TREE INSPECTION REPORT.

On: Tree Specimen
Location: 6 Edna Street Kingswood NSW 2747

TREEHAVEN ENVIRONSCAPES.
128 Showground Road Castle Hill. NSW 2154
[redacted]

For Designcorp
On. 28/10/2020

CONTENTS

DISCLAIMER

Whilst every attempt is made to be accurate and factual with regard to references used in this document no liability is assumed for the work done by others.

Please note that trees are living organisms which are subject to natural growth, change and also to 'Acts of God' such as storms and lightning strikes. This report contains empirical data gathered on the day for the purpose of tree assessment in terms of their health and long term viability. Given the transitory nature of living things such data only gives a 'snapshot' of the organism on the day and cannot be applied to future events, 'Acts of God', mechanical, pathogen attack or chemical damage to the organism after that time.

The information supplied herein is given in good faith and to the best available scientific and industry standards which apply to the Author's level of education and experience.

1 INTRODUCTION

1.1 The property at 6 Edna Street Kingswood NSW is being considered for development by Designcorp where the existing house is proposed to be demolished and replaced by double storey 12 room boarding house. In the process 3 trees will need to be removed including 1 Council street tree (See Site plan Appendix 2b)

1.2 The property is within the jurisdiction of Penrith City Council, (PCC), which has in place Tree Preservation Order (TPO) which prohibit the pruning, removal, ringbarking, topping, lopping, injury or wilful destruction of trees over 3m without Council's written consent.
For the removal or major pruning of trees covered by the TMC, HCC requires an arborist report whose purpose is to examine and appraise them prior to, and post any development of the site.
Consequently Designcorp have engaged, Mr. Stephen McLoughlin of Treehaven Environscapes, to visit the site examine 6 specimens growing on the Site and prepare this report.

1.3 This report details my site visit on 26/10/2020 and the examination of 6 trees that was affected by recent excavation and plumbing work.

1.4 This report contains empirical data collected regarding the tree specimens supported by digital photos, a Discussion regarding the relevance of the specimen and presents Conclusions and Recommendations as to the future treatment of the tree.
Tables and plans relating to this report are included as Appendix 1 & 2 at the end of the document.
This document pays heed to PCC's TMO and utilizes the Australian Standards 4790-2009 *Trees on development sites* and 4373-2007 *Pruning of Amenity Trees* as a set of guiding principles.

2. SITE DESCRIPTION

2.1 The land on which the tree is sited is on a rhomboidal shaped corner block on a Southerly facing slope with a slight gradient heading towards Werrington Creek and is within the Nepean River Catchment.

2.2 A single storey dwelling is on the Site at present (see Fig 1).

2.3 There are 2 tree specimens growing on the Site and 4 street trees on the nature strip to the North and East of the property. The subject trees are designated **T1** to **T6** inclusive as depicted in Figure 1.

Fig1. Aerial photo of the site from Six Viewer.

3. METHODOLOGY.

3.1 The tree specimens were visually assessed using non-destructive means by employing the Visual Tree Assessment (VTA) as developed by Matteck and Broeler (2006).

The information gathered was used to

i) Calculate Tree protection Zones (TPZ) and Structural Root Zones (SRZ) with reference to the Australian Standard (AS) 4970-2009 and

ii) Provide a qualitative assessment of the tree utilizing Jeremy Barrell's Safe Usable Life Expectancy (SULE) of which a table outlining the different categories appears in Appendix 3 of this document.

3.2 No invasive procedures, such as coring or drilling, were used in the examination of the specimen.

3.3 Structural Root Zone (SRZ) calculations provided in section **3.3.5** of Australian Standard 4970 -2010 are given as

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

Where D is the diameter of the tree as measured just above the root buttress and the result is the radius of a circle enclosing the tree. This is referred to as the tree's Diameter at Ground Level (DGH) in the table in Appendix 1.

