

treeREPORT.

ARBORICULTURAL CONSULTING

Arboricultural Impact Assessment & Tree Protection Plan

Sydney Fish Market – Site Accommodation
Glebe NSW 2037

Version 2

Prepared for:
**Multiplex c/o-
FerryCarrig**

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Abbreviations

Ø	Diameter
R	Radius
AGL	Above Ground Level
AQF	Australian Qualifications Framework
AS	Australian Standards
BGL	Below Ground Level
DBH	Diameter at Breast Height
DBR	Diameter at Root Flare
Id	Identification
m	Metre
mm	Millimetre
NDE	Non-Destructive Excavation
NO	Number
NSW	New South Wales
SP	Species
SRZ	Structural Root Zone
TPZ	Tree Protection Zone
VTA	Visual Tree Assessment

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1 Introduction

Report Purpose

Tree Report has been engaged by Multiplex c/o- FerryCarrig to prepare an Arboricultural Impact Assessment (herein referred to as the 'AIA') and Tree Protection Plan (herein referred to as the 'TPP') for a proposed development located at 1A, 1B & 1C Bridge Road, Glebe NSW 2037 (herein referred to as the 'Site'). The purpose of this report is to:

- Identify trees (herein referred to as the 'Subject Trees') that are likely to be affected by the proposed works.
- Assess the current overall health and condition of the Subject Trees.
- Assess and discuss likely impacts to the Subject Trees as a result of the proposed development.
- Evaluate the significance of the Subject Trees and assess their suitability for retention.

Project Overview

The proposed development relates to the proposed construction of a multi-level site accommodation complex on top of a structural steel gantry structure located within at the Site. Key features of the proposal likely to affect the Subject Trees are summarised as follows:

- Site establishment activities, including installation of temporary fencing around the work zone.
- Installation of temporary screw pile footings; ranging between 101mm x 4mm – 168 x 6.4mm to a depth of ~12m.
- Installation of structural steel gantry.
- Installation of temporary modular structural steel bridge.
- Installation of two storeys of site sheds on the gantry structure.
- Temporary sewer connection to existing sewer junction point.
- Temporary water and electrical connection from within the main site.

The Subject Trees

Inspection of the site was undertaken on the 18th of January 2022.

A total of **fifteen** individual trees were identified and recorded during the site inspection. Of these:

- **five** Subject Trees (**id. 1, 4*, 5, 8 & 9**) are of Low retention value
- **ten** Subject Trees (**id. 2, 3, 6, 7 & 10-15**) are of Medium retention value

** Denotes tree species listed as exempt under conditions prescribed within City of Sydney Council: Sydney Development Control Plan (SDCP) 2012.*

Further information, observations and measurements specific to each of the Subject Trees can be found in **Chapter 6** and **Appendix II**.

The Study Area

The Study Area is located at 1A, 1B & 1C Bridge Road, Glebe NSW 2037. The Site falls within the City of Sydney Council Local Government Area (LGA).

The Site is shown in **Figure 1**.



Figure 1: The Study Area (represented in yellow)

2 Method

Visual Tree Assessment

The Subject Trees were assessed in accordance with a stage one visual tree assessment (VTA) as formulated by Mattheck & Breloer (1994)¹, and practices consistent with modern arboriculture.

The following limitations apply to this methodology:

- Trees were inspected from ground level, without the use of any invasive or diagnostic tools and testing.
- Trees within adjacent properties or restricted areas were not subject to a complete visual inspection (i.e. defects and abnormalities may be present but not recorded).
- Trunk Diameter at Breast Height (DBH) has been accurately measured using a diameter tape measure. Tree height and canopy spread has been estimated unless otherwise stated.
- Tree identification was based on broad taxonomical features present and visible from ground level at the time of inspection.

Retention Value

The retention value of a tree or group of trees is determined using a combination of environmental, cultural, physical and social values.

- **Low:** These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
- **Medium:** These trees are moderately important for retention. Their removal should only be considered if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
- **High:** These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by *Australian Standard AS4970 Protection of trees on development sites*.

This tree retention assessment has been undertaken in accordance with the Institute of Australian Consulting Arboriculturalists (IACA) Significance of a Tree, Assessment Rating System (STARS). The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of a tree has been defined, the retention value can be determined. Each tree must meet a minimum of three (3) assessment criteria to be classified within a category. Further details and the assessment criteria are in **Appendix VI**.

¹ VTA is an internationally recognised practice in the visual assessment of trees as formulated by Mattheck & Breloer (1994). Principle explanations and illustrations are contained within the publication, Field Guide for Visual Tree Assessment by Mattheck, C., and Breloer, H. Arboricultural Journal, Vol 18 pp 1-23 (1994).

3 Arboricultural Impact Assessment

Impact Assessment

AS 4970-2009 defines two types of 'zones' which have to be considered when undertaking and arboricultural impact assessment. These zones are:

- **Tree protection zone (TPZ):** The TPZ is the optimal combination of crown and root area (as defined by AS 4970-2009) that requires protection during the construction process so that the tree can remain viable. The TPZ is an area that is isolated from the work zone to ensure no disturbance or encroachment occurs into this zone. Tree sensitive construction measures must be implemented if work is to proceed within the Tree Protection Zone.
- **Structural root zone (SRZ):** The SRZ is the area of the root system (as defined by AS 4970-2009) used for stability, mechanical support and anchorage of the tree. Severance of structural roots (>50 mm in diameter) within the SRZ is not recommended as it may lead to the destabilisation and/or decline of the tree.
- **Root investigation:** When assessing the potential impacts of encroachment within the TPZ, consideration will need to be given to the location and distribution of the roots, including above or below ground restrictions affecting root growth. Location and distribution of roots may be determined through non-destructive excavation (NDE) methods such as hydro-vacuum excavation (sucker truck), air spade and manual excavation. Root investigation is used to determine the extent and location of roots within the zone of conflict. Root investigation does not guarantee the retention of the tree.

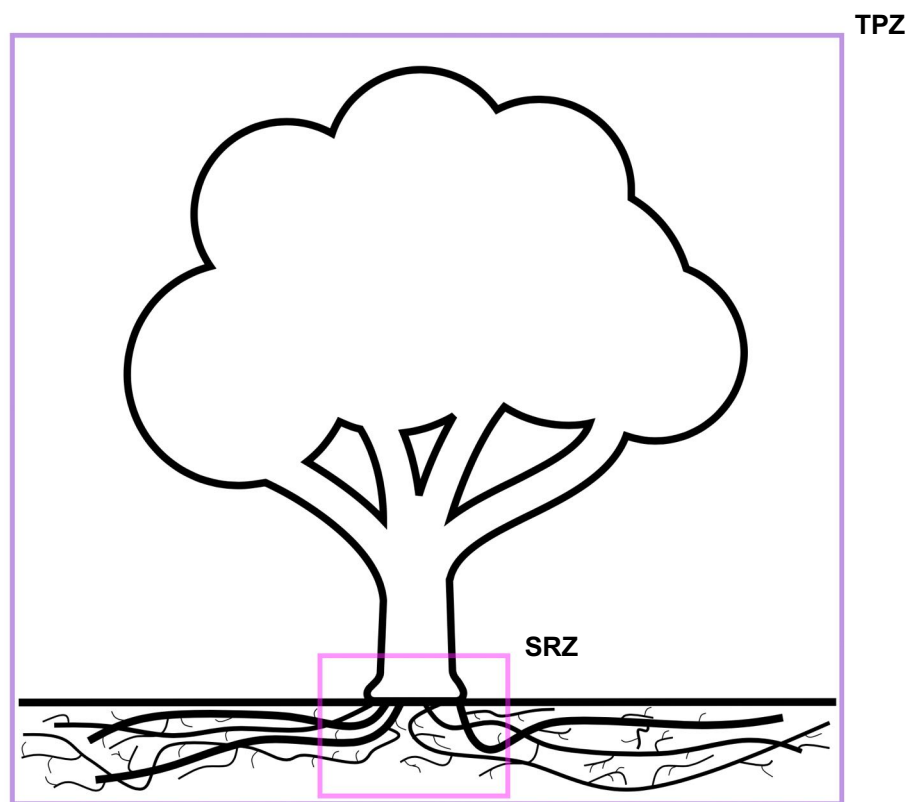


Figure 2: Indicative TPZ and SRZ

Encroachments Within the TPZ

Encroachment within the TPZ of a Subject Tree is acceptable under the AS4970-22009, providing that the consulting arborist can demonstrate that the Subject Tree can remain viable. There are four (4) encroachment thresholds to be considered when assessing a proposed development:

- **No encroachment (0%):** There are no likely or foreseeable encroachment within the TPZ as a result of the proposed development.
- **Minor encroachment (<10%):** The proposed encroachment is less than 10% (total area) of the TPZ, and outside of the SRZ.
- **Major encroachment (>10%):** The proposed encroachment is greater than 10% (total area) of the TPZ.
- **Total encroachment:** The Subject Tree(s) located wholly within the proposed development footprint.



