Appendix 11 – Arboricultural Impact Assessment

JACKSONS NATURE WORKS
34 CALOOLA CRESCENT, BEVERLY HILLS 2209
9 150 4430
0 4 18) 414 502

ARBORICULTURAL IMPACT ASSESSMENT REPORT

At

Pennant Hills Road, Carlingford

Prepared for

Meriton Group

4th September 2023

Prepared by: Ross Jackson
Graduate Certificate in Arboriculture (AQF L 8)
Dip. Horticulture (Arboriculture – AQF L 5)
Certificate III in Horticulture (Arboriculture)
Certificate in Horticulture (Landscape)

Member of the Arboriculture Australia (MAA)
Member of the Australian Institute of Horticulture
Consulting Arborist Nos.1695

E: ross.jnw@gmail.com

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.
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future; &
- Unauthorised use of this report in any form is prohibited and remains the intellectual property of Jacksons Nature Works until all costs are settled.

Ross Jackson

Consulting Arborist

Table of Contents

1. BACKGROUND and METHODOLOGY

1.1 The purpose of this Tree Report is to inform and accompany the development application works at pennant Hills Road, Carlingford – The Site.

1.2 The report was commissioned by Meriton Group 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 series of residential sites with gardens at Carlingford.

1.5 The trees were identified by ground level Visual Tree Assessment (VTA) [1] only in the data collection, taken on 2.8.2023. 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].
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

---

[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

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 Retention value & landscape significance as described by ICAC – STARS © have been used for the trees in this report.

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

- Detail survey by JBW Surveyors Pty Ltd dated 23.3.2021
- Architectural plans by FK Architects dated 31.08.2023.
- Landscape plans by Urbis dated 1.9.2023, Rev 1.
- City of Parramatta Development Control Plan 2011, Part 5.4 Preservation of Trees or Vegetation (DCP).
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (2.8.2023)

2.1 Our tree observations can be found in Annexure A. N.B. Since our initial site inspection, the trees in this report are those found on site (the other trees number are trees not found during the site inspection)

3. DISCUSSIONS.

3.1 We have been commissioned by Meriton Group, 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 new apartment buildings 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 street trees along Shirley Street: Tree 1 *Eucalyptus parramattensis*, tree 3, 4 & 5 *Lophostemon confertus* showing good condition except tree 1 that has suspect structural integrity due to a Bracket Fungus at 2m – refer plate 1.

Tree 1 may live for many years without eventually succumbing to the loss of structural stability by the effects of the bracket fungus, however, it may be expedient to remove it now and replant a replacement tree in a similar situation.

Plus, the entire canopy is composed of epicormic regrowth which appears to be from environmental stress – refer plate 2.

Trees 3, 4 & 5 can be retained as established street trees – refer plate 2.

Note tree 1 for removal and replacement planting and retain trees 3, 4 & 5 in the development works.

Plate 1: Bracket fungi now growing through the trunk protection

Plate 2: Tree 1 with entire foliage being epicormic regrowth.

Plate 3: Trees 3, 4, & 5.

2. The following trees are located on site: Tree 6 *Liquidambar styraciflua* (good condition – refer plate 4), tree 8 *Callistemon viminalis* (low retention value – refer plate 5), tree 9 *Melaleuca linariifolia* (good condition – refer plate 5), tree 10, 11, 12 *Lophostemon confertus* (good condition – refer plate 5), tree 20 *Cedrus atlantica* (High retention value & good condition, low branches may require pruning – refer plate 6), tree 21 *Jacaranda mimosifolia* (poor form & low retention value – refer plate 6), tree 22 *Lagerstroemia indica* (good condition & low retention value – refer plate 7), tree 23 *Liquidambar styraciflua* (fair condition with major upper canopy storm damage, low retention value – refer plate 7), tree 24 *Acer palmatum* (trunk damage & low retention value – refer plate 8) tree 26 *Jacaranda mimosifolia* (poor form – refer plate 9), tree 27 *Cedrus atlantica* (good condition & high retention tree in streetscape – refer plate 10), tree 28 *Callistemon viminalis* (low retention value – refer plate 11), tree 29 *Camelia sasanqua* (low retention value – refer plate 11), tree 30 *Cedrus atlantica* (poor form – refer plate 12), tree 35 *Angophora costata* (poor form – refer plate 13) tree 36 *Callistemon viminalis* (poor form & OHPL pruning – refer plate 14), tree 38 *Grevillea robusta* (low retention value – refer plate 15), tree 40 *Callistemon viminalis* (fair condition & covered in Ivy – low retention value – refer plate 16), tree 44 *Lagerstroemia indica* (low retention value – refer plate 16), tree 45 & 46 *Liquidambar styraciflua* (low retention value – refer plate 17), tree 58 *Pittosporum undulatum* (suppressed form – low retention value), tree 68 *Chamaecyparis sp.* (good condition, exotic tree of low retention value – refer plate 18), tree 69 *Quercus robur* (good condition with high retention value – refer plate 19), tree 71 *Grevillea robusta* (poor form – topped & low retention value – refer plate 20), tree 72 *Brachychiton discolor* (topped & many branch pruning – refer plate 21), tree 73 *Jacaranda mimosifolia* (poor form & low retention value – refer plate 21), tree 74 *Brachychiton acerifolia* (topped & low retention value – refer plate 18), tree 75 *Acacia decurrens* (low retention value).

It is proposed to remove all these trees on site.

It is noted that the landscape plans include the replanting of hundreds of trees as part of the future landscaping on site to maintain the next generation of trees in this locality.

Plate 4: Tree 6.

Plate 5: Trees 8, 9, 10, 11 & 12.

Plate 6: Tree 20 & 21.

Plate 7: Trees 22 & 23.

Plate 8: Trees 24, 25, 25A (next door).

Plate 9: Tree 26.

Plate 10 Tree 27.

Plate 11: Tree 28 & 29.

Plate 12: Tree 30.

Plate 13: Tree 34 & 35.

Plate 14: Tree 36.

Plate 15: Tree 38.

Plate 16: Tree 40, 41 & 44.

Plate 17: Tree 45 & 46.

Plate 18: Tree 68.

Plate 19: Tree 69.

Plate 20: Tree 71, 72 & 73.

3. The following trees are classified as exempt species in Council's DCP and can be removed: Tree 7 & 41 *Ligustrum lucidum*, tree 25 *Magnolia soulangiana Nigra* and tree 34 *Photinia glabra*.

Note these trees for removal in the development works.

4. The following trees are located in the neighbour's properties Tree 25A *Morus nigra* (Good condition & behind brick wall along site boundary – refer plate 8) & 76 *Celtis australis* is located in the neighbour's property north – refer plate 21.