Also section

3.4 Tree Protection Zones (TPZ) is given as,

$$TPZ = DBH \times 12$$

Where DBH is the diameter of the trunk of the trunk measured at 1.4m from the ground.

In the case of trees which have multiple stems at 1.4m from the ground, DBH was determined by using the following formula as advised in AS4970-2009

$$\text{Total DBH} = \sqrt{(DBH1)^2 + (DBH2)^2 + (DBH3)^2}$$

3.5 The position of the trees has been determined by survey plans as forwarded from Designcorp.

3.6 Minor & Major Encroachments are defined in AS 4970-2009 as being up to 10%, for the former, and greater than 10% for the latter of a tree's TPZ.

4. DESCRIPTION OF THE TREEs (See Appendix 1)**.**

4.1 Tree **T1** is a *Melaleuca quinquinervia* or 'Broadleaved Paperbark' which is an endemic species common in rivers and estuaries in the Sydney region. It has been planted in the nature strip to the East of the Site (see Fig. 2).
The tree was in good health and vigour at the time of inspection with no significant pathogens. The tree has a major defect in the form of a 'V' shaped stem junction with included bark (Mattheck & Breloer 2005).
Impact of the development;
The tree will be directly affected by the development by the construction of a concrete footpath crossover which will engulf its main stem (See Appendix 2a and 2b).

4.2 Trees **T2, T4 & T5** are all *Callistemon viminalis* or 'Weeping Bottlebrush' which is a small native tree species which have been planted on the nature strip to the North and East of the Site (See Figs. 3, 5 and 6). The trees are quite small and have pruned back regularly to accommodate overhead wires.
Impact from the development:
These specimens wont be directly affect by the development but will need to be protected during the construction period (See Appendix 2b and 2c).

4.3 Tree **T3** is a *Stenocarpus sinuatus* or 'Queensland Firewheel Tree' which is a medium sized native tree which has been planted on the Site to the South East of the existing house (See Fig. 4). The tree is relatively small being just 4m in height with a narrow main stem and appears to be a young sapling. The specimen was in good health and condition at the time of my inspection.
Impact from the development:
The specimen is scheduled to be removed as it will be engulfed by the new building footprint (See Appendix 2b and 2c).

4.4 Tree **T6** is a *Cupressus macrocarpa* or Monteray Pine which is an exotic conifer from East coast USA. The tree was in poor condition at the time of my inspection with on dead stem which has been removed and the tree has subsequently formed a lopsided habit (See Fig. 7)
Impact from the development:
The specimen is scheduled to be removed in order to make room for new plantings in the new landscaping for the development (See Appendix 2b and 2c).

4.5 There are no trees on neighbouring property to the West of the site (See Fig. 8).

5. DISCUSSION

5.1 There were no endemic nor heritage listed trees noted on the Site (See Appendix 1). All the specimens examined were planted specimens.

5.2 Of the six trees examined three specimens, designated **T1, T3** and **T6** are proposed for removal one of which, **T1**, is a Council street tree and the others are located on the Site. Of these trees;

- **T1** has a significant defect where the main stems adjoin in a 'V' shaped union with included bark in the junction. This is inherently a weak union (Mattheck & Breloer 2005).
- **T3** is a small tree not yet significant in the streetscape.
- **T6** is in poor condition and is proposed to be removed to allow for new plantings in the landscaping for the development

5.3 Three specimens designated **T2, T4 & T5** are Council Assets to be retained and protected.

5.4 In compensation 10 trees are included in the new landscaping for the Site these being:

- 3 x *Tritainiopsus laurina*
- 6 x *Eliocarpus eumundi*

(See Appendix 2c).

