JACKSONS NATURE WORKS
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ARBORICULTURAL IMPACT ASSESSMENT REPORT

At

58 – 76 Stanmore Road
Stanmore

Prepared for

Cyprus Club

10th December 2016

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DISCLAIMER

The Client acknowledges that this Report, and any opinions, advice or recommendations expressed or given in it, are the information supplied by the Client and on the data inspections, measurements and analysis carried out or obtained by Jacksons Nature Works (JNW) and referred to in the Report. The Client should rely on The Report, and on its contents, only to that extent.

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However Ross Jackson – Consulting Arborist can neither guarantee nor be responsible for the accuracy of information provided by others. Unless stated otherwise:

- Information contained in this report covers only the trees examined and reflects the health and structure of the trees at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions.
- The inspection was limited to visual examination from the base of the subject tree without dissection, probing or coring; and
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

Ross Jackson.

Consulting Arborist

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1. BACKGROUND and METHODODOLGY

1.1 The purpose of this Tree Report is to inform and accompany the development application works at 58 – 76 Stanmore Road, Stanmore – The Site.

1.2 The report was commissioned by the Cypress Club to respond to Council's requirements to consider the development impacts on trees located on and around the Site.

1.3 This report outlines the health and condition of the subject trees, the remaining life expectancy of the trees, identifies any visible defects or other problems, describes which trees require pruning, removal, retention or represent a potential hazard and comments on the impact on these trees in relation to the works proposed. The report also provides recommended tree protection measures (Tree Management Plan) to ensure the long-term preservation of the trees to be retained where appropriate.

1.4 The Site is a football premises with surrounding carparking at Stanmore.

1.5 The trees were identified by ground level Visual Tree Assessment (VTA) [1] only in the data collection, taken on 24th October 2016. No aerial (climbing) was undertaken.

1.6 All site photographs were taken by the author at the site. All photographs were taken using a digital camera (Canon 7D) with no image enhancement either within the camera or on computer.

1.7 The subject trees were located on plans supplied. The trees have been plotted and can be found on Annexure B – Tree Location Plan.

1.8 The trees were identified and their genus species and common name used. The trees were identified by the use of data collected and compared to G Burnie, S Forrester et al (1997) **Botanica** Random House, Milsons Point, NSW, Australia.

1.9 DBH. The Trunk Diameter at Breast Height (1.4 metres above ground level) in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.

1.10 DRB. The trunk Diameter above Root Buttress in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.

1.11 Height. Estimated overall height in metres.

1.12 Spread. Measured with a metal tape measure and shown in metres.

1.13 Useful Life Expectancy (ULE)[2].

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[1] Mattheck, Dr. Clause & Breloer, Helge (1994) – Sixth Edition (2001) **The Body Language of Trees – A Handbook for Failure Analysis** The Stationery Office, London, England

[2] Barrell, Jeremy (1996, 2001) **Pre-development Tree Assessment** Proceedings of the International Conference on Trees and Building Sites (Chicago) International Society of Arboriculture, Illinois, USA

A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium, (retainable for 16 – 39 years), Short (retainable for 5 – 15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

1.14 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been calculated in terms of AS 4970 – 2009 Protection of trees on development site Section 3.

1.15 To prepare this report we have reviewed the following documents:

- Detail survey from Bottaro de Nett (Surveyors), dated 8.9.2006;
- Architectural plans by Kennedy Associates Architects, dated April 2016;
- Marrickville Council DCP Generic Provisions 2.20 Tree Management (TPO); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (24.10.2016)

2.1 Our tree observations can be found in Annexure A.

3. DISCUSSIONS

3.1 We have been commissioned by the Cyprus Club, to examine the health and condition of the trees on and around this development site.

It is proposed to demolish the existing and the construction of a residential development on Site (development works).

