35 Lodge Street, Balgowlah

22/2/DP 6154



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DISCLAIMER

The preparation of this report is for the use of the property owners at 35 Lodge Street, Balgowlah to assess the impact on seven trees inside and within 5 metres this properties' boundaries. The author of this report is *Temporal Tree Management Pty Ltd*. This report is not designed for any other purpose. The author accepts no responsibility for the use of this report for purposes other than as an arboricultural impact assessment or if used by any other person / party.

All observations, recommendations and advice expressed within this report are based on *the Australian Standard for the Protection of Trees on Development Sites (AS 4970 2009),* the professional experience of the author, information gathered during the site assessments and information provided by the client. Trees are dynamically growing organisms that change over time. No guarantee is implied with respect to future tree vitality or safety beyond the advice period and recommendations made within the report.

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1. Summary

The purpose of this report is to provide an Arboricultural Impact Assessment (AIA) for the trees inside and within 5 metres of the property boundaries at number 35 Lodge Street, Balgowlah. There are a small number of established tree specimens within and adjacent to the property boundaries of this site. In light of current development plans, an assessment of the trees' retention value and necessary protection measures has been provided.

An assessment of seven mature specimens was undertaken by William Dunlop of *Temporal Tree Management Pty Ltd* on 06/08/2019. A return site visit was undertaken by William Dunlop of *Temporal Tree Management Pty Ltd* on 23/01/2020 due to changes to the design plans for the second stage of the proposed development. The trees were located, identified and their retention value assessed using the TreeAZ model (10.10 NZ), which was created by Barrell Tree Consultancy in 2012. Tree protection measures are drawn from and relating to the *Australian Standard for the Protection of Trees on Development Sites* (AS 4970 2009).

Two trees (Trees 2 and 3) were determined to be of High retention value due to their size, condition and species value. A combined Tree Protection Zone (TPZ) should be established around these two specimens to ensure that they are adequately protected. An additional tree (Tree 7) was determined to be of High retention value due to its public ownership. No protection measures were recommended for this tree due to its position outside of the property boundaries of the subject site and its considerable distance from the work zone.

To facilitate the construction of the outdoor entertainment area and works required to rebuild the southern and eastern retaining walls to comply with current building regulations, two specimens (Trees 4 and 5) will require removal. Their removal is considered acceptable as both trees were determined to be of Low retention value in Section 4.2 of this report.

The information provided in this report may be used to assist in planning, design and construction for future development on this site.

2. Location

2.1. Site Location

The subject site for this Arboricultural Impact Assessment is 35 Lodge Street, Balgowlah (Map 1). The land use surrounding this property is primarily residential. The property is positioned between Manly and Balgowlah Golf Clubs. The role played by the mature trees inside and adjacent to the subject site in maintaining ecological connectivity within this local area will be an important consideration for this Arboricultural Impact Assessment.



Map 1. Site location is 35 Lodge Street, Balgowlah. Image sourced from Google 2019

2.2. Relevant Policy Context

This property is located within the Northern Beaches Council. The environmental policy regulations relevant to the trees within the subject site are drawn from Part 3 of the NSW State Environmental Planning Policy (SEPP) (Vegetation in Non-rural Areas). The policy controls governing the management of the trees are outlined in Part 3.3.2 'Preservation of Trees or Bushland Vegetation' and Schedule 4 'Trees' of the former Manly Development Control Plan (2013), which the Northern Beaches Council has retained for this area (Northern Beaches Council 2019). The property itself is part of an R1 General Residential development overlay (Planning NSW 2016).

2.3. Tree Locations

In compliance with *the Australian Standard for the Protection of Trees on Development Sites (AS 4970 2009)* all trees inside and within 5 metres of the properties' boundaries were included in this Arboricultural Impact Assessment. As outlined in Part 3.3.2 of the Manly DCP (2013) vegetation was classed as a tree if it was taller than 5 metres (Northern Beaches Council 2019).

The trees relevant to the proposed renovation activity of the dwelling at 35 Lodge Street, Balgowlah were identified and briefly assessed during the site visit on 06/08/2019. A return site visit was carried out on 23/01/2020 after amendments were made to the design plans.