6. CONCLUSIONS & RECOMENDATIONS

6.1. It is recommended that, for the development to proceed as planned, trees **T1, T3** and to **T6** be removed.

6.2 Trees **T2, T4 & T5** are Council's street trees to be retained and protected.

7. THE AUTHOR'S QUALIFICATIONS AND EXPERIENCE.

Stephen McLoughlin obtained a Horticultural Certificate (1982) with Arboriculture as the third year elective whilst an employee of 10 years service with Baulkham Hills Shire Council (BHSC) now The Hills Council. Most of this time employed in the Council's Parks and Gardens and street tree plantings and, later, managing the Council's Nursery. This was augmented with a Bush Regeneration Certificate (1987) where he studied native plant communities, the means necessary to protect and restore them and the identification and eradication of weed species. Additional to this he obtained a Bachelor of Environmental Science Degree (1997) involving the study of natural environments, Ecology, data collection, analysis and documentation, report writing as well studies in relevant Common Law, current Environmental and Heritage Legislation. Since obtaining his degree Stephen writes reports on a regular basis covering Environmental, Heritage and Horticultural / Arboricultural subjects.

Further to this he upgraded his qualifications to that of Arborist Qualification 5 (AQF5) having completed the Associate Diploma of Horticulture / Arboriculture, a standard of qualification which is currently expected by many Local Government and statutory bodies.

Stephen also has a current NSW Structural Landscaper's Licence and has been involved in regular landscape construction works as both Principle and Sub Contractor on many Public, Private and Commercial ventures since commencing his contracting business in 1989. He has many garden and estate maintenance contracts, and Bush Regeneration projects involving large scale properties with many trees under his care, including the providing of advice and practical solutions to the issues of Bush Fire Asset Protection Zones.

Consequently Stephen has well grounded experience in both Public and Private tree plantings, the care and maintenance of them as well as hands on experience of what occurs on construction sites and the results of mechanical disturbance to trees on such sites.

The Author is also an accredited Root Barrier Australia ® installer and has been involved with many excavations involving tree roots.

In 2014 Stephen completed his Diploma of Environmental Management at the Ryde campus of North Sydney TAFE involving studies with regard to Bushfire Management, Global Information Systems (GIS), Mapping, Managing Native Fauna (for which he obtained a distinction) and River Restorations.

Also he has recently completed the Quantified Tree Risk Assessment Course (QTRA)

Yours sincerely

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Australian Arborist Member # 2158
Australian Association of Bush Regenerators Member
QTRA assessor

REFERENCES

Australian Standard 4373 1996 *Pruning of amenity trees.*

Australian Standard 4790 2009 *Trees on development sites.*

Barrell, J. 1996. '*Predevelopment tree assessment*'

Penrith City Council 2012 Tree Management Order

Matteck C and Breloer H. 2006 'The Body Language of Trees'

Six Maps. Aerial view of site (fig 1).

APPENDIX 1A. Schedule of trees identified on the site listing condition and physical dimensions of trees on the site.

Specimen name	Est. Height	Diameter DBH* DGH**	Crown	Comments	SULE ***	TPZ	SRZ
T1 *Melaleuca quinquinervia* Common name 'Broadleaved bottlebrush' Age class. 50 years See Fig. 2	9m	1 x 37cm 1 x 42cm 75cm at the base	N 3m E 3m S 3m W 3m	A native tree endemic to coastal rivers and estuaries in the Sydney region. The tree has been planted in the nature strip to the East of the Site. At the time of inspection the specimen was in good health and condition with no significant pathogens or signs of mechanical damage. The tree has a 'V' shaped stem junction plus included bark from ground level.	A2	6.71m	2.93m
T2 *Callistemon viminalis* Common name 'Broadleaved bottlebrush' Age class. 40 years See Fig. 3	4m	1 x 9cm 1 x 10cm 2 x 16cm 45cm at the base	N 2m E 2m S 2m W 2m	A native tree endemic to creeks and rivers and estuaries in the North East region of NSW. The tree has been planted in the nature strip to the East of the Site. At the time of inspection the specimen was in good health and condition with no significant pathogens or signs of mechanical damage. The tree has four stems	A5	3.16m	2.37m
T3 *Stenocarpus sinuatus* Common name 'Queensland Firewheel Tree' Age class. 10 years See Fig. 4	4m	12cm 22cm at the base	N 1m E 1m S 1m W 1m	A native tree endemic to tropical areas of North Queensland. The tree has been planted in the Site to the East of the existing dwelling. At the time of inspection the specimen was in good health and condition with no significant pathogens or signs of mechanical damage.	A5	2m Min TPZ	1.75m
T4 *Callistemon viminalis* Common name	4m	1 x 16cm 1 x 18cm 26cm at the base	N 3m E 2m S 2m W 1m	A native tree endemic to creeks and rivers and estuaries in the North East region of NSW. The tree has been planted in the nature strip to the East of the Site by a resident. At the time of inspection the specimen was in	A5	2.9m	1.9m