The development works are confined to site to ensure the retention of these neighbour's trees.

Plate 22: Tree 76.

3.3 The landscape plan shows so many more trees being replanted on site and along the street frontages that more than compensates for the number of trees being removed. The landscape plan is supported by JNW.

3.4 The drainage plan shows where the trees are impacted on site and those trees have been accounted for in this report.

4. RECOMMENDATIONS

The following recommendations are advised:

a) Remove the following street tree: Tree 1.
b) Retain the following street trees: Tree 3, 4, 5.
c) Remove the following Exempt trees on site: Tree 7, 25, 34, 37, 41.
d) Remove the following tree on site: Tree 6, 8, 9, 10, 11, 12, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 35, 36, 38, 40, 44, 45, 46, 58, 68, 69, 71, 72, 73, 74, 75.
e) Retain the following neighbour's trees: Tree 25A & 76.
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) Install the following Tree Protection Measures around the retained street tree: Tree 3, 4 & 5, 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 – refer Annexure D.
h) Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Timber 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 on trees 3, 4, 5 – refer Annexure D.
i) Install the following Tree Protection Measures around the retained trees: Trees 3, 4, 5, 25A & 77, 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. 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 – refer Annexure D.
j) The Tree Management Plan & Specifications shall be prepared for the issue of the Construction Certificate.
k) An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures.
l) The tree location plans can be found on Annexure B; &

m) The tree impact plans can be found on Annexure C.

Ross Jackson M.A.A. & M.A.I.H.
Consulting Arborist 1695
Graduate Certificate in Arboriculture AQF Level 8 (Honours)
Diploma Horticulture (Arboriculture) – AQF Level 5
Certificate III in Horticulture
Certificate in Horticulture (Landscape – Honours)

Co-written by
Luke Jackson
Arborist AQF Level 5

Annexure A: Observations as seen on the day of inspection of trees 2.8.2023

Tree No	Botanical Name	Age Class	Height (m)	Spread (m)	D.B.H. (cm)	D.R.B. (cm)	TPZ (radius m)	SRZ (radius m)	Condition comments as seen on site	ULE	Landscape significance	Retention value
1	*Eucalyptus parramattensis*	M	16	10	65	80	7.8	3	G vitality, ST, surface roots along kerb, 10% DW, bracket fungus @ 2m with dead branch above	2 (4e)	Medium	Medium - Low
3	*Lophostemon confertus*	M	9	8	50	60	6	2.7	G vitality, ST, climbing Ficus pumila up 1/2 of tree	2	High	High
4	*Lophostemon confertus*	M	8	6	30	35	3.6	2.1	G vitality. ST.	2	High	High
5	*Lophostemon confertus*	M	8	6	45	50	5.4	2.5	G vitality, ST, climbing Ficus pumila up 1/2 of tree	2	High	High
6	*Liquidambar styraciflua*	M	10	10	55	65	6.6	2.8	G vitality, branches 6m into site	2	Medium	Medium
7	*Ligustrum lucidum*	M	6	-	-	-	-	-	Exempt species	4	Low	Remove
8	*Callistemon viminalis*	M	7	6	3 x 20	45	4.2	2.4	G vitality, branches 6m into site	2	Medium	Low
9	*Melaleuca linariifolia*	M	5	7	35	40	4.2	2.3	Exempt species, N.B. Celtis 9x9x50/60 adjacent G vitality	4	Low	Remove
10	*Lophostemon confertus*	M	10	8	40	45	4.8	2.4	G vitality	2	Medium	Low
11	*Lophostemon confertus*	M	10	8	40	45	4.8	2.4	G vitality	2	Medium	Low
12	*Lophostemon confertus*	M	9	8	35	40	4.2	2.3	G vitality	2	Medium	Low
20	*Cedrus atlantica*	M	8	16	80	95	9.6	3.2	G vitality, low hanging branches to Nth corner, N.B. 5m Date Palm adjacent	1	High	Medium
21	*Jacaranda mimosifolia*	M	9	7	40	45	4.8	2.4	F vitality, ivy up to 7m	4c	Low	Low
22	*Lagerstroemia indica*	M	6	4	2 x 20	40	3.4	2.3	G vitality	2	Low	Low
23	*Liquidambar styraciflua*	M	10	10	60	75	7.2	2.9	F vitality, snapouts on every major limb	4c	Low	Low
24	*Acer palmatum*	M	7	7	2 x 25	50	4.2	2.5	F vitality, trunk decay	4d	Low	Low

25	*Magnolia soulangiana 'Nigra'*	M	5	5	2 x 15	45	2.5	2.4	Exempt species	4	Low	Remove
25A	*Morus nigra*	M	7	7	5 x 10	40	2.7	2.3	G vitality, ND, behind brick wall.	2	Medium	Medium
26	*Jacaranda mimosifolia*	M	7	6	60	70	7.2	2.8	F vitality, 1/2 canopy pruned due to OHPL, ivy	4c	Low	Low
27	*Cedrus atlantica*	M	8	8	40	45	4.8	2.4	G vitality	2	Medium	Medium
28	*Callistemon viminalis*	M	8	7	2 x 35	50	5.9	2.5	G vitality	2	Low	Low
29	*Camellia sasanqua*	M	6	6	20	25	2.4	1.8	G vitality, suppressed by T28	4e	Low	Low
30	*Cedrus deodara*	M	12	10	55	65	6.6	2.8	G vitality, OHPL, canopy pruned to boundary = poor form	2 (4c, 4e)	Low	Low
34	*Photinia glabra*	M	4	4	2 x 15	25	2.5	1.8	Exempt species,	4	Low	Remove
35	*Angophora costata*	M	8	8	25	30	3	2	P vitality, 30% DB/DW thin canopy foliage	4c	Low	Remove
36	*Callistemon viminalis*	M	6	3	2 x 20, 25	50	4.5	2.5	P vitality, OHPL pruned	4c	Low	Remove
38	*Grevillea robusta*	M	8	6	2 x 20	35	3.4	2.1	G vitality	2	Medium	Low
40	*Callistemon viminalis*	M	8	8	2 x 30	50	5.1	2.5	F vitality, topped @ 2m > endocormic regrowth	4c	Low	Low
41	*Ligustrum lucidum*	M	-	-	-	-	-	-	Exempt species	4	Low	Remove
44	*Lagerstroemia indica*	M	6	4	4 x 10	30	2.4	2	G vitality	2	Low	Low
45	*Liquidambar styraciflua*	M	10	10	50	50	6	2.5	G vitality	2	Medium	Medium
46	*Liquidambar styraciflua*	M	10	8	35	45	4.2	2.4	G vitality	2	Medium	Medium
58	*Pittosporum undulatum*	M	10	10	50	60	6	2.7	G vitality	2	Medium	Low
68	*Chamaecyparis sp.*	M	10	8	30, 45	75	6.5	2.9	G vitality	2	Medium	Low
69	*Quercus robur*	M	14	18	65	75	7.8	2.9	G vitality, 3 x dead stubs. Snap out at 4m	1	High	Medium
71	*Grevillea robusta*	M	12	8	60	70	7.2	2.8	G vitality – topped at 7m	2 (4e)	Low	Low
72	*Brachychiton discolor*	M	10	8	95	105	11.4	3.4	G vitality, topped @ 10m, branches pruned towards house	2 (4e)	Medium	Low
73	*Jacaranda mimosifolia*	M	10	10	2 x 35	60	5.9	2.7	F vitality	3	Low	Low

