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ARBORICULTURAL IMPACT ASSESSMENT REPORT

At

54 Bardo Road, Newport

Prepared for

Built Projects

16th March 2021

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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.
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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 a reply to Council as part of DA 2020/1172 at 54 Bardo Road, Newport – The Site.

1.2 The report was commissioned by Built Projects 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 residential site with gardens at Newport.

1.5 The trees were identified by ground level Visual Tree Assessment (VTA) [1] only in the data collection, taken on 11.3.2021 (review of details by Tree Survey). 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 by C & A Surveyors NSW P/L dated 6.8.2020.
- Arboricultural Impact Assessment & Tree Protection Plan by Tree Survey dated 3.9.2020 (TS – 2020).
- Architectural plans by Giles Tribe dated 16.3.2021.
- Northern Beaches Council, B4.22 Preservation of Trees or Bushland Vegetation (TPO); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (11.3.2021)

2.1 The tree observations can be found on Annexure A.

3. DISCUSSIONS

3.1 We have been commissioned by Built Projects 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 senior's residential development on Site (development works in DA 2020/1172).

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

1. Tree *Fraxinus griffithii* is a mature tree with fair condition with sparse canopy density – refer plate 1.

The development has a major encroachment within this trees TPZ – exceeding 26%.

This tree is assessed to be of low retention value and can be easily replaced in the landscape works.

Due to the low retention value, sparse canopy density and the major level of impact, removal of this tree is recommended. Note for removal in the Tree Management Plan (TMP).

Plate 1: Tree 1

2. Tree 2 *Syncarpia glomulifera* is a street tree in Council's nature strip in front of the site – it has typical upper canopy pruning for the overhead power lines – refer plate 2.

The changes to the development works include:

a. Light weight front fence on isolated posts.
b. Entrance, letter box and walkway to units all an elevated structure.
c. N.B: refer Annexure C.

These design considerations are tree sensitive and will ensure the long-term retention of this street tree. Tree protection to be installed during development works.

Note for retention and protection in the TMP.

3. Tree 3 *Eucalyptus crebra* is a street tree in Council's nature strip in front of the site – it has typical upper canopy pruning for the overhead power lines – refer plate 2.

The development works have less than 10% encroachment within this tree's TPZ, thus ensuring retention. Tree protection to be installed during development works.

Note for retention and protection in the TMP.

Plate 2: tree 2 & 3

4. Tree 4 *Eucalyptus punctata* shows good condition with minor deadwood scattered around the canopy – refer plate 3. This tree has a high retention value.

In consultation with Giles Tribe Architects the following changes to the design have been incorporated:

a. Light weight front fence on isolated posts.
b. Entrance, letter box and walkway to units all an elevated structure.
c. Deletion of the impervious pathway to G01.
d. POS to G01 on a suspended slab with an air gap.
e. Basement adjusted away from TPZ.
f. Refer Annexure C.

In view of these design changes the long-term retention of this tree will be achieved and is supported. Tree protection to be installed during development works.

Note for retention and protection in the TMP.

Plate 3: tree 4

5. Tree 5 *Syncarpia glomulifera* shows good vitality with previous lower branch pruning – refer Plate 4.

The location of the basement driveway has been located on the eastern side of the site to avoid impacting Trees 2, 3, 4 & 8 – refer Annexure C.

Consequently, this tree will need to be removed to excavate and construct the double width driveway / waiting bay to the basement – refer Annexure C.

It is acknowledged this tree is of high retention value and forms part of the streetscape. However, rather than merely cutting this tree down, a replacement tree of the same species can be replanted on site to ensure benefit of trees in this locality.

Note this tree for removal with replacement planting on site.

Plate 4: tree 5

6. Tree 6 *Acer palmatum* is showing suppression by Trees 8 & 9.

This deciduous tree is assessed to be of low retention value (exotic and deciduous) with a small form. It is within the proposed development works – refer Annexure C.

Removal is supported to allow the development to proceed. Note for removal in the TMP.

7. Tree 7 *Syncarpia glomulifera* shows good vitality with previous lower branch pruning – refer Plate 5.

It is acknowledged there is an existing concrete driveway beside this tree. It is proposed to install the basement driveway and standing bay within this tree's TPZ – refer Annexure C.

To reduce the potential impacts on this tree, the proposed driveway will incorporate the removal of the existing concrete driveway with rubber tract excavators (i.e. spreading the load), then providing an aggregated layer of 100mm (no fines), a 200Um Fordicon layer (prevent leeching of lime into the root plate) and a new concrete driveway – refer Annexure C, Driveway Detail.

It will be essential to install trunk protection around this tree before Site Establishment – refer Annexure D.

The above design considerations will ensure the longevity of this high retention tree. Note for retention and protection in the TMP.

