



**EARTHSCAPE HORTICULTURAL SERVICES**  
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# **ARBORICULTURAL IMPACT ASSESSMENT REPORT**

## **PROPOSED RESEARCH FACILITY UTS BLACKFRIARS 4-12 BUCKLAND STREET, CHIPPENDALE**

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## 1 INTRODUCTION

- 1.1.1 This report was commissioned by James Mather Delaney Design (JMDD) on behalf of the University of Technology Sydney (UTS) to assess the health and condition of thirty-eight (38) trees located within UTS Blackfriars Campus, 4-12 Buckland Street, Chippendale. The report has been prepared to aid in the assessment of a Development Application (DA) for the demolition of the existing childcare facility and construction of a new research facility ('industry hub') within the property.
- 1.1.2 This report follows a Preliminary Arboricultural Assessment Report prepared by Urban Forestry Australia (UFA) [dated August 2015] that addressed all of the trees within the northern portion of the site.
- 1.1.3 The purpose of this report is to assess the potential impact of the proposed development on the subject trees, together with recommendations for amendments to the design or construction methodology where necessary to minimise any adverse impact. The report also provides recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate.
- 1.1.4 This report has been prepared in accordance with the City of Sydney Council's guidelines for preparation of Arborists Reports as outlined in Schedule 8 of the *Sydney Development Control Plan 2012* (SDCP) and Sections 2.3.2-2.3.5 of the Australian Standard for *Protection of Trees on Development Sites* (AS 4970:2009).

## 2 THE SITE

- 2.1.1 The subject property is comprised of a number of allotments forming the UTS Blackfriars Campus, 4-12 Buckland Street, Chippendale. For the purposes of this report, the subject property will be referred to as 'the site'. The site is zoned Mixed Use [B4] under the *Sydney Local Environmental Plan 2012* (SLEP). The site contains a number of buildings containing UTS student accommodation facilities and administration. The site contains established lawns and gardens with a number of mature trees. These include a variety of non-local native and exotic (introduced) species.
- 2.1.2 Soils of this area have been extensively disturbed and modified for urban development. The original soils of this area are typical of the Blacktown Soil Landscape Group (as classified in the *Soil Landscapes of the Sydney 1:100,000 Sheet*), consisting of shallow to moderately deep (less than 1000 mm) *Red & Brown Podzolic Soils* on crests, upper slopes and well drained areas. Soils on lower slopes and areas of poor drainage consist of deep (1500-3000 mm) *Yellow Podzolic Soils and Soloth Soils* derived Wianamatta Group & Hawkesbury Shales.<sup>1</sup> The landscape generally consists of undulating rises with slopes ranging usually less than 5% grade.
- 2.1.3 The original vegetation of this area consisted of Turpentine-Ironbark Forest, most of which was cleared for timber getting from early in the nineteenth century then later for urban development.<sup>2</sup> The dominant locally- indigenous tree species formerly occurring in this area included *Syncarpia glomulifera* (Turpentine) and *Eucalyptus paniculata* (Grey Ironbark). Other species found in this vegetation community may include *Eucalyptus resinifera* (Red Mahogany) and *Eucalyptus globoidea* (White Stringybark).

### 3 SUBJECT TREES

- 3.1.1 The subject trees were inspected by Earthscape Horticultural Services (EHS) on the 27<sup>th</sup> February 2018. Each tree has been provided with an identification number for reference purposes denoted on the attached Tree Location Plan (**Appendix 5**), based on the survey prepared by Rygate and Company Pty Ltd, Dwg. Ref No. 78499 dated 05/03/2018. The numbers used on this plan correlate with the Tree Assessment Schedule (**Appendix 3**) and the previous arboricultural assessment report prepared by UFA.



**Plate 1** – Tree 33 – Jacaranda



**Plate 2** – Tree 35 – River Oak



**Plate 3** – Tree 34 – Camphor Laurel.

## 4 HEALTH AND CONDITION ASSESSMENT

### 4.1 Methodology

4.1.1 An assessment of each tree was made using the Visual Tree Assessment (VTA) procedure.<sup>3</sup> All of the trees were assessed in view from the ground. No aerial inspection or diagnostic testing has been undertaken as part of this assessment.

4.1.2 The following information was collected for each tree:-

- Tree Species (Botanical & Common Name);
- Approximate height;
- Canopy spread; measured using a metric tape and an average taken.
- Trunk diameter (measured at 1.4 metres from ground level);
- Live Crown Size; (measured by subtracting the total height of the tree from the lowest point of the crown and multiplying by the average crown spread to give a value in square metres).
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators,
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators.
- Suitability of the tree to the site and its existing location; in consideration of damage or potential damage to services or structures, available space for future development and nuisance issues.

4.1.3 This information is presented in a tabulated form in **Appendix 3**.

### 4.2 Safe Useful Life Expectancy (SULE)

4.2.1 The remaining Safe Useful Life Expectancy<sup>4</sup> of the tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of the tree has been further modified where necessary in consideration of its current health and vigour, condition and suitability to the site. The estimated SULE of each tree is shown in **Appendix 3**.

4.2.2 The following ranges have been allocated to each tree:-

- Greater than 40 years (Long)
- Between 15 and 40 years (Medium)
- Between 5 and 15 years (Short)
- Less than 5 years (Transient)
- Dead or immediately hazardous (defective or unstable)

4.2.1 SULE ratings are intended to provide a general overview of the long term sustainability of the trees within the site in consideration of these factors. The allocated ranges are not intended to be absolute. This information is useful in guiding future planning by highlighting the probable lifespan of individual trees, for which a clear pattern may emerge. This information may be helpful in forecasting likely tree senescence and planning for replacement planting to ensure continuity in tree canopy across the site. It should be noted that SULEs *may* be extended or reduced depending on the way trees are managed. Intervention and remedial works may extend the SULE of some trees.

## 5 LANDSCAPE SIGNIFICANCE

### 5.1 Methodology for Determining Landscape Significance

- 5.1.1 The significance of a tree in the landscape is a combination of its environmental, heritage and amenity values. Whilst these values may be fairly subjective and difficult to assess consistently, some measure is necessary to assist in determining the retention value of each tree. To ensure a consistent approach, the assessment criteria shown in **Appendix 1** have been used in this assessment.
- 5.1.2 A rating has been applied to each tree to give an understanding of the relative significance of each tree in the landscape and to assist in determining priorities for retention, in accordance with the following categories:-
1. **Significant**
  2. **Very High**
  3. **High**
  4. **Moderate**
  5. **Low**
  6. **Very Low**
  7. **Insignificant**

### 5.2 Environmental Significance

#### 5.2.1 Tree Management Controls

Prescribed trees within the City of Sydney Local Government Area (LGA) are protected under Section 3.5.3 of the *Sydney Development Control Plan 2012* (SDCP), made pursuant to Clause 5.9 (2) of the *Sydney Local Environmental Plan 2012* (SLEP). The SDCP generally protects all trees of a height of five (5) metres or greater or with a canopy spread of five (5) metres or greater, or trunk diameter of 300mm or greater (measured at ground level) or any tree listed on Council's Significant Tree Register and any tree on public land. Some exemptions apply. The following trees are exempt (not protected) under the provisions of the SDCP 2012:-

| Tree No.                           | Species                                              | Exemption                  |
|------------------------------------|------------------------------------------------------|----------------------------|
| <b>T9, T10, T11, T38 &amp; T54</b> | <i>Olea europaea subsp. africana</i> (African Olive) | Environmental Weed Species |
| <b>T53</b>                         | <i>Morus nigra</i> (Mulberry tree)                   | Environmental Weed Species |

\* Note that these trees are located within the adjoining property.

The remainder of the trees are protected under the SDCP 2012.

#### 5.2.2 Wildlife Habitat

All of the trees are exotic (introduced) or non-local native species that would be of some benefit to native wildlife. However, none of the trees contain cavities that would be suitable as nesting hollows for arboreal mammals or birds or other visible signs of wildlife habitation.

#### 5.2.3 Noxious Plants & Environmental Weeds

None of the subject trees are scheduled as a potential Biosecurity Risk (Noxious Weed) within the Sydney City Local Government Area (LGA) under the *Biosecurity Act 2015*. *Cinnamomum camphora* (Camphor Laurel) [T1 & T34] and *Acacia saligna* (Golden Wreath Wattle) [T53a] are considered to be Environmental Weed Species in some LGAs within the Sydney Metropolitan Area.

#### 5.2.4 *Threatened Species & Ecological Communities*

None of the subject trees are listed as Threatened or Vulnerable Species or form part of Endangered Ecological Communities (EECs) under the provisions of the *Threatened Species Conservation Act 1995* (NSW) or the *Environment Protection and Biodiversity Conservation Act 1999*.

### 5.3 Heritage Significance

#### 5.3.1 *Heritage Items*

The subject property is listed as an item of Environmental Heritage (Item 170) under Schedule 5, Part 1 of the *Sydney Local Environmental Plan 2012* (SLEP). The Item is described as the former Blackfriars Public School and Headmasters Residence including interiors, fence and grounds. The school buildings are described as a rare and highly intact group of three two-storey Victorian Free Gothic 'Picturesque' style buildings, maintaining the original boundaries and setting. The buildings were designed by prominent Victorian Architect George Allen Mansfield and constructed c 1884-1885. The boundaries on Buckland and Blackfriars Street are enclosed by a stone and iron palisade fence.<sup>5</sup>

The adjoining property to the east (also known as St Benedict's Church) is listed as an item of Environmental Heritage (Item 165) under Schedule 5, Part 1 of the SLEP.

#### 5.3.2 *Heritage Conservation Area*

The site is located within a Heritage Conservation Area (Area C9 – Chippendale) under Schedule 5, Part 2 of the SLEP.

#### 5.3.3 *Significant Tree Register*

None of the trees within the site are listed in City of Sydney Councils *Register of Significant Trees Volume 3 (Significant Trees: Other Government Authorities, Institutional, Religious and Non-government Organisations)*.<sup>6</sup>

The 1943 Aerial Photograph of Sydney (SIX Maps) indicates that Trees T33 (Jacaranda) and T1 & T34 (Camphor Laurel) may have been present as mature specimens at this time. These trees were probably planted in the Inter-War Period (1919-1939) being fairly typical of the species used during this era in educational institutions. The size and estimated age of these trees is also consistent with this time frame.

### 5.4 Amenity Value

- 5.4.1 Criteria for the assessment of amenity values are incorporated into **Appendix 1**. The amenity value of a tree is a measure of its live crown size, visual appearance (form, habit, crown density), visibility and position in the landscape and contribution to the visual character of an area. Generally the larger and more prominently located the tree, and the better its form and habit, the higher its amenity value.

## 6 TREE RETENTION VALUES

- 6.1.1 The Retention Values shown in **Appendix 3** and **Appendix 5** have been determined on the basis of the estimated longevity of the trees and their landscape significance rating, in accordance with **Table One**. Together with guidelines contained in **Section 7** (Tree Protection Zones) this information should be used to determine the most appropriate position of building footprints and other infrastructure within the site, with due consideration to other site constraints, to minimise the impact on trees considered worthy of preservation.

**TABLE 1 – TREE RETENTION VALUES – ASSESSMENT METHODOLOGY**

| Estimated Life Expectancy     | Landscape Significance Rating |   |                          |                          |   |   |   |
|-------------------------------|-------------------------------|---|--------------------------|--------------------------|---|---|---|
|                               | 1                             | 2 | 3                        | 4                        | 5 | 6 | 7 |
| Long - Greater than 40 Years  | High Retention Value          |   |                          |                          |   |   |   |
| Medium- 15 to 40 Years        |                               |   | Moderate Retention Value |                          |   |   |   |
| Short - 5 to 15 years         |                               |   |                          | Low Ret. Value           |   |   |   |
| Transient - Less than 5 Years |                               |   |                          | Very Low Retention Value |   |   |   |
| Dead or Potentially Hazardous |                               |   |                          |                          |   |   |   |

## 7 TREE PROTECTION ZONES

7.1.1 The Tree Protection Zone (TPZ) is a radial distance measured from the centre of the trunk of the tree as specified in **Appendix 4**. These have been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).<sup>7</sup>

7.1.2 The intention of the TPZ is to ensure protection of the root system and canopy from the potential damage from construction works and ensure the long-term health and stability of each tree to be retained. Incursions to the root zone may occur due to excavations, changes in ground levels, (either lowering or raising the grade), trenching or other forms of soil disturbance such as ripping, grading or inverting the soil profile. Such works may cause damage or loss of part of the root system, leading to an adverse impact on the tree.

### 7.2 Structural Root Zone (SRZ)

7.2.1 The Structural Root Zone (SRZ) provides the bulk of mechanical support and anchorage for a tree. This is also a radial distance measured from the centre of the trunk as specified in **Appendix 4**. The SRZ has been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).