74	*Brachychiton acerifolius*	M	9	4	35	40	4.2	2.3	G vitality, topped	2 (4e)	Low	Low
75	*Acacia decurrens*	M	6	5	4 x 10	30	2.4	2	G vitality	3 (4e)	Low	Low
76	*Celtis australis*	M	8	10	2 x 35	60	5.9	2.7	G vitality, ND	2	Medium	Medium

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 & (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.	

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street.
- The tree provides a fair contribution to the visual character and amenity of the local area.
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings.
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area.
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen.
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions.
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms.
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties.
- The tree is a declared noxious weed by legislation.

Hazardous/Irreversible Decline

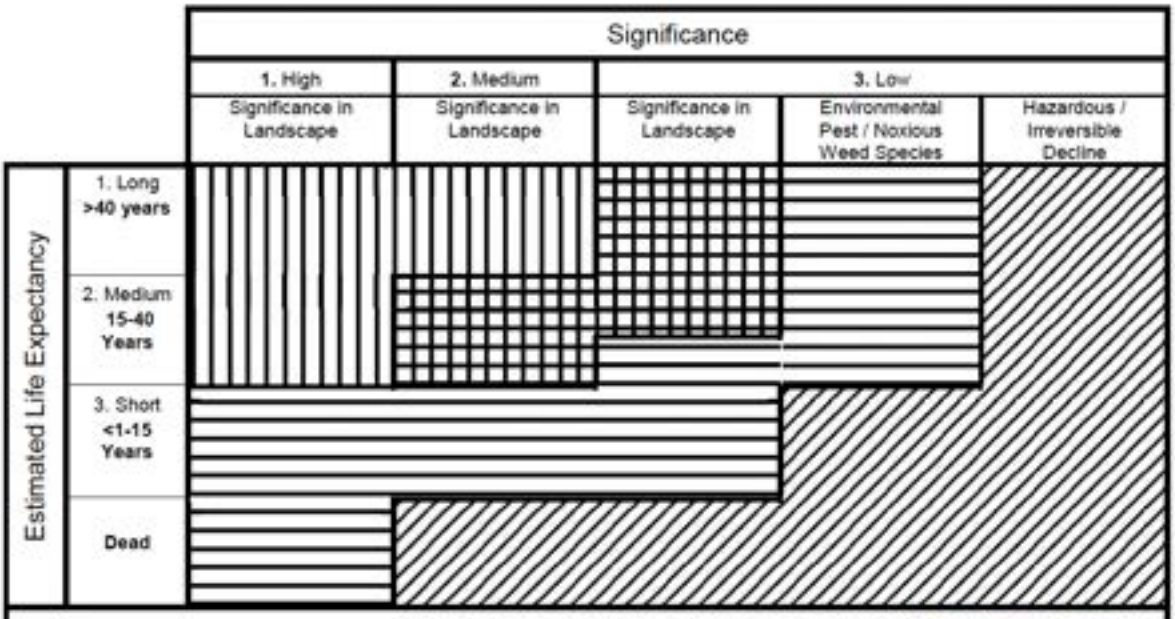
- The tree is structurally unsound and/or unstable and is considered potentially dangerous.
- The tree is dead, or is in irreversible decline, or has the potential to fall or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

IACA 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, www.iaca.org.au

Table 1.0 Tree Retention Value - Priority Matrix.



Legend for Matrix Assessment

Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 *Protection of trees on development sites*. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.

Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

IACA 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, www.iaca.org.au

Appendix A

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good from and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

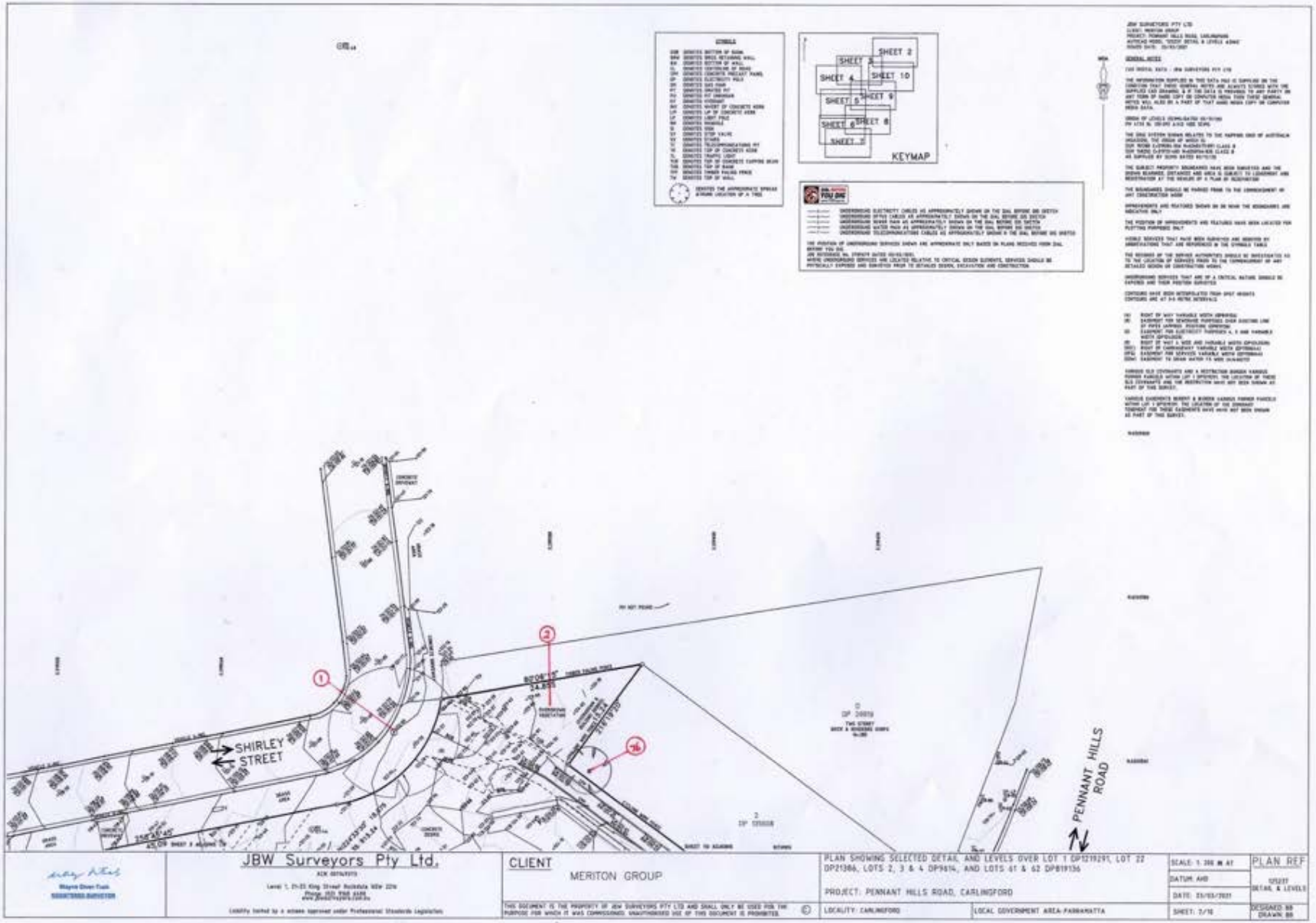
High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

