorised by the determining authority. These works must be supervised by the Project Arborist. When working within the TPZ, special care should be taken to avoid damage to the tree's root system, trunks and lower branches.
- 14.8.2 If roots (>25mmØ) are encountered during excavation, demolition and construction works, these roots must be retained undamaged and advice sought from the Project Arborist. The design and final levels must remain flexible to enable the retention of roots >25mmØ where deemed necessary by the Project Arborist.

14.9 **Ground Protection**

- 14.9.1 The movement of machinery should be restricted to existing paved areas or in areas with temporary ground protection (i.e. steel road plates, ground mats) when deemed necessary by the Project Arborist.
- 14.9.2 Ground protection should be installed as per AS4970 and Appendix 7- Typical Tree Protection Detail.
- 14.9.3 If irrigation is considered necessary, it should be installed first and by a licensed irrigator under the supervision of the Project Arborist with no trenching.
- 14.9.4 The irrigation should be covered with a layer of geotextile and mulched to a depth of 100mm with a non-toxic product (i.e. woodchips) with no fines.
- 14.9.5 Once the irrigation, geotextile and mulch are in place then the ground protection boards (steel plates or rumble boards) can in be installed.
- 14.9.6 Boards should remain in place for the entire build.

14.10 Trunk & Branch Protection

- 14.10.1 If trunk protection is required it should be installed by wrapping the trunk and first order branching with padding (i.e. carpet underlay or 10mm thick geotextile) to a minimum height of 2m. Timber battens (90 x 45mm), spaced at 150mm centres should be strapped together and placed over the padding (Refer to AS4970 for further details).
- 14.10.2 Branch protection should be installed when considered necessary by the Project Arborist.
- 14.10.3 Branches should be wrapped with padding (i.e. Ableflex) to provide protection. Where possible, branches should be tied back and construction works to take place around branches (with appropriate branch protection installed as required). If pruning is unavoidable it should be in accordance with AS4373 and supervised by the Project Arborist.

14.11 Structure & Pavement Demolition

- 14.11.1 The Project Arborist should supervise the demolition of existing structures/pavement within the TPZ. Machinery is to be excluded from the TPZ unless operating from existing slabs, pavements or areas of ground protection. Machinery should not contact the tree's roots, trunks, branches and crown.
- 14.11.2 Existing pavement should be hand lifted to minimise disturbance to the existing sub-base and to prevent damage to tree roots. Wherever possible, the existing sub-base material should remain in situ.
- 14.11.3 When removing slab sections within the TPZ, machinery must work from the tree outwards to ensure the machinery always remains on the un-demolished section of slab. Wherever possible, footings or elements below grade should be retained to minimise disturbance to the tree's roots.
- 14.11.4 Structures must be shattered with hand-operated pneumatic/electric breaker before removal when considered necessary by the Project Arborist.
- 14.11.5 If roots (>25mmØ) are encountered during excavation, demolition and construction works these roots must be retained undamaged and advice sought from the Project Arborist. Exposed roots must be protected from direct sunlight, drying out and extremes of temperature by using 10mm thick jute geotextile fabric. This fabric should be kept moist at all times.
- 14.11.6 Where the Project Arborist determines that the tree is using underground elements (i.e. footings, pipes, rocks etc.) for support, these elements should be left *in situ*.
- 14.12 Pavement/Kerb Installation



- 14.12.1 Installation of pavements and sub-base within the TPZ must be supervised by the Project Arborist. New surfaces and sub-base materials should be placed above grade to minimise excavations and retain roots (unless prior root mapping has determined that there are no roots within the area of construction).
- 14.12.2 If roots (>25mm∅) are encountered during the installation of the new sub-base and surfaces these roots must be retained undamaged and advice sought from the Project Arborist. The design and final levels must remain flexible to enable the retention of roots >25mm∅ where deemed necessary by the Project Arborist.
- 14.12.3 Compaction of the ground prior to the installation of fill is not permitted.
- 14.12.4 New sub-base material should be a 20mm no-fines road base (i.e. Benedict Sand & Gravel- Product Code 20NF/RB or similar). Recycled concrete aggregates should not be used to avoid raising soil pH levels.
- 14.12.5 If required, bedding sand should be washed river sand (no crushed paving blends). The bedding sand should be consolidated with a pedestrian operated plate compactor only. If possible, pavement material should be permeable.
- 14.12.6 Kerbs within the TPZ should be modified to bridge roots (>25mm∅) unless root pruning is approved and undertaken by the Project Arborist.