'Broadleaved bottlebrush' Age class. 40 years See Fig. 5				good health and condition with no significant pathogens or signs of mechanical damage. The tree a bias in its canopy to the North.			
T5 *Callistemon viminalis* Common name 'Broadleaved bottlebrush' Age class. 40 years See Fig. 6	5m	2 x 16cm 1 x 17cm 31cm at the base	N 3m E 3m S 3m W 3m	A native tree endemic to creeks and rivers and estuaries in the North East region of NSW. The tree has been planted in the nature strip to the North of the Site. At the time of inspection the specimen was in good health and condition with no significant pathogens or signs of mechanical damage. The specimen has 3 main stems.	A5	3.39m	2.02m
T6 *Cupressus macrocarpa* Common name 'Monteray Cypress' Age class. 50 years See Fig. 7	8m	28cm 32cm at the base	N 3m E 2m S 1m W 1m	An exotic tree endemic to North America. The tree has been planted near the border in the rear yard to the North East of the existing dwelling. At the time of inspection the specimen was in poor health and condition with approx. 60% dead wood in the canopy	A4	3.36m	2.05m

Table describing trees growing on the development site. Tree numbers correspond with numbers on site plan appendix. 2.
***DBH Diameter at Breast Height. **DGH Diameter at Ground Height. ***SULE ratings are included as Appendix 3 of this report.**

APPENDIX 1B. Figures 2 to 8**.** Photos of the trees on the Site.

Fig 2. Photo of tree T1 a *Melaleuca quinquiervia*

Fig 3. Photo of tree T2 *Callistemon viminalis*

Fig. 4. Photo of tree T3 a *Stenocarpus sinuatus*.