The majority of trees included in this assessment (Trees 1 - 5) are positioned within the property boundaries on the southern side of the existing dwelling. Tree 6 is positioned close to the north-eastern property boundary on the northern side of the dwelling. Tree 7, which is a Council tree positioned in the street verge, was the only specimen included in this assessment positioned outside the property boundaries of the subject site (Map 2).



Map 2. Location of seven trees inside and within 5 metres of the property boundaries of 35 Lodge Street, Balgowlah (property boundaries in red). Image sourced from SixMaps 2019.

3. Site Development Plans

All construction associated with stage 1 of the development for this property has been completed. The construction activities for this stage were confined to the renovation of the dwelling within its existing footprint. Stage 2 of this development is currently at the final design and submission stage.

The proposed plans for Stage 2 of the development involve the refurbishment of the existing patio area into a new outdoor entertaining area and the renovation of the existing garage within its current building envelope into a detached games room (Figure 1). The existing concrete slab of the patio area will be utilised for this extension (Figure 2). However, the existing retaining wall must be demolished and rebuilt with a two-tiered structure to adequately comply with current building codes (Figure 3).

Trees 1 - 5 may be impacted upon due to their close proximity to the second stage of this development. Trees 6 and 7 are less likely to be impacted upon due to their considerable distance from the proposed works and site access using point along the existing driveway. However, they may be indirectly impacted upon by material storage or accidental contamination.

It is therefore important that an accurate evaluation of this tree's retention value be made and if required the implementation of an effective tree protection plan.



Figure 1. Position of Stage 2 planned development works in relation to Trees 1 - 7 at 35 Lodge Street, Balgowlah. Ground Floor drawn by *Playoust Churcher Architects* (2020) annotated by *Temporal Tree Management Pty Ltd* (2020).



Figure 2. Refurbishment of existing patio area adjacent to Trees 4 and 5.



Figure 3. Demolition and reconstruction of existing retaining wall to comply with current regulations a requirement of the proposed development.

4. Preliminary Assessment

4.1 Assessment Methodology

After being located and numbered a visual assessment was carried out for each tree. Visual assessments of trees' health and structure were underpinned by the Visual Tree Assessment method established by Mattheck and Breloar (1994) and the Visual Vitality Index method established by Johnston et al. (2012). The data collected for each individual was used in simple characterisation models for age, origin, health, structure, life expectancy and retention value. Simple characterisations were used to ensure outcomes remained clear and consistent. The format for data collection included:

- Ø Tree Number: Determined in Map 2 and Figure 1.
- Ø <u>Botanical Name</u>: Vegetation was identified and described using botanical names to avoid confusion associated with common name descriptions.
- Ø Common Name: Only one common name was used. This information is included in Appendix A.
- Ø Age: Juvenile, Semi mature, Mature or Over Mature. Judgement on these four categories was determined by professional knowledge and research on the species present.
- Ø Origin: Exotic, Native or Indigenous. It was important to differentiate between Australian native vegetation and locally indigenous vegetation, as native trees are not necessarily protected by the Northern Beaches Council tree preservation order while many indigenous species are. Similarly, some native trees may become problematic in non – indigenous areas.

Ø Diameter at Breast Height (DBH): An important tree measurement used in arboriculture. DBH was described in mm and used to determine the Tree Protection Zone for each tree. This information is included in Appendix A.

- Ø Diameter at Root Flare (DRF): An important tree measurement used in arboriculture. DRF was described in mm and used to determine the Structural Root Zone for each tree. This information is included in Appendix A.
- Ø Height: Estimated in metres using professional experience. This information is included in Appendix A.
- Ø <u>Canopy Width</u>: Estimated in metres from north– south x east west. This information is included in Appendix A.
- Ø Health: Dead, Poor, Fair, Good or Excellent. Professional experience along with the visual vitality index established by Johnston et al. (2012) was used to underpin these categories (Appendix B).
- Ø <u>Structure</u>: Failed, Very Poor, Poor, Fair, Good or Excellent. Professional experience along with VTA method established by Mattheck and Breloar (1994) was used to underpin these categories.
- Ø Useful Life Expectancy (ULE): Long (greater than 40 years), Medium (40 years 15 years), Short (15 – 5 years) or Remove (less than 5 years). These categories were established by Barrell Tree Consultancy (2010) and provide an important estimate of a tree's remaining safe life span based on species knowledge and an individual's structure and health.
- Ø Retention Value: Retention value was split into two categories as defined by the TreeAZ method; A or Z (Barrell Tree Consultancy 2012). Category A stipulates that a tree should be retained and efforts made in the design planning and construction to ensure its survival. Category Z determines that a tree's retention is not a priority and it need not constrain design, planning or construction. Categories were determined using the tree assessment data and TreeAZ model criteria (Figure 4) (Barrell Tree Consultancy 2012).