Plate 5: tree 7 – note existing concrete driveway on site.

8. Tree 8 *Syncarpia glomulifera* shows good vitality with an elevated canopy form. This tree has a high retention value.

In consultation with Giles Tribe Architects the following changes to the design have been incorporated:

a. Light weight front fence on isolated posts.
b. Entrance, letter box and walkway to units all an elevated structure.
c. Deletion of the impervious pathway to G01.
d. POS to G01 on a suspended slab with an air gap.
e. Basement adjusted away from TPZ.
f. Refer Annexure C.
g. N.B. No canopy pruning is required to undertake the development works.

To understand what root material is located between this tree and the basement a root mapping investigation has been undertaken. The findings of the root mapping can be found in Section 3.3.

The conclusion of the root mapping has determined the retention of this tree.

Note this tree for retention and protection in the TMP.

9. Tree 9 *Eucalyptus botryoides* shows fair to average condition with less than normal canopy density and suppressed development – refer plate 6. Medium retention value.

It is acknowledged this tree is an indigenous tree to this locality.

This tree is within the proposed development – refer Annexure C. In view of its fair - average condition and poor form, removal is supported.

It must be acknowledged the proposed design has been modified to ensure the retention of Trees 2, 3, 4, 7 & 8 in the front setback of this site, thus maintain the streetscape and a cluster of trees at the front of the site.

Note for removal in the TMP.

Plate 6: tree 9

10. Tree 10 *Banksia serrata* is a semi-mature specimen with a small canopy.

This tree is assessed to be of low retention value and is located in the proposed walkway to G04 – refer Annexure C.

In view of this trees small form and low retention value and being within the walkway, removal is supported.

There is ample space on site to replant replacement trees to compensate for the removal of this tree.

Note for removal in the TMP.

11. Trees 11, 13, 14 & 15 *Syncarpia glomulifera* and tree 12 *Eucalyptus botryoides* are a clump of trees behind the existing building.

Tree 11, 14 & 15 have suppressed form as a consequence of suppression by the dominant trees: 13 & 12 – refer plate 7.

To understand what root material is located between this tree and the basement a root mapping investigation has been undertaken. The findings of the root mapping can be found in Section 3.3.

In consultation with Giles Tribe Architects the following changes to the design have been incorporated:

a. Basement adjusted away from the TPZ of these trees.
b. Walkway to units all an elevated structure.
c. Unit G04 incorporates a suspended slab over the TPZ of Tree 12 & 13 to ensure air and moisture exchange with the root system.
d. No canopy pruning is required to undertake the development works.
e. It is proposed to remove Tree 11, 14 & 15 to provide greater deep soil area for the roots of Trees 12 & 13 i.e. reduced competition for soil moisture and nutrients.
f. The longevity of Trees 12 & 13 will be enhanced by the reduced competition with the removal of Trees 11, 14 & 15, including greater access to sunlight for their natural process of photosynthesis and nutrient uptake.
g. An irrigation system can be added in the landscape works to augment the supply of water.

By incorporating the above design and management practices, the long-term retention of Trees 12 & 13 will be achieved, well beyond the early years of the post development works.

It has been our experience that the future residents will be pro-active in the care of the trees in and around their property.

Also, it is proposed to replant replacement trees in the landscape plans to compensate for the removal of Trees 11, 14 & 15 i.e. Turpentines.

Removal of Trees 11, 14 & 15 is supported. Retention of Trees 12 & 13 is justified.

Note Trees 11, 14 & 15 for removal and Trees 12 & 13 for retention in the TMP.

Plate 7: Tree 15, 14, 13, 12 & 11.

12. Trees 16 *Eucalyptus botryoides* & tree 17 *Eucalyptus crebra* are located in the adjoining property to the north of the Site.

The development works have less than 10% encroachment within these trees TPZ – refer Annexure C, thus ensuring retention.

Note for retention and protection in the TMP.

3.3 Root mapping

This report has been prepared to provide details regarding the size and location of any root material observed in 1 trench on site adjacent to Trees 6 & 8 and trench 2 adjacent to trees 11, 12, 13 – refer to Annexure 6.

Work carried out:

a. One trench was excavated on site between Trees 6 & 8 – refer plate 8. The trench was dug by hand on 11.3.2021.
b. One trench was excavated on site to the east of Trees 11, 12 & 13 – refer plate 9. The trench was dug by hand on 11.3.2021.
c. Trench 1 was dug to a depth of 500mm +/- and was 8.2m long.
d. Trench 2 was dug to a depth of 500mm (start of trench), 600mm at 3.8m and 550mm at end of trench.

Plate 8 – trench 1.

Plate 9 – trench 2.

Root Activity:

Trench No 1 was located between Trees 6 & 8 – at a distance of 2m centre line of Tree 8.