7.2.2 Incursions within the SRZ are not recommended as they are likely to result in the severance of woody roots which may compromise the stability of the tree or lead to its decline and demise.

### 7.3 Acceptable Encroachments to the Tree Protection Zone.

7.3.1 Where encroachment to the TPZ is unavoidable, an incursion to the TPZ of not exceeding 10% of the area of the TPZ and outside the SRZ may be acceptable. Examples of acceptable incursions are shown in **Appendix 2**. Greater incursions to the TPZ may result in an adverse impact on the tree.

7.3.2 Where incursions greater than 10% of the TPZ are unavoidable, exploratory excavation using non-destructive methods may be required to evaluate the extent of the root system affected and determine whether or not the tree can remain viable

### 7.4 Acceptable Encroachments to the Canopy

7.4.1 The removal of a small portion of the crown (foliage and branches) is generally tolerable provided that the extent of pruning required is less than 10% of the total foliage volume of the tree and the removal of branches does not create large wounds or disfigure the natural form and habit of the

tree. All pruning cuts must be undertaken in accordance with AS 4373:2007. This generally involves reduction of the affected branches back to the nearest branch collar at the junction with the parent branch, rather than at an intermediate point. The latter is referred to as “lopping” and is no longer an acceptable arboricultural practice. Generally speaking, the minimum pruning as required to accommodate any proposed works is desirable. Extensive pruning can result in a detrimental impact on tree health and may lead to exposure of remaining branches to wind forces that they were previously sheltered from, leading to a greater risk of branch failure.

- 7.4.2 Clearance to between the building line and canopy should take into account any projecting structures, such as balconies, awnings and the roofline and any requirement for temporary scaffolding to be erected during construction (typically 1-1.5 metres wide). High structures should preferably be located outside the canopy dripline (as shown indicatively on the attached plans) in order to avoid or minimise canopy pruning.

## 8 PROPOSED DEVELOPMENT

- 8.1.1 The proposed development includes the demolition of the existing childcare facility and construction of a new research facility (‘industry hub’) within the property.

## 9 IMPACT ASSESSMENT

- 9.1.1 The intention of this assessment is to determine the incursions to the root zones and canopies created by the proposed development and evaluate the likely impact of the proposed works on the subject trees. Details shown on the following plans were used in this assessment:-

| Title                      | Author | Dwg No. | Date       |
|----------------------------|--------|---------|------------|
| <i>Landscape Site Plan</i> | JMDD   | L01     | 16.05.2018 |

- 9.1.2 A summary of the impact of the proposed development on each tree within the site is shown in **Appendix 5**. The following criteria have been examined as part of this assessment:-

- Existing Relative Levels (R.L.);
- Tree Protection Zone (TPZ);
- Structural Root Zone (SRZ);
- Footprint and envelope of the proposed development and temporary structures (scaffolding, hoardings etc);
- Incursions to the TPZ & SRZ, including estimated cut & fill beyond the building footprint;
- Incursions to the tree canopy from the building envelope and temporary structures; and
- Assessment of the likely impact of the works on existing trees.

- 9.1.1 The proposed development will necessitate the removal of five (5) trees of low and very low retention value. These include Tree No.s T39 & T40 (Jacaranda), T53 (Mulberry tree), T53a (Golden Wreath Wattle) and T54 (African Olive). None of these trees are considered significant or worthy of special measures to ensure their preservation. The removal of these trees to accommodate the proposed development is therefore considered warranted in this instance. It should be noted that Tree T54 is exempt from Council’s Tree Management Controls.

- 9.1.2 The proposed development will also necessitate the removal of four (4) trees of moderate retention value. These include Tree No.s T41 (Swamp Oak), T43 (Chinese Tallow), T51 (Brushbox) and T52 (River Oak). These trees are not considered significant, but are in good health and condition and make a fair contribution to the amenity of the site and surrounding properties. In order to compensate for loss of amenity resulting from the removal of these trees to accommodate the

proposed development, consideration should be given to replacement planting within the site in accordance with Section 11.

- 9.1.3 The proposed development will necessitate the removal of five (5) of high retention value, being T33 (Jacaranda), T34 (Camphor Laurel), T35 (River Oak), T45 (Chinese Tallow) and T50 (Brushbox). These trees do not have any special ecological or heritage significance, but they are all in good health and condition and make a positive contribution to the amenity of the site and the streetscape. In order to retain these trees, significantly greater setbacks between the trees and built structures would be required to limit encroachments to the TPZ (including that to facilitate construction) and canopy (including the impact of temporary scaffold) to no greater than 15%. Consideration has been given to the retention of these trees, but it is not considered feasible given the proximity of the proposed building and the extent of site development proposed.
- 9.1.4 In order to compensate for loss of amenity resulting from the removal of T33, T34 & T35 to accommodate the proposed development, replacement planting with two new trees is proposed to be undertaken within the front setback area using advanced plant stock. The available soil volume at each location is limited to approximately 40-50 cubic metres. This will be sufficient to support one medium sized tree (at each location) of approximately 10 metres in height and eight metres crown spread.
- 9.1.5 The proposed basement is located within the TPZ of T31 (Brushbox on the nature strip). Excavations for the basement and associated retaining wall will result in an encroachment to the TPZ of approximately 15%, which exceeds acceptable limits under AS 4970:2009. However, this species will tolerate the extent of the encroachment proposed. It should be noted that the basement wall is located beyond the existing boundary fence and retaining wall. This wall and footing would form a barrier to root growth of this tree extending to the east to some extent. As such, the proposed works may not result in any actual incursion to the root zone. In order to avoid any adverse impact on this tree, all excavations for the basement and associated retaining wall within the TPZ should be undertaken in accordance with Section 10.6.
- 9.1.6 A proposed new bench seat is located within the TPZs of T55 & T56 (Chinese Elms). Excavations for the bench seat footings have the potential to result in damage and/or severance to woody roots of these trees. However, provided that the seat is supported by post or pier type footings and these are located outside the SRZs, the proposed works should not result in any adverse impact. In order to avoid any adverse impact on these trees, all excavations for the seat footings within the TPZ should be undertaken in accordance with Section 10.6.
- 9.1.7 A proposed new elevated timber deck is located within the SRZ and TPZ of T1 (Camphor Laurel). The deck is located approximately 500mm to 800mm above the ground level surrounding the tree and will be supported by post footings and timber sub-frame (bearers & joists). Excavations for the deck post footings have the potential to result in damage and/or severance to woody roots of this tree. However, provided that the position of the post footings are relocated on site as required to avoid severance of woody roots, the proposed works should not result in any adverse impact on this tree. In order to avoid any adverse impact on these trees, all excavations for the deck footings within the TPZ should be undertaken in accordance with Section 10.6. Some flexibility will be required in design of sub-frame members to permit greater or lesser spans as may be required to allow for adjustment in post positions. A minimum of 100mm clearance to the trunk to decking boards and minimum of 500mm clearance between any sub-frame member and the trunk/buttress should be maintained to allow for future growth of the tree.
- 9.1.8 A proposed new permeable pavement (creating a new pedestrian path/entry) is located within the TPZ of T1 (Camphor Laurel). The pathway is proposed to be constructed at existing grade using masonry slabs with turfgrass infill (forming stepping stones). This will not result in any adverse

impact on this tree, provided that all excavations for the slab foundations within the TPZ are undertaken in accordance with Section 10.6.

9.1.9 No other trees will be adversely affected by the proposed development.

## 10 RECOMMENDED TREE PROTECTION MEASURES

### 10.1 Tree Protection Plan

10.1.1 The following Tree Protection Measures should be read in accordance with the Tree Protection Plan (**Appendix 6**). The Tree Protection Plan (TPP) indicates the position of tree protection devices and other recommended measures to ensure the protection of trees within the site to be retained as part of the proposed development.

### 10.2 Prohibited Activities

10.2.1 The following activities should be avoided within specified Tree Protection Zones (refer **Appendix 4 & 6** for extent of the TPZ for each tree):-

- Excavations and trenching (with exception of the approved remediation works, underground services, building foundations or pavement sub-grade);
- Soil disturbance, surface grading, compaction, tining, ripping or cultivation of soil;
- Mechanical removal of vegetation, including extraction of tree stumps;
- Soil level changes including the placement of fill material (excluding imported validated fill for remediation works or placement of fill for approved works)
- Movement and storage of plant, equipment & vehicles (except within defined temporary haul roads, where ground protection has been installed, or within the footprint of existing floor slabs or paved areas);
- Erection of site sheds (except where approved by the site arborist);
- Affixing of signage, barricades or hoardings to trees;
- Storage of building materials, waste and waste receptacles;
- Stockpiling of spoil or fill;
- Stockpiling of bulk materials, such as soil, sand, gravel, roadbase or the like;
- Stockpiling of demolition waste;
- Disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and other toxic liquids;
- Other physical damage to the trunk or root system; and
- Any other activity likely to cause damage to the tree.

### 10.3 Tree Removal

10.3.1 The removal of Trees [**T33, T43, T35, T39, T40, T41, T43, T45, T50, T51, T52, T53, T53a and T54**] shall be carried out by an experienced tree surgeon in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). Care shall be taken to avoid damage to other trees during the felling operation.

10.3.2 Stumps located within the TPZs of trees to be retained shall be grubbed-out where required using a mechanical stump grinder (or by hand where less than 150mm in diameter) without damage to the root system of other trees. Where trees to be removed are within the SRZ of any trees to be retained, consideration should be given to cutting the stump close to ground level and retaining the root crown intact. Stumps within the Tree Protection Zone of other trees to be retained shall **not** be pulled out using excavation equipment or similar.

## 10.4 Trunk Protection

- 10.4.1 Trunk Protection shall be erected around the trunks of Trees [T1, T23, T28, T29a, T30 & T31] to avoid accidental damage during construction, as indicated on the Tree Protection Plan (**Appendix 6**). The trunk protection shall consist of a layer of carpet underfelt (or similar) wrapped around the trunk, followed by 1.8 metre lengths of softwood timbers (90 x 45mm in section) aligned vertically and spaced evenly around the trunk at 150mm centres (i.e. with a 50mm gap) and secured together with 2mm galvanised wire or galvanised hoop strap as shown in **Figure 3**. Recycled timber (such as demolition waste) may be suitable for this purpose, subject to the approval of the Project Arborist. The timbers shall be wrapped around the trunk (over the carpet underfelt), but not fixed to the tree to avoid mechanical injury or damage to the trunk. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period. Carpet underfelt (alone) is sufficient for trees with a trunk diameter of less than 200mm. This shall be wrapped in double thickness and held in place (prevented from unravelling) with durable adhesive tape.



**Figure 3 – Detail of Trunk Protection**

## 10.5 Demolition Works within Tree Protection Zones

- 10.5.1 Demolition of paved areas within the Tree Protection Zones of trees to be retained shall be undertaken under the supervision of the Site Arborist. The pavement surface and sub-base within the TPZ shall be gradually removed in layers of no greater than 50mm thick using a small rubber tracked excavator or alternative approved method to avoid damage to underlying roots and minimise disturbance and compaction of the underlying soil profile. The machine shall work within the footprint of the existing paved surfaces to avoid compaction of the underlying soil. The final layer of sub-base material shall be removed using hand tools were required to avoid compaction of the underlying soil profile and damage to woody roots.
- 10.5.2 Following removal of the pavement surface and sub-base, clean, friable topsoil shall be used to fill in the excavated area and bring flush with surrounding levels within new landscape areas. Soil shall only be imported and spread when the underlying soil conditions are dry to avoid compaction of the soil profile. Where there is insufficient recovered site topsoil for this purpose, any imported material shall be free of rocks, vegetation, heavy clay or other extraneous matter. Any imported soil material should be similar in texture to the existing site topsoil.

- 10.5.3 Demolition of existing walls, kerbs and other structures within the Tree Protection Zone of trees to be retained shall be undertaken under the supervision of the Site Arborist. The structures shall be demolished using equipment on stationed outside the TPZ where possible or within the footprint of existing hardstand areas. Care shall be taken to avoid the root systems, trunks and lower branches of trees in the vicinity of the structures during demolition works, with special attention required during demolition of the footings and other sub-surface members to avoid damage to woody roots.