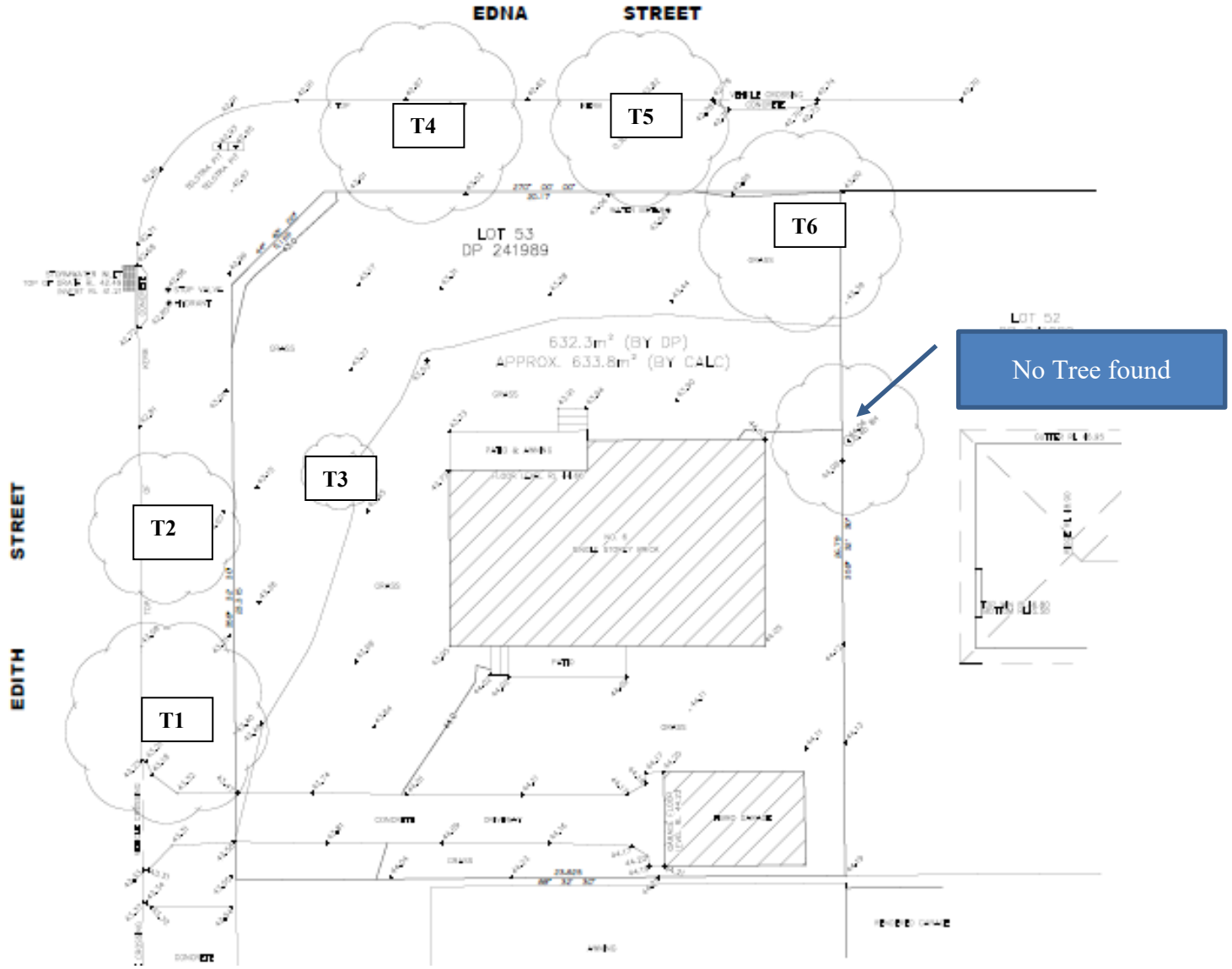
Fig. 5. Photo of Tree T4 a *Callistemon viminalis*