Ø <u>Tree Protection Zone (TPZ)</u>: This measure provides the principle means of protecting trees on construction sites. A TPZ radius may be calculated using the equation from the Australian Standard for the Protection of Trees on Development Sites (AS 4970 2009):

$TPZ = DBH \times 12$

A TPZ was established for trees determined to be suitable for retention. Once a TPZ is established all construction activity should be excluded from within its borders. Encroachments may occur under further arboricultural assessment and advice.

Ø Structural Root Zone (SRZ): This measure provides an indication of the portion of a tree's root plate that is considered fundamentally important for the maintenance of structural integrity. An SRZ radius may be calculated using the equation from the *Australian Standard for the Protection of Trees on Development Sites* (AS 4970 2009):

$R(srz) = (DGL \times 50)_{0.42 \times 0.64}$

Ø <u>Comments</u>: Any additional information explaining an individual's health, structure, ULE or retention value categorization. This information is included in Appendix A.

TreeAZ: Detailed guidance on its use Australia and New Zealand (Version 10.10-ANZ)							
4 DETAILED EXPLANATION OF SUBCATEGORY ALLOCATION							
Photographic examples and further explanations for each of the following subcategories are set out below (click on the underlined hyperlink to go directly to each sub category).							
Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc.							
Z2 Too close to a building, i.e. exempt from legal protection because of proximity, etc.							
Z3 Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc							
Z4 Dead, dying, diseased or declining							
Z5 Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc							
Z6 Instability, i.e. poor anchorage, increased exposure, etc							
Z7 Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc							
Z8 Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc							
Z9 Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc							
Z10 Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc							
Z11 Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc							
Z12 Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc							
A1 No significant defects and could be retained with minimal remedial care							
A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees							
A3 Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years							
A4 Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)							
www.TresAZ.com							
©2010 Barrell Tree Consultancy. All rights reserved. Page 25/64							
Figure 4. Tree A7 model 10.10 N7 criteria as used by Barrell Tree Consultancy (2012) (Access via							

Figure 4. TreeAZ model 10.10.NZ criteria as used by Barrell Tree Consultancy (2012). (Access via http://www.treeaz.com/downloads/Document-06-311210.pdf 2017).

4.2. Tree Data

Table 1. Summarised tree data for one tree assessed at 35 Lodge Street, Balgowlah. Trees determined to be of High retention value (A1-4) are annotated in Blue while trees of Low retention value are annotated in Red (Z1-12).

Tree#	Botanical Name	Health	Structure	ULE	Retention	TPZ(m)	SRZ(m)
1	Liquidambar styraciflua	Fair	Poor	Medium	Z3	N/A	N/A
2	Eucalyptus saligna	Fair	Fair	Long	A1	9.12	3.21
3	Eucalyptus robusta	Fair	Fair	Long	A1	8.52	3.2
4	Melaleuca quinquenervia	Fair	Poor	Medium-short	Z10	N/A	N/A
5	Melaleuca quinquenervia	Fair	Poor	Medium-short	Z10	N/A	N/A
6	Melaleuca quinquenervia	Fair	Poor	Medium-short	Z10	N/A	N/A
7	Liriodendron tulipifera	Fair	Poor	Medium-short	A4	5.04	2.49

5. Summary and Recommendations

There was considerable variability observed in the size, condition and retention value of the trees assessed within and immediately adjacent to the subject site.

Trees 2 and 3 are large Sydney Blue Gum and Swamp Mahogany specimens positioned adjacent to the southern and western boundaries. Both trees were observed to be in good condition and with Long ULE estimates. Their size, indigenous species importance and long ULE estimates render Trees 2 and 3 of high ecological importance within this local area. Both trees were therefore determined to be of A1 High retention value.