## 10.6 Excavations within Tree Protection Zones

- 10.6.1 Prior to any mechanical excavations for building foundations, footings or pavement sub-grade within the TPZs of [T1 & T31], exploratory excavation using non-destructive techniques shall be taken along the perimeter of the structure or pavement within the TPZ. Non-destructive excavation techniques may include the use of hand-held implements, air pressure (using an Air-spade® device) or water pressure. The exploratory excavation shall be undertaken along the perimeter of the foundation or pavement (within the TPZ) to the depth of the foundation or to a maximum of 800mm from surface levels, to locate and expose any woody roots prior to any mechanical excavation. All care shall be undertaken to preserve woody roots intact and undamaged during exploratory excavation. Any roots encountered of less than 50mm in diameter may be cleanly severed with clean sharp pruning implements at the face of the excavation. The root zone in the vicinity of the excavation shall be kept moist following excavation for the duration of construction to minimise moisture stress on the tree.
- 10.6.2 Where large woody roots (greater than 50mm diameter) are encountered during exploratory excavations, further advice from a qualified arborist shall be sought prior to severance. Where necessary, (to avoid severing large woody roots) consideration should be given to the installation of an elevated structure (e.g. pier and beam footing, suspended slab or floor supported on piers, cantilevered slab, up-turned edge beam etc) in preference to structures requiring a deep edge beam or continuous perimeter strip footing. The beam section of any pier and beam footing should be placed **above** grade to avoid excavation within the SRZ. Pier footings intersecting large woody roots should be slightly offset where necessary to avoid root severance.
- 10.6.3 For masonry walls or fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (eg steel or timber pickets, lattice etc) fixed to pillars. For paved areas, consideration should be given to raising the proposed pavement level and using a porous fill material in preference to excavation where large woody roots are found within the sub-base.

## 10.7 Underground Services

- 10.7.1 All proposed stormwater lines and other underground services should be located outside TPZs of trees proposed to be retained wherever possible or installed by alternative measures. Alternative measures include suspending pipelines beneath the floor of a building or structure (to avoid excavation with the TPZ), non-destructive excavation methods or Horizontal Directional Drilling (HDD). Where the installation of service lines within TPZs is unavoidable, the pipelines or conduits should be installed as follows.
- 10.7.2 Where the extent of the incursion to the root zone is less than 10% of the TPZ including any excavations for benching and shoring the trench, the pipeline or conduit may be installed by open trenching using standard construction methods (excavator or trenching machine). 10% of the TPZ is equivalent to one-third of the TPZ radius on one side (refer to **Appendix 2**). Refer to **Appendix 4** for radial distances of TPZs for each tree.
- 10.7.3 Where the extent of the incursion to the root zone exceeds 10% of the TPZ, but is outside the SRZ, non-destructive excavation methods must be adopted in accordance with **Section 10.6**. Where

large woody roots are encountered during excavation or trenching (root diameter greater than 50mm), these shall be retained intact wherever possible (e.g. by tunnelling beneath roots and inserting the pipeline or conduit beneath or re-routing the service etc). Where this is not practical and root pruning is the only alternative, proposed root pruning should be assessed by a qualified arborist [AQF 5] to evaluate the potential impact on the health and stability of the subject tree.

- 10.7.4 Excavations required for underground services within the Structural Root Zone of any tree to be retained should only be undertaken by sub-surface boring (Horizontal Directional Drilling). The Invert Level of the pipe, plus the pipe diameter, must be lower than the estimated root zone depth as specified. At this site a minimum depth of 1 metre to the invert level of the pipe is specified.

## **10.8 Pavements**

- 10.8.1 Proposed paved areas within the TPZ of [T1] should be placed at or slightly above grade where possible to minimise excavations within the root zone and avoid severance and damage of woody roots. The pavement sub-base material should be supplied and installed in accordance with **Section 10.8**.

## **10.9 Pavement Sub-base**

- 10.9.1 Pavement sub-base material within TPZs of trees to be retained shall be a coarse, gap-graded material such as 20 – 50mm crushed basalt (Blue Metal) or equivalent no-fines gravel material to provide some aeration and moisture permeation to the root zone. Note that road base or crushed sandstone or other similar material containing a high percentage of fines is unacceptable for this purpose. The fill material should be consolidated using a non-vibrating roller or similar to minimise compaction of the underlying soil. A permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade and provide greater load capacity.

## **10.10 Placement of Fill Material**

- 10.10.1 Placement of fill material within the Tree Protection Zone (TPZ) of trees to be retained should be avoided wherever possible. Where placement of fill is unavoidable, the material shall be a well-drained friable material, equivalent in texture to the existing site topsoil material. The fill should be free from rocks, vegetation and other extraneous material complying with AS 4419:2003 (*Soils for Landscaping and Garden Use*).
- 10.10.2 The fill may be lightly consolidated, but shall not be compacted to engineering standards. No fill material should be placed in direct contact with the trunk.
- 10.10.3 Plant and equipment used to place and spread fill material should be stationed outside the TPZ where possible. Where not possible, suitable ground protection should be installed in accordance with **Section 10.13** to avoid compaction of the underlying soil profile and root zone.

## **10.11 Canopy & Root Pruning**

- 10.11.1 All canopy pruning work required shall be carried out in accordance with Australian Standard 4373-2007 – Pruning of Amenity Trees. Written approval from Council may be required under the Tree Preservation Order prior to undertaking this work. All pruning work shall be carried out by a qualified and experienced arborist or tree surgeon [Australian Qualification Framework Level 3] in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998). No branches of greater than 100mm in diameter should be removed or pruned without further advice from a Consulting Arborist [Australian Qualification Framework Level 5].

- 10.11.2 Where root pruning is required, roots shall be severed with clean, sharp pruning implements and retained in a moist condition during the construction phase using Hessian material or mulch where practical. Severed roots shall be treated with a suitable root growth hormone containing the active constituents Indol-3-yl-Butric Acid (IBA) and 1-Naphthylacetic Acid (NAA) to stimulate rapid regeneration of the root system.

### 10.12 Tree Damage

- 10.12.1 Care shall be taken when operating cranes, drilling rigs and similar equipment near trees to avoid damage to tree canopies (foliage and branches). Under no circumstances shall branches be torn-off by construction equipment. Where there is potential conflict between tree canopy and construction activities, the advice of the Site Arborist must be sought.
- 10.12.2 In the event of any tree becoming damaged for any reason during the construction period a consulting arborist [Australian Qualification Framework Level 5] shall be engaged to inspect and provide advice on any remedial action to minimise any adverse impact. Such remedial action shall be implemented as soon as practicable and certified by the arborist.

### 10.13 Ground Protection

- 10.13.1 A 100mm layer of woodchip mulch or washed river sand shall be installed within designated areas of the Tree Protection Zone of nominated trees as indicated on the Tree Protection Plan (Appendix 6) to minimise compaction of the underlying soil profile during construction activity and haulage. A Geotextile fabric, such as Geotex® 'ST' Series manufactured by Synthetic Industries or an equivalent product, shall be installed beneath the mulch/sand layer to minimise compaction to the underlying soil profile and limit migration of mulch into the underlying soil profile. Mulch/sand shall be installed and spread by hand to avoid soil disturbance and compaction within the root zone.
- 10.13.2 To minimise displacement of woodchip/sand in highly trafficked areas, 20mm thick marine ply sheets, truck mats (such as Envirex Versadeck® access mats) or rumble boards should be placed over the top of the woodchip/sand. Rumble boards can be constructed with timber sleepers or similar spaced with no more than 200mm gaps between boards and held together with galvanised hoop strap or similar (refer **Figure 3**).

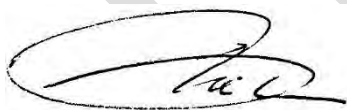


**Figure 3** – Showing typical detail for rumble boards.

- 10.13.3 Ground protection shall be installed prior to any site works and maintained in good condition for the duration of the construction period. On completion of the works, ground protection shall be removed without damage or disturbance to the underlying soil profile.

## 11 REPLACEMENT PLANTING

- 11.1.1 In order to compensate for loss of amenity resulting from the removal of any of the subject trees to accommodate the proposed development, an minimum number of five (5) new trees capable of attaining a height of at least ten (10) metres at maturity should be planted within the site.
- 11.1.2 The selected species for replacement planting should be sympathetic to the historical development the site. As the landscape development has occurred over a long period of time, species used typically within the Victorian, Federation of Inter-War periods would be acceptable.
- 11.1.3 The following species are appropriate to the site conditions and could be considered for replacement planting:-
- *Ficus rubiginosa* (Port Jackson Fig)
  - *Syzygium paniculatum* (Magenta Cherry)
  - *Syncarpia glomulifera* (Turpentine)
  - *Washingtonia filifera* (Cotton Palm)
  - *Afrocarpus falcatus* (Outeniqua Yellowwood)
  - *Magnolia grandiflora* (Bullbay Magnolia)
  - *Brachychiton discolor* (Queensland Lacebark)
  - *Arbutus unedo* (Irish Strawberry Tree)
  - *Acmena smithii* (Lillypilly)
  - *Stenocarpus sinuatus* (Queensland Firewheel)
  - *Waterhousea floribunda* (Weeping Lillypilly)
  - *Backhousea citriodora* (Lemon-scented Myrtle)
  - *Lophostemon confertus* (Brushbox)
  - *Liriodendron tulipifera* (Tulip Tree)
  - *Cryptocarya obovata* (Pepperberry Tree)



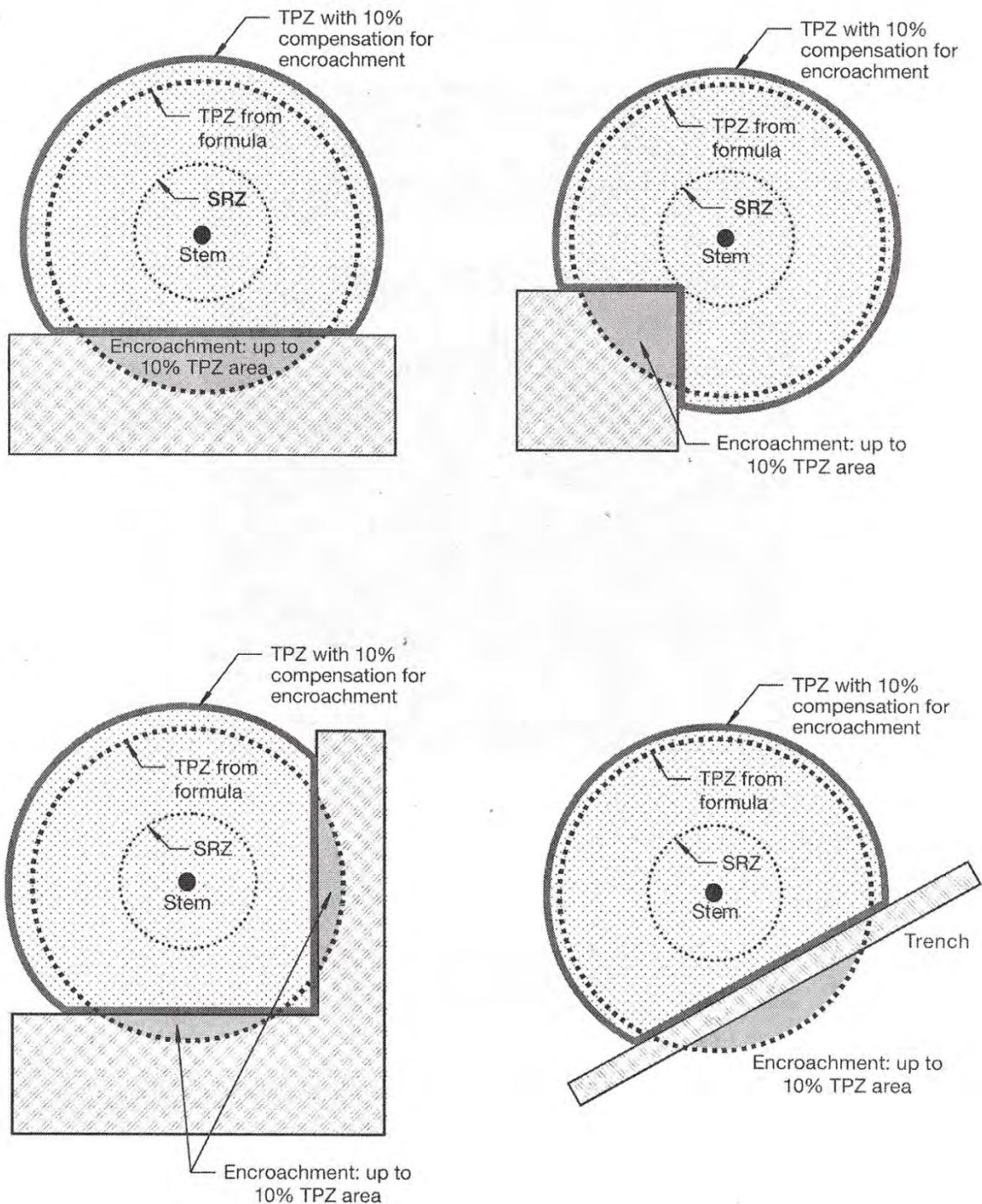
**Andrew Morton**  
EARTHSCAPE HORTICULTURAL SERVICES  
17<sup>th</sup> May 2018