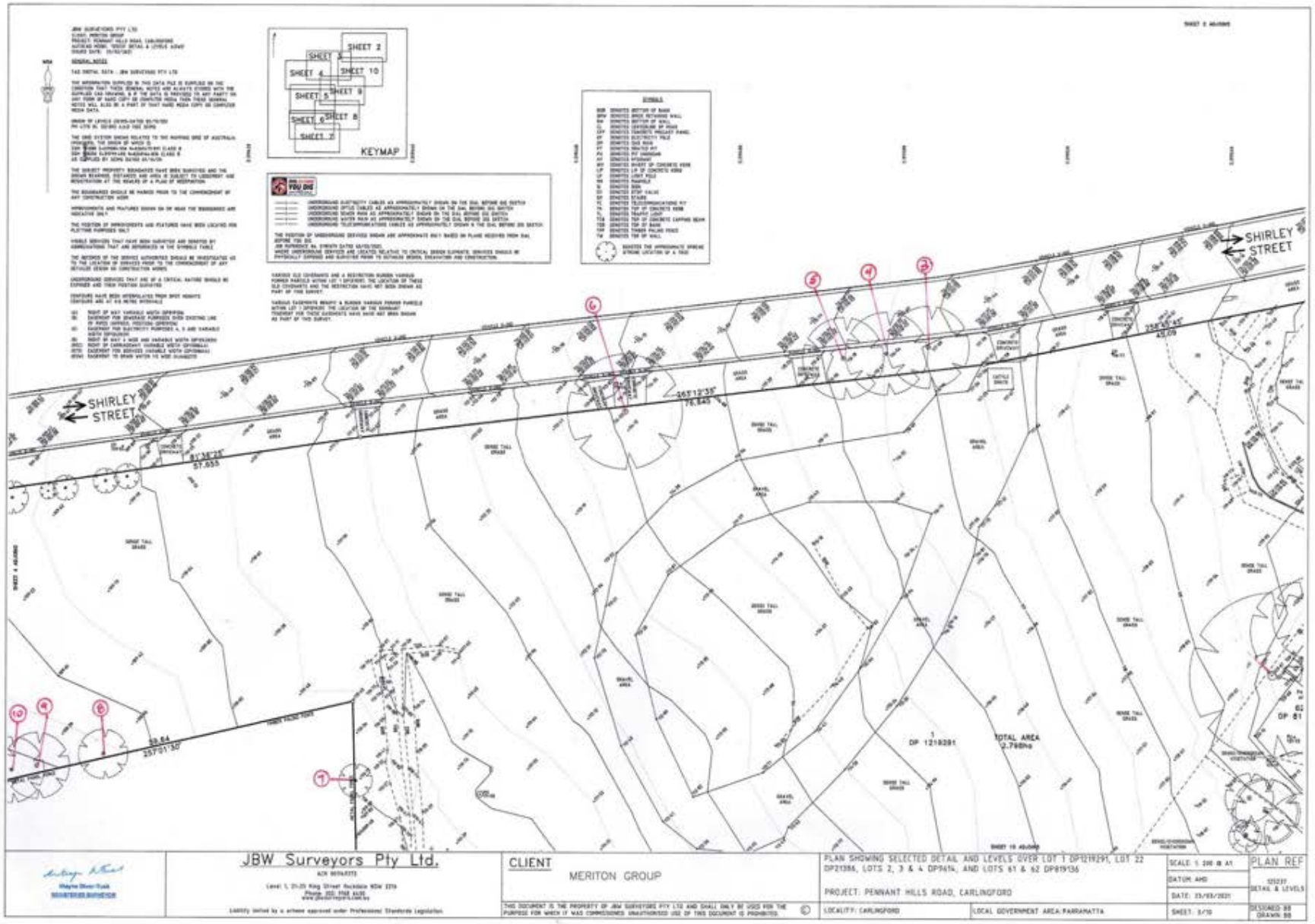
Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