The root material is noted below & refer plates 10, 11 & 12:

Root No.	Distance from start of trench (m)	Depth (mm)	Root Diameter (mm) or other
1	0.25	400	40 (Turpentine – T)

2	0.8 – 1.4	0 - 150	180 (Not T)
3	1.5	150	60
4	1.6	150	40
5	1.7	200	50
6	1.9	150	120
7	2.1	150	80
8	2.5	300	120
9	2.6	150	120
10	3.5	surface	50 (Not T)
11	3.6	surface	50 (Not T)
12	3.8	surface	30 (Not T)
13	4.1	300	80
14	4.6	300	30 (Not T)
15	5.0	200	25, 25
16	5.1	300	70 (Not T)
17	5.6	50	50 (Not T)
18	5.5 – 5.7	250	70
19	8.0	250	20 (Not T)

Plate 10: Roots 1 – 7.

Plate 11: Roots 8 - 15.

Plate 12: Roots 15 – 19.

Trench No 2 was located on the east side of Trees 11, 13, 14 & 15 – at a distance of 1.8m centre line of Tree 13.

The root material is noted below & refer plates 13, 14 & 15:

Root No.	Distance from start of trench (m)	Depth (mm)	Root Diameter (mm) or other
1	0.1 – 0.3	150	30
2	0.35	300	70
3	0.5 – 0.6	100	45
4	0.6	400	40
5	1.0	400	25

6	1.1	100	25
7	1.1 – 1.3	150	25
8	1.5	surface	110
9	2.2	100	25, 25
10	2.4	150	50
11	2.5	150, 300	60, 20
12	2.6	400	40
13	2.65	200	40
14	2.9	400	50
15	3.0	300	50
16	3.2	400	30
17	3.5	300	25
18	3.6	200	40
19	3.8	150	160
20	4.6	400	150
21	4.7 – 5.0	400 - 100	160
22	5.7 – 6.0	300	30
23	6.5	200	150
24	6.6	100	5 x 30

Plate 13: Roots 1 – 13.

Plate 14: Roots 14 – 21.

Plate 15: Roots 22 – 24.

Discussions on Root Mapping

In terms of AS 4970 – 2009 Section 3.3 the Project Arborist needs to demonstrate how a development can be built while ensuring the viability of the retained tree. The determining factor is a calculation of a tree's, Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) – where:

TPZ = DBH x 12 & SRZ = $(DRB \times 50)^{0.42} \times 0.64$

Tree 8: DBH = 60cm & DRB = 120cm.
Tree 11: DBH = 85cm & DRB = 100cm.
Tree 12: DBH = 65cm & DRB = 75cm.
Tree 13: DBH = 70cm & DRB = 90cm.

Therefore, the calculations for the subject tree:

Tree 8: TPZ = 7.2m radius & SRZ = 3.6m radius.
Tree 11: TPZ = 10.2m radius & SRZ = 3.3m radius.
Tree 12: TPZ = 7.8m radius & SRZ = 2.9m radius.
Tree 13: TPZ = 8.4m radius & SRZ = 3.2m radius.

The proposed development works are within the TPZ of Tree 8, 11, 12 & 13 – Refer Annexure C, I.E. a major encroachment.

Therefore, where a "major encroachment" is proposed, i.e. greater than 10% of the TPZ or inside the SRZ. Where this is the case the Site Arborist should demonstrate how the tree/s will remain viable.

When determining the potential impacts of encroachments into the TPZ / SRZ, the consulting arborist should consider the following with answers supplied from site inspection, root mapping and analysis of the plans provided:

a. Location of & distribution of roots:

1.Trees 8, 11, 12 & 13:

Trench 1 found 19 roots varying from 20mm to 120 mm all within the TPZ of these trees i.e. woody & non-woody roots[3]*. Root 2, 10, 11, 12, 14, 16, 17 & 19 do not appear to be from Tree 8. The roots are scattered along the trench. Roots 1, 4 & 15 are classified as "Non-Structural Roots" (Draper & Richards 2009).*

Trench 2 found 24 roots varying in size from 25mm to 160mm. Roots 1, 5, 6, 7, 9, 12, 13, 16, 17, 18, 22 & 24 are non-woody roots. N.B. It was difficult to determine which roots were from these trees.

b. The potential loss of root mass resulting from the encroachment:
    1. Tree 8:
       Minor roots from tree 8 will be pruned to excavate for the basement i.e at a distance of 4.2m from this tree. The roots at this distance would have tapered to less than 10mm.
    2. Tree 11 – *an unacceptable extent of root pruning.*
    3. Tree 12 & 13- *minor roots to be pruned i.e at a distance of 4.5m from this tree. The roots at this distance would have tapered to less than 10mm.*

[3] Draper. D. B. & Richards. P. A. (2009). **