

JACKSONS NATURE WORKS

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ARBORICULTURAL IMPACT ASSESSMENT REPORT

At

**648 – 652 Princes Highway & 1 – 3 Ashton Street
Rockdale**

Prepared for

Dr S Guirgis & Mr R Hanna

12th December 2017

Prepared by: Ross Jackson

Graduate Certificate in Arboriculture (AQF L 8)

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Member of the Arboriculture Australia (MAA)

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Consulting Arborist Nos.1695

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 METHODOLOGY

- 1.1 The purpose of this Tree Report is to inform and accompany the development application works at 648 – 652 Princes Highway & 1 – 3 Ashton Street, Rockdale – The Site.
- 1.2 The report was commissioned by Dr S Guirgis & Mr R Hana 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 5 residential sites with gardens at Rockdale.
- 1.5 The trees were identified by ground level Visual Tree Assessment (VTA) ¹ only in the data collection, taken on 5.10.2017. 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.

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 by Jackson Surveyors Pty Ltd, **dated 7.3.2007**;
- Architectural plans by Architecture and Building Works, dated 9.11.2017;
- Stormwater plan by United Consulting Engineers Pty Ltd, dated 9.11.2017;
- Landscape plan by Isthmus Landscape Design, dated 17.10.2016;
- Rockdale DCP 2011, 4.1.7 Tree Preservation (DCP); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (5.10.2017)

2.1 Our tree observations can be found in Annexure A. N.B. The site survey is dated 7.3.2007, consequently over the ten years numerous trees have grown on site and require identification as they are included in Council's DCP. Their positions have been hand drawn by JNW on the survey plans.

3. DISCUSSIONS

3.1 We have been commissioned by Dr S Guirgis & Mr R Hana, 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 with two commercial shops and one office shop on Site (development works).

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

1. Tree 1, 2, 3 & 4 *Lophostemon confertus* show good vitality and are located in the nature strip in Ashton Street. The development works have an encroachment of 8.6% (tree 1), 20.8% (tree 2), 15.1% (tree 3) & 6.8% (tree 4) within these trees TPZ. The encroachment is considered acceptable as the existing structures have limited root growth into the site, thus limiting potential root disturbance. In addition, no canopy pruning is required to undertake the development works. Care will need to be exercised when re-doing the concrete footpaths along Ashton Street as the root crown and roots of these valuable street trees have heaved the existing footpaths – refer plate 1 & 2. Note these trees for retention and protection in the Tree Management Plan (TMP);



Plate 1 footpath beside tree 2



Plate 2 – footpath beside tree 3

2. Tree 5 *Casuarina glauca* shows good vitality but having lost its apical growing point, resulting in twin leaders. The development works don't have an encroachment within this trees TPZ, thus ensuring its retention. Note this tree for retention and protection in the TMP;

3. Tree 6 *Tristaniopsis laurina* shows good vitality but with bifurcation at 1.5m, being located in the adjoining site. The development works don't have an encroachment within this trees TPZ, thus ensuring its retention. Note this tree for retention and protection in the TMP;

4. Tree 7 *Lagerstroemia indica* shows good vitality with multiple stems. This tree will require removal to excavate the basement driveway. It is considered to be of low landscape significance and can be easily replaced in the proposed landscape works. Note for removal in the TMP;

5. Tree 8 & 9 *Callistemon viminalis* show fair & good vitality, being located in the footpath in Chandler Street. The development works have an encroachment of less than 10% within these trees TPZ. It is proposed to remove these trees and replant 5 street trees to comply with Council's street tree policy. It is noted, there are no overhead power lines along this side of the street, which will ensure the canopies won't be savaged by the power companies as they gain maturity. Removal with replacement planting of canopy trees is supported. Note this tree for removal in the TMP;

6. The following trees are classified as Exempt trees in Council's DCP and can be removed: Tree 10, 11, 14 & 31 *Morus nigra* (fruit tree), tree 12 & 15 *Ligustrum lucidum* (Noxious Weed), tree 13 *Citrus sp.* (fruit tree), tree 18 & 21 Dead tree and tree 23 *Ficus carica* (fruit tree). Note these trees for removal in the TMP;

7. Tree 16 *Cinnamomum camphora* shows good vitality. This tree is considered to be an urban weed and should be removed regardless of any development impacts. It is acknowledged this tree is within the building footprint and will need to be removed to allow the development to proceed. Note for removal in the TMP;

8. Tree 17 *Archontophoenix cunninghamiana* shows good vitality and form. It is acknowledged this tree is within the building footprint and will need to be removed to allow the development to proceed. This tree is considered to be of low transplant potential, thus removal is supported. Note for removal in the TMP;

9. Tree 19 *Archontophoenix cunninghamiana* shows good vitality. It is acknowledged this tree is within the building footprint and will need to be removed to allow the development to proceed. This tree is considered to be of low transplant potential, thus removal is supported. Note for removal in the TMP;

10. Tree 20 *Cupressus macrocarpa Brunniana* shows good vitality with previous lower branch pruning – refer plate 3. This tree is within the proposed commercial premises and will require removal to allow the development to proceed. Removal is supported as there are over 20 trees being replanted on site to compensate for the loss of this tree. Note for removal in the TMP;



Plate 3 – tree 20

11. Tree 22 *Brachychiton acerifolius* shows good vitality and form – refer plate 3. This tree is within the proposed commercial premises and will require removal to allow the development to proceed. Removal is supported as there are over 20 trees being replanted on site to compensate for the loss of this tree. Note for removal in the TMP;

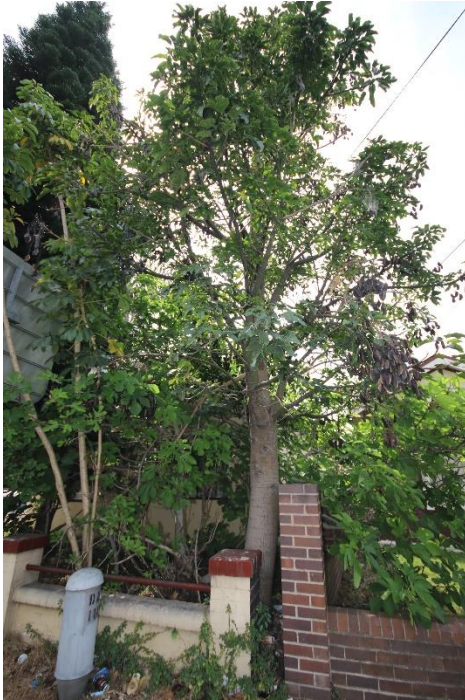


Plate 4 – tree 22, 23 & 24

12. Tree 24 & 27 *Schefflera actinophylla* show good vitality. These trees are considered to be of low landscape significance with tree 24 (refer plate 4) being within the footprint of the commercial premises and tree 27 (refer plate 5) located within the garden at the corner of Ashton Street and the Princes Highway. Removal of both trees is supported to allow the construction of the commercial premises and to provide space for replanting of more appropriate plants at the corner of Ashton Street and the Princes Highway. Note for removal in the TMP;



Plate 5 – tree 26 & 27

13. Tree 25 *Syagrus romanzoffiana* shows good vitality. This tree is considered to be of low landscape significance and is within the proposed commercial premises and will require removal to allow the development to proceed. Removal is supported as there are over 20 trees being replanted on site to compensate for the loss of this tree. Note for removal in the TMP;

14. Tree 26 *Araucaria columnaris* shows good vitality, with typical twin leaders from mid canopy – refer plate 5. This tree has an encroachment within its TPZ of over 60% - refer Annexure C. It is acknowledged this tree is within the building footprint and will need to be removed to allow the development to proceed. Removal is supported as there are over 20 trees being replanted on site to compensate for the loss of this tree. Note for removal in the TMP;

15. Tree 28 *Leptospermum petersonii* shows fair vitality but with Wisteria entwined in the upper canopy spoiling its form – refer plate 6. No amount of horticultural care would restore this tree to long term good form and vitality. Removal is supported with replacement tree planting in the landscape works – refer Annexure C. Note this tree for removal in the TMP;

16. Tree 29 *Callistemon viminalis* shows fair vitality – refer plate 6. This tree is of low landscape significance and is recommended for removal as over 20 trees will be replanted on site to compensate for the removal of this tree – refer Annexure C. Note for removal in the TMP;



Plate 6 – tree 29 & 28

17. Tree 30 *Leptospermum petersonii* shows fair vitality and form. This tree is of low landscape significance and is recommended for removal as over 20 trees will be replanted on site to compensate for the removal of this tree – refer Annexure C. Note for removal in the TMP;

3.3 The landscape plans show the replanting of 5 street trees and 14 canopy trees and numerous large shrubs as part of the proposed landscape works. Therefore, the proposed tree removals on site will be compensated with the planting of these plants on site and in Chandler Street. These plans are supported.

3.4 The stormwater plan shows the outlet beside Tree 5 in Ashton Street. To avoid impacting the roots of this tree, the pipework can be moved 3 metres to the west – refer Annexure D with hand mark up by JNW. Otherwise these plans are supported.

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. The retention of the following street trees: Trees 1, 2, 3, 4 & 5;
- b. The removal of the following street trees: Trees 8 & 9;
- c. The retention of the following neighbours tree: Tree 6;
- d. The removal of the following trees on site: Trees 7, 16, 17, 19, 20, 22, 24, 25, 26, 27, 28, 29 & 30;

- e. The removal of the following Exempt trees on site: Tree 10, 11, 12, 13, 14, 15, 18, 21, 23 & 31;
- f. Tree removal work shall be carried out by an experienced tree surgeon in accordance with *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal (2016)*;
- g. That the stormwater outlet pipe be adjusted on site during the construction works as shown in Annexure D;
- h. 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;
- i. 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 tree 1, 2, 3, 4, 5 & 6 – refer Annexure E;
- j. 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 or above under the Australian Qualification Framework;
- k. An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures;
- l. Our tree location plan can be found on Annexure B;
- m. The Tree Impact Plan can be found on Annexure C.



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 Consulting Arborist
 Graduate Certificate in Arboriculture – AQF Level 8 (Honours)
 Diploma Horticulture (Arboriculture) – AQF Level 5
 Certificate III in Horticulture
 Certificate in Horticulture (Landscape – Honours)

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	<i>Lophostemon confertus</i>	M	12	12	70	80	8.4, 3.0	G vitality. ST. Previously topped	2
2	<i>Lophostemon confertus</i>	M	14	12	104	114	12.5, 3.8	G vitality. ST. Previously topped. Foot path uplifted beside tree	2
3	<i>Lophostemon confertus</i>	M	14	12	86	92	10.3, 3.2	G vitality. ST. Twin trunks at 4m	2
4	<i>Lophostemon confertus</i>	M	10	10	48, 46 (66)	70	7.9, 2.9	G vitality. ST. Twin trunks at 1m	2
5	<i>Casuarina glauca</i>	M	14	8	46	58	5.5, 2.6	G vitality. ST. Lost apical point at 4m making twin secondary leaders	2
6	<i>Tristaniopsis laurina</i>	M	6	3	20	22	2.4, 1.7	G vitality. ND. Bifurcated at 1.5m	2
7	<i>Lagerstroemia indica</i>	M	5	4	6x8 (20)	22	2.4, 1.7	G vitality with multiple stems	2
8	<i>Callistemon viminalis</i>	M	4	4	24	30	2.8, 2.0	F vitality. ST. Crown lifted to 1.8m	3
9	<i>Callistemon viminalis</i>	M	6	6	5x14 (31)	60	3.7, 2.7	G vitality. ST. Crown lifted to 2.0m	3
10	<i>Morus nigra</i>	M						Exempt tree (fruit tree)	-
11	<i>Morus nigra</i>	M						Exempt tree (fruit tree)	-
12	<i>Ligustrum lucidum</i>	M						Exempt tree (Noxious weed)	-
13	<i>Citrinus sp.</i>	M						Exempt tree (fruit tree)	-
14	<i>Morus nigra</i>	M						Exempt tree (fruit tree)	-
15	<i>Ligustrum lucidum</i>	M						Exempt tree (Noxious tree)	-
16	<i>Cinnamomum camphor</i>	M	6	6	22	24	2.6, 1.8	G vitality. Urban weed	5
17	<i>Archontophoenix cunninghamiana</i>	M	8	3	21	35	2.5, 2.1	G vitality.	2
18	<i>Dead tree</i>	D						Exempt tree	4A
19	<i>Archontophoenix cunninghamiana</i>	M	8	3	23	45	2.6, 2.3	G vitality.	2
20	<i>Cupressus macrocarpa Brunniana</i>	M	8	8	78	78	9.3, 2.9	G vitality. Lower canopy pruned to 1.8m	2
21	<i>Dead tree</i>	D						Exempt tree	-
22	<i>Brachychiton acerifolius</i>	M	7	3	31	38	3.7, 2.2	G vitality.	2
23	<i>Ficus carica</i>	M	5	6	14	22	2.0, 1.7	Exempt tree. (fruit tree)	-
24	<i>Schefflera actinophylla</i>	M	6	1	8, 10, 6 (16)	12	2.0, 1.5	G vitality. Undesirable tree	2
25	<i>Syagrus romanzoffiana</i>	M	8	3	24	30	2.7, 2.0	G vitality.	2 (5)
26	<i>Araucaria columnaris</i>	M	9	6	50	58	6.0, 2.6	G vitality. Twin leaders.	2
27	<i>Schefflera actinophylla</i>	M	6	2	20	22	2.4, 1.7	G vitality.	2 (5)
28	<i>Leptospermum petersonii</i>	M	5	5	22	30	2.6, 2.0	F vitality. Wisteria entwined in upper canopy	3 (5)
29	<i>Callistemon viminalis</i>	M	5	3	12, 14 (16)	19	2.0, 1.5	F vitality. Suppressed form	3 (5)
30	<i>Leptospermum petersonii</i>	M	6	2	16	20	2.0, 1.6	F vitality.	3 (5)
31	<i>Morus nigra</i>	M						Exempt tree (fruit tree)	5

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 stages 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.

Next Door tree (ND) – tree located in the neighbour's property.

Street Tree (ST) – tree located in Councils footpath reserve.

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

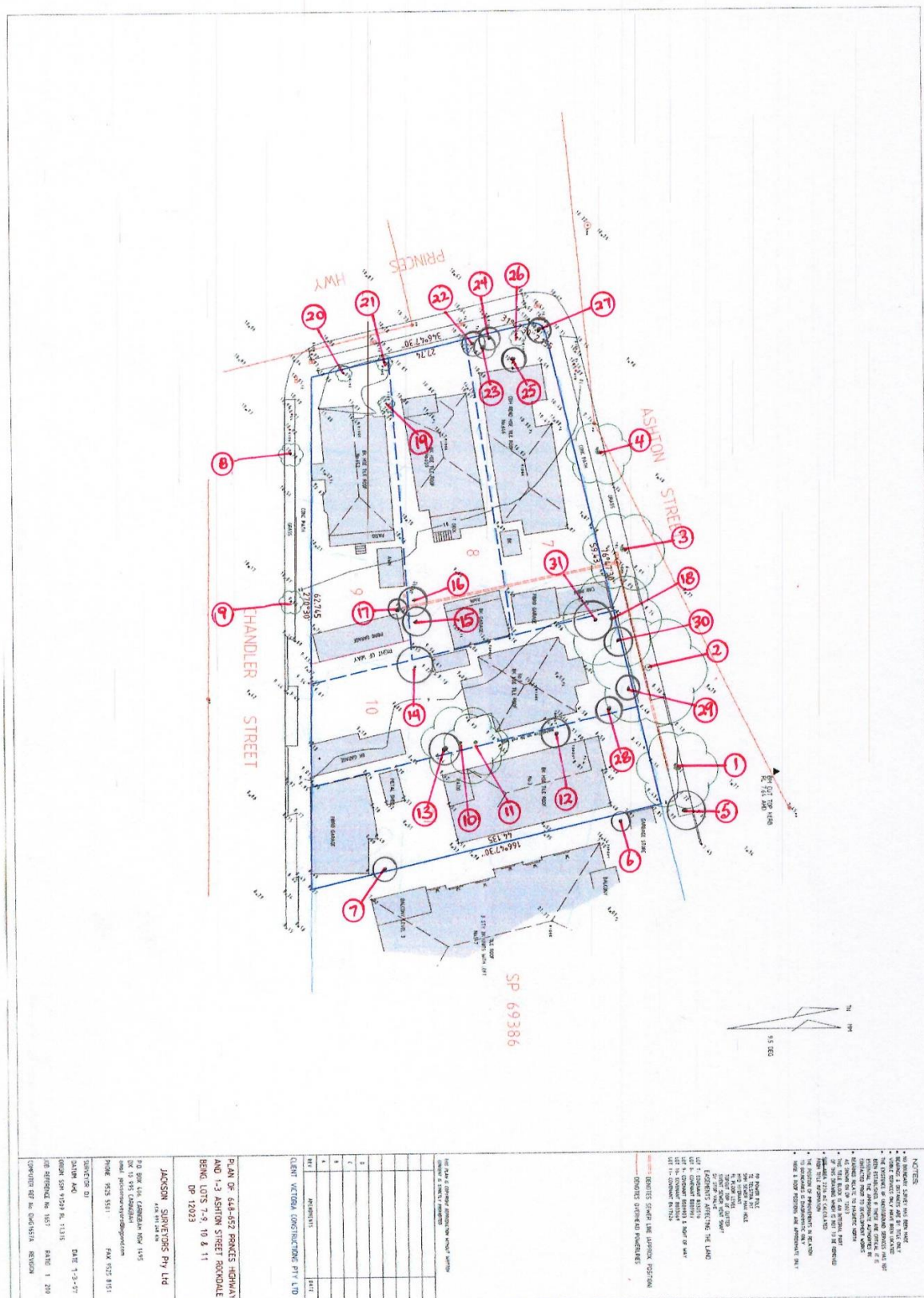
(ULE) The various ULE categories indicate the useful life anticipated for an individual tree or trees assessed as a group. Factors such as the location, age, condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on better specimens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

managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995, 2001).

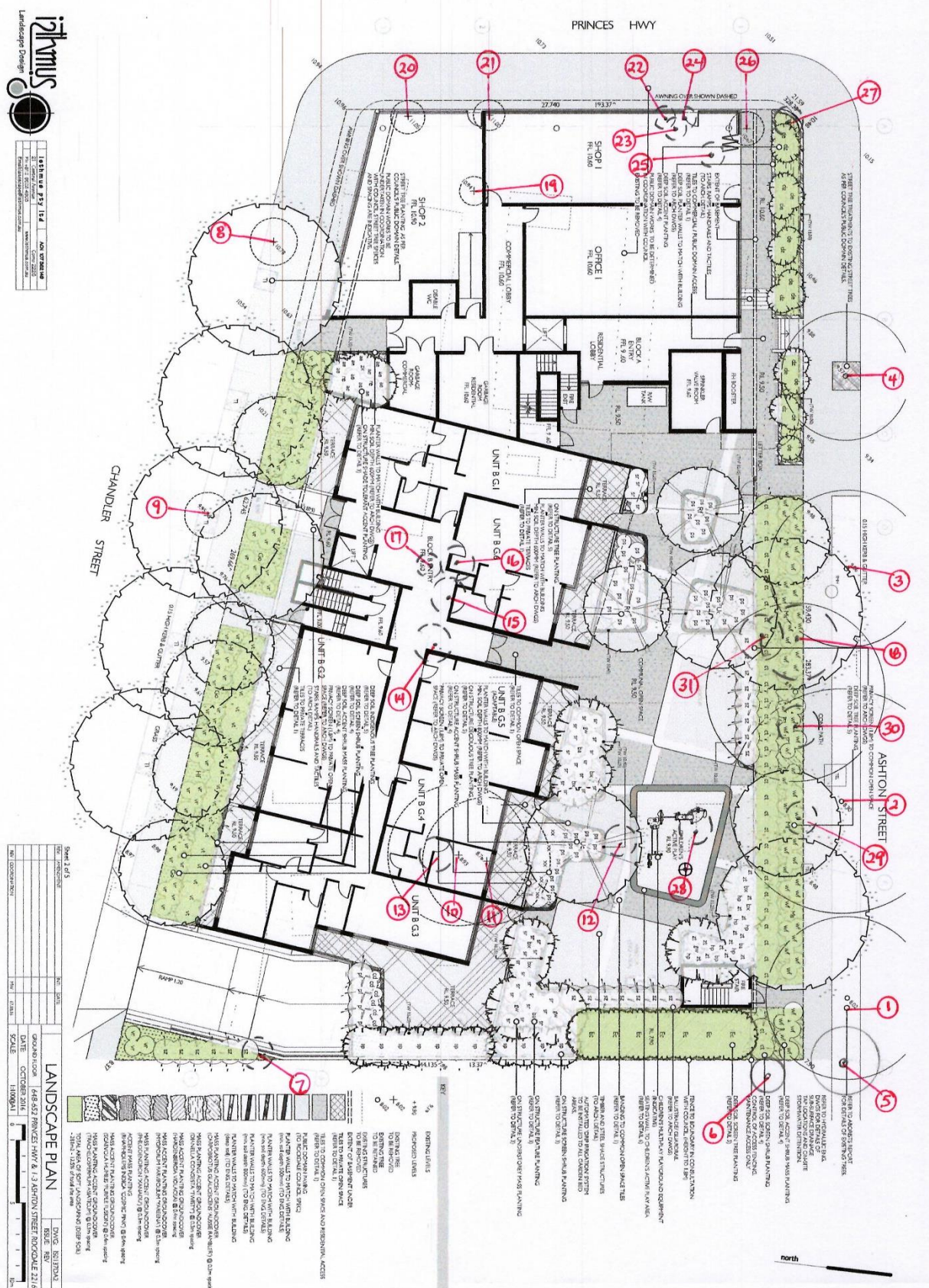
ULE RATING (UPDATED 1/4/01) BARRELL

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.	

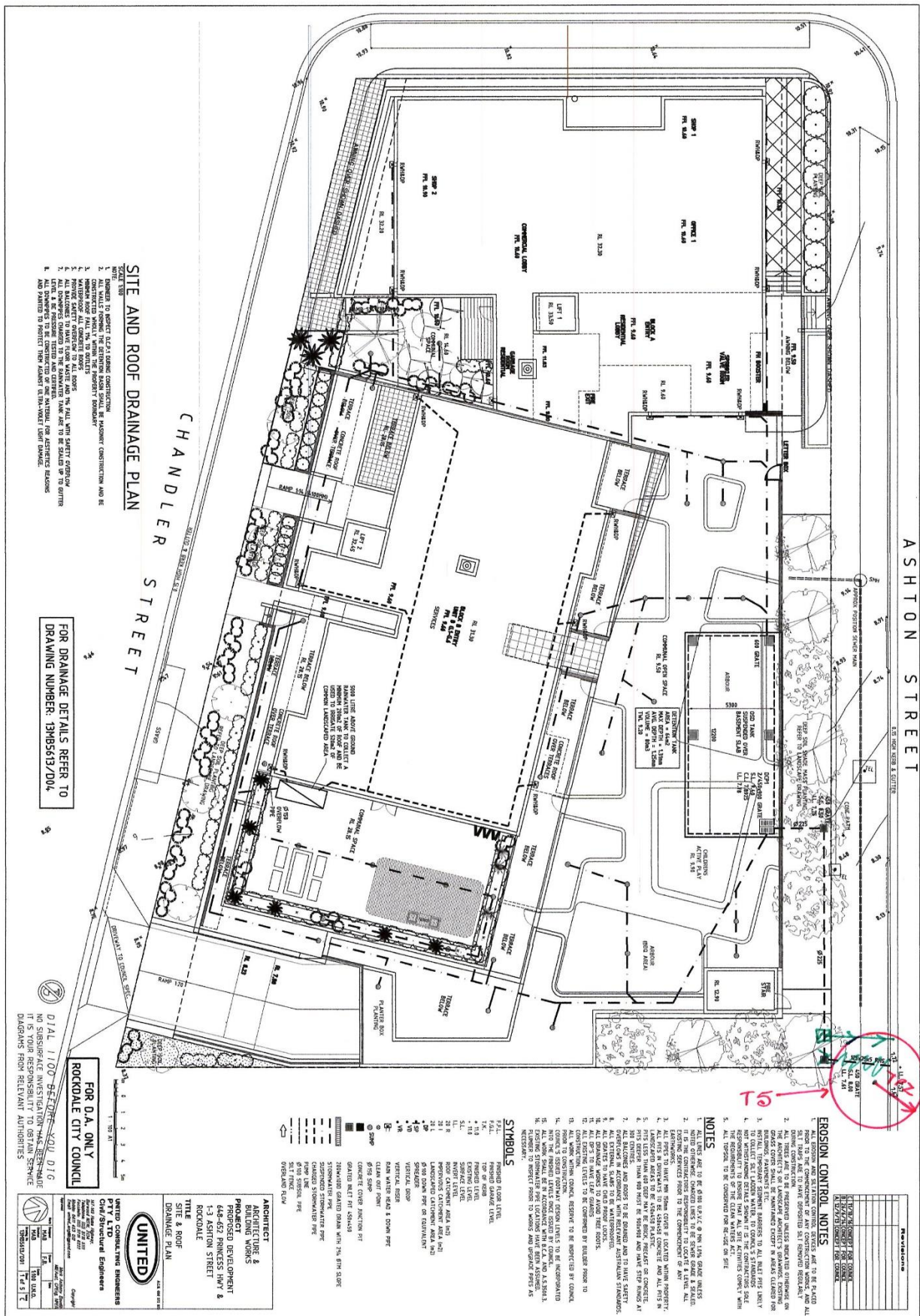
Annexure B: Tree location plan



Annexure C: Tree impact plan



Annexure D: Stormwater plan with mark up by JNW



Annexure E: Typical trunk protection