Tree 7 is a mature Tulip Tree positioned within the Council street verge. This tree has been severely pruned to maintain clearance from the overhead powerlines. Despite its poor structure, this tree's public ownership renders it of A4 High retention value.

The four remaining trees were all determined to be of Low retention value. Despite its large size, Tree 1 is of an exotic species that is exempt from the Council Tree Preservation Order. This Liquidambar was therefore determined to be of Z3 Low retention value.

Trees 4 - 6 are all mature Broad-leaved Paperbark specimens. Multiple stems extending from included codominant unions were common features that underpinned the poor structural rating for these three trees. Tree 6 was also observed to have Sooty Mould and minor canopy dieback, which underpinned the poor health rating that was determined for it. For these reasons, Trees 4 - 6 were therefore determined to be of Z10 Low retention value.

Based on the preliminary assessment, it is important that an adequate Tree Protection Plan is established for Trees 2, 3 and 7 to ensure their survival as part of Stage 2 of the current development within the subject site.

6. Tree Protection Plan

The relevant tree protection measures outlined in *AS* 4970 (2009) have been included for the purpose of providing an effective tree protection plan for the proposed development.

6.1. Pre - Construction Vegetation Management

To facilitate the demolition of the existing retaining wall, and its replacement with a twotiered structure, Trees 4 and 5 will require removal. At the closest point, the stem of Tree 4 is 2.1 metres from the existing retaining wall while the stem of Tree 5 is 2.2 metres from it. The new tiered wall structure will be spaced 1290 mm (2 x 645 mm tiers) from the existing wall, which will place the required works at the closest point 0.91 metres and 0.81 metres from the stems of Trees 4 and 5 respectively (Figure 5). This will position the works within the SRZs of Tree 4 (2.65 metres) and Tree 5 (2.49 metres) and require a major encroachment within their TPZs.

This encroachment may negatively impact not only the two trees' health, but also the structural integrity of their root plates (Matheny and Clark 1994, Day et al. 2008). A significant reduction in the ULE and increase in their Risk of Harm is a likely outcome from this major root disturbance. Both trees were determined to be of Z10 Low retention value in the preliminary assessment (Table 1, Appendix A). The reconstruction of the retaining wall is required to be suitably compliant with current building regulations. The retention of Trees 4 and 5 is therefore unsuitable as part of this development. Their removal is considered to be the most appropriate management strategy for this proposed development under Section 3.3.2.2 and Schedule 4 of the Manly DCP (2013).

Both trees must be suitably replaced as stipulated in Section 3.3.2.2 4 of the Manly DCP (2013). Two juvenile specimens of the same or similar indigenous species capable of reaching the same or greater mature size as Trees 4 and 5 should be planted within the property boundaries of the subject site in a suitable location during the landscape works. The undeveloped area close to the southern boundary has been identified as the most suitable location for the replacement plantings (Figure 8).

No further tree management is required as part of the second stage of the proposed development. The project arborist must be notified if any additional tree work is required and the appropriate approvals from the Northern Beaches Council must first be obtained.

All tree removal work should be carried out by a suitably qualified arborist (minimum AQF Level 3) in accordance with the Work Cover Code of Practice – Amenity Tree Industry (1998).



Figure 5. Close position of Trees 4 and 5 to proposed location of new tiered retaining wall.

6.2. Tree Protection Measures

All tree protection measures have been established in accordance with the *Australian Standard for the Protection of Trees on Construction Sites* (AS4970 2009). Tree protection zones (TPZs) and structural root zones (SRZs) have been calculated for all trees in section 3.2. These zones are aimed at preventing soil compaction, contamination and physical damage to trees above and below ground (Matheny and Clark 1994). As such all construction activity is excluded from designated TPZ areas. The TPZ and SRZ measurements are provided as a radial measurement that determines the circular areas of above and below ground exclusion (Figure 6).



Figure 6. TPZ and SRZ radial measurement equations.

6.3. Tree Protection Zones

The tree protection zone is an above and below – ground area that excludes any construction activity and is the principal means of protecting trees on construction sites (Matheny and Clark 1994). The area contained within the TPZ is fundamentally important in trees' long – term survival (Matheny and Clark 19994).