3.2 We have examined the trees on site and can suggest the following considerations for the development works:

1. The following are noted in the Site Plan but were not located during the site visit: Tree 13, 16 & 17;

2. The following trees are classified AS Exempt trees in Council's TPO and can be removed: Tree 3 & 20 *Cinnamomum camphora*, tree 6 & 10 Dead tree, tree 15A *Ligustrum lucidum* and tree 19 *Celtis occidentalis*. Note for removal in the Tree Management Plan (TMP);

3. The following trees are located within the building footprint and will need to be removed to allow the basement excavations and building works: Trees 1 *Jacaranda mimosifolia* (poor form from overhead powerline pruning & trunk cavities), tree 2 *Jacaranda mimosifolia* (poor form from overhead powerline pruning & trunk cavities), tree 4 *Ulmus parvifolia* (good vitality but spreading form impacted by building works), tree 14 *Ulmus parvifolia* (good vitality but with canopy modification and signs of decline), tree 15 *Ulmus parvifolia* (good vitality), tree 18 *Eucalyptus botryoides* (good vitality), tree 18A *Ficus rubiginosa* (good vitality but with suspect structural integrity from stem failure with decay), tree 20A *Eucalyptus scoparia* (fair

vitality but with 20% deadwood and dieback) and tree 20 B *Lagerstroemia indica* (good vitality). Note for removal in the TMP;

4. The following site trees can be retained as the development works have less than 10% encroachment within their TPZ: Tree 7 *Corymbia citriodora* (good vitality), tree 9 *Corymbia citriodora* (good vitality) and tree 11 *Corymbia citriodora* (good vitality) – refer plate 1;

Plate 1 showing trees 11, 9 & 7

5. The following trees are not impacted by the development works, however their form and lack of vitality warrants removal to provide space for replacement planting: Tree 8 *Eucalyptus nicholii* (stunted and poor vitality) – refer plate 2 and tree 12 *Eucalyptus nicholii* (fair vitality but stunted form) – refer plate 3. Note these trees for removal in the TMP;

Plate 2 – tree 8

Plate 3 – tree 12

6. The following street tree can be retained in Tupper Street: Tree 21 *Callistemon viminalis*. Note for retention and protection in the TMP.

3.3 It is acknowledged at least seven trees of fair to good vitality will be removed as part of the development works (Trees 4, 5, 14, 15, 18, 18A, 20b). However, there is ample space on site to replace these trees in the landscape works. The replacement trees will ensure the ongoing benefit of trees in this location.

4. RECOMMENDATIONS

In consideration of the data collected recommendations are provided for the removal or retention of trees including specific tree protection measures required to reduce the anticipated impacts from the proposed construction on those trees proposed to be retained.
The report specifically recommends:
a. Remove the following Exempt trees on site: Trees 3, 6, 10, 15A, 19 & 20;
b. Remove the following trees on site: Trees 1, 2, 4, 5, 8, 12, 14, 15, 18, 18A, 20A & 20B;
c. Retain the following trees on site: Trees 7, 9 & 11;
d. Retain the following street tree: Trees 21;
e. Tree removal work shall be carried out by an experienced tree surgeon in accordance with NSW WorkCover Code of Practice for Amenity Tree Industry (2007);
f. Install the following Tree Protection Measures around the retained trees: Tree protection measures shall be a temporary fence of chain wire panels 1.8 metres in height (or equivalent), supported by steel stakes or concrete blocks as required and fastened together and supported to prevent sideways movement. Existing boundary fences or walls are to be retained shall constitute part of the tree protection fence where appropriate. A sign is to be erected on the tree protection fences of the trees to be retained that the trees are covered by Council's tree preservation orders and that "No Access" is permitted into the tree protection zone;
g. Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Hardwood planks (50mm x 100mm or similar) shall be placed over the padding and around the trunk of the tree at 150mm centres. The planks shall be secured with 8 gauge wire or hoop steel at 300mm spacing. Trunk protection shall extend a minimum height of 2 metres or to the maximum possible length permitted by the first branches on Trees 7, 9 & 11 – refer Annexure D;
h. That a Tree Management Plan be prepared as part of the Construction Certificate by a consulting arborist who holds the Diploma in Horticulture (Arboriculture), Level 5 under the Australian Qualification Framework;
i. An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures;
j. Our tree location plan can be found on Annexure B; &
k. The Tree Impact Plan can be found on Annexure C.