## APPENDIX 1 - CRITERIA FOR ASSESSMENT OF LANDSCAPE SIGNIFICANCE

| RATING                      | HERITAGE VALUE                                                                                                                                                                                                                                                    | ECOLOGICAL VALUE                                                                                                                                                                                                                                | AMENITY VALUE                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.<br/>SIGNIFICANT</b>   | The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register                                                                    | The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999                                                | The subject tree has a very large live crown size exceeding 300m <sup>2</sup> with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species                                                                                                                                                                                                               |
|                             | The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item                                                                                 | The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species                                           | The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity                                                                                                                                                                                                                                                                                         |
|                             | The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event                                                                                                            | The subject tree is a Remnant Tree, being a tree in existence prior to development of the area                                                                                                                                                  | The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.                                                                                                                                                                                                                                                                                                                               |
| <b>2.<br/>VERY HIGH</b>     | The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site. | The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site. | The subject tree has a very large live crown size exceeding 200m <sup>2</sup> ; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area                                                                                                              |
| <b>3.<br/>HIGH</b>          | The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence                                                                                                                                       | The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value                             | The subject tree has a large live crown size exceeding 100m <sup>2</sup> ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area |
| <b>4.<br/>MODERATE</b>      | The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.                                                                                             | The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.                                                                                                                                    | The subject tree has a medium live crown size exceeding 40m <sup>2</sup> ; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and                                                                                                                                                                             |
|                             |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                 | The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.                                                                                                                                                                                                                |
| <b>5.<br/>LOW</b>           | The subject tree detracts from heritage values or diminishes the value of a heritage item                                                                                                                                                                         | The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.                                                                    | The subject tree has a small live crown size of less than 40m <sup>2</sup> and can be replaced within the short term (5-10 years) with new tree planting                                                                                                                                                                                                                                                                                               |
| <b>6.<br/>VERY LOW</b>      | The subject tree is causing significant damage to a heritage Item.                                                                                                                                                                                                | The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.                                                                                                | The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).                                                                             |
| <b>7.<br/>INSIGNIFICANT</b> | The tree is completely dead and has no visible habitat value                                                                                                                                                                                                      | The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.                                                                                                                           | The tree is completely dead and represents a potential hazard.                                                                                                                                                                                                                                                                                                                                                                                         |

Ref:- Morton, A (2006) **Determining the Retention Value of Trees on Development Sites**TreeNet - Proceedings of the 7<sup>th</sup> National Street Tree Symposium 2006 Government of South Australia Department for Transport, Energy and Infrastructure

## APPENDIX 2 – ACCEPTABLE INCURSIONS TO THE TREE PROTECTION ZONE (TPZ)



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

REF:- Council of Standards Australia (August 2009)  
**AS 4970 – 2009 – Protection of Trees on Development Sites**  
 Standards Australia, Sydney

## REFERENCES:-

<sup>1</sup> GA Chapman & CL Murphy (1989)

**Soil Landscapes of the Sydney 1:100,000 Sheet**

Soil Conservation Service of NSW. Sydney

<sup>2</sup> Benson, Doug & Howell, Jocelyn (1990)

**Taken for Granted: the Bushland of Sydney and its Suburbs.**

Kangaroo Press & The Royal Botanic Gardens, Sydney, NSW

<sup>3</sup> Mattheck, Dr. Claus & Breloer, Helge (1994) – Sixth Edition (2001)

**The Body Language of Trees – A Handbook for Failure Analysis**

The Stationery Office, London, England

<sup>4</sup> Barrell, Jeremy (1996)

**Pre-development Tree Assessment**

Proceedings of the International Conference on Trees and Building Sites (Chicago)

International Society of arboriculture, Illinois, USA

<sup>5</sup> NSW Heritage Office (May 2009)

**Former Blackfriars Public School and Headmaster Residence**

NSW Office of Environment and Heritage

<http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2420537>

<sup>6</sup> Ruting, Noel (November 2005)

**Register of Significant Trees – Part 3 of 4;** Significant Trees on land under the care control and management of Other Government Authorities, Institutional, Religious and Non-Government Organisations (City of Sydney)

Landarc Pty Ltd & the Council of the City of Sydney, Sydney NSW

<sup>7</sup> Council of Standards Australia (August 2009)

**AS 4970 – 2009 – Protection of Trees on Development Sites**

Standards Australia, Sydney

### APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                              | Height (m) | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m <sup>2</sup> ) | Maturity Class | Condition                                                                                                                                                                                                                                                | Previous Pruning                      | Health    |                                                        | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location     |
|-------------------------|------------------------------------------------------|------------|------------|-----------------------------------|-----------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------|--------------------------------------------------------|----------------------------------------------|-------------------------------|-----------------|--------------|
|                         |                                                      |            |            |                                   |                                   |                |                                                                                                                                                                                                                                                          |                                       | Vigour    | Pest & Disease                                         |                                              |                               |                 |              |
| 1                       | <i>Cinnamomum camphora</i> (Camphor Laurel)          | 15         | 20         | 990                               | 260                               | M              | Appears stable with sound branching structure. Elkhorn (epiphyte) on trunk at 3 metres (visibility obscured).                                                                                                                                            | Selectively pruned & deadwooded       | Good      | No Evidence                                            | Medium 15-40 Years                           | 2                             | High            | On-site      |
| 9                       | <i>Olea europaea subsp. africana</i> (African Olive) | 6          | 12         | 250 + 270                         | 60                                | M              | Appears stable with fair branching structure. Crown suppressed on the west side due to overshadowing.                                                                                                                                                    | Crown lifted to 2 metres              | Good      | No Evidence                                            | Short 5-15 Years                             | 6                             | Very Low        | On-site      |
| 10                      | <i>Olea europaea subsp. africana</i> (African Olive) | 7          | 10         | 300 + 250 + 140                   | 50                                | M              | Appears stable with fair branching structure. Crown suppressed on the north side due to overshadowing. High bark inclusion at GL.                                                                                                                        | Crown lifted to 2 metres              | Good      | No Evidence                                            | Medium 15-40 Years                           | 6                             | Low             | On-site      |
| 11                      | <i>Olea europaea subsp. africana</i> (African Olive) | 12         | 9          | 369                               | 72                                | M              | Appears stable with sound branching structure. Crown suppressed on the east side due to crowding. Prominent lean to the north-west.                                                                                                                      | Crown lifted to 4 metres              | Good      | No Evidence                                            | Medium 15-40 Years                           | 6                             | Low             | On-site      |
| 12                      | <i>Flindersia sp. [schottiana]</i> (Cudgerie)        | 17         | 9          | 366                               | 99                                | M              | Appears stable with sound branching structure.                                                                                                                                                                                                           | No Evidence                           | Good      | No Evidence                                            | Long - more than 40 years                    | 3                             | High            | On-site      |
| 18                      | <i>Lophostemon confertus</i> (Brushbox)              | 15         | 10         | 522                               | 70                                | M              | Appears stable with fair branching structure. Crown suppressed on the east side due to crowding. Very prominent lean to the south. Crown suppressed on the north side due to crowding. Exhibits multiple axial splits in upper trunks (moisture stress). | No Evidence                           | Good      | No Evidence                                            | Medium 15-40 Years                           | 3                             | Moderate        | Nature strip |
| 19                      | <i>Fraxinus graffithii</i> (Evergreen Ash)           | 2.5        | 2          | 60                                | 1                                 | I              | Appears stable with sound branching structure.                                                                                                                                                                                                           | No Evidence                           | Very Good | No Evidence                                            | Long - more than 40 years                    | 5                             | Moderate        | On-site      |
| 20                      | <i>Platanus x hybrida</i> (London Plane)             | 20         | 18         | 678                               | 288                               | M              | Appears stable with sound branching structure.                                                                                                                                                                                                           | Crown lifted to 5 metres. Deadwooded. | Good      | Moderate foliar insect infestation (Sycamore Lace Bug) | Long - more than 40 years                    | 2                             | High            | Nature strip |
| 21                      | <i>Platanus x hybrida</i> (London Plane)             | 16         | 15         | 529                               | 195                               | M              | Stability suspect with sound branching structure. Very prominent lean to the south-west.                                                                                                                                                                 | Crown lifted to 3 metres. Deadwooded. | Good      | Moderate foliar insect infestation (Sycamore Lace Bug) | Medium 15-40 Years                           | 2                             | High            | Nature strip |

### APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                       | Height (m) | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m <sup>2</sup> ) | Maturity Class | Condition                                                                                                                                                                                                                                                   | Previous Pruning                                                                        | Health                            |                        | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location     |
|-------------------------|-----------------------------------------------|------------|------------|-----------------------------------|-----------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------|------------------------|----------------------------------------------|-------------------------------|-----------------|--------------|
|                         |                                               |            |            |                                   |                                   |                |                                                                                                                                                                                                                                                             |                                                                                         | Vigour                            | Pest & Disease         |                                              |                               |                 |              |
| 22                      | <i>Lophostemon confertus</i> (Brushbox)       | 15         | 10         | 497                               | 80                                | M              | Appears stable with sound branching structure. Exhibits prominent lean to the north.                                                                                                                                                                        | Crown lifted to 3 metres. Deadwooded. Selectively pruned to clear building (north side) | Good                              | No Evidence            | Long - more than 40 years                    | 3                             | High            | Nature strip |
| 23                      | <i>Lophostemon confertus</i> (Brushbox)       | 11         | 9          | 401                               | 63                                | M              | Appears stable with sound branching structure. Exhibits prominent lean to the north.                                                                                                                                                                        | Crown lifted to 3 metres. Deadwooded.                                                   | Very Good                         | No Evidence            | Medium 15-40 Years                           | 3                             | Moderate        | Nature strip |
| 23a                     | <i>Tristaniopsis laurina</i> (Water Gum)      | 5          | 4          | 140                               | 12                                | I              | Appears stable with sound branching structure. Exhibits a prominent lean to the west (self-corrected).                                                                                                                                                      | Crown lifted to 2 metres                                                                | Good                              | No Evidence            | Long - more than 40 years                    | 5                             | Moderate        | Nature strip |
| 24a                     | <i>Tristaniopsis laurina</i> (Water Gum)      | 5          | 3          | 118                               | 9                                 | I              | Appears stable with sound branching structure.                                                                                                                                                                                                              | Crown lifted to 2 metres                                                                | Good                              | No Evidence            | Long - more than 40 years                    | 5                             | Moderate        | Nature strip |
| 26                      | <i>Tristaniopsis laurina</i> (Water Gum)      | 5          | 3.5        | 134                               | 7                                 | SM             | Appears stable with fair branching structure. Exhibits multiple small wounds due borer & previous pruning. Prominent lean to the south-west. Crown suppressed on the north-east side due crowding. Minor dieback with 5% deadwood and 20% epicormic growth. | Crown lifted to 3 metres. Deadwooded.                                                   | Fair with slightly thinning crown | High borer infestation | Short 5-15 Years                             | 5                             | Low             | Nature strip |
| 27                      | <i>Lophostemon confertus</i> (Brushbox)       | 18         | 12         | 541                               | 180                               | M              | Appears stable with fair branching structure. Crown suppressed on the east side due to building & previous pruning.                                                                                                                                         | Previously lopped at 3.4 metres to clear overhead powerlines (ABCs) (crown restored)    | Very Good                         | No Evidence            | Long - more than 40 years                    | 3                             | High            | Nature strip |
| 28                      | <i>Tristaniopsis laurina</i> (Water Gum)      | 5          | 4          | 162                               | 12                                | SM             | Appears stable with sound branching structure.                                                                                                                                                                                                              | Crown lifted to 2 metres. Selectively pruned to clear powerlines.                       | Very Good                         | No Evidence            | Long - more than 40 years                    | 4                             | Moderate        | Nature strip |
| 29a                     | <i>Pistacia chinensis</i> (Chinese Pistachio) | 5          | 4          | 70                                | 16                                | I              | Appears stable with fair branching structure. Exhibits a prominent lean to the east. Upper crown suppressed due to overshadowing.                                                                                                                           | Crown lifted to 2 metres.                                                               | Good                              | No Evidence            | Medium 15-40 Years                           | 5                             | Low             | Nature strip |

### APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                                 | Height (m) | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m <sup>2</sup> ) | Maturity Class | Condition                                                                                                                                                                                                   | Previous Pruning                                                                                                 | Health    |                | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location     |
|-------------------------|---------------------------------------------------------|------------|------------|-----------------------------------|-----------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------|----------------|----------------------------------------------|-------------------------------|-----------------|--------------|
|                         |                                                         |            |            |                                   |                                   |                |                                                                                                                                                                                                             |                                                                                                                  | Vigour    | Pest & Disease |                                              |                               |                 |              |
| 30                      | <i>Tristaniopsis laurina</i> (Water Gum)                | 5          | 6          | 115 + 130                         | 18                                | SM             | Appears stable with fair branching structure. Crown suppressed on the east side due to overshadowing.                                                                                                       | Crown lifted to 2 metres.                                                                                        | Good      | No Evidence    | Medium 15-40 Years                           | 5                             | Low             | Nature strip |
| 31                      | <i>Lophostemon confertus</i> (Brushbox)                 | 12         | 10         | 420                               | 80                                | M              | Appears stable with fair branching structure. Crown suppressed on east side due to overshadowing.                                                                                                           | Previously lopped at 4 metres (crown restored). Selectively pruned & deadwooded.                                 | Good      | No Evidence    | Medium 15-40 Years                           | 3                             | Moderate        | Nature strip |
| 32                      | <i>Leptospermum petersonii</i> (Lemon-scented Tea Tree) | 3          | 1.5        | 50                                | 4.5                               | I              | Appears stable with fair branching structure.                                                                                                                                                               | Selectively pruned                                                                                               | Good      | No Evidence    | Short 5-15 Years                             | 5                             | Low             | Nature strip |
| 32a                     | <i>Liriodendron tulipifera</i> (Tulip Tree)             | 5          | 4          | 83                                | 12                                | I              | Appears stable with sound branching structure. Prominent lean to the east (self-corrected). Upper crown suppressed due to overshadowing.                                                                    | Crown lifted to 2 metres.                                                                                        | Good      | No Evidence    | Short 5-15 Years                             | 5                             | Low             | Nature strip |
| 33                      | <i>Jacaranda mimosifolia</i> (Jacaranda)                | 15         | 16         | 745                               | 192                               | M              | Appears stable with sound branching structure. Exhibits a very prominent lean to the south-east (self-corrected). Basal epicormic sprout.                                                                   | Deadwooded                                                                                                       | Very Good | No Evidence    | Long - more than 40 years                    | 3                             | High            | On-site      |
| 34                      | <i>Cinnamomum camphora</i> (Camphor Laurel)             | 13         | 16         | 520 + 650                         | 176                               | M              | Appears stable with fair branching structure. Exhibits a moderate partly occluded wound and cavity/decay at 1.8 metres in former PL branch collar. Moderate bark inclusion at 1.5 metres at junction of PL. | Selectively pruned (large PL to east). Deadwooded. May have been previously lopped at 5 metres (crown restored). | Good      | No Evidence    | Long - more than 40 years                    | 3                             | High            | On-site      |
| 35                      | <i>Casuarina cunninghamiana</i> (River Oak)             | 18         | 18         | 768                               | 270                               | M              | Appears stable with sound branching structure. Exhibits extended lateral PLs. Located close to existing boundary fence and retaining wall. Root zone covered with synthetic turf.                           | Deadwooded                                                                                                       | Good      | No Evidence    | Long - more than 40 years                    | 3                             | High            | On-site      |
| 38                      | <i>Olea europaea subsp. africana</i> (African Olive)    | 11         | 9          | 350x2                             | 90                                | M              | Appears stable with sound branching structure. Exhibits a prominent lean to the west. Crown suppressed on the north and east sides due to building.                                                         | Crown lifted to 3 metres. Deadwooded. Selectively pruned.                                                        | Good      | No Evidence    | Medium 15-40 Years                           | 6                             | Low             | On-site      |

|                         |                                               | APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE |            |                                   |                      |                |                                                                                                                                                                                               |                                                |           |                                          |                                              |                               |                 |          |
|-------------------------|-----------------------------------------------|------------------------------------------------------------|------------|-----------------------------------|----------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------|------------------------------------------|----------------------------------------------|-------------------------------|-----------------|----------|
| Tree Identification No. | Species                                       | Height (m)                                                 | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m²) | Maturity Class | Condition                                                                                                                                                                                     | Previous Pruning                               | Health    |                                          | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location |
|                         |                                               |                                                            |            |                                   |                      |                |                                                                                                                                                                                               |                                                | Vigour    | Pest & Disease                           |                                              |                               |                 |          |
| 39                      | <i>Jacaranda mimosifolia</i> (Jacaranda)      | 6                                                          | 7          | 172                               | 35                   | I              | Appears stable with sound branching structure.                                                                                                                                                | Crown lifted to 2 metres                       | Good      | No Evidence                              | Short 5-15 Years                             | 5                             | Low             | On-site  |
| 40                      | <i>Jacaranda mimosifolia</i> (Jacaranda)      | 7                                                          | 8          | 135 + 120                         | 48                   | I              | Appears stable with fair branching structure. Exhibits a high bark inclusion at GL. Upper crown suppressed due to overshadowing with poor form and habit.                                     | Selectively pruned                             | Good      | No Evidence                              | Short 5-15 Years                             | 5                             | Low             | On-site  |
| 41                      | <i>Casuarina glauca</i> (Swamp Oak)           | 13                                                         | 4          | 232                               | 44                   | SM             | Appears stable with sound branching structure. Located within small garden area surrounded by softfall.                                                                                       | Crown lifted to 2 metres.                      | Very Good | No Evidence                              | Medium 15-40 Years                           | 4                             | Moderate        | On-site  |
| 43                      | <i>Sapium sebiferum</i> (Chinese Tallow tree) | 7                                                          | 9          | 350 + 220                         | 49.5                 | M              | Appears stable with sound branching structure.                                                                                                                                                | Selectively pruned & deadwooded                | Good      | Severe foliar insect infestation (scale) | Medium 15-40 Years                           | 4                             | Moderate        | On-site  |
| 45                      | <i>Sapium sebiferum</i> (Chinese Tallow tree) | 11                                                         | 13         | 433                               | 130                  | M              | Appears stable with sound branching structure.                                                                                                                                                | Selectively pruned & deadwooded                | Very Good | No Evidence                              | Long - more than 40 years                    | 3                             | High            | On-site  |
| 50                      | <i>Lophostemon confertus</i> (Brushbox)       | 13                                                         | 11         | 478                               | 99                   | M              | Appears stable with fair branching structure. Exhibits multiple co-dominant PLs at 3 metres.                                                                                                  | Deadwooded                                     | Good      | No Evidence                              | Long - more than 40 years                    | 3                             | High            | On-site  |
| 51                      | <i>Lophostemon confertus</i> (Brushbox)       | 14                                                         | 9          | 411                               | 99                   | M              | Appears stable with sound branching structure. Crown suppressed on the east side due crowding. Prominent lean to the west.                                                                    | No Evidence                                    | Good      | No Evidence                              | Long - more than 40 years                    | 4                             | Moderate        | On-site  |
| 52                      | <i>Casuarina cunninghamiana</i> (River Oak)   | 16                                                         | 8          | 433                               | 96                   | M              | Appears stable with sound branching structure.                                                                                                                                                | Crown lifted to 4 metres                       | Good      | No Evidence                              | Long - more than 40 years                    | 4                             | Moderate        | On-site  |
| 53                      | <i>Morus nigra</i> (Mulberry tree)            | 9                                                          | 10         | 350                               | 70                   | M              | Appears stable with sound branching structure. Crown suppressed on the north side due building and previous pruning. Prominent lean to the south. Moderate wound at 2 metres due branch loss. | Previously lopped at 2 metres (crown restored) | Good      | No Evidence                              | Medium 15-40 Years                           | 6                             | Low             | On-site  |
| 53a                     | <i>Acacia saligna</i> (Golden Wreath Wattle)  | 5                                                          | 5          | 150                               | 15                   | SM             | Stability suspect with poor branching structure. Crown suppressed on the east side due overshadowing with poor form and habit. Very prominent lean to the west.                               | Crown lifted to 2 metres. Deadwooded.          | Good      | No Evidence                              | Transient (less than 5 years)                | 5                             | Very Low        | On-site  |

### APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                              | Height (m) | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m²) | Maturity Class | Condition                                                                               | Previous Pruning           | Health    |                | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location |
|-------------------------|------------------------------------------------------|------------|------------|-----------------------------------|----------------------|----------------|-----------------------------------------------------------------------------------------|----------------------------|-----------|----------------|----------------------------------------------|-------------------------------|-----------------|----------|
|                         |                                                      |            |            |                                   |                      |                |                                                                                         |                            | Vigour    | Pest & Disease |                                              |                               |                 |          |
| 54                      | <i>Olea europaea subsp. africana</i> (African Olive) | 6          | 10         | 300                               | 50                   | M              | Appears stable with sound branching structure. Located very close to existing building. | No Evidence                | Good      | No Evidence    | Medium 15-40 Years                           | 6                             | Very Low        | On-site  |
| 55                      | <i>Ulmus parvifolia</i> (Chinese Elm)                | 5.5        | 3          | 105                               | 12                   | I              | Appears stable with sound branching structure.                                          | No Evidence                | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 56                      | <i>Ulmus parvifolia</i> (Chinese Elm)                | 5          | 3          | 102                               | 10.5                 | I              | Appears stable with sound branching structure.                                          | No Evidence                | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 57                      | <i>Sapium sebiferum</i> (Chinese Tallow tree)        | 3.5        | 2          | 60                                | 4                    | I              | Appears stable with sound branching structure.                                          | Crown lifted to 1.5 metres | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 58                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum)   | 3.5        | 2.5        | 80                                | 6.25                 | I              | Appears stable with sound branching structure.                                          | Crown lifted to 1.0 metres | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 59                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum)   | 3.5        | 2          | 80                                | 5                    | I              | Appears stable with sound branching structure.                                          | Crown lifted to 1.0 metres | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 60                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum)   | 3          | 2          | 80                                | 4                    | I              | Appears stable with sound branching structure.                                          | Crown lifted to 1.0 metres | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 61                      | <i>Backhousia citriodora</i> (Lemon-scented Gum)     | 1.5        | 0.5        | 15                                | 0.75                 | I              | Appears stable with sound branching structure. Located close to existing building       | No Evidence                | Very Good | No Evidence    | Short 5-15 Years                             | 5                             | Low             | On-site  |
| 62                      | <i>Backhousia citriodora</i> (Lemon-scented Gum)     | 1          | 0.5        | 15                                | 0.5                  | I              | Appears stable with sound branching structure.                                          | No Evidence                | Very Good | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 63                      | <i>Backhousia citriodora</i> (Lemon-scented Gum)     | 1          | 0.5        | 15                                | 0.5                  | I              | Appears stable with sound branching structure.                                          | No Evidence                | Very Good | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 64                      | <i>Citrus x tangelo</i> 'Seminole' (Tangelo)         | 1          | 0.5        | 20                                | 0.5                  | I              | Appears stable with sound branching structure.                                          | No Evidence                | Good      | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |

|                         |                                                    | APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE |            |                                   |                      |                |                                                |                            |                                   |                |                                              |                               |                 |          |
|-------------------------|----------------------------------------------------|------------------------------------------------------------|------------|-----------------------------------|----------------------|----------------|------------------------------------------------|----------------------------|-----------------------------------|----------------|----------------------------------------------|-------------------------------|-----------------|----------|
| Tree Identification No. | Species                                            | Height (m)                                                 | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m²) | Maturity Class | Condition                                      | Previous Pruning           | Health                            |                | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location |
|                         |                                                    |                                                            |            |                                   |                      |                |                                                |                            | Vigour                            | Pest & Disease |                                              |                               |                 |          |
| 65                      | <i>Citrus x tangelo</i> 'Seminole' (Tangelo)       | 1                                                          | 0.5        | 20                                | 0.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 66                      | <i>Citrus x tangelo</i> 'Seminole' (Tangelo)       | 1                                                          | 0.5        | 20                                | 0.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 67                      | <i>Citrus x tangelo</i> 'Seminole' (Tangelo)       | 1                                                          | 0.5        | 20                                | 0.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 68                      | <i>Backhousia citriodora</i> (Lemon-scented Gum)   | 1.5                                                        | 1          | 15                                | 1.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 69                      | <i>Backhousia citriodora</i> (Lemon-scented Gum)   | 2                                                          | 1          | 20                                | 2                    | I              | Appears stable with sound branching structure. | No Evidence                | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 70                      | <i>Sapium sebiferum</i> (Chinese Tallow tree)      | 5                                                          | 3          | 80                                | 9                    | I              | Appears stable with sound branching structure. | Crown lifted to 1.2 metres | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 71                      | <i>Lagestromia indica</i> (Crepe Myrtle)           | 2                                                          | 2          | 30                                | 2                    | I              | Appears stable with sound branching structure. | No Evidence                | Fair with slightly thinning crown | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 72                      | <i>Lagestromia indica</i> (Crepe Myrtle)           | 2                                                          | 2          | 30                                | 2                    | I              | Appears stable with sound branching structure. | No Evidence                | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 73                      | <i>Lagestromia indica</i> (Crepe Myrtle)           | 2                                                          | 1.5        | 30                                | 1.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 74                      | <i>Sapium sebiferum</i> (Chinese Tallow tree)      | 4                                                          | 3          | 60                                | 7.5                  | I              | Appears stable with sound branching structure. | No Evidence                | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 75                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum) | 4                                                          | 3          | 90                                | 12                   | I              | Appears stable with sound branching structure. | No Evidence                | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |

### APPENDIX 3 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                            | Height (m) | Spread (m) | Trunk Diameter (mm) at 1.4 metres | Live Crown Size (m²) | Maturity Class | Condition                                      | Previous Pruning           | Health                            |                | Remaining Safe Useful Life Expectancy (SULE) | Landscape Significance Rating | Retention Value | Location |
|-------------------------|----------------------------------------------------|------------|------------|-----------------------------------|----------------------|----------------|------------------------------------------------|----------------------------|-----------------------------------|----------------|----------------------------------------------|-------------------------------|-----------------|----------|
|                         |                                                    |            |            |                                   |                      |                |                                                |                            | Vigour                            | Pest & Disease |                                              |                               |                 |          |
| 76                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum) | 4          | 3          | 90                                | 12                   | I              | Appears stable with sound branching structure. | Crown lifted to 1.0 metres | Good                              | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 77                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum) | 4          | 3          | 90                                | 12                   | I              | Appears stable with sound branching structure. | Crown lifted to 1.0 metres | Very Good                         | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |
| 78                      | <i>Tristaniopsis laurina</i> 'Lucious' (Water Gum) | 4          | 3          | 90                                | 12                   | I              | Appears stable with sound branching structure. | Crown lifted to 1.0 metres | Fair with slightly thinning crown | No Evidence    | Long - more than 40 years                    | 5                             | Moderate        | On-site  |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                              | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy                                                                                                                                                                                                                                                                                                                                   | Likely Impact                                                                                                             | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|------------------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                       | <i>Cinnamomum camphora</i> (Camphor Laurel)          | M                      | 11.9                       | 3.6                        | 443.6                 | Proposed timber deck and stairs surrounding trunk (2 to 6 metres on all sides) at RL 10.00 (0.5 to 1.0 metre above grade). Excavations for pier/post footings within SRZ. Proposed permeable pavement (stepping 'slabs' with grass infill) offset 4 metres south and 6 metres east at RL 9.00 (close to existing grade). Excavations for slab foundations within TPZ. | No adverse impact, provided that all excavation for the deck post footings and paving slabs is undertaken as recommended. | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for deck post footings within TPZ in accordance with Section 10.6. Adjust post positions as required to avoid severance of woody roots (some flexibility required in design of sub-frame members), Maintain a minimum of 100mm clearance to the trunk to decking boards and minimum of 500mm clearance between any sub-frame member and the trunk/butress. |
| 9                       | <i>Olea europaea subsp. africana</i> (African Olive) | M                      | 6.0                        | 2.2                        | 113.0                 | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC). Soft landscape treatment (new shrub & ground cover planting only).                                                                                                                                                                          | No adverse impact.                                                                                                        | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed new planting within TPZ in accordance with Section 10.6. Avoid placement of plants with container size of 10 Litre or greater within SRZ.                                                                                                                                                                                                     |
| 10                      | <i>Olea europaea subsp. africana</i> (African Olive) | M                      | 5.4                        | 2.4                        | 91.6                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC). Soft landscape treatment (new shrub & ground cover planting only).                                                                                                                                                                          | No adverse impact.                                                                                                        | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed new planting within TPZ in accordance with Section 10.6. Avoid placement of plants with container size of 10 Litre or greater within SRZ.                                                                                                                                                                                                     |
| 11                      | <i>Olea europaea subsp. africana</i> (African Olive) | M                      | 5.0                        | 2.3                        | 78.5                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC). Soft landscape treatment (new shrub & ground cover planting only).                                                                                                                                                                          | No adverse impact.                                                                                                        | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed new planting within TPZ in accordance with Section 10.6. Avoid placement of plants with container size of 10 Litre or greater within SRZ.                                                                                                                                                                                                     |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                       | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m²) | Incursions To Root Zone &/or Canopy                                                                                                                                                                      | Likely Impact      | Recommendation                                                                                                                                                                                                                                                |
|-------------------------|-----------------------------------------------|------------------------|----------------------------|----------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12                      | <i>Flindersia sp. [schottiana]</i> (Cudgerie) | M                      | 5.5                        | 2.3                        | 95.0     | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC). Soft landscape treatment (new shrub & ground cover planting only).             | No adverse impact. | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed new planting within TPZ in accordance with Section 10.6. Avoid placement of plants with container size of 10 Litre or greater within SRZ. |
| 18                      | <i>Lophostemon confertus</i> (Brushbox)       | M                      | 6.3                        | 2.6                        | 123.3    | No proposed works within TPZ.                                                                                                                                                                            | No adverse impact. | To be retained. No special tree protection measures required.                                                                                                                                                                                                 |
| 19                      | <i>Fraxinus graffithii</i> (Evergreen Ash)    | M                      | 2.0                        | 1.3                        | 12.6     | No proposed works within TPZ.                                                                                                                                                                            | No adverse impact. | To be retained. No special tree protection measures required.                                                                                                                                                                                                 |
| 20                      | <i>Platanus x hybrida</i> (London Plane)      | M                      | 10.0                       | 2.8                        | 314.0    | No proposed works within TPZ.                                                                                                                                                                            | No adverse impact. | To be retained. No special tree protection measures required.                                                                                                                                                                                                 |
| 21                      | <i>Platanus x hybrida</i> (London Plane)      | M                      | 8.0                        | 2.6                        | 201.0    | No proposed works within TPZ.                                                                                                                                                                            | No adverse impact. | To be retained. No special tree protection measures required.                                                                                                                                                                                                 |
| 22                      | <i>Lophostemon confertus</i> (Brushbox)       | M                      | 6.0                        | 2.5                        | 111.6    | No proposed works within TPZ.                                                                                                                                                                            | No adverse impact. | To be retained. No special tree protection measures required.                                                                                                                                                                                                 |
| 23                      | <i>Lophostemon confertus</i> (Brushbox)       | M                      | 5.5                        | 2.3                        | 95.0     | Proposed new soft landscape works offset 2.8 metres north (beyond existing boundary fence with masonry hob/wall). No actual incursion to root zone due to barrier created by existing fence and footing. | No adverse impact. | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection Boarding in accordance with Section 10.4.                                                                                                               |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                       | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy                                                                                                                                                                                             | Likely Impact                                                                                                                                                                                                                        | Recommendation                                                                                                                                                                                                                    |
|-------------------------|-----------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23a                     | <i>Tristaniopsis laurina</i> (Water Gum)      | M                      | 2.5                        | 1.7                        | 19.6                  | No proposed works within TPZ.                                                                                                                                                                                                   | No adverse impact.                                                                                                                                                                                                                   | To be retained. No special tree protection measures required.                                                                                                                                                                     |
| 24a                     | <i>Tristaniopsis laurina</i> (Water Gum)      | M                      | 2.0                        | 1.5                        | 12.6                  | No proposed works within TPZ.                                                                                                                                                                                                   | No adverse impact.                                                                                                                                                                                                                   | To be retained. No special tree protection measures required.                                                                                                                                                                     |
| 26                      | <i>Tristaniopsis laurina</i> (Water Gum)      | M                      | 2.5                        | 1.7                        | 19.6                  | No proposed works within TPZ.                                                                                                                                                                                                   | No adverse impact.                                                                                                                                                                                                                   | To be retained. No special tree protection measures required.                                                                                                                                                                     |
| 27                      | <i>Lophostemon confertus</i> (Brushbox)       | M                      | 7.0                        | 2.7                        | 153.9                 | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC).                                                                                                       | No adverse impact.                                                                                                                                                                                                                   | To be retained. No special tree protection measures required.                                                                                                                                                                     |
| 28                      | <i>Tristaniopsis laurina</i> (Water Gum)      | M                      | 2.5                        | 1.7                        | 19.6                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC).                                                                                                       | No adverse impact.                                                                                                                                                                                                                   | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection in accordance with Section 10.4.                                                                                            |
| 29a                     | <i>Pistacia chinensis</i> (Chinese Pistachio) | M                      | 2.0                        | 1.3                        | 12.6                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC).                                                                                                       | No adverse impact.                                                                                                                                                                                                                   | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection in accordance with Section 10.4.                                                                                            |
| 30                      | <i>Tristaniopsis laurina</i> (Water Gum)      | M                      | 3.5                        | 1.7                        | 38.5                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC).                                                                                                       | No adverse impact.                                                                                                                                                                                                                   | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection in accordance with Section 10.4.                                                                                            |
| 31                      | <i>Lophostemon confertus</i> (Brushbox)       | M                      | 5.5                        | 2.4                        | 95.0                  | Proposed basement and associated contiguous pile wall offset 3 metres east at RL 2.67 (6.2 metres below grade, beyond existing boundary fence with masonry hob). Excavations for basement within TPZ. Encroachment to TPZ = 15% | Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. However, this species will tolerate the extent of encroachment proposed given the likely barrier to root development created by the existing wall/fence. | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection in accordance with Section 10.4. Undertake all excavations for the basement within the TPZ in accordance with Section 10.6. |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                                 | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Likely Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Recommendation                                                                                                                         |
|-------------------------|---------------------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 32                      | <i>Leptospermum petersonii</i> (Lemon-scented Tea Tree) | M                      | 2.0                        | 1.3                        | 12.6                  | No proposed works within TPZ.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | No adverse impact.                                                                                                                                                                                                                                                                                                                                                                                                                                                 | To be retained. No special tree protection measures required.                                                                          |
| 32a                     | <i>Liriodendron tulipifera</i> (Tulip Tree)             | M                      | 2.5                        | 1.3                        | 19.6                  | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ - TBC).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No adverse impact.                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Retain in accordance with recommended Tree Protection Measures (Section 10). Install Trunk Protection in accordance with Section 10.4. |
| 33                      | <i>Jacaranda mimosifolia</i> (Jacaranda)                | M                      | 10.6                       | 3.0                        | 352.8                 | Existing palisade fence and stone retaining wall offset 1.7 metres west to be retained intact (TBC). Proposed paved forecourt area and associated retaining wall (curved) offset 5.1 metres south-east at RL ?. Proposed building offset 5.1 metres east at RL 2.67 (6.2 metres below grade). Excavations for building (basement) and retaining wall foundations within TPZ. Encroachment to TPZ = 29%. Proposed stairway and associated retaining wall offset 3.1 metres north. Excavations for stairs and associated retaining wall foundations within TPZ. Cumulative encroachment to TPZ = 45%. Building envelope to RL 27.27 (20 metres above grade). Substantial canopy pruning required to clear building envelope and temporary scaffolding (approx. 50% canopy loss) | Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Excavations for basement and retaining wall foundations will result in substantial root loss, leading to a significant adverse impact. Extent of canopy loss will result in a significant adverse impact. There are no feasible options that can be recommended in this instance that would permit the retention of this tree given the current form and proximity of the development. | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity.                   |
| 34                      | <i>Cinnamomum camphora</i> (Camphor Laurel)             | M                      | 10.8                       | 3.4                        | 366.2                 | Located within footprint of proposed building and basement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Proposed works will necessitate removal (High Retention Value). There are no feasible options that can be recommended in this instance that would permit the retention of this tree given the current form and proximity of the development.                                                                                                                                                                                                                       | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity.                   |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                              | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m²) | Incursions To Root Zone &/or Canopy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Likely Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                | Recommendation                                                                                                       |
|-------------------------|------------------------------------------------------|------------------------|----------------------------|----------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 35                      | <i>Casuarina cunninghamiana</i><br>(River Oak)       | M                      | 9.2                        | 3.1                        | 266.4    | Located within footprint of proposed paved area at RL 8.67 (close to existing grade). Existing palisade fence and retaining wall offset 1.0 metres west to be retained & refurbished within SRZ. Proposed basement (& associated retaining wall) offset 4.5 metres north and basement 4.4 metres east at RL2.67 (6.2 metres below grade). Excavations for building and basement within TPZ. Encroachment to TPZ = 23%. Proposed new retaining wall offset 3.2 metres south and stairs/landing offset 2.7 metres east at RL 9.89 (1.3 metres above grade). Cumulative encroachment = 31%. Proposed glass awning (roof structure) offset 4.6 metres NE. Open box drain offset 2.4 metres NE. Cumulative encroachment = 48%. Building envelope to RL 27.27 (20 metres above grade). Some canopy pruning required to clear building envelope and temporary scaffolding (approx. 25% canopy loss) | Extent of encroachment to TPZ exceeds acceptable limits under AS 4970:2009. Excavations for basement and retaining wall foundations will result in substantial root loss, leading to a significant adverse impact. Extent of canopy loss will result in in some adverse impact. There are no feasible options that can be recommended in this instance that would permit the retention of this tree given the current form and proximity of the development. | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 38                      | <i>Olea europaea subsp. africana</i> (African Olive) | M                      | 5.4                        | 2.4                        | 91.6     | No proposed works within TPZ (existing levels, pavements, structures and fence to be maintained intact within TPZ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No adverse impact.                                                                                                                                                                                                                                                                                                                                                                                                                                           | To be retained. No special tree protection measures required.                                                        |
| 39                      | <i>Jacaranda mimosifolia</i><br>(Jacaranda)          | M                      | 3.5                        | 1.7                        | 38.5     | Located within footprint of proposed new paved area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Proposed works will necessitate removal.                                                                                                                                                                                                                                                                                                                                                                                                                     | Remove tree.                                                                                                         |
| 40                      | <i>Jacaranda mimosifolia</i><br>(Jacaranda)          | M                      | 3.5                        | 1.7                        | 38.5     | Located within footprint of proposed new paved area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Proposed works will necessitate removal.                                                                                                                                                                                                                                                                                                                                                                                                                     | Remove tree.                                                                                                         |
| 41                      | <i>Casuarina glauca</i><br>(Swamp Oak)               | M                      | 3.0                        | 1.8                        | 28.3     | Located within footprint of proposed new paved area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Proposed works will necessitate removal.                                                                                                                                                                                                                                                                                                                                                                                                                     | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                              | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy                | Likely Impact                                                                                                                                                                                                                                | Recommendation                                                                                                       |
|-------------------------|------------------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 43                      | <i>Sapium sebiferum</i><br>(Chinese Tallow tree)     | M                      | 5.4                        | 2.4                        | 91.6                  | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 45                      | <i>Sapium sebiferum</i><br>(Chinese Tallow tree)     | M                      | 7.0                        | 2.4                        | 153.9                 | Located within footprint of proposed new building. | Proposed works will necessitate removal (High Retention Value). There are no feasible options that can be recommended in this instance that would permit the retention of this tree given the current form and proximity of the development. | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 50                      | <i>Lophostemon confertus</i> (Brushbox)              | M                      | 6.0                        | 2.5                        | 113.0                 | Located within footprint of proposed new building. | Proposed works will necessitate removal (High Retention Value). There are no feasible options that would permit the retention of this tree given the current form and proximity of the development.                                          | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 51                      | <i>Lophostemon confertus</i> (Brushbox)              | M                      | 5.5                        | 2.4                        | 95.0                  | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 52                      | <i>Casuarina cunninghamiana</i><br>(River Oak)       | M                      | 5.2                        | 2.4                        | 84.8                  | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Undertake replacement planting elsewhere within the site with a new tree in order to compensate for loss of amenity. |
| 53                      | <i>Morus nigra</i> (Mulberry tree)                   | M                      | 6.0                        | 2.3                        | 113.0                 | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Remove tree.                                                                                                         |
| 53a                     | <i>Acacia saligna</i><br>(Golden Wreath Wattle)      | M                      | 3.0                        | 1.6                        | 28.3                  | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Remove tree.                                                                                                         |
| 54                      | <i>Olea europaea subsp. africana</i> (African Olive) | M                      | 5.0                        | 2.1                        | 78.5                  | Located within footprint of proposed new building. | Proposed works will necessitate removal.                                                                                                                                                                                                     | Remove tree.                                                                                                         |