The area established by the radial measurement should be enclosed by 1.8 metre steel fencing that is securely fixed to the ground as stated in section 4.3 of the *Australian Standard for the Protection of Trees on Construction Sites* (AS4970 2009) (Figure 7). Signage stating the purpose of these exclusion zones should be fixed to the fencing so that it is visible from all points within the site.

The structural root zone is the predicted area in which roots that ensure a trees' stability are located (Day et al. 2009). The SRZ is typically located within the TPZ. Under no circumstances should construction activity occur within the SRZ without the presence and consultation of the project arborist.

Encroachments of construction activity may only occur with the consultation and permission of the project arborist. As defined in section 5 of the *Australian Standard for the Protection of Trees on Construction Sites* (AS4970 2009) encroachments of less than 10% of the total TPZ area may occur without the site presence of the project arborist providing there is an equal compensation of area elsewhere within the TPZ. Major encroachments of more the 20% require added consultation from the project arborist. Suitability for major encroachments are site specific and depend on the vitality of the tree and extent of the encroachment. A root mapping report may be required to determine if the tree will be able to sustain the level of encroachment. The presence of the project arborist during all such construction activity is required. An equal amount of compensated area should also be added to the TPZ elsewhere.



Figure 7. Steel fencing should be erected around the perimeter of TPZs in accordance with AS4970.

6.4 Site Specific Protection Measures

All elements of the TPP should be established prior to the commencement of demolition/construction work. A combined TPZ should be established to protect Trees 2 and 3. The southern and western edges of the TPZ must not extend beyond the property boundaries (Figure 8). A curved line of fencing extending from the southern to western boundaries should be installed to establish the northern edge of this TPZ.

The north-western edge of the TPZ should be set adjacent to the southern wall of the existing garage. The eastern and north-eastern edges must be established 9.12 metres from the centre of the stem of Tree 2 (Figure 9). All fencing a signage requirements outlined in section 6.3 must be adhered to in the establishment of this combined TPZ.

Despite its High retention status, no protection measures are recommended for Tree 7. This council tree will be adequately protected from the construction activity associated with the proposed development by its considerable distance from the work zone and its position outside of the property boundaries of the subject site.



Figure 8. TPZ arrangement for three trees identified as suitable for retention at 35 Lodge Street, Balgowlah. Ground Floor Plan drawn by *Playoust Churcher Architects* (2019) annotated by *Temporal Tree Management Pty Ltd* (2019).



Figure 9. North-eastern edge of TPZ fencing established using the radial TPZ measure for Tree 2.

6.5. Certifications

To ensure that the protection of retained vegetation is carried out to meet the objectives of the Arboricultural Impact Assessment and the planning permit, the following monitoring and certification process will be followed in line with AS 4970 (2009).

Monitoring, reporting and certification should be carried out at the following critical stages of construction:

- \cdot Site establishment Installation of fencing and stem protection as specified in TPP.
- Practical completion Successful implementation of the tree protection plan for the duration of the development and replacement of Trees 4 and 5 in the specified locations.

Once approved, this tree management plan must be available onsite prior to the commencement of, and during works. Due to the importance of this site from a biodiversity perspective monitoring and certification should be undertaken by both the project arborist and/or a suitably qualified ecological consultant (ecologist)

To ensure the survival of the trees defined in this report as result of the stipulated TPP measures a final certification will be required once construction activity has been completed at this site. In line with AS4970 (2009) this certification should determine if the TPP measures were adequately followed and whether the relevant trees were successfully protected. This certification may be given by either the project arborist or separate arborist who must hold an AQF Qualification of level 5 or higher.

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Appendix A: Tree Data

Tree N₀: 1. Botanical Name: *Liquidambar styraciflua* Common Name: American Sweetgum Age: Mature Origin: Exotic DBH: 740 mm DGL: 920 mm Height: 15 metres Width: 14 metres x 11 metres Health: Fair Structure: Poor ULE: Medium Retention Value: Z3 TPZ: N/A SRZ: N/A

Comments: This specimen is positioned close to the south-eastern corner of the subject site. Its canopy form has been suppressed by its much larger neighbour. Due to its species' exemption from the Northern Beaches Council TPO this tree was determined to be of Low retention value.