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Annexure A: Observations as seen on the day of inspection of trees

Tree No	Botanical Name	Age Class	Height – m	Spread - m	D.B.H (cm)	D.R.B (cm)	TPZ & SRZ Rad.m	Condition comments on trees as seen on site	ULE
1	*Jacaranda mimosifolia*	M	6	8	44	50	5.3, 2.5	F – G vitality. OHPL pruning on Alma Lane side. Epicormic regrowth branches. Torn branches. Trunk cavities at 2m	4C
2	*Jacaranda mimosifolia*	M	8	8	32, 46 (56)	70	6.7, 2.8	F – G vitality. OHPL pruning on Alma Lane side. Epicormic regrowth branches. Distorted canopy	4C
3	*Cinnamomum camphora*	M	9	8	36, 26 (44)	54	5.3, 2.6	Exempt tree <10m	5
4	*Ulmus parvifolia*	M	16	20	40, 40, 50 (75)	90	9.0, 3.2	G vitality. OHPL pruning along Alma Lane. Low spreading form with asphalt covering root plate	2
5	*Ulmus parvifolia*	M	8	7	34, 26 (43)	46	5.2, 2.4	G vitality. OHPL pruning along Alma Lane. Asphalt covering root plate.	2
6	*Dead tree*	D	4					Exempt tree - dead	4A
7	*Corymbia citriodora*	M	16	8	40	48	4.8, 2.5	G vitality. Canopy suppression by tree 9. Twin stems at 3m.	2
8	*Eucalyptus nicholii*	M	7	4	32	34	3.8, 2.1	F – P vitality. Stunted form from suppression by trees 7 & 9. DW (20%), Epicormic growth (15%)	4C
9	*Corymbia citriodora*	M	21	9	74	90	8.8, 3.2	G vitality. Dominant tree. Surface roots to Sth. <10% DW	2
10	*Dead tree*	D	9					Exempt tree - dead	4A
11	*Corymbia citriodora*	M	16	10	40	50	4.8, 2.5	G vitality. 2nd dominant tree. <10% DW. Suppression by tree 9	2
12	*Eucalyptus nicholii*	M (OM)	9	6	40	46	4.8, 2.4	F vitality. Lean to Nth. DW & epicormic regrowth. Suppressed form from tree 11	4A
13	*Not found*								
14	*Ulmus parvifolia*	M	16	10	98	116	11.8, 3.5	G vitality. Twin stem after 2m. DW in canopy. Thinning foliage density. Canopy limited to E by building. Limited soil available to N & E sides. Growing above embankment beside carpark.	4C
15	*Ulmus parvifolia*	M	10	16	76	80	9.1, 3.0	G vitality.	2
15A	*Ligustrum lucidum*	M	7					Exempt tree	5
16	*Not found*							Removed	
17	*Not found*							Removed	
18	*Eucalyptus botryoides*	M	16	10	56	70	6.7, 2.8	G vitality. <10% DW. Canopy hangs over site	2
18A	*Ficus rubiginosa*	M	14	12	60	81	7.2, 3.0	G vitality. Branch failure on W side with decay into junction with 2nd stem. Canopy over site	3
19	*Celtis occidentalis*	M	12	12	76	88	9.1, 3.2	G vitality. Spreading form with canopy hanging over site. <10m these trees are Exempt trees	3 (5)
20	*Cinnamomum camphora*	M	10	14	78	80	9.3, 3.0	Exempt tree in fair vitality. DW & dieback	5
20A	*Eucalyptus scoparia*	M	8	6	24	30	2.8, 2.0	F – A vitality with DW (20%) & dieback	3 (4C)
20B	*Lagerstroemia indica*	M	7	9	2 x 20 (28)	36	3.3, 2.2	G vitality	2
21	*Callistemon viminalis*	M	7	6	44	50	5.3, 2.5	G vitality. Street tree.	2