Fig. 6. Photo of tree T5 a *Callistemon viminalis*

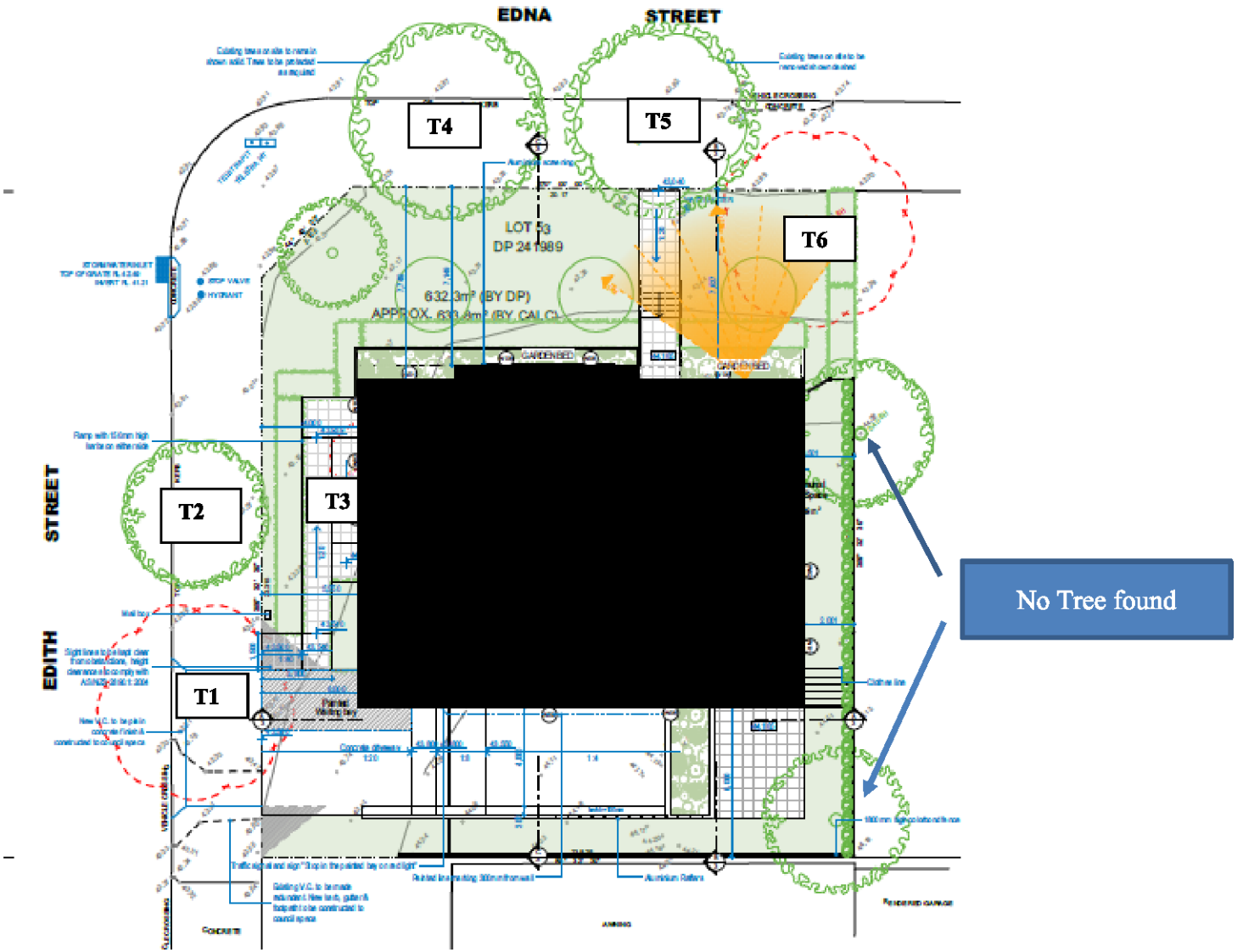
Fig.7. Photo of Tree T6 a *Cupressus macrocarpa*

Fig. 8. Photo showing no trees in neighbouring property to the West of the Site.