Tree N₀: 2. Botanical Name: *Eucalyptus saligna* Common Name: Sydney Blue Gum Age: Mature Origin: Indigenous DBH: 760 mm DGL: 930 mm Height: 26 metres Width: 20 metres x 16 metres Health: Fair Structure: Fair ULE: Long Retention Value: A1 TPZ: 9.12 metres SRZ: 3.21 metres

Comments: This large Sydney Blue Gum specimen is positioned close to the southern boundary of the subject site. Its large size, fair condition, long ULE estimate, and species importance render it of High retention value within this landscape.



Tree No: 3. Botanical Name: *Eucalyptus robusta* Common Name: Swamp Mahogany Age: Mature Origin: Indigenous DBH: 710 mm DGL: 920 mm Height: 18 metres Width: 15 metres x 16 metres Health: Fair Structure: Fair ULE: Long Retention Value: A1 TPZ: 8.52 metres SRZ: 3.2 metres

Comments: This large Swamp Mahogany specimen is positioned adjacent to the western boundary of the subject site. Its large size, fair condition, long ULE estimate, and species importance render it of High retention value within this landscape.



Tree No: 4. Botanical Name: *Melaleuca quinquenervia* Common Name: Broad-leaved Paperbark Age: Mature Origin: Indigenous DBH: 420 mm DGL: 590 mm Height: 14 metres Width: 12 metres x 11 metres Health: Fair Structure: Poor ULE: Medium-short Retention Value: Z10 TPZ: N/A SRZ: N/A

Comments: This Broad-leaved Paperback is positioned adjacent to the existing retaining wall at the southern end of the patio area close to the eastern boundary of the subject site. Its stem becomes codominant from an included union at 1 metre. This feature underpinned its poor structural rating, Medium-short ULE estimate and Low retention value rating.



Tree No: 5. Botanical Name: *Melaleuca quinquenervia* Common Name: Broad-leaved Paperbark Age: Mature Origin: Indigenous DBH: 400 mm DGL: 510 mm Height: 14 metres Width: 8 metres x 8 metres Health: Fair Structure: Poor ULE: Medium-short Retention Value: Z10 TPZ: N/A SRZ: N/A

Comments: This Broad-leaved Paperback is positioned adjacent to the existing retaining wall at the southern end of the patio area close to the eastern boundary of the subject site. Its canopy form has been suppressed by its larger neighbour. This feature underpinned its poor structural rating, Medium-short ULE estimate and Low retention value rating.



Tree No: 6. Botanical Name: *Melaleuca quinquenervia* Common Name: Broad-leaved Paperbark Age: Mature Origin: Indigenous DBH: 380 mm DGL: 480 mm Height: 11 metres Width: 9 metres x 9 metres Health: Poor Structure: Poor ULE: Medium-short Retention Value: Z10 TPZ: N/A SRZ: N/A

Comments: This Broad-leaved Paperback is positioned on the northern side of the dwelling close to the eastern boundary of the subject site. It has multiple stems originating from codominant unions. Its canopy was also observed to be thin and with Sooty Mould throughout. Its poor condition underpinned this tree's Medium-short ULE estimate and Low retention value rating.



Tree N₀: 7. Botanical Name: *Liriodendron tupilifera* Common Name: Tulip Tree Age: Mature Origin: Exotic DBH: 420 mm DGL: 560 mm Height: 6 metres Width: 7 metres x 10 metres Health: Fair Structure: Poor ULE: Medium-short Retention Value: A4 TPZ: 5.04 metres SRZ: 2.49 metres Comments: This Tulin Tree specimen

Comments: This Tulip Tree specimen is positioned outside of the northern property boundary within the Council street verge. Its canopy has been heavily pruned for powerline clearance. Despite its poor structure this tree's public ownership renders it of High retention value within this landscape.



Appendix B: Vitality using Visual Vitality Index (Johnstone et al. 2012).

VVI = 3/3 (Upper crown exposed) + 5/5 (Good crown size) + 8/9 (Good crown density) + 4/5 (Very little deadwood) + 2/3 (Moderate epicormic growth) + 5/5 (Crown in tact).
=26/30.