Terms used in Tree Survey & Report:

Age Class

(Y) – Young refers to a well-established but juvenile tree. Less than 1/3 life expectancy

(SM) – Semi-mature refers to a tree at growth stage between immaturity and full size. A tree has reached First Adult Form i.e. displays adult characteristics. 1/3 to 2/3 life expectancy

(M)- Mature refers to a full size tree with some capacity for future growth. Older than 2/3 life expectancy

(OM) – Over-mature refers to a tree approaching decline or already declining. Older than 2/3 life expectancy and showing signs of irreversible decline.

Health refers to a tree's vigour, growth rate, disease and/or insects.

Vitality summarises observations about the health and structure of the tree on a scale of: **(G) Good, (F) Fair, (P) Poor, (P) Poor & (D) Dead.**

Good: Tree is generally healthy and free from obvious signs of structural weaknesses or significant effects of pests and diseases or infection;

Fair: Tree is generally vigorous although has some indication of being adversely affected by the early effects of disease or infection or environmental or mechanical damage. Appropriate tree maintenance can usually improve overall health and halt decline;

Poor: Tree in decline and is not likely to improve with reasonable maintenance practices or has a structural fault such as bark inclusion;

Dead: Tree no longer capable of sustained growth.

Deadwood (DW) – deadwood found in canopy as a percentage.

Over Head Power Lines (OHPL) – upper canopy pruned to accommodate power lines at a given height.

Height expressed in metres refers to estimated overall height of tree.

Spread expressed in metres refers to estimated spread of crown at the drip line.

(DBH) Diameter at Breast Height expressed in millimetres refers to the trunk diameter at 1.4 metres above ground level. Where there are multiple trunks the combined diameter has been calculated in terms of Appendix A – AS 4970 – 2009, shown in brackets.

(DRB) Diameter above Root Buttress expressed in millimetres refers to the trunk diameter above root buttress.