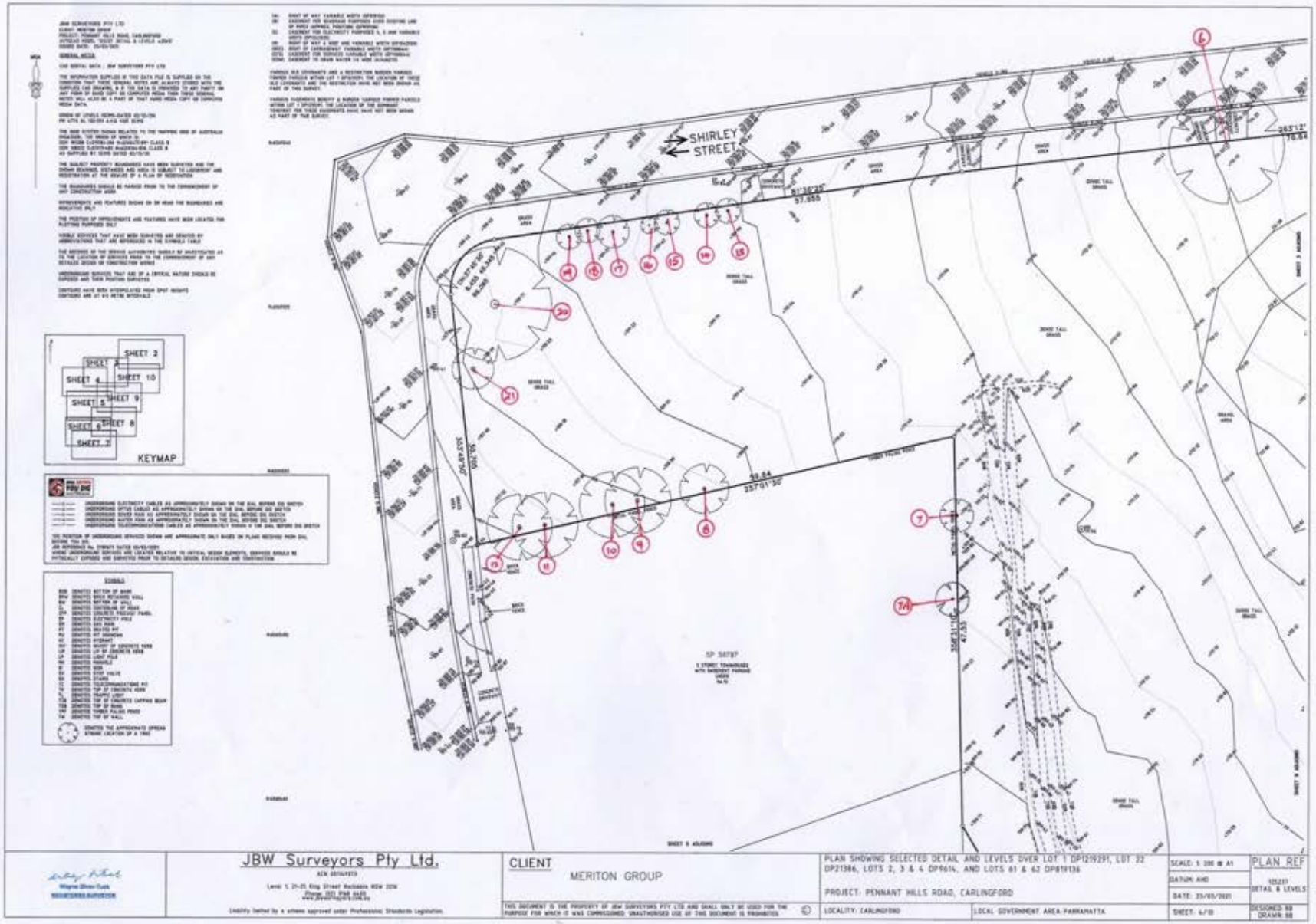
* Trees located within the neighbouring property and should be retained and protected.

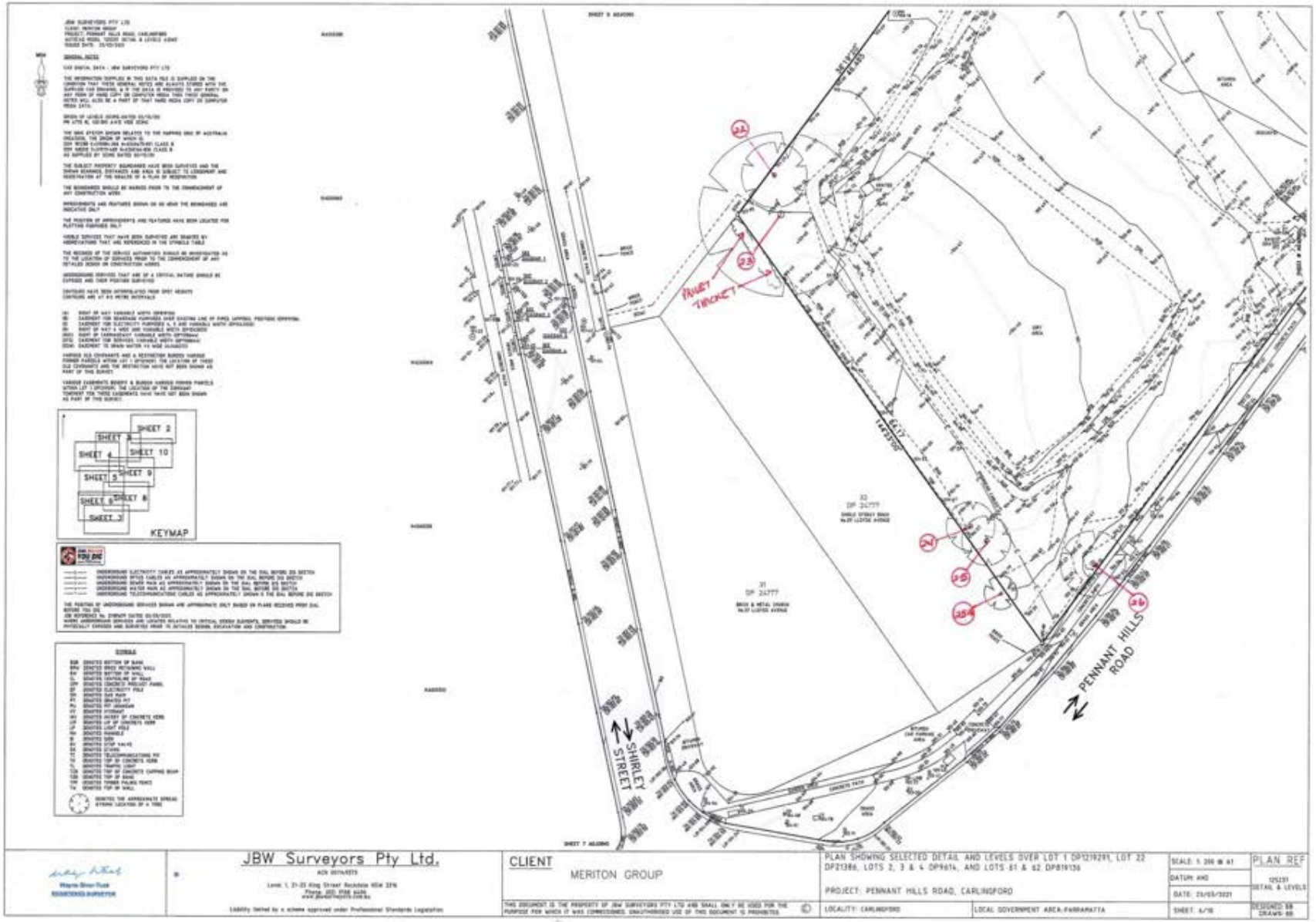
IACA 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, www.iaca.org.au