Figure 3: Indicative levels of encroachment

Mitigating Development Impacts

Encroachment within the TPZ must be compensated with a range of mitigation measures to ensure that impacts to the Subject Tree(s) are reduced or restricted wherever possible. Mitigation must be increased relative to the level of encroachment within the TPZ to ensure the Subject Tree(s) remain viable. **Table 1** outlines development impact thresholds (based on TPZ encroachment), and mitigation measures required within each impact threshold. These mitigation measures will only apply if trees are proposed to be retained.

<i>Development impact threshold (TPZ encroachment %)</i>	<i>Development impact mitigation measures</i>
No impact (0%)	<ul style="list-style-type: none"> N/A
Minor impact (1-20%)	<ul style="list-style-type: none"> The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Detailed root investigations should not be required. Tree protection should be installed.
Major impact (>20%)	<ul style="list-style-type: none"> The project arborist must demonstrate the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Non-destructive root investigation may be required for any trees proposed for retention. The project arborist will be required to supervise any works within the TPZ. Tree protection must be installed.
Total impact	<ul style="list-style-type: none"> Subject Tree(s) cannot be successfully retained.

Table 1: Impact mitigation measures

4 Results

Nil Impact (0% TPZ encroachment)

A total of **ten** Subject Trees (**id. 1, 2, 5-7 & 11-15**) are located outside of the proposed area of disturbance and there are no foreseeable impacts to the Subject Trees as a result of the proposed development.

Under the current proposal, these trees can be successfully retained.

Minor Impact (1-20% TPZ encroachment)

A total of **two** Subject Trees (**id. 3 & 10**) will require excavation activities <20% of total TPZ area and in order to facilitate site establishment and/or construction of the site accommodation structure. These works are unlikely to have a significant impact on the Subject Tree's ability to store carbohydrates, use stored carbohydrates in times of stress and are unlikely to have a significant impact on the health, condition and/or stability of the subject trees long term.

A total of **four** Subject Trees (**id. 3, 4, 9 & 10**) will require Minor pruning activities <15% total live canopy volume to facilitate the installation of the site accommodation structure. These pruning works are unlikely to have a significant negative impact on the Subject Tree's health or ongoing viability.

Under the current proposal, these trees can be successfully retained.

Major Impact (>20% TPZ encroachment)

Subject Tree **id. 8** will require excavation activities >20% of total TPZ and are likely to have a significant impact on the Subject Tree's ability to store carbohydrates, use stored carbohydrates in times of stress and are likely to have a significant impact on the health, condition and/or stability of the Subject Tree long term.

Under the current proposal, these trees cannot be successfully retained.

*Further information specific to each of the Subject Trees can be found in **Tables 2, 3 & 4** and **Appendix II**.*

5 Discussion

Trees on development sites

Construction and development can change the way an area is utilised by adding buildings, infrastructure and pedestrians to the location. This can result in an increased potential of damage and harm to property and people. Therefore, trees that contain significant defects, are structurally poor or have a short useful life expectancy should be considered for removal.

Furthermore, it is not always possible or reasonably practicable to retain all trees within a proposed development. It can be better to select the higher retention value trees and protect these well, rather than trying to retain all trees and decreasing the quality of tree protection (Matheny & Clark, 1998).

Trees can be negatively affected in a number of ways during construction. These include root loss, lack of water and oxygen to the root zone, damage to the trunk or canopy and/or poisoning. Failure to protect trees, particularly root zones, during development can lead to an increased risk of tree death and/or failure post construction.

Impacts - Roots

Most tree roots will usually be found in the top 600mm of soil (Harris, Clark & Matheny, 1999). Radiating outwards from the base of the trunk are several large woody roots. These structural roots anchor the tree in the ground. Cutting or affecting those roots is likely to undermine the stability of the tree. The spread of a tree's structural roots, herein termed its Structural Root Zone (SRZ), is generally proportioned to the diameter of its trunk (Matthek & Breloer, 1994).

Beyond this zone extends the network of woody transport roots and fine absorbing roots, which absorb and transport water and nutrients. Most of these roots are found in the top 150mm of soil (Harris, Clark & Matheny, 1999). Trees can lose a portion of their absorbing roots without being significantly affected in the long term.

*Further information following excavations via non-destructive methods adjacent to Subject Trees **id. 3, 9 & 10** can be found in **Appendix VI**.*

Impacts – Canopy

Fundamentally, pruning is the removal of plant parts. Tree pruning involves the removal of living and dead tissues in an attempt to control or redistribute growth and to create a structurally sound mature form. Tree health and the ability to recover from the myriad of urban stressors are directly related to canopy area. The loss of live foliage and woody transport tissue can lead to a significant negative impact a Subject Tree's ability to photosynthesise light energy into chemical energy necessary for the normal physiological functioning and survival of the tree. Live crown ratios of 50%-60% maintain tree vitality while reducing the risk of premature limb/tree failure.

Natural Target Pruning is the removal of branches, stems, and stubs such that final cuts are achieved as close as possible to the branch collar without cutting into the branch collar or leaving a protruding stub. The branch collar is an area of overlapping trunk and branch tissue forming a swelling around the base of many branches. It contains defensive chemicals that can prevent infection from bacterial and/or fungal pathogens. **Figure 2.3** shows final cut locations when undertaking pruning works.

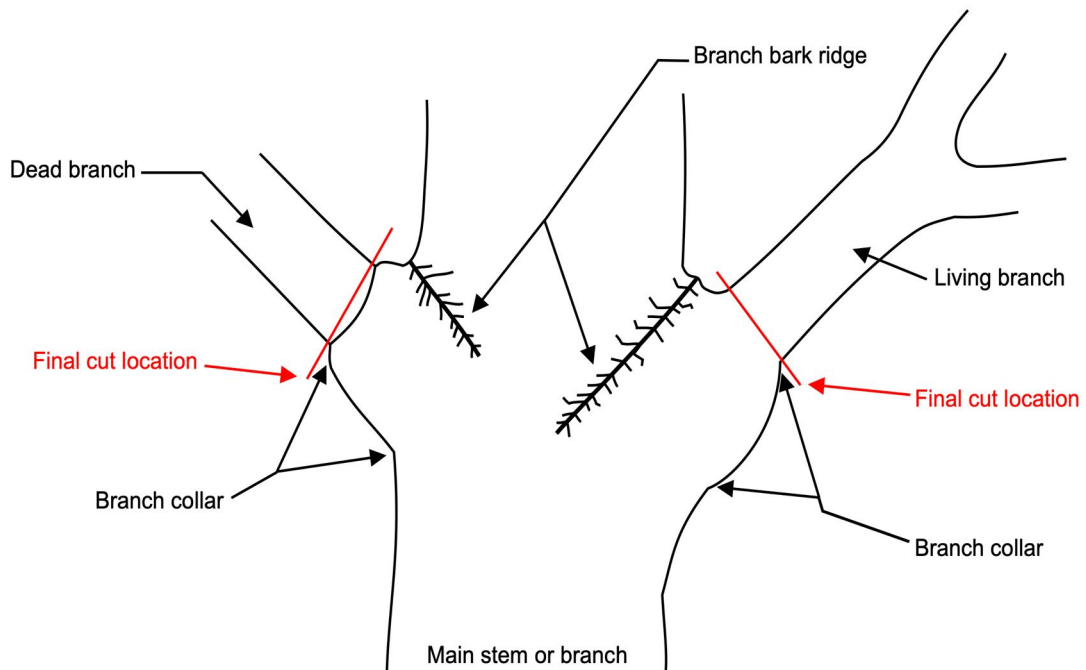


Figure 2.3

On branches where the branch bark collar cannot be found, the branch bark ridge is to be used as a pruning guide. **Figure 2.4** shows final cut location where – Line A to X is a line parallel to the trunk occurring just outside the branch bark ridge. Line A to C indicates the angle of the branch bark ridge and Line A to B represents the angle and location of the final cut. Angle 'a' should equal angle 'b'.

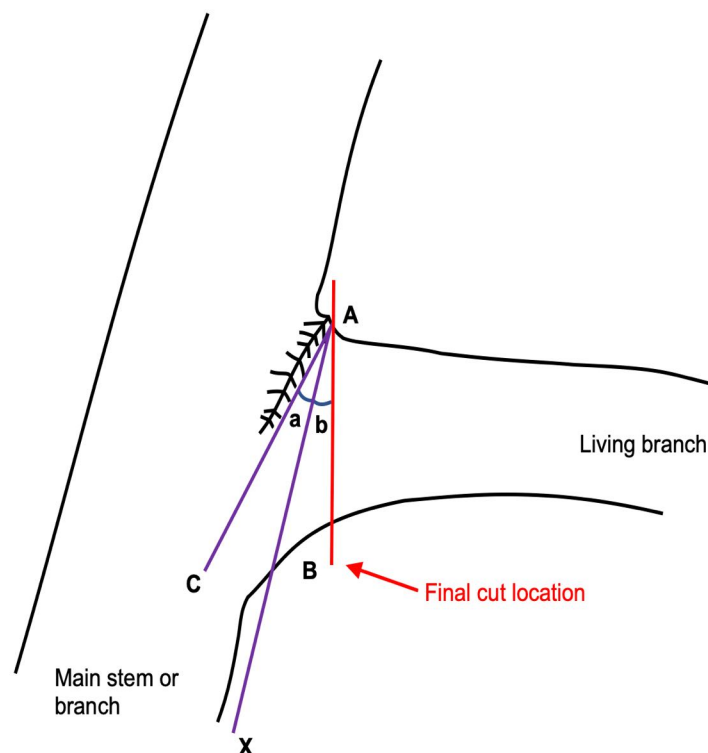


Figure 2.4

The cutting of branches which results in a stub, referred to as lopping is regarded as an unacceptable practice, except in certain circumstances. Lopping may result in:

- An increased rate of shoot production and elongation, which is weakly attached to the parent tree.
- Decay of the stubs.
- Poor form and visual amenity.
- Reduced life expectancy of the tree.
- Pre-disposing the tree to pathogenic infection and insect attack.