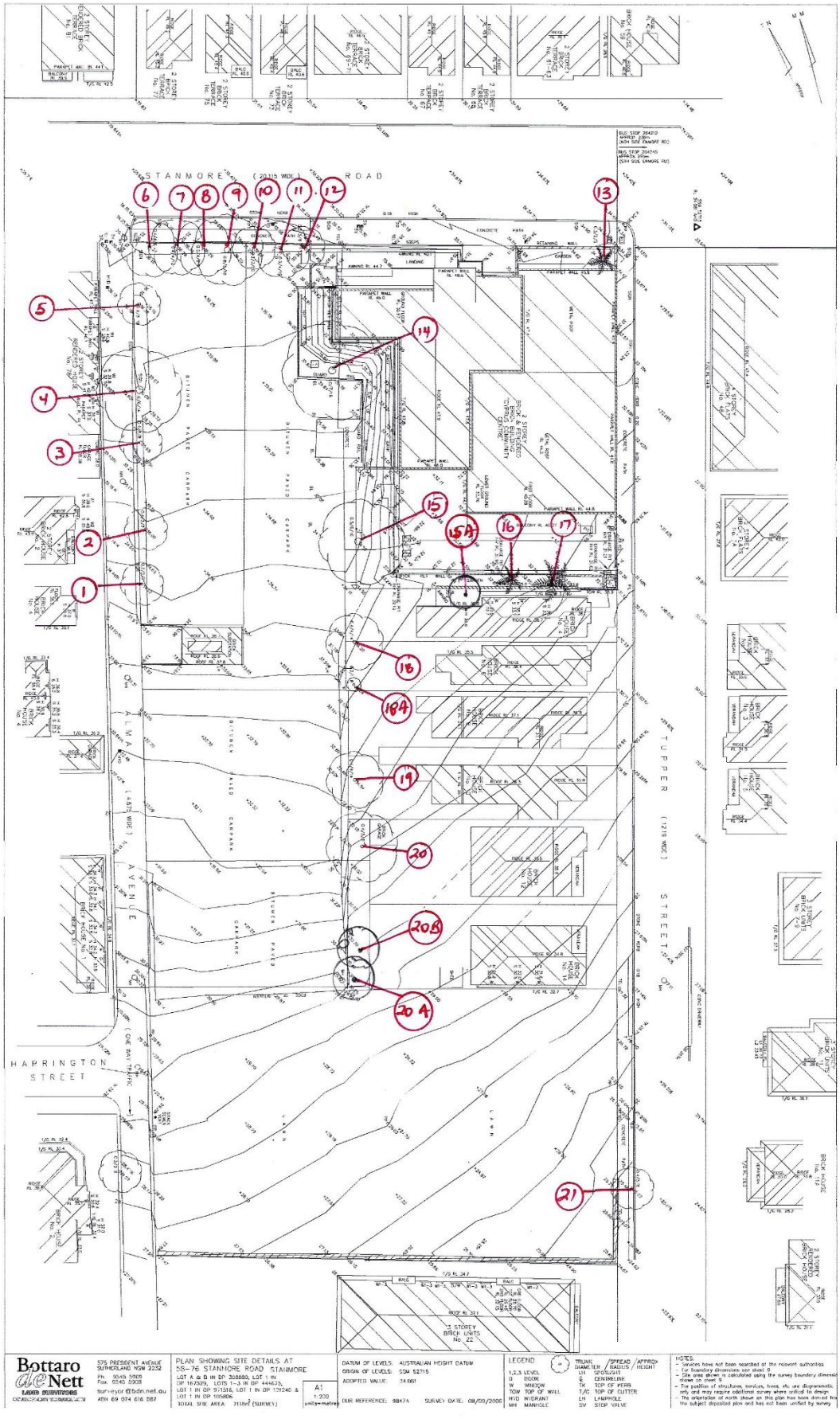
(TPZ) Tree Protection Zone & Structural Root Zone (SRZ) as defined by AS 4970 – 2009 Section 3

(ULE) The various ULE categories indicate the useful life anticipated for an individual tree or trees assessed as a group. Factors such as the location, age, condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on better specimens and the economics of managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995, 2001).