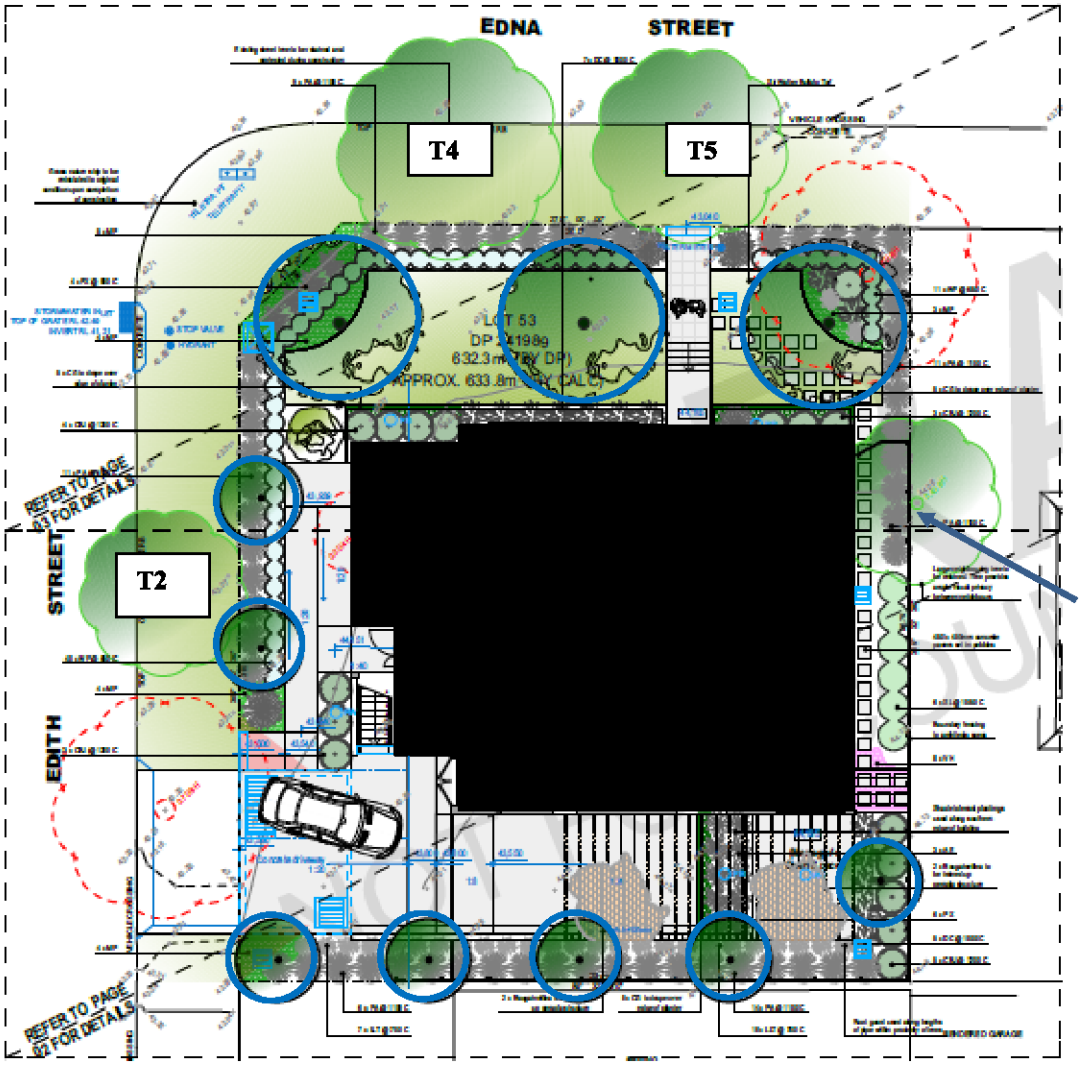
APPENDIX 2a. Excerpt from site survey showing the location of the trees on the Site.



APPENDIX 2b. Excerpt from site plans showing the location of the trees on the Site in relation to the proposed development.



APPENDIX 2c. Excerpt from Landscaping plan showing the location of compensatory trees on the Site.



APPENDIX 3. TABLE 2. SULE CATAGORIES AND SUB-CATEGORIES.

	1	2	3	4	5
	Long SULE: Appeared to be retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Medium SULE: Appeared to be retainable at the time of assessment for 15 to 40 years with and acceptable degree of risk assuming reasonable maintenance.	Short SULE: Appeared to be retainable at the time of assessment for 5 to 15 years with and acceptable degree of risk assuming reasonable maintenance.	Remove: Trees which should be removed within the next 5 years.	Small young or regularly clipped: Trees that can be reliably transplanted or replaced.
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for 15 and 40 more years.	Trees that may only live for between 5 and 15 more years	Dead, Dying suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5 m in height.
B	Trees that could be made suitable for retention in the long term by remedial care.	Trees that may live for than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to	Trees that may live for more than 15years but should be removed to prevent interference with more suitable individuals or to	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control their growth

	to secure their long term retention.	provide space for new plantings	provide space for new plantings		
D		Trees that could be made suitable for retention in the medium term by remedial care	Trees that require substantial remedial care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other surrounding trees	

Table 2 Ref Barrell, Jeremy (1996). Predevelopment tree assessment. Proceedings of the International Conference on Trees and Building Sites (Chicago)