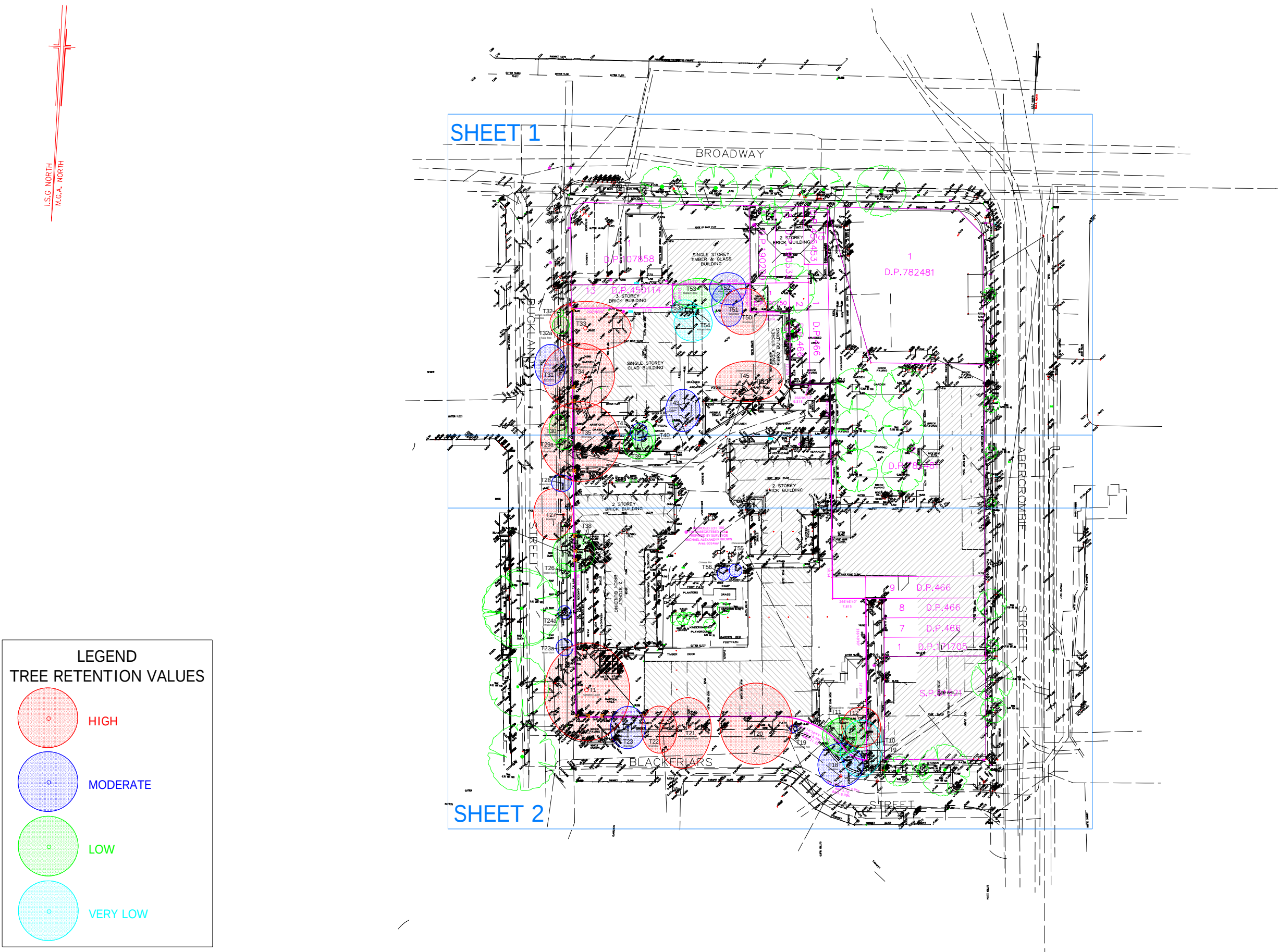
# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                                | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m²) | Incursions To Root Zone &/or Canopy                                                                                                | Likely Impact                                                                                                                                                 | Recommendation                                                                                                                                                                                                              |
|-------------------------|--------------------------------------------------------|------------------------|----------------------------|----------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 55                      | <i>Ulmus parvifolia</i><br>(Chinese Elm)               | M                      | 2.5                        | 1.5                        | 19.6     | Proposed new bench seat offset 0.9 metres north. Excavations for footings within TPZ/SRZ (type of footings/support mechanism TBC). | Excavations for pier/post type footings will not result in any adverse impact, provided that all excavations for such footings are undertaken as recommended. | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed bench seat footings in accordance with Section 10.6. Avoid placement of piers/post footings within SRZ. |
| 56                      | <i>Ulmus parvifolia</i><br>(Chinese Elm)               | M                      | 2.5                        | 1.4                        | 19.6     | Proposed new bench seat offset 1.7 metres north. Excavations for footings within TPZ (type of footings/support mechanism TBC).     | Excavations for pier/post type footings will not result in any adverse impact, provided that all excavations for such footings are undertaken as recommended. | Retain in accordance with recommended Tree Protection Measures (Section 10). Undertake all excavations for proposed bench seat footings in accordance with Section 10.6. Avoid placement of piers/post footings within SRZ. |
| 57                      | <i>Sapium sebiferum</i><br>(Chinese Tallow tree)       | M                      | 1.5                        | 1.1                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 58                      | <i>Tristaniaopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 59                      | <i>Tristaniaopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 60                      | <i>Tristaniaopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 61                      | <i>Backhousia citriodora</i><br>(Lemon-scented Gum)    | M                      | 1.5                        | 1.0                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 62                      | <i>Backhousia citriodora</i><br>(Lemon-scented Gum)    | M                      | 1.5                        | 1.0                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |
| 63                      | <i>Backhousia citriodora</i><br>(Lemon-scented Gum)    | M                      | 1.5                        | 1.0                        | 7.1      |                                                                                                                                    |                                                                                                                                                               |                                                                                                                                                                                                                             |

# APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE

| Tree Identification No. | Species                                             | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy | Likely Impact | Recommendation |
|-------------------------|-----------------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|-------------------------------------|---------------|----------------|
| 64                      | <i>Citrus x tangelo</i><br>'Seminole' (Tangelo)     | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 65                      | <i>Citrus x tangelo</i><br>'Seminole' (Tangelo)     | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 66                      | <i>Citrus x tangelo</i><br>'Seminole' (Tangelo)     | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 67                      | <i>Citrus x tangelo</i><br>'Seminole' (Tangelo)     | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 68                      | <i>Backhousia citriodora</i><br>(Lemon-scented Gum) | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 69                      | <i>Backhousia citriodora</i><br>(Lemon-scented Gum) | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 70                      | <i>Sapium sebiferum</i><br>(Chinese Tallow tree)    | M                      | 1.5                        | 1.3                        | 7.1                   |                                     |               |                |
| 71                      | <i>Lagestromia indica</i><br>(Crepe Myrtle)         | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 72                      | <i>Lagestromia indica</i><br>(Crepe Myrtle)         | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 73                      | <i>Lagestromia indica</i><br>(Crepe Myrtle)         | M                      | 1.5                        | 1.0                        | 7.1                   |                                     |               |                |
| 74                      | <i>Sapium sebiferum</i><br>(Chinese Tallow tree)    | M                      | 1.5                        | 1.1                        | 7.1                   |                                     |               |                |

| APPENDIX 4 - IMPACT ASSESSMENT SCHEDULE |                                                       |                        |                            |                            |                       |                                     |               |                |
|-----------------------------------------|-------------------------------------------------------|------------------------|----------------------------|----------------------------|-----------------------|-------------------------------------|---------------|----------------|
| Tree Identification No.                 | Species                                               | Construction Tolerance | Tree Protection Zone (m R) | Structural Root Zone (m R) | TPZ (m <sup>2</sup> ) | Incursions To Root Zone &/or Canopy | Likely Impact | Recommendation |
| 75                                      | <i>Tristaniopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1                   |                                     |               |                |
| 76                                      | <i>Tristaniopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1                   |                                     |               |                |
| 77                                      | <i>Tristaniopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1                   |                                     |               |                |
| 78                                      | <i>Tristaniopsis laurina</i><br>'Lucious' (Water Gum) | M                      | 1.5                        | 1.3                        | 7.1                   |                                     |               |                |



APPENDIX 5  
TREE LOCATION PLAN SHOWING  
TREE RETENTION VALUES  
UTS Blackfriars Campus  
4-12 Buckland Street, CHIPPENDALE, NSW