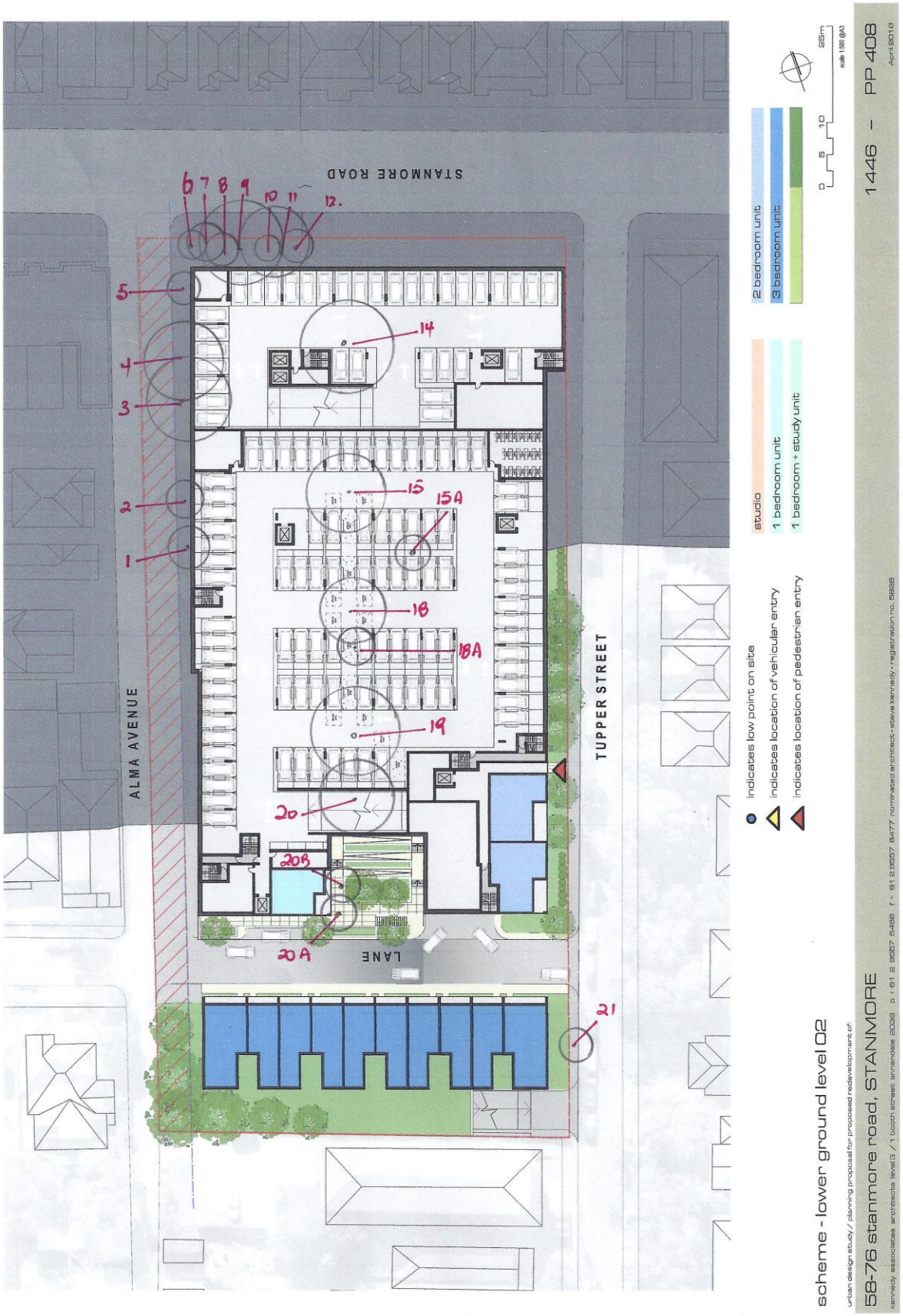
ULE RATING (UPDATED 1/4/01) BARRELL

1.Long ULE: Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	**2.Medium ULE:** Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	**3.Short ULE:** Trees that appear to be retainable at the time of assessment for more than 5-15 years with an acceptable level of risk.	**4.Remove:** Trees that should be removed within the next 5 years.	**5.Small, young or regularly pruned:** Trees that can be reliably moved or replaced.
(A) Structurally sound trees located in positions that can accommodate future growth	**(A)** Trees that may only live between 15 and 40 more years.	**(A)** Trees that may only live between 5 and 15 more years.	**(A)** Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.	**(A)** Small trees less than 5 Metres in height.
(B) Trees that could be made suitable for retention in the long term by remedial tree care.	**(B)** Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.	**(B)** Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.	**(B)** Dangerous trees because of instability or recent loss of adjacent trees.	**(B)** Young trees less than 15 years old but over 5 metres in height.
(C) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	**(C)** Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	**(C)** Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	**(C)** Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.	**(C)** Formal hedges and trees intended for regular pruning to artificially control growth.
	(D) Trees that could be made suitable for retention in the medium term by remedial tree care.	**(D)** Trees that require substantial remedial tree care and are only suitable for retention in the short term.	**(D)** Damaged trees that are clearly not safe to retain.	
			(E) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.	
			(F) Trees that are damaging or may cause damage to existing structures within 5 years.	
			(G) Trees that will become dangerous after removal of other trees for the reasons given in (A) to (F).	
			(H) Trees in categories (A) to (G) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.	

Annexure B: Tree location plan



Annexure C: Tree impact plan



Annexure D: Trunk protection