14.13 Underground Services

- 14.13.1 The installation of underground services should be located outside of the TPZ. Where this is not possible they should be installed around or below roots (>25mmØ) using either hydrovac or hand excavation and supervised by the Project Arborist.
- 14.13.2 Boring methods may be used for the installation of services 800mm below grade. Excavations for starting and receiving pits for the boring equipment should be located outside of the TPZ or located to avoid roots (>25mmØ, or determined by the Project Arborist).
- 14.13.3 Excavations, Root Protection & Root Pruning
- 14.13.4 Excavations and root pruning within the TPZ must be supervised by the Project Arborist and should be avoided where possible.
- 14.13.5 No over-excavation, battering, or benching should be undertaken beyond the footprint of any structure unless approved by the Project Arborist. Hand excavation and root pruning along the excavation line should be completed prior to the commencement of mechanical excavation to prevent tearing and shattering damage to the roots.
- 14.13.6 Roots >25mm∅ should be pruned by the Project Arborist only. Roots <25mm∅ may be pruned by the Principal Contractor. Root pruning should be undertaken with clean, sharp secateurs or a pruning saw to ensure a smooth wound face, free from tears.
- 14.13.7 Damaged roots should be pruned behind the damaged tissues with the final cut made to the undamaged part of the root.



15.0 APPENDIX 10 | PLATES



a)Showing Trees 49 & 50 with existing demountables. b) Showing Trees 45 & 48 with existing suspended walkway. c) Showing demountable proposed for demolition. d-e) Showing Tree 18. f) Showing existing pathway in SRZ of Tree 50.



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a)

16.0 APPENDIX 11 | MITIGATION MEASURES

| Mitigation Number/ Name | When is Mitigation Measure to be complied with | Mitigation Measure | Reason for Mitigation Measure |
|--|--|---|--|
| Project Arborist | Engage at start of construction prior to CC. | Project Arborist to oversee tree protection measures and ensure compliance | Ensure compliance with tree protection measures to retain trees. |
| Root Mapping | Prior to CC | Root mapping along flood wall location for pier design. | Determine if trees 99-105 can be retained. |
| Tree Protection Fencing & sediment control | Prior to demolition | Tree Protection Fencing & sediment control. Refer to Appendix 8 Tree Protection detail. | Retain trees and mitigate construction impacts. |
| Hand excavation | During Construction | Where possible, electrical trenching should be conducted manually within TPZ area with conduits placed around large structural roots. | Retain trees and mitigate construction impacts. |
| Replacement Trees | Post construction | Replacement with a healthy advanced size specimen. | Replace the loss of amenity |

17.0 APPENDIX 12 | LIMITATIONS & DISCLAIMERS

- 17.1 Subject trees were assessed from the ground only and for providing an Arboricultural Impact Assessment and Tree Protection Specification.
- 17.2 All recommendations in this Arboricultural Impact Assessment and Tree Protection Specification report are based on the observations made on the days of inspection (05.10.23, 11.2.25 & 27.2.25). There is no warranty, expressed or implied, that problems or deficiencies relating to the subject trees, or the subject site may not arise in the future.
- 17.3 Laurence & Co Consultancy takes care to obtain information from reliable sources. However, Laurence & Co Consultancy can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Impact Assessment and Tree Protection Specification report are visual aids only and are not necessarily to scale. This report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc. issues.
- 17.4 This report has been prepared for exclusive use by the client. This report should not be viewed by others or for any other reason outside its intended target or without the prior written consent of Laurence & Co Consultancy. Unauthorised alteration or separate use of any section of the report invalidates the report.
- 17.5 Many factors may contribute to tree failure and cannot always be predicted. Laurence & Co Consultancy takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators.
- 17.6 **Limitation of Liability**. Laurence & Co Consultancy shall be liable only for direct damages that result from negligence or wilful misconduct in the performance of its services. Under no circumstances shall Laurence & Co Consultancy be liable for indirect, consequential, special, or punitive damages, or for damages caused by the client's failure to perform its obligations under law or contract. Laurence & Co Consultancy shall not be liable for and Client shall indemnify Laurence & Co Consultancy from and against all claims, demands, liabilities and costs (including attorneys' and expert fees) arising out of or in any way related to our performance or non-performance of services, including all on-site activities except to the extent caused by Laurence & Co Consultancy's negligence or wilful misconduct. In no event shall Laurence & Co Consultancy's liability exceed the amount paid to Laurence & Co Consultancy by the Client for our professional services (net of reimbursable expenses) and Client specifically releases Laurence & Co Consultancy for any damages, claims, liabilities and costs in excess of that amount.
- 17.7 Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this report are subject to approval from the relevant Consent Authority.