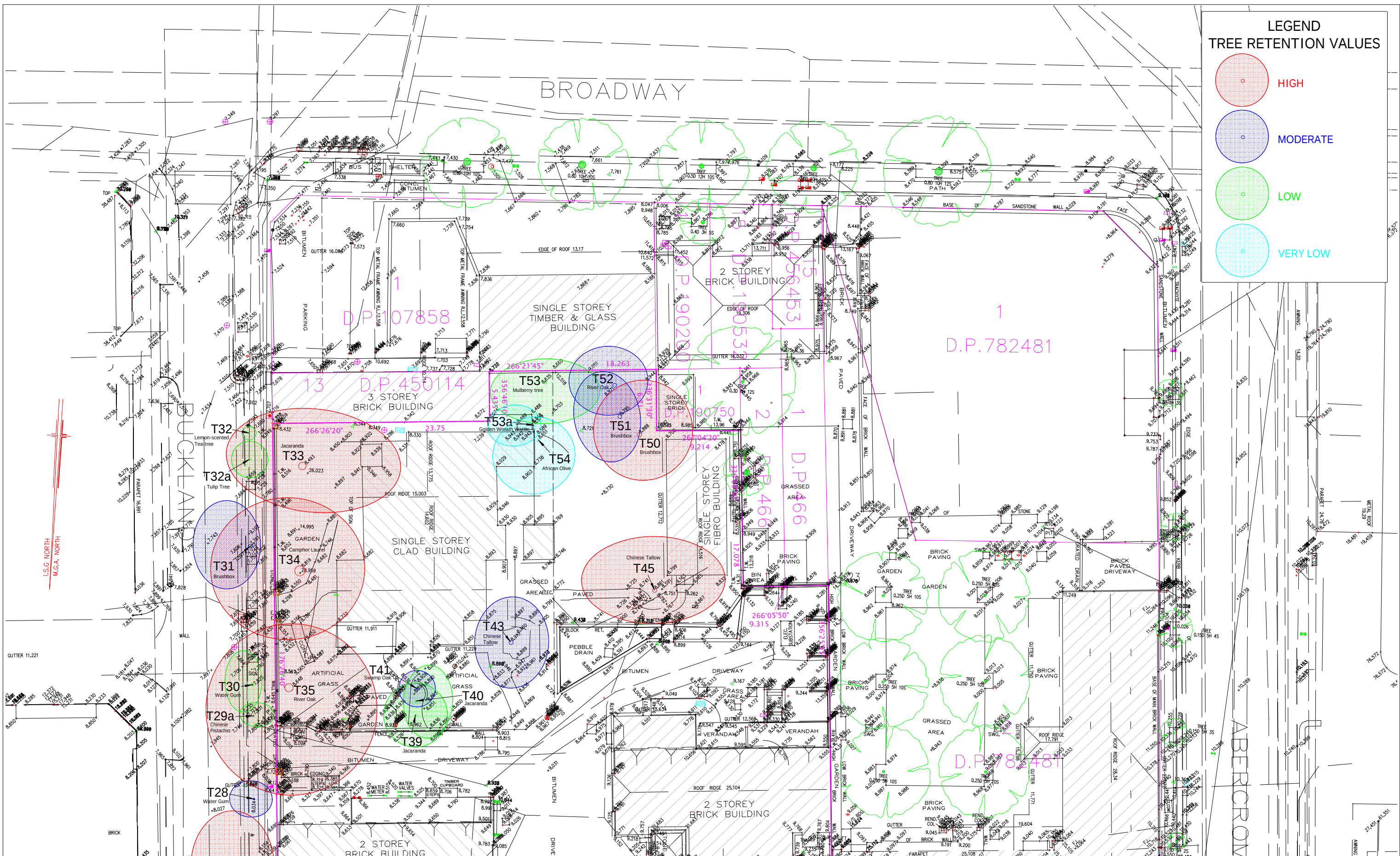
Earthscape Horticultural Services  
Arboricultural and Horticultural Consultants  
PO Box 364  
BEROWRA NSW 2081  
Ph: 02 9456 4787  
Fax: 02 9456 5757 e: earthscape@iinet.net.au

Based on the Survey Drawing  
prepared by Rygate and Company Pty Ltd  
Dwg Ref No. 78499  
Dated 05/03/2018

DWG No. T18-030202 [D]

KEY PLAN

DATE: 15/05/2018



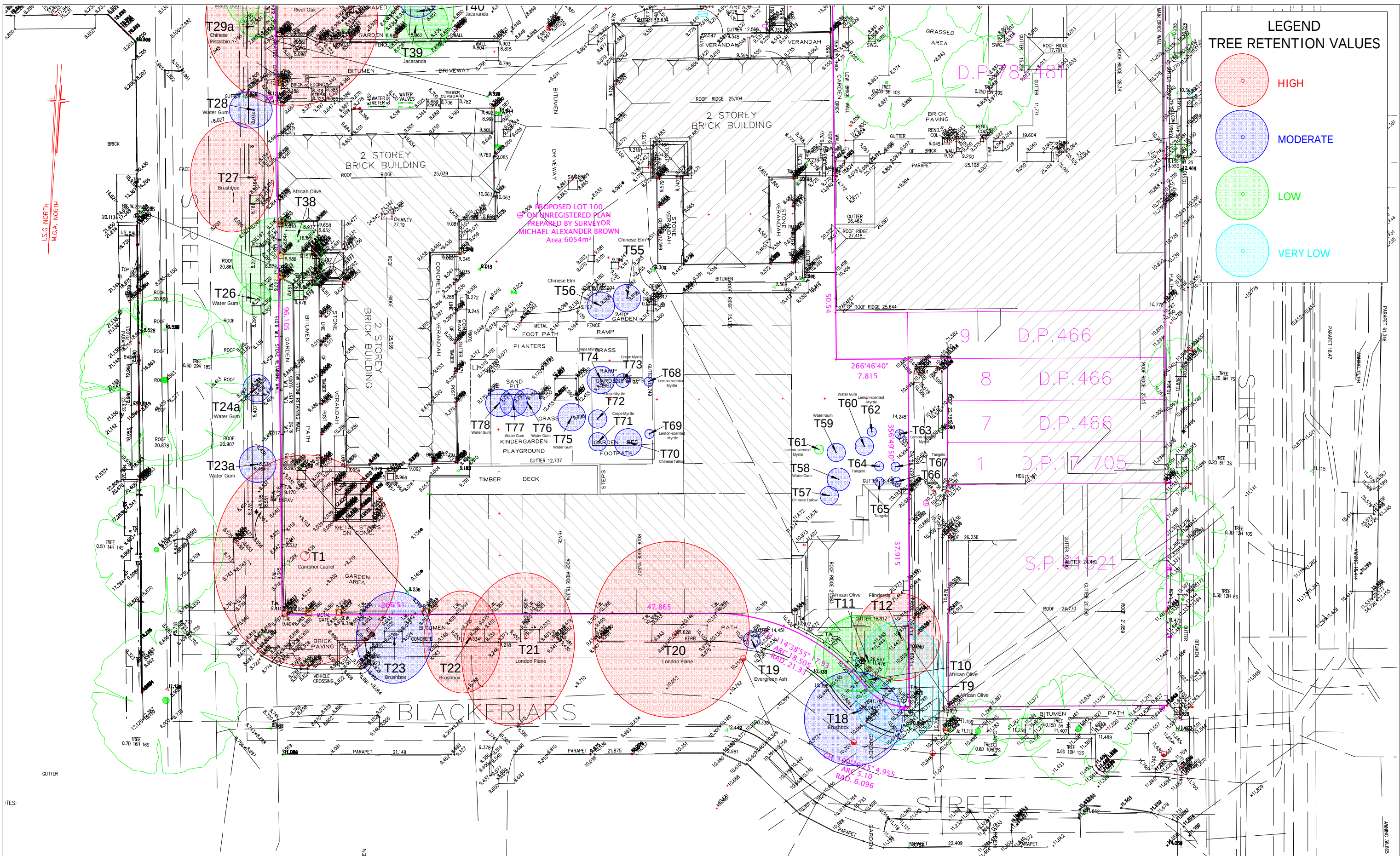
APPENDIX 5  
 TREE LOCATION PLAN SHOWING  
 TREE RETENTION VALUES  
 UTS Blackfriars Campus  
 4-12 Buckland Street, CHIPPENDALE, NSW



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DWG No. T18-030202 [D]  
 SHEET 1  
 DATE: 15/05/2018



APPENDIX 5  
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 TREE RETENTION VALUES  
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 4-12 Buckland Street, CHIPPENDALE, NSW



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 Dwg Ref No. 78499  
 Dated 05/03/2018

DWG No. T18-030202 [E]  
 SHEET 2  
 DATE: 04/06/2018

I.S.G. NORTH  
M.G.A. NORTH



**LEGEND**

Tree to be retained and protected in accordance with Tree Protection Measures (Section 10)

Tree to be removed in accordance with Section 10.3

Tree to be pruned in accordance with Section 10.11

Tree Protection Zone (TPZ) [refer Section 7]

Canopy "Drip-line"

Structural Root Zone (SRZ)

Existing buildings & structures to be demolished. Demolition works within TPZ's to be undertaken in accordance with Section 10.5

New Building works. All excavations for building foundations within TPZ's to be undertaken in accordance with Section 10.6

Excavations in these areas for footings and services to be undertaken in accordance with Section 10.6

Proposed stormwater infrastructure to be installed in accordance with Section 10.7

Basement footprint

Install trunk protection in accordance with Section 10.4

Install Ground Protection in Accordance with Section 10.13

APPENDIX 6  
TREE PROTECTION PLAN

UTS Blackfriars Campus  
4-12 Buckland Street, CHIPPENDALE, NSW



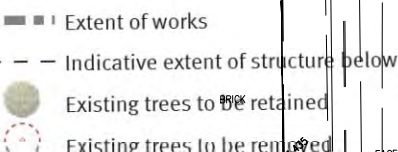
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Dwg Ref No. 78499  
Dated 05/03/2018

DWG No. T18-030203 [D]

KEY PLAN

DATE: 15/05/2018



UTS Blackfriars Campus  
4-12 Buckland Street, CHIPPENDALE, NSW



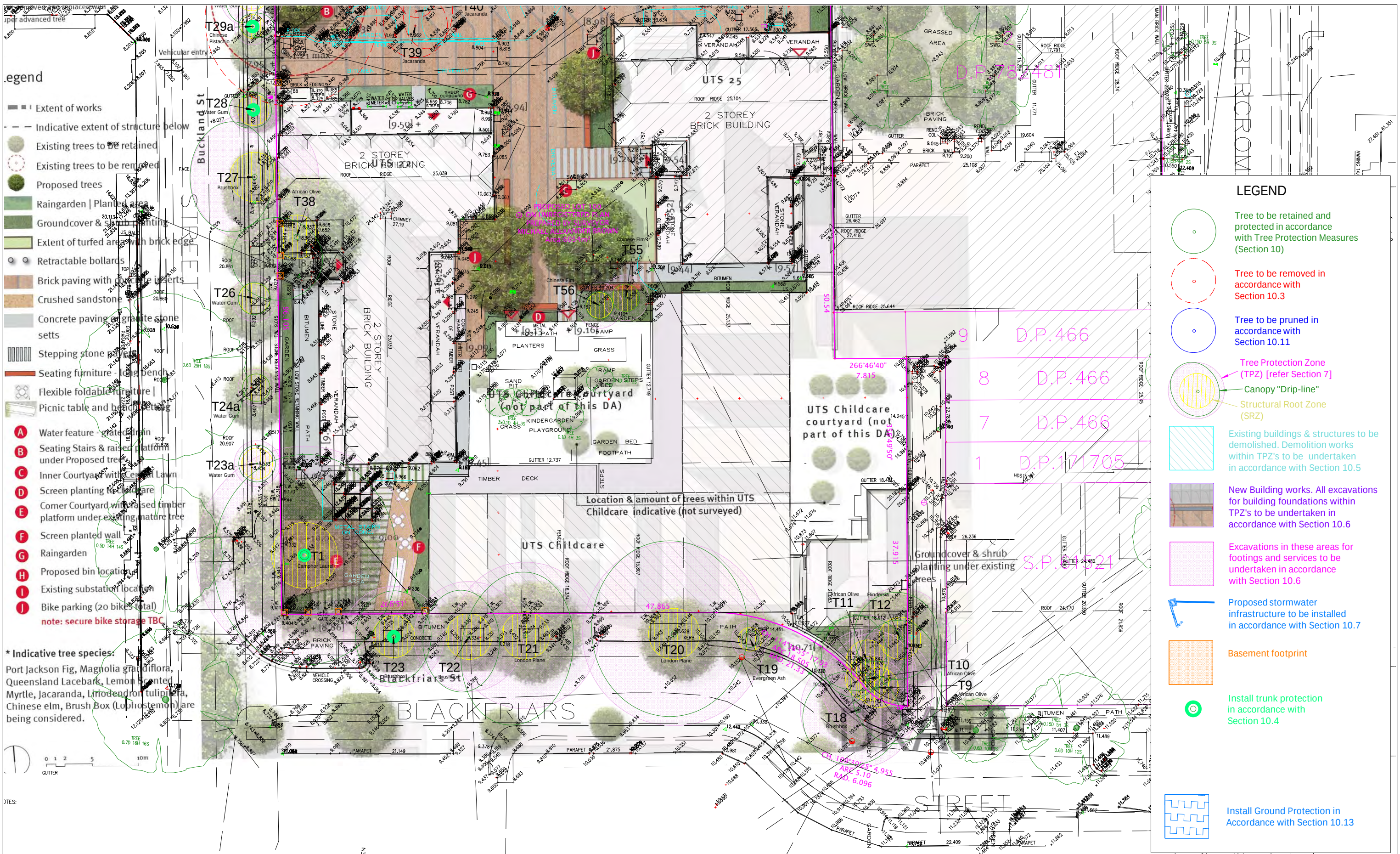
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Dwg Ref No. 78499  
Dated 05/03/2018

DWG No. T18-030203 [D]

SHEET 1

DATE: 15/05/2018



## APPENDIX 6 TREE PROTECTION PLAN

UTS Blackfriars Campus  
4-12 Buckland Street, CHIPPENDALE, NSW



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Dated 05/03/2018

DWG No. T18-030203 [D]

SHEET 2

DATE: 15/05/2018