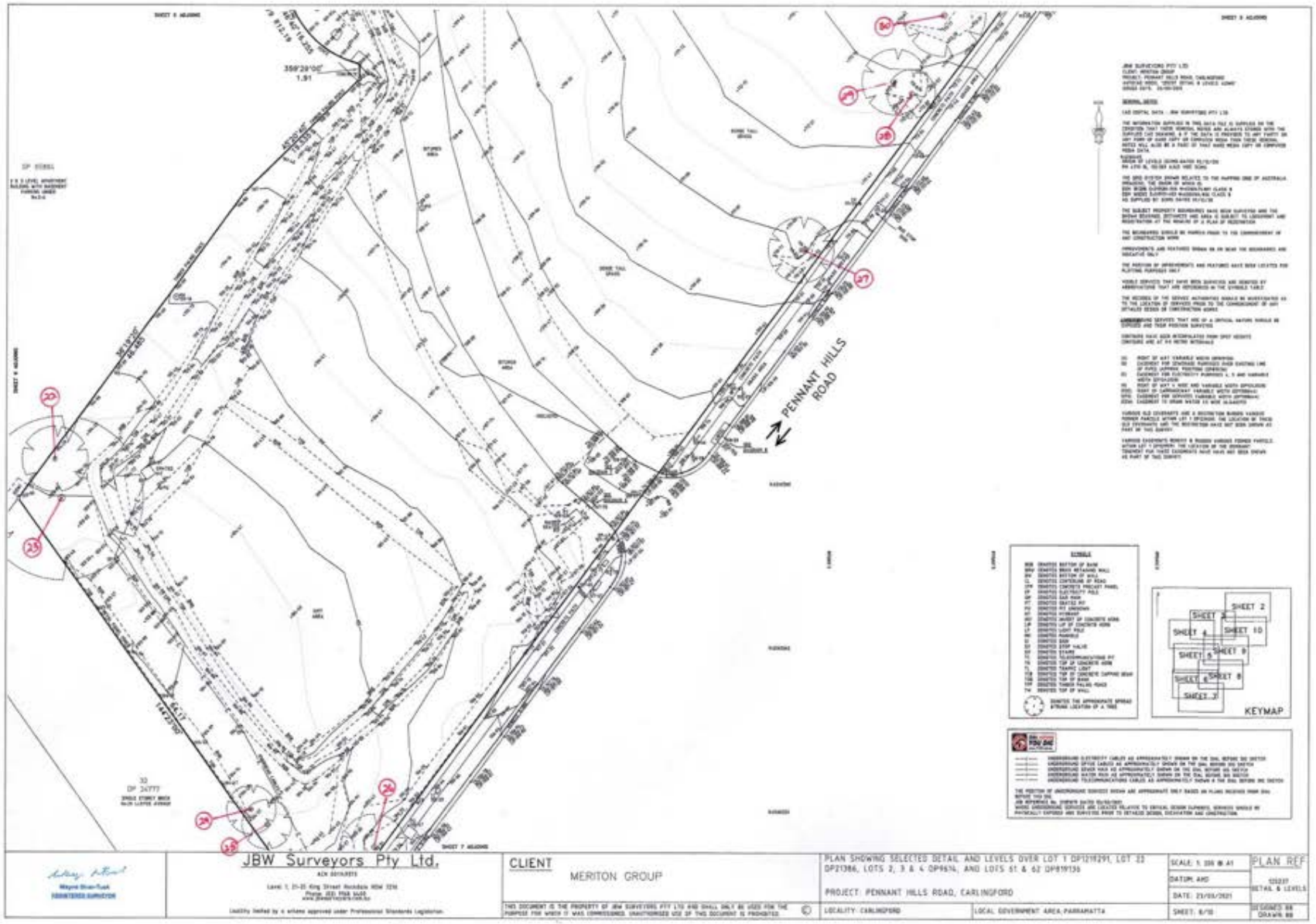
Annexure B: Tree location plan

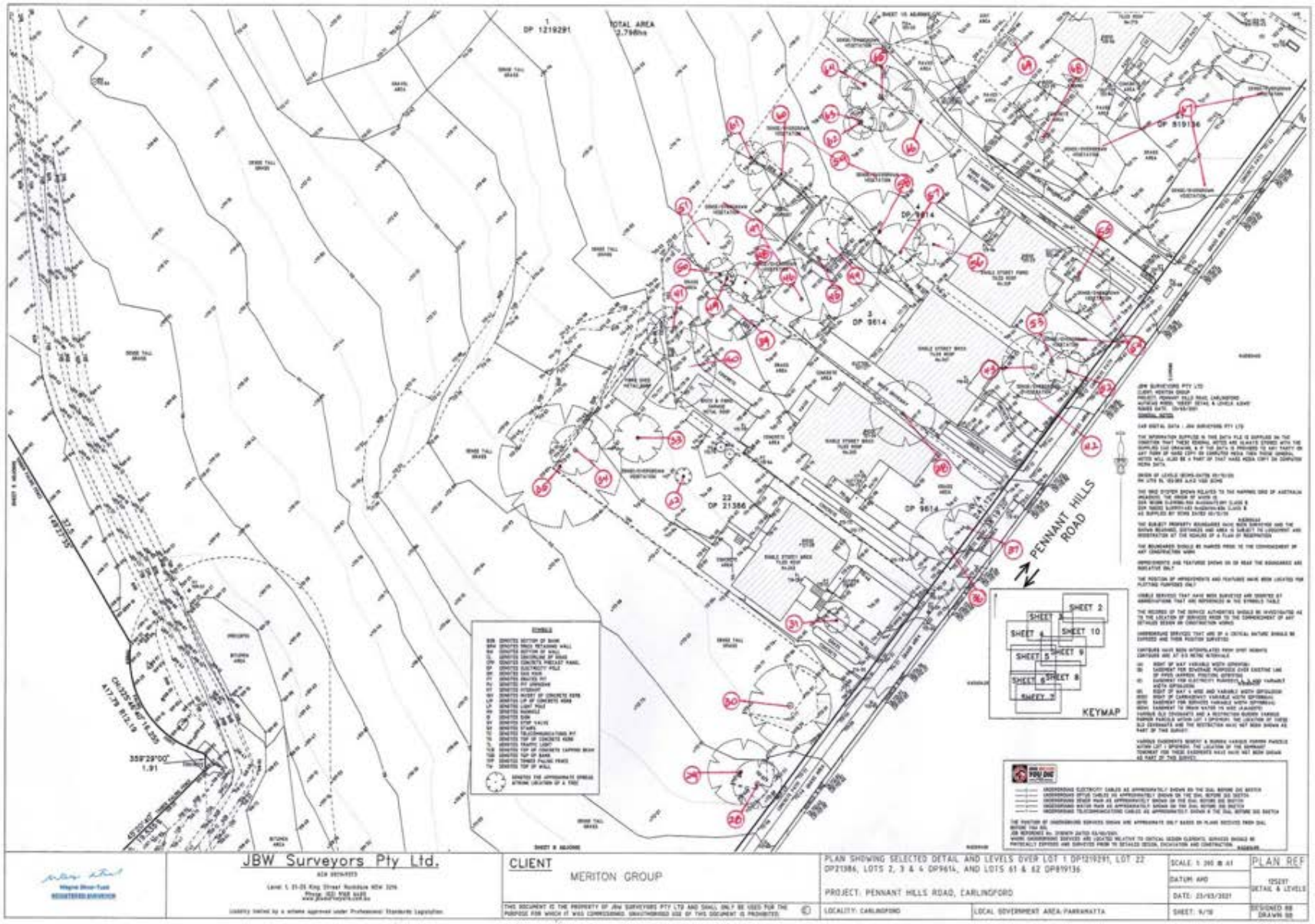

SHIRLEY STREET
PENNANT HILLS ROAD
KEYMAP
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 1 DP1219291, LOT 22 DP21586, LOTS 2, 3 & 4 DP9616, AND LOTS 61 & 62 DP819136
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA: PARRAMATTA
PLAN REF
DETAIL & LEVELS

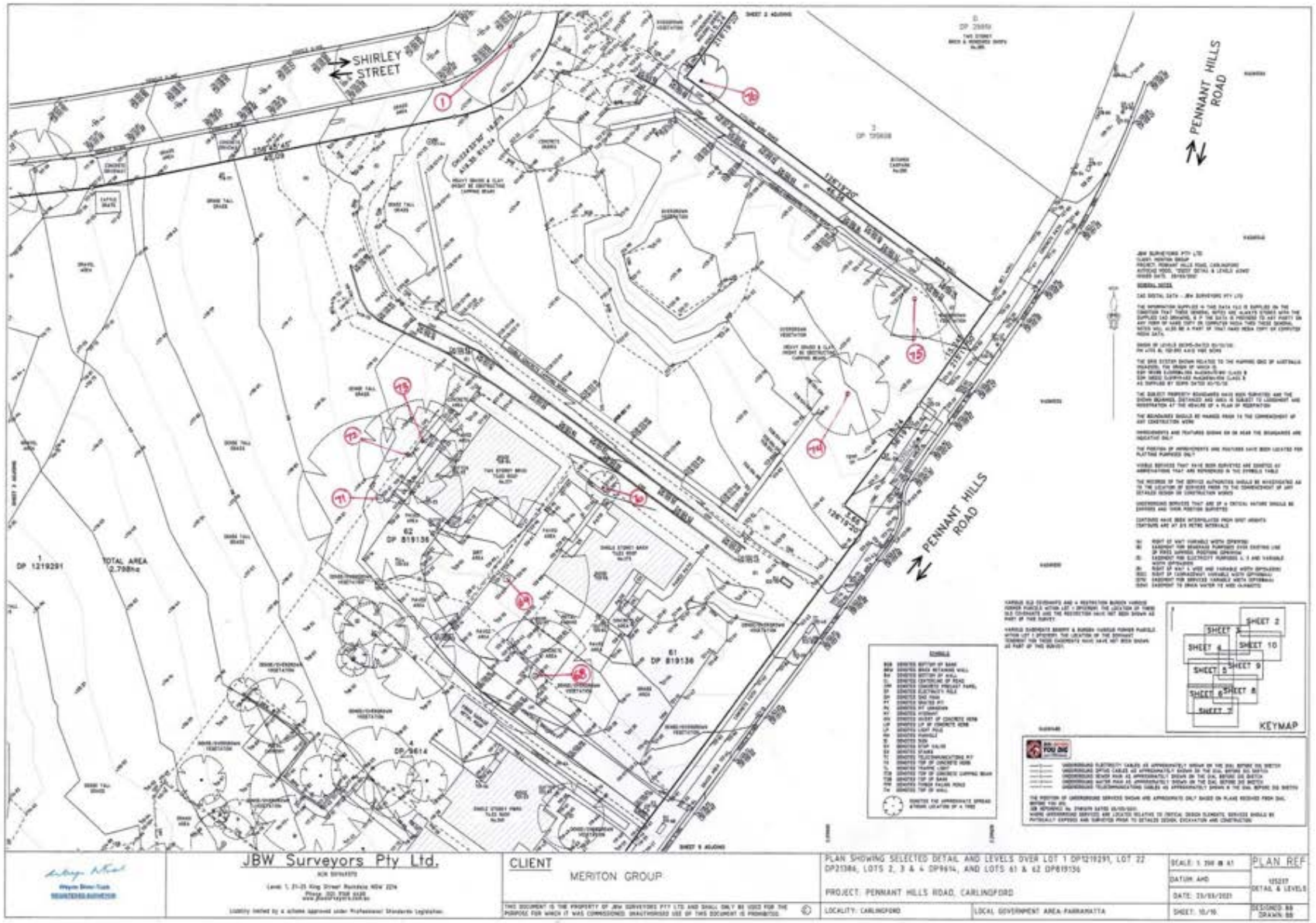

SHIRLEY STREET
SHIRLEY STREET
KEYMAP
SHEET 2
SHEET 3
SHEET 4
SHEET 10
SHEET 5
SHEET 9
SHEET 6
SHEET 8
SHEET 7
DP 1219291
TOTAL AREA 2.798Ha
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 1 DP1219291, LOT 22 DP21386, LOTS 2, 3 & 4 DP9414, AND LOTS 61 & 62 DP819136
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA: PARRAMATTA
PLAN REF
DETAIL & LEVELS


SHIRLEY STREET
KEYMAP
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA-PARRAMATTA
PLAN REF


KEYMAP
SHIRLEY STREET
PENNANT HILLS ROAD
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 1 DP1219299, LOT 22 DP21386, LOTS 2, 3 & 4 DP9614, AND LOTS 61 & 62 DP819136
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA: PARRAMATTA
PLAN REF
DETAIL & LEVELS


PENNANT HILLS ROAD
KEYMAP
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 1 DP1219291, LOT 23 DP21386, LOTS 2, 3 & 4 DP9674, AND LOTS 61 & 62 DP819136
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA: PARRAMATTA
PLAN REF
DETAIL & LEVELS


JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
PENNANT HILLS ROAD
KEYMAP
SCALE 1:200 @ A1
DATUM: AHD
DATE: 23/03/2021
SHEET: 9/10
PLAN REF
DETAIL & LEVELS
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA: PARRAMATTA


SHIRLEY STREET
PENNANT HILLS ROAD
PENNANT HILLS ROAD
TOTAL AREA 2.798ha
1 DP 1219291
62 DP 819136
61 DP 819136
DP 9614
KEYMAP
JBW Surveyors Pty Ltd.
CLIENT
MERITON GROUP
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 1 DP1219291, LOT 22 DP21384, LOTS 2, 3 & 4 DP9614, AND LOTS 61 & 62 DP819136
PROJECT: PENNANT HILLS ROAD, CARLINGFORD
LOCALITY: CARLINGFORD
LOCAL GOVERNMENT AREA-PARRAMATTA
PLAN REF
DETAIL & LEVELS

Annexure C: Tree impact plans

1.8 GROUND FLOOR - LANDSCAPE CONCEPT PLAN

Figure 3 Landscape Concept Plan

CONCEPT

The new urban precinct in Carlingford will be a vibrant and inviting space that connects people to natur. The central park will be the heart of the precinct, providing a place for recreation, relaxation, and community events. The park will be designed to be inclusive and accessible to all, with a variety of features to suit people of all ages and abilities. The park will be surrounded by a mix of residential, commercial, and retail development. The overall goal is to create a sustainable and livable community that is connected to nature.

Legend

1. Central Park
2. Community Link
3. Building Blocks
4. Retail Community Plaza
5. Outdoor Childcare

Prepared by Urbis for Merton 33

1.9 LANDSCAPE CONCEPT PLAN - CENTRAL PARK

Figure 4 Landscape Concept Plan

CONCEPT

The park will feature a playground with a variety of equipment for children of all ages. There is also a shaded picnic area with tables and benches. The park also features an amphitheater which can cater for a diversity of group sizes. A walking track winds through the park, offering stunning views of the surrounding landscape and punctuated with fitness stations. Native vegetation will be utilised to establish a sense of place whilst also providing habitat for the local biodiversity and create an ecological connection to surrounding reserves.

Legend

1. Playground
2. Fitness Stations
3. Amphitheatre Steps
4. BBQ Area
5. Open Lawn Space
6. Accessible Ramps
7. Seating Areas
8. OSD/WSUD garden
9. Central Access Stairs
10. Amphitheatre Lawn
11. Terraced Landscaping

1.12 LANDSCAPE CONCEPT PLAN - COMMUNITY LINK

Figure 7 Landscape Concept Plan

CONCEPT

The Entry Plaza will create a sense of arrival and a welcoming and accessible space for people of all ages and abilities. It will be designed to be a gathering place for the community, a place to relax, learn and explore. The plaza will also include a number of accessible features, such as ramps, wide walkways, and accessible seating. This will ensure that everyone can enjoy the plaza, regardless of their ability.

Legend

1. Seating Pods
2. Entry Plaza
3. Accessible Path
4. Garden Rooms
5. Central Access Stairs

1.14 LANDSCAPE CONCEPT PLAN - RETAIL PLAZA

Figure 8 Landscape Concept Plan

CONCEPT

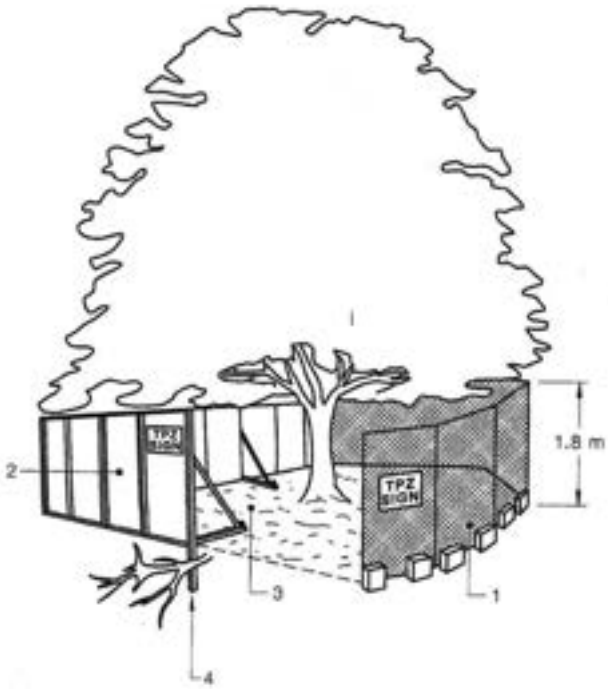
The design of the retail plaza will create a welcoming and inviting space for shoppers. The goal is to create a space that is both functional and attractive, and that encourages people to linger and spend time. The plaza will be designed to be pedestrian-friendly, with wide walkways and plenty of seating. The landscaping will be lush and inviting, with an arrival forecourt.

Legend

1. Outdoor Dining
2. Raised Planters
3. Central Seating Lounge Areas
4. Entry Arbour
5. Permeable Paving
6. Arrival Forecourt


LEGEND
BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK E
BLOCK F
BLOCK G
PENSHURST HILLS ROAD
MERITON
NOT FOR CONSTRUCTION
PP01.2

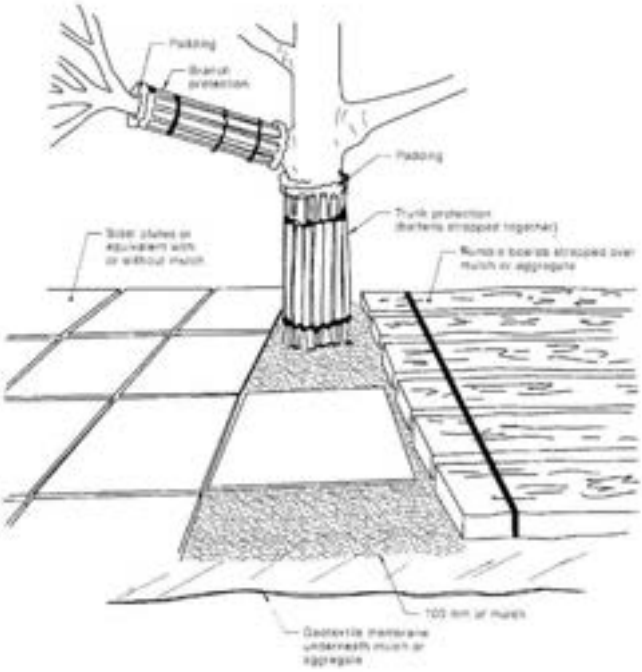
Annexure D: Tree protection details



LEGEND:

1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

© Standards Australia


ROBBOS