Further information regarding tree pruning specifications can be found in V.

Table 2: Results of Arboricultural Assessment – No Impact

Id.	Botanical name	Impact	Encroachment within TPZ (%)	Description of impacts	Impact mitigation	Result
1	<i>Callistemon citrinus</i>					
2	<i>Ficus rubiginosa</i>					
5	<i>Eucalyptus botryoides</i>	Nil	0	<ul style="list-style-type: none">No foreseeable impacts to this tree as a result of the proposed development.	<ul style="list-style-type: none">Detailed root investigations should not be required.Tree protection measures to be installed in accordance with Chapter 4.	Retain
6	<i>Casuarina glauca</i>					
7	<i>Casuarina glauca</i>					

Table 2: Results of Arboricultural Assessment – No Impact

Id.	Botanical name	Impact	Encroachment within TPZ (%)	Description of impacts	Impact mitigation	Result
11	<i>Ficus rubiginosa</i>					
12	<i>Corymbia maculata</i>					
13	<i>Corymbia maculata</i>	Nil	0	<ul style="list-style-type: none">No foreseeable impacts to this tree as a result of the proposed development.	<ul style="list-style-type: none">Detailed root investigations should not be required.Tree protection measures to be installed in accordance with Chapter 4.	Retain
14	<i>Lophostemon confertus</i>					
15	<i>Lophostemon confertus</i>					

Table 3: Results of Arboricultural Assessment – Minor Impact

Id.	Botanical name	Impact	Encroachment within TPZ (%)	Description of impacts	Impact mitigation	Result
3	<i>Corymbia citriodora</i>	Minor	<20	<ul style="list-style-type: none"> Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of required pruning activities – refer to Appendix V. Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of excavations for screw pile footing 	<ul style="list-style-type: none"> The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Detailed root investigations have been undertaken adjacent to this tree - refer to Appendix VI. Tree protection measures to be installed in accordance with 	Retain
4	<i>Melia azedarach</i>	Minor	<20	<ul style="list-style-type: none"> Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of required pruning activities – refer to Appendix V. 	<ul style="list-style-type: none"> The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Detailed root investigations should not be required. Tree protection measures to be installed in accordance with Chapter 4. 	Retain
9	<i>Liquidambar styraciflua</i>	Minor	<20	<ul style="list-style-type: none"> Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of required pruning activities – refer to Appendix V. Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of excavations for screw pile footing 	<ul style="list-style-type: none"> The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Detailed root investigations have been undertaken adjacent to this tree - refer to Appendix VI. Tree protection measures to be installed in accordance with 	Retain
10	<i>Brachychiton acerifolius</i>	Minor	<20	<ul style="list-style-type: none"> Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of required pruning activities – refer to Appendix V. Subject Tree is located adjacent to the proposed development footprint. Minor impact as a result of excavations for screw pile footing 	<ul style="list-style-type: none"> The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. Detailed root investigations have been undertaken adjacent to this tree - refer to Appendix VI. Tree protection measures to be installed in accordance with 	Retain

Table 4: Results of Arboricultural Assessment – Major Impact

Id.	Botanical name	Impact	Encroachment within TPZ (%)	Description of impacts	Impact mitigation	Result
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8	<i>Populus nigra</i>	Major	>20%	<ul style="list-style-type: none">Major TPZ encroachment from proposed sewer connection.	<ul style="list-style-type: none">Subject Tree cannot be successfully retained.	Remove
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6 Recommendations

Trees Proposed for Removal

Major Impact: Subject Tree **id. 8** is located adjacent to a proposed sewer connection and is recommended for removal as part of this development.

Tree Proposed for Retention

Minor Impact: Subject Trees **id. 3, 4, 9 & 10** will be subject to a minor impact as a result of the proposed development. Impact mitigation measures are not required for successful tree retention; **however**, tree protection (**Chapter 7, Appendix III**) should be installed to protect the Subject Trees during the construction phase of the development.

Nil impact: Subject Trees **id. 1, 2, 5-7 & 11-15** are located outside the proposed area of disturbance and there are no foreseeable impacts to these trees as a result of the proposed development. Impact mitigation measures are not required for successful tree retention; **however**, tree protection (**Chapter 7 and Appendix III**) should be installed to protect the Subject Trees during the construction phase of the development.

Vegetation Offset

Offset replacement planting to compensate for the loss of Subject Tree **id. 8** following project completion should be undertaken in accordance with the relevant vegetation offset replacement policy and consist of tree species which are endemic to the local area and suited to the size of the area of which they are planted.

Tree Removal

Where tree removal is proposed, the following is recommended:

- Any approved pruning and/or tree removal work is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture.
- Any approved pruning must be in accordance with *AS 4373-2007, Pruning of Amenity Trees*.
- Any approved pruning and/or tree removal work is to be carried out in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- Permission must be granted from the relevant consent authority, prior to removing or pruning of any of the subject trees.

Tree Pruning

Refer to **Appendix V** for tree pruning specifications and recommendations.

7 Tree Protection Plan

General Tree Protection Measures

The following general tree protection measures are recommended:

- The approved tree protection plan must be available onsite prior to the commencement of works, and throughout the entirety of the project.
- The Tree Protection Plan (**Chapter 7 and Appendix III**) must be implemented prior to demolition and/or site establishment.
- Tree protection measures are to be installed in accordance with *AS 4970-2009, Protection of Trees on Development Sites*.
- All proposed works within the TPZ (**Appendix I and III**) must be carried out under the supervision of the project arborist.
- The area lost to encroachment should be compensated for elsewhere, contiguous with the TPZ (**Appendix IV**).
- Any underground services proposed within the TPZ should be installed using tree sensitive methods such as: horizontal directional drilling boring, non-destructive excavation and carried out under the supervision of the project arborist.

Specific Tree Protection Measures

The following specific tree protection measures are recommended:

- If, at any time, it is not feasible to carry out works in accordance with this report, an alternative must be agreed in writing with the Project Arborist.
- Subject Trees **id. 1-7 & 9-15** are to be protected via the use of tree protection fencing, in accordance with **Chapter 7** and *AS 4970-2009, Protection of Trees on Development Sites*, and should be installed prior to site establishment and commencement of construction activities.
- It is the responsibility of the Principal Contractor to install and maintain tree protection measures in accordance with this report for the duration of the development.
- Where it is not feasible to install tree protection fencing at the specified location due to unforeseen factors, a modified tree protection specification must be agreed to by the Project Arborist.
- Where possible, footings of existing structures and hardscapes proposed for demolition within the TPZ should remain in situ (just below grade) to prevent damage to existing root material.
- Exposed root material should be clean cut using secateurs, hand saw or similar.
- Structural soil as coarse or slightly coarser than the existing soil should be used for any fill requirements within the TPZ of a Subject Tree proposed for retention.

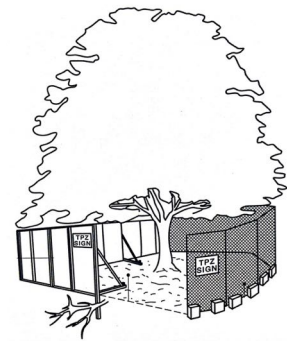
Tree Protection Fencing

Tree protection fencing must be established in the locations shown in **Appendix III**. Existing fencing, site hoarding or structures (such as a wall or building) may be used as tree protection fencing, providing the TPZ remains isolated from construction footprint.

Tree protection fencing must be installed prior to site establishment and remain intact until completion of works. Once erected, protective fencing must not be removed or altered without the approval of the project arborist.

Tree protection fencing shall be:

- Enclosed to the full extent of the TPZ (or as specified in the Recommendations and Tree Protection Plan).
- Temporary mesh panel fencing (minimum height 1.8m).
- Certified and inspected by the project arborist.
- Installed prior to the commencement of works.
- Prominently signposted with 300mm x 450mm boards stating, "NO ACCESS - TREE PROTECTION ZONE".



If tree protection fencing cannot be installed due to sloping or uneven ground, tree protection barriers must be installed as an alternative.

Specifications for tree protection barriers are as follows:

- Star pickets spaced at 2m intervals,
- Connected by a continuous high-visibility barrier/hazard mesh.
- Maintained at a minimum height of 1m.

Where approved works are required within the TPZ, fencing may be setback to provide construction access. Trunk, branch and ground protection shall be installed and must comply with AS 4970-2009, *Protection of Trees on Development Sites*. Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the project arborist.

Trunk Protection

Where provision of tree protection fencing is impractical or must be temporarily removed, trunk protection shall be installed to avoid accidental mechanical damage.

Specifications for trunk protection are as follows:

- A thick layer of carpet underfelt, geotextile fabric or similar wrapped around the trunk to a minimum height of 2m.
- 1.8m lengths of softwood timbers aligned vertically and spaced evenly around the trunk (with a small gap of approximately 50mm between the timbers).
- The timbers must be secured using galvanised hoop strap (aluminium strapping).

The timbers shall be wrapped around the trunk but not fixed to the tree, as this will cause injury/damage to the tree.

Ground Protection

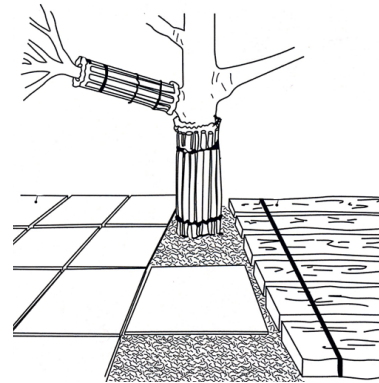
If temporary access for vehicle, plant or machinery is required within the TPZ ground protection shall be installed. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Where possible, areas of existing pavement shall be used as ground protection.

Specifications for light traffic access (<3.5 tonne) are as follows:

- Permeable membrane such as geotextile fabric.
- Layer of mulch or crushed rock (at minimum depth of 100mm)

Specifications for heavy traffic access (>3.5 tonne) are as follows:

- Permeable membrane such as geotextile fabric.
- Layer of lightly compacted road base (at minimum depth of 200mm)
- Geotextile fabric shall extend a minimum 300mm beyond the edge of the road base.



Pedestrian, vehicular and machinery access within the TPZ shall be restricted solely to areas where ground protection has been installed.

Excavations

All approved excavations (including root investigations) within the TPZ must be carried out using tree sensitive methods under supervision of the project arborist. These methods may include:

- Manual excavation (hand tools).
- Air spade.
- Hydro-vacuum excavations (sucker-truck).

Where approved by the project arborist, excavations using compact machinery fitted with a flat bladed bucket is permissible. Excavations using compact machinery shall be undertaken in small increments and guided by the Project Arborist who is to look for and prevent root damage to roots (>50mm in diameter).

Exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with geotextile fabric, and plastic membrane or glad wrap (where practical). Coverings shall be weighted to secure them in place. The geotextile fabric shall be kept damp at all times.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the project arborist. Hand excavation and root mapping shall be undertaken along excavation lines within the TPZ prior to the commencement of mechanical excavation (to prevent tearing and shattering of roots from excavation equipment). Any conflicting roots (>50mm in diameter) shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears. All root pruning must be documented and carried out by the project arborist.

Underground Services

All underground services should be routed outside of the TPZ. If underground services need to be installed within the TPZ, they must be installed using tree sensitive excavation methods under supervision of the project arborist. Alternatively, boring methods such as horizontal directional drilling

(HDD) may be used for underground service installation, providing the installation is at minimum depth of 800mm below grade. Excavations for entry/exit pits must be located outside the TPZ

Hold Points, Inspections, and Certification

The approved tree protection plan must be available onsite prior to the commencement of works, and throughout the entirety of the project. To ensure the tree protection plan is implemented, hold points have been specified in the schedule of works (**Table 2**). It is the responsibility of the principle contractor to complete each of the tasks.

Once each stage is reached, the work will be inspected and certified by the project arborist and the next stage may commence. Alterations to this schedule may be required due to necessity, however, this shall be through consultation with the project arborist only.

Table 6: Schedule of works

Pre-construction	1	Engagement of AQF Level 5 (Diploma of Arboriculture) arborist for the role of project arborist.
	2	Prior to demolition and site establishment indicate clearly with spray paint on trunks trees marked for removal only.
	3	Tree protection shall be installed in accordance with approved tree protection plan and certified by the project arborist prior to demolition and site establishment, this will include mulching of areas within the TPZ.
During Construction	4	Inspection and certification of trees by the project arborist should be undertaken monthly during the construction period.
	5	Project arborist to supervise and document all works carried out within the TPZ of trees to be retained.
	6	Inspection and certification of trees by project arborist after all major construction has ceased, following the removal of tree protection measures.
Post Construction	7	Final inspection and certification of trees by project arborist.

8 References

General References

- Australian Standard, AS 4373-2007, *Pruning of Amenity Trees*.
- Australian Standard, AS 4970-2009, *Protection of Trees on Development Sites*.
- Harris, R., Clark, J., Matheny, N. and Harris, V. 2004. *Arboriculture*. Upper Saddle River, N.J.: Prentice Hall.
- Lonsdale, D. 1999. *Principles of tree hazard assessment and management*. London: Stationery Office.
- Loughran, A. 2007. *Native plant or weed*. Paterson, N.S.W.: Tocal College, NSW Dept. of Primary Industries.
- Mattheck, C. 2007. *Updated field guide for visual tree assessment*. Karlsruhe: Forschungszentrum Karlsruhe.
- Mattheck, C., Bethge, K. and Weber, K. 2015. *The body language of trees*. Karlsruhe: Karlsruher Inst. für Technologie.
- Mattheck, C., Lonsdale, D. and Breloer, H. 1994. *The body language of trees*. London: H.M.S.O.
- MacLeod, R D. and Cram, W J. 1996. *Forces Exerted by Tree Roots*, Arboriculture Research Information Note, 134/96/EXT.
- Smiley, T. and Fite, K. 2008. *Managing Trees During Construction*. Arborist News. WorkCover NSW. 1998. *Code of Practice: Amenity Tree Industry*.

Specific References

The conclusions and recommendations of this report are based on the *Australian Standard, AS 4970-2009, Protection of Trees on Development Sites*, the findings from the site inspections and analysis of the following documents/plans:

- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*.
- *City of Sydney Council: Sydney Local Environmental Plan (SLEP) 2012*.
- *City of Sydney Council: Sydney Development Control Plan (SDCP) 2012*.
- *City of Sydney Council: Tree Guidelines for Pruning, Reporting and Using an Arborist 2020*.
- *Alessi Consulting: Proposed Hoarding for: Multiplex – 1a Bridge Road, Glebe; Alessi Job No.: 207000; Drawing No.: 100 (Issue 08); Drawing No.: 110 (Issue 06); Drawing No.: 111 (Issue 03) Drawing No.: 112 (Issue 02); Drawing No.: 120 (Issue 04); Drawing No.: 121 (Issue 04)*.
- *Hunter Bruce: Arboricultural Impact Assessment; New Fish Markets Project; Prepared for FerryCarrig; Version 1, dated 11th November 2021*.
- *City of Sydney Council: Response Letter; Sender Reference: SSD-8925-MOD-6 / Council Reference 2021/557868, dated 17.12.2021*.

- *NSW Government – Department of Planning, Industry & Environment: Response Letter; Sender Reference: SSD 8925 MOD-6 / NSW Government – Department of Planning, Industry & Environment Reference DOC21/1088913, dated 15.12.2021.*

*Alessi Consulting: Proposed Hoarding for: Multiplex – 1a Bridge Road, Glebe; Alessi Job No.: 207000; Drawing No.: 100 (Issue 08): Site Plan has been used as a base map for **Appendix I, III & VI (Figure 1)**.*

Appendix I **Impact Assessment**

Arboricultural Impact Assessment

LEGEND

Tree Location

- Retain
- Remove

Structural Root Zone

Tree Protection Zone

Screw Pile Member Location

- No TPZ Encroachment
- TPZ Encroachment

Development Footprint

Walkway Bridge

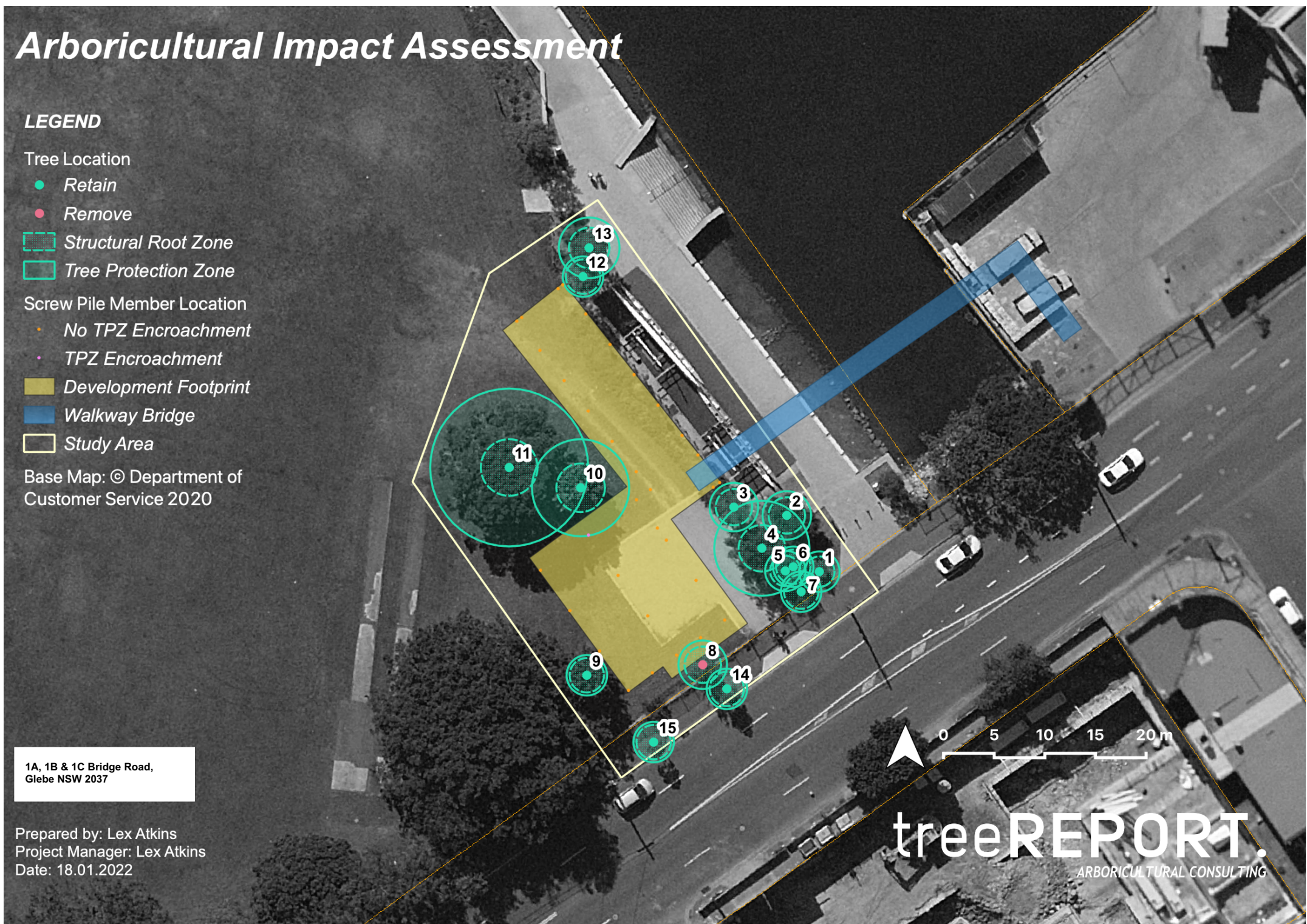
Study Area

Base Map: © Department of
Customer Service 2020

1A, 1B & 1C Bridge Road,
Glebe NSW 2037

Prepared by: Lex Atkins
Project Manager: Lex Atkins
Date: 18.01.2022

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Arboricultural Impact Assessment

LEGEND

Tree Location

● Retain

● Remove

▨ Structural Root Zone

▭ Tree Protection Zone

Screw Pile Member Location

● No TPZ Encroachment

● TPZ Encroachment

■ Development Footprint

■ Walkway Bridge

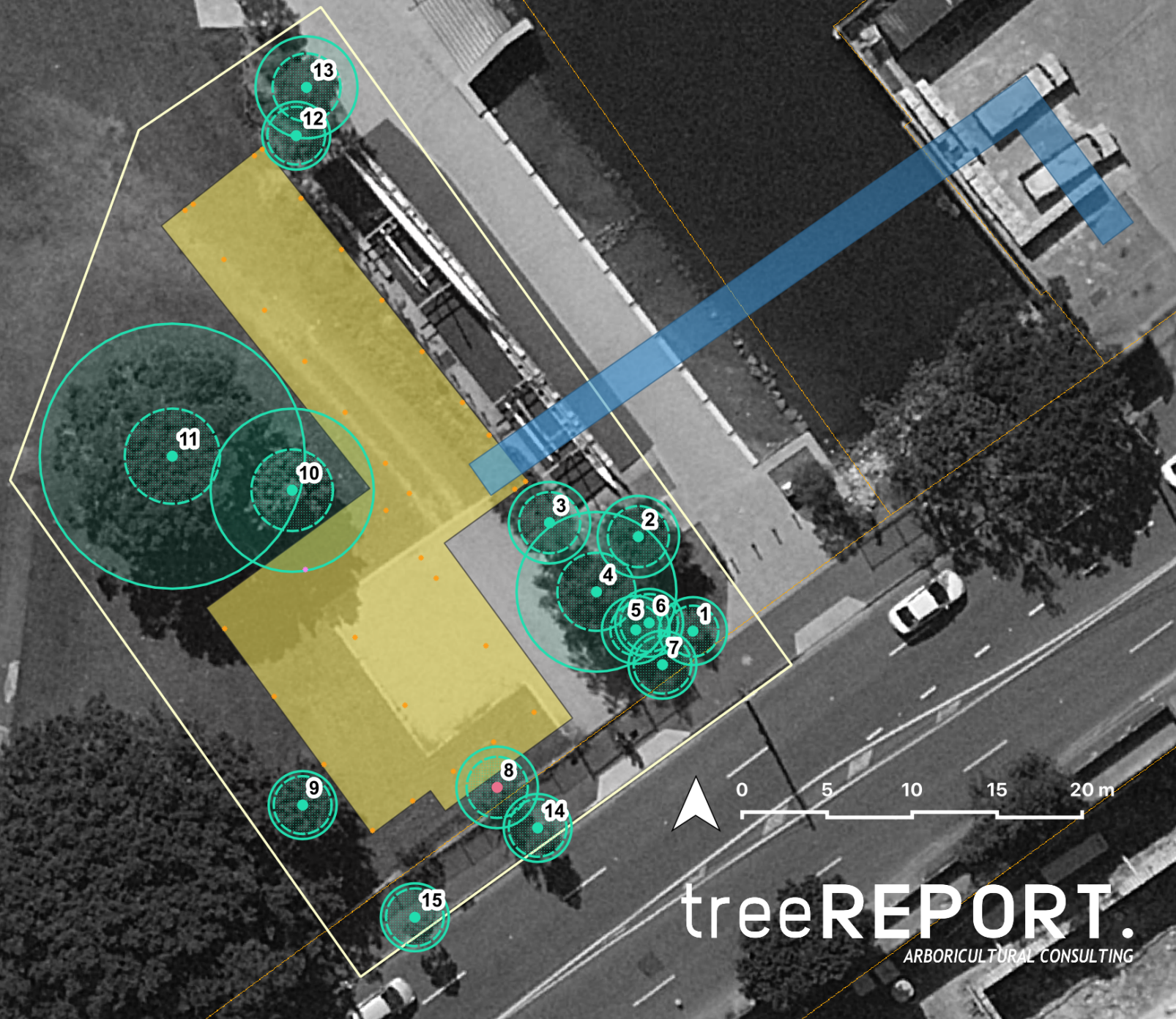
▭ Study Area

Base Map: © Department of
Customer Service 2020

1A, 1B & 1C Bridge Road,
Glebe NSW 2037

Prepared by: Lex Atkins
Project Manager: Lex Atkins
Date: 18.01.2022

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Appendix II **Tree Schedule**

Id.	Botanical name	Height (m)	Spread (m)	Health	Structure	Age class	Tree significance	Useful life expectancy	Priority for retention	DBH 1 (Ømm)	DBH 2 (Ømm)	DBH 3 (Ømm)	Calculated DBH (mmØ)	SRZ (Rm)	TPZ (Rm)	Other notes
1	<i>Callistemon citrinus</i>	2	2	Good	Good	Juvenile	Low	Medium	Low	100	-	-	100	2	1.5	<ul style="list-style-type: none"> • REATIN
2	<i>Ficus rubiginosa</i>	3	5	Good	Good	Semi-mature	Medium	Medium	Medium	200	-	-	200	2.4	1.8	<ul style="list-style-type: none"> • REATIN
3	<i>Corymbia citriodora</i>	10	4	Good	Good	Semi-mature	Medium	Medium	Medium	200	-	-	200	2.4	1.8	<ul style="list-style-type: none"> • 3x roots found at 250mm depth – unable to dig further without damaging roots. • Roots are 50, 30 and 20mmØ. • Four branches require pruning all are 40mm • REATIN
4	<i>Melia azedarach</i>	10	12	Good	Good	Semi-mature	Low ii	Medium	Low	300	250	-	390	4.7	2.3	<ul style="list-style-type: none"> • 4x branches require pruning for truck access and site establishment (150, 150, 150 and 100mmØ). • Tree species listed as exempt under the conditions prescribed within <i>City of Sydney Council: Sydney Development Control Plan (SDCP) 2012</i>. • RETAIN
5	<i>Eucalyptus botryoides</i>	4	3	Fair	Fair	Juvenile	Low	Medium	Low	100	-	-	100	2	1.5	<ul style="list-style-type: none"> • REATIN

Id.	Botanical name	Height (m)	Spread (m)	Health	Structure	Age class	Tree significance	Useful life expectancy	Priority for retention	DBH 1 (Ømm)	DBH 2 (Ømm)	DBH 3 (Ømm)	Calculated DBH (mmØ)	SRZ (Rm)	TPZ (Rm)	Other notes
6	<i>Casuarina glauca</i>	10	3	Good	Good	Semi-mature	Low	Medium	Medium	150	-	-	150	2	1.7	<ul style="list-style-type: none"> ● REATIN
7	<i>Casuarina glauca</i>	10	3	Good	Good	Semi-mature	Low	Medium	Medium	150	-	-	150	2	1.7	<ul style="list-style-type: none"> ● REATIN
8	<i>Populus nigra</i>	12	3	Fair	Fair	Semi-mature	Low	Medium	Low	200	-	-	200	2.4	1.8	<ul style="list-style-type: none"> ● Tree proposed for removal for sewer connection. ● REMOVE
9	<i>Liquidambar styraciflua</i>	12	10	Good	Fair	Semi-mature	Low	Medium	Low	150	-	-	150	2	1.7	<ul style="list-style-type: none"> ● Epicormic stump regrowth comprising of 7x stems. ● Mass of roots found could not dig deeper without damaged to roots. ● Tip reduction pruning <10% live canopy volume and tie branches back to for site establishment and building clearances. ● REATIN
10	<i>Brachychiton acerifolius</i>	9	6	Good	Good	Mature	Medium	Medium	Medium	400	-	-	400	4.8	2.4	<ul style="list-style-type: none"> ● One branch 15mmØ needs to be tip pruned. ● Two pier locations excavated. ● NDE location to the south is approximately 4.8m away (no roots encountered) excavated to 600mm and hard rock. ● NDE location to the east is 5.2m away and (no roots encountered) excavated 250mm to hard concrete

Id.	Botanical name	Height (m)	Spread (m)	Health	Structure	Age class	Tree significance	Useful life expectancy	Priority for retention	DBH 1 (Ømm)	DBH 2 (Ømm)	DBH 3 (Ømm)	Calculated DBH (mmØ)	SRZ (Rm)	TPZ (Rm)		Other notes
11	<i>Ficus rubiginosa</i>	12	14	Good	Good	Mature	Medium	Medium	Medium	650	-	-	650	7.8	2.8	● REATIN	
12	<i>Corymbia maculata</i>	12	4	Good	Good	Semi-mature	Medium	Medium	Medium	150	-	-	150	2	1.7	● REATIN	
13	<i>Corymbia maculata</i>	14	6	Good	Good	Semi-mature	Medium	Medium	Medium	250	-	-	250	3	2	● REATIN	
14	<i>Lophostemon confertus</i>	4	2	Good	Good	Semi-mature	Medium	Medium	Medium	150	-	-	150	2	1.7	● REATIN	
15	<i>Lophostemon confertus</i>	4	2	Good	Good	Semi-mature	Medium	Medium	Medium	150	-	-	150	2	1.7	● REATIN	

Appendix III **Tree Protection Plan**

Tree Protection Plan

LEGEND

Tree Location

- Retain
- Remove

Structural Root Zone

Tree Protection Zone

Tree Protection Fencing

Screw Pile Member Location

- No TPZ Encroachment
- TPZ Encroachment

Development Footprint

Walkway Bridge

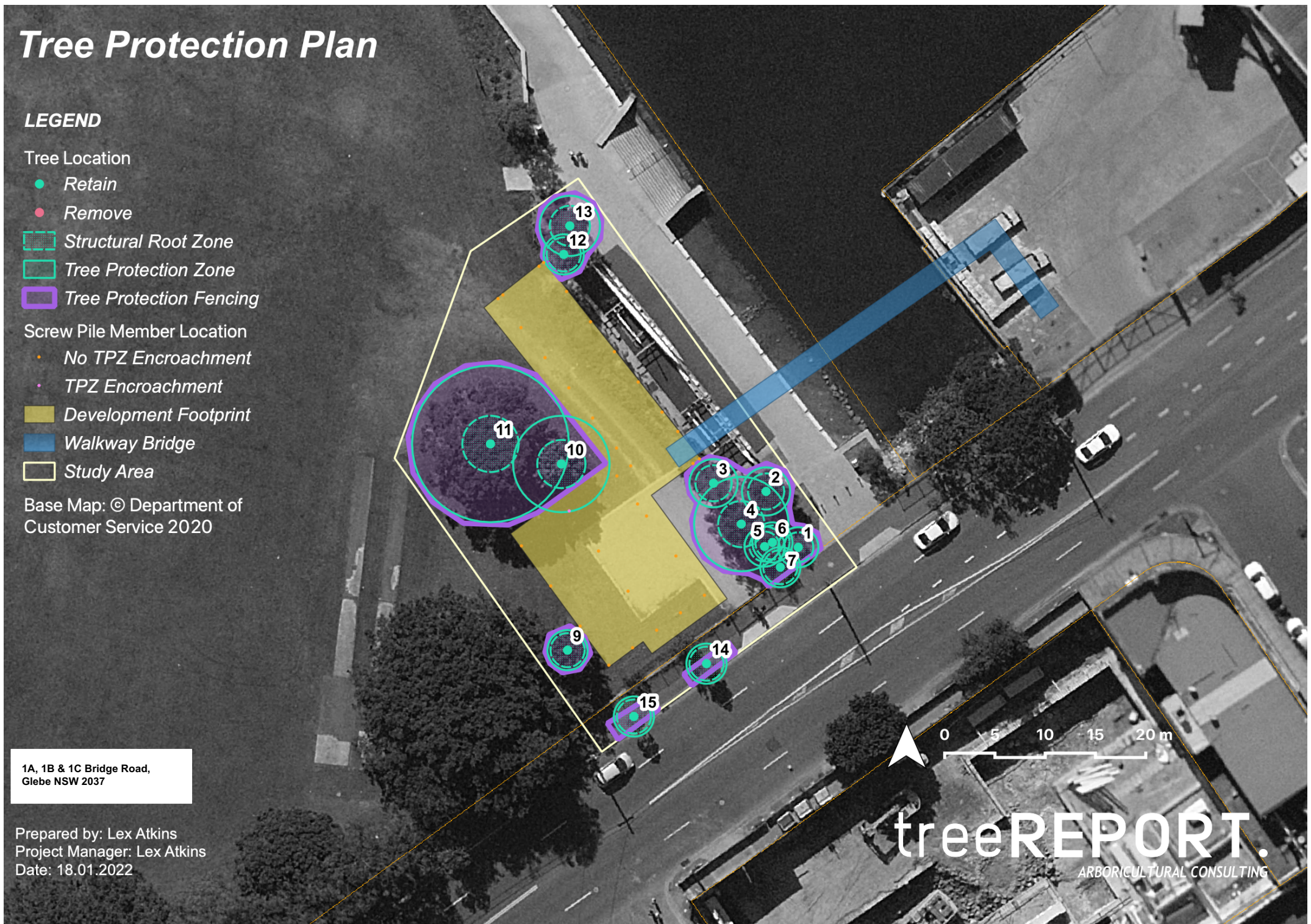
Study Area

Base Map: © Department of
Customer Service 2020

1A, 1B & 1C Bridge Road,
Glebe NSW 2037

Prepared by: Lex Atkins
Project Manager: Lex Atkins
Date: 18.01.2022

treeREPORT.
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Tree Protection Plan

LEGEND

Tree Location

- Retain
- Remove

Structural Root Zone

Tree Protection Zone

Tree Protection Fencing

Screw Pile Member Location

- No TPZ Encroachment
- TPZ Encroachment

Development Footprint

Walkway Bridge

Study Area

Base Map: © Department of
Customer Service 2020

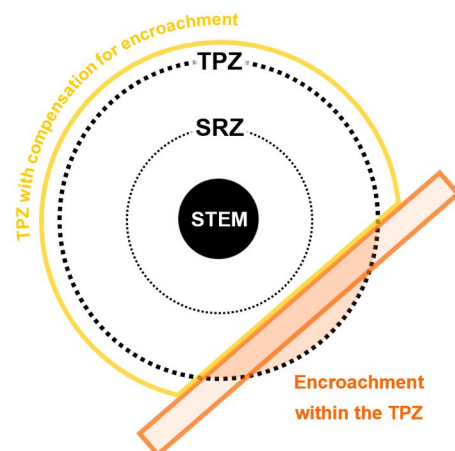
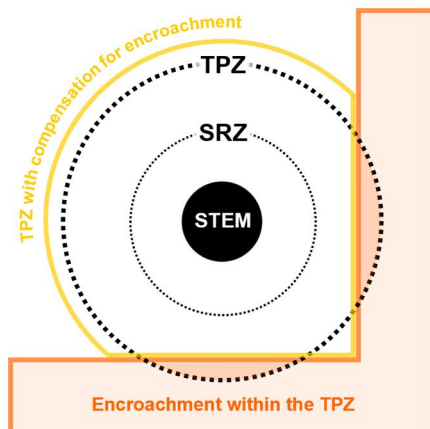
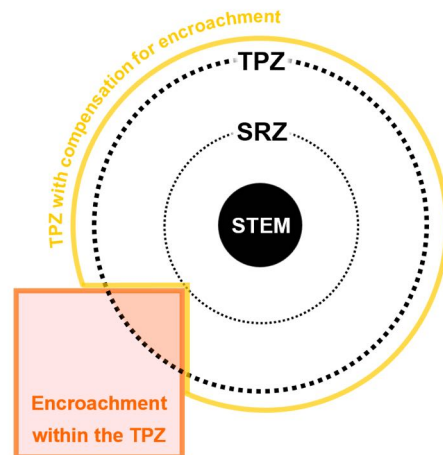
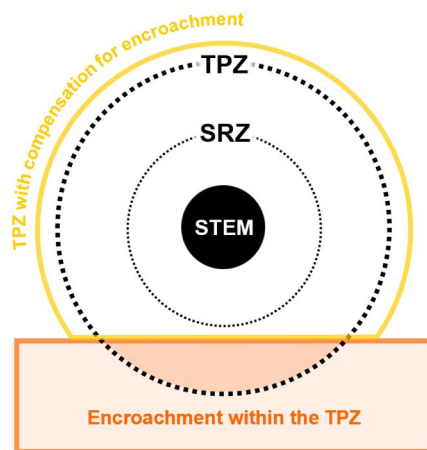
1A, 1B & 1C Bridge Road,
Glebe NSW 2037

Prepared by: Lex Atkins
Project Manager: Lex Atkins
Date: 18.01.2022



Appendix IV **Encroachment within the TPZ**

The images below show how encroachment within the tree protection zone can be compensated for elsewhere.



Reference

Council of Standards Australia (August 2009)
AS 4970-2009 Protection of Trees on Development Sites
Standards Australia, Sydney.

Appendix V **Tree Pruning Specification**

Introduction

Tree Report was commissioned by Multiplex c/o- FerryCarrig to prepare a Tree Pruning Specification (TPS) for trees (the Subject Trees) situated within the Study Area. The purpose of this report is to provide tree pruning recommendations, in accordance with the *Australian Standard AS 4373-2007, Pruning of Amenity trees* for the required pruning of Subject Trees in order to accommodate site establishment vehicle/plant movements and construction of a proposed site accommodation structure.

This TPS has been prepared in response to *City of Sydney Council: Response Letter; Sender Reference: SSD-8925-MOD-6 / Council Reference 2021/557868, dated 17.12.2021* and *NSW Government – Department of Planning, Industry & Environment: Response Letter; Sender Reference: SSD 8925 MOD-6 / NSW Government – Department of Planning, Industry & Environment Reference DOC21/1088913, dated 15.12.2021.*

Method

The site inspection was undertaken on 18th of January 2022. The Subject Trees were assessed in accordance with a stage one visual tree assessment (VTA) as formulated by Mattheck & Breloer (1994)², and practices consistent with modern arboriculture. The conclusions and recommendations of this report are based on the findings from the site inspections and analysis of the following documents:

- *Australian Standard: AS 4373-2007 Pruning of Amenity Trees.*
- *Alessi Consulting: Proposed Hoarding for: Multiplex – 1a Bridge Road, Glebe; Alessi Job No.: 207000; Drawing No.: 100 (Issue 08); Drawing No.: 110 (Issue 06); Drawing No.: 111 (Issue 03) Drawing No.: 112 (Issue 02); Drawing No.: 120 (Issue 04); Drawing No.: 121 (Issue 04).*

Observations

Subject Tree id. 3: (*Corymbia citriodora*) is a semi-mature specimen and is approximately 10m in height, with a canopy spread of 4m and a trunk DBH of 300mm and 250mm. The following observations were made during the site inspection:

- The Subject Tree is situated on the eastern side of the proposed site accommodation structure.
- The Subject Tree is a multi-trunk specimen.
- The Subject Tree is in good health and condition.
- 4x first-order lateral branches (4x 40mmØ) extend in a northerly direction and is in conflict with the location of the proposed site accommodation structure.

Subject Tree id. 4: (*Melia azedarach*) is a semi-mature specimen and is approximately 10m in height, with a canopy spread of 12m and a trunk DBH of 200mm. The following observations were made during the site inspection:

- Tree species listed as exempt under the conditions prescribed within *City of Sydney Council: Sydney Development Control Plan (SDCP) 2012.*

² VTA is an internationally recognised practice in the visual assessment of trees as formulated by Mattheck & Breloer (1994). Principle explanations and illustrations are contained within the publication, *Field Guide for Visual Tree Assessment* by Mattheck, C., and Breloer, H. *Arboricultural Journal* 1, Vol 18 pp 1-23 (1994).

- The Subject Tree is situated on the eastern side of the proposed site accommodation structure.
- The Subject Tree is a single trunk specimen.
- The Subject Tree is in good health and condition.
- 4x first-order lateral branches (3x 150mmØ and 1x 100mmØ) extend in a northerly direction and is in conflict with the location of the proposed site accommodation structure and plant/vehicle access route.

Subject Tree id. 9: (*Liquidambar styraciflua*) is a semi-mature specimen and is approximately 12m in height, with a canopy spread of 10m and a trunk DBH of 150mm. The following observations were made during the site inspection:

- The Subject Tree is situated on the western side of the proposed site accommodation structure.
- The subject tree appears to be epicormic stump regrowth.
- The subject tree is in good health and condition.
- Terminal foliage of multiple 3rd and 4th order branches extend in an easterly direction and are in conflict with the location of the proposed site accommodation structure.

Subject Tree id. 10: (*Brachychiton acerifolius*) is a mature specimen and is approximately 9m in height, with a canopy spread of 6m and a trunk DBH of 400mm. The following observations were made during the site inspection:

- The Subject Tree is situated on the western side of the proposed site accommodation structure.
- The Subject Tree is a single trunk specimen.
- The Subject Tree is in good health and condition.
- Terminal foliage of a 3rd order branch extends in an easterly direction and is in conflict with the location of the proposed site accommodation structure.

Discussion

Subject Tree id. 3: Following the Site inspection and document review, 4x first-order lateral branches (4x 40mmØ) have been identified as conflicting with the proposed site accommodation structure. Selective canopy pruning of the identified branches is required to ascertain the necessary clearances for installation of the proposed site accommodation structure.

The required pruning of the identified branches will result in the loss of approximately 10% of total live canopy volume.

Corymbia citriodora is extremely tolerant of atmospheric pollution, root compaction and heavy pruning, and is often used in the urban environment because of these attributes. The Subject Tree is in good health and vitality and the required pruning is unlikely to have a significant impact on the tree's health and vitality in the long term.

See images for recommended pruning locations.

Subject Tree id. 4: Following the Site inspection and document review, 4x first-order lateral branches (3x 150mmØ and 1x 100mmØ) have been identified as conflicting with the proposed site accommodation structure and plant/vehicle access route. Selective canopy pruning of the identified branches is required to ascertain the necessary clearances for installation of the proposed site accommodation structure.

The required pruning of the identified branches will result in the loss of approximately 15% of total live canopy volume.

Melia azedarach is reasonably tolerant of atmospheric pollution, root compaction and heavy pruning, and is often used in the urban environment because of these attributes. The Subject Tree is in good health and vitality and the required pruning is unlikely to have a significant impact on the tree's health and vitality in the long term.

See images for recommended pruning locations.

Subject Tree id. 9: Following the Site inspection and document review, terminal foliage of multiple 3rd and 4th order branches have been identified as conflicting with the proposed site accommodation structure. Selective canopy pruning of the identified terminal foliage is required to ascertain the necessary clearances for installation of the proposed site accommodation structure.

The required pruning of the terminal foliage will result in the loss of approximately 10% of total live canopy volume.

Liquidambar styraciflua is extremely tolerant of atmospheric pollution, root compaction and heavy pruning, and is often used in the urban environment because of these attributes. The Subject Tree is in good health and vitality and the required pruning is unlikely to have a significant impact on the tree's health and vitality in the long term.

See images for recommended pruning locations.

Subject Tree id. 10: Following the Site inspection and document review, terminal foliage of a 3rd order branch has been identified as conflicting with the proposed site accommodation structure. Selective canopy pruning of the conflicting terminal foliage is required to ascertain the necessary clearances for installation of the proposed site accommodation structure.

The required pruning of the terminal foliage will result in the loss of approximately 1% of total live canopy volume.

Brachychiton acerifolius is reasonably tolerant of atmospheric pollution, root compaction and heavy pruning, and is often used in the urban environment because of these attributes. The Subject Tree is in good health and vitality and the required pruning is unlikely to have a significant impact on the tree's health and vitality in the long term.

See images for recommended pruning location.

Recommendations

Subject Tree id. 3:

- 4x first-order lateral branches (4x 40mm), as shown in **Image II**, are recommended for removal.

Subject Tree id. 4:

- 4x first-order lateral branches (3x 150mmØ and 1x 100mmØ), as shown in **Image IV**, are recommended for removal.

Subject Tree id. 9:

- Terminal foliage pruning of conflicting 3rd and 4th order branches, as shown in **Image V**, are recommended for removal.

Subject Tree id. 10:

- Terminal foliage pruning of conflicting 3rd order branch, as shown in **Image VI**, is recommended for removal.

General:

- All tree work is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture under the supervision of the project arborist.
- All tree work must be in accordance with Australian Standard AS 4373-2007, Pruning of Amenity Trees and the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- Permission must be granted from the relevant consent authority, prior to pruning of any of the subject trees.

Pruning Schedule:

Branch id.	Diameter (mmØ)	Live canopy %
B3-1	40	2.50
B3-2	40	2.50
B3-3	40	2.50
B3-4	40	3.75
B4-1	150	4

Branch id.	Diameter (mmØ)	Live canopy %
B4-2	150	4
B4-3	150	4
B4-4	100	3
B9-1	~20 <5	10
B10-1	<5	1

Images



Image I: Subject Tree id. 3



Image II: Subject Tree id. 3 indicative pruning locations



Image III: Subject Tree id. 4



Image IV: Subject Tree id. 4 indicative pruning locations



Image V: Subject Tree **id. 9** indicative terminal foliage pruning locations



Image VI: Subject Tree **id. 10** indicative terminal foliage pruning location

Appendix VI **Root Investigation Report**

Introduction

Tree Report was commissioned by Multiplex c/o- FerryCarrig to undertake root investigation via the use of non-destructive methods (hand excavation) adjacent Subject Trees **id. 3, 9 & 10** situated within the Study Area. The purpose of this report is to assess the extent and location of roots which are likely to be impacted by the construction of a proposed site accommodation structure and to provide recommendations based on the subject tree's suitability for retention.

This RIR has been prepared in response to *City of Sydney Council: Response Letter; Sender Reference: SSD-8925-MOD-6 / Council Reference 2021/557868, dated 17.12.2021* and *NSW Government – Department of Planning, Industry & Environment: Response Letter; Sender Reference: SSD 8925 MOD-6 / NSW Government – Department of Planning, Industry & Environment Reference DOC21/1088913, dated 15.12.2021.*

Locations of the NDE are shown in **Figure 1**.

Method

The site inspection was undertaken on 18th January 2022. The Subject Trees and exposed root material was assessed in accordance with Visual Tree Assessment (VTA) as formulated by Mattheck & Breloer (1994), and practices consistent with modern arboriculture. The conclusions and recommendations of this report are based on the findings from the site inspection and analysis of the following documents:

- *Alessi Consulting: Proposed Hoarding for: Multiplex – 1a Bridge Road, Glebe; Alessi Job No.: 207000; Drawing No.: 100 (Issue 08).*
- *Australian Standard, AS 4970-2007, Protection of Trees on Development Sites.*
- *Mattheck, C. (2007). Updated field guide for visual tree assessment.*
- *Mattheck, C., Bethge, K. and Weber, K. (2015). The body language of trees.*



Figure 1: NDE locations

Observations

Subject Tree id. 3

Localised excavation 600mmØ was undertaken at the proposed location of the closest screw pile footing (as determined onsite by Multiplex engineer) using non-destructive methods (hand digging) to expose root material which will require severance. NDE was abandoned at a depth of 250mm in order to prevent damage to root material encountered. The following root material was exposed during the NDE:

- 1x root **50 mmØ**
- 1x root **30 mmØ**
- 1x root **20 mmØ**

Subject Tree id. 9

Localised excavation 600mmØ was undertaken at the proposed location of the closest screw pile footing (as determined onsite by Multiplex engineer) using non-destructive methods (hand digging) to expose root material which will require severance. NDE was abandoned at a depth of 150mm in order to prevent damage to root material encountered. The following root material was exposed during the NDE:

- 1x root **30 mmØ**
- 1x root **10 mmØ**
- 1x root **50 mmØ**
- Multiple roots **<5mmØ**

Subject Tree id. 10

Localised excavation 600mmØ was undertaken at the proposed location of the 2 closest screw pile footings (as determined onsite by Multiplex engineer) using non-destructive methods (hand digging) to expose root material which will require severance.

NDE Location 1 (to the south of the Subject Tree) was excavated to a depth of 600mm – no root material was encountered.

NDE Location 2 (to the east of the Subject Tree) was abandoned at a depth of 250mm due to a concrete slab substrate. No root material was encountered.

Conclusion

The loss of the identified root material of Subject Trees **id. 3, 9 & 10** to facilitate installation of the proposed site accommodation is approximately 1% of total TPZ area is unlikely to have a significant impact on the subject tree's ability to store carbohydrates, use stored carbohydrates in times of stress and is unlikely to have a significant impact on the health, condition or stability of the tree long term.

Recommendations

- Permission must be granted from the relevant consent authority, prior to the severance of identified roots.

- Where additional root material (other than root material identified within this report) is required to be severed, additional assessment by an AQF 5 arborist should be undertaken.
- All exposed root material should be clean cut using secateurs, hand saw or similar.

Images



Image I: Subject Tree id. 3 in relation to NDE



Image II: Subject Tree id. 3 NDE



Image III: Subject Tree id. 9 in relation to NDE



Image IV: Subject Tree id. 9 NDE



Image V: Subject Tree **id. 10** in relation to NDE (south)



Image VI: Subject Tree **id. 10** NDE (south)



Image VII: Subject Tree id. 10 in relation to NDE (east)



Image VIII: Subject Tree id. 10 NDE (east)

Appendix VII **STARS®** assessment matrix

Tree Significance - Assessment Criteria - STARS®

Low	Medium	High
<p>i) Significance in landscape</p> <p>The tree is in fair-poor condition and good or low vigour.</p> <p>The tree has form atypical of the species</p> <p>The tree is not visible or is partly visible from the surrounding properties or obstructed by other vegetation or buildings</p> <p>The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area</p> <p>The tree is a young specimen which may or may not have reached dimensions to be protected by local Tree Preservation Orders or similar protection mechanisms and can easily be replaced with a suitable specimen</p> <p>The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ – tree is inappropriate to the site conditions</p> <p>The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms</p> <p>The tree has a wound or defect that has the potential to become structurally unsound.</p>	<p>The tree is in fair to good condition</p> <p>The tree has form typical or atypical of the species</p> <p>The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area</p> <p>The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street</p> <p>The tree provides a fair contribution to the visual character and amenity of the local area</p> <p>The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ</p>	<p>The tree is in good condition and good vigour</p> <p>The tree has a form typical for the species</p> <p>The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age.</p> <p>The tree is listed as a heritage item, threatened species or part of an endangered ecological community or listed on councils' significant tree register</p> <p>The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity.</p> <p>The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values.</p> <p>The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ – tree is appropriate to the site conditions.</p>
<p>ii) Environmental Pest/Noxious Weed Species</p> <p>The tree is an environmental pest species due to its invasiveness or poisonous/allergenic properties.</p> <p>The tree is a declared noxious weed by legislation</p>		
<p>iii) Hazardous/Irreversible Decline</p> <p>The tree is structurally unsound and/or unstable and is considered potentially dangerous</p> <p>The tree is dead, or is in irreversible decline</p>		

Useful Life Expectancy - Assessment Criteria

Dead / Dying	Short	Medium	Long
Trees with a high level of risk that would need removing within the next 5 years.	Trees that appear to be retainable with an acceptable level of risk for 5-15 years.	Trees that appear to be retainable with an acceptable level of risk for 15-40 years.	Trees that appear to be retainable with an acceptable level of risk for more than 40 years.
Dead trees.			
Trees that should be removed within the next 5 years.	Trees that may only live between 5 and 15 more years.	Trees that may only live between 15 and 40 more years.	Structurally sound trees located in positions that can accommodate future growth.
Dying or suppressed or declining trees through disease or inhospitable conditions.	Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals.	Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals.	Storm damaged or defective trees that could be made suitable for retention in the long term by remedial tree surgery.
Dangerous trees through instability or recent loss of adjacent trees.	Trees that may live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons.	Trees that may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons.	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.
Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.			
Damaged trees that considered unsafe to retain.	Storm damaged or defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.	Storm damaged or defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.	
Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.			
Trees that will become dangerous after removal of other trees for the reasons.			

Tree Significance

		Tree Significance			Low		
		High	Medium		i	ii	iii
Useful Life Expectancy	Long >40 years						
	Medium 15-40 years						
	Short 5-15 years						
	Dead/Dying <5 years						

Legend for Matrix Assessment

	Priority for retention (High): These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented if works are to proceed within the Tree Protection Zone.
	Consider for retention (Medium): These trees may be retained and protected. These are considered less critical; however, their retention should remain priority with the removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for removal (Low): These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for removal (Low): These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of the proposed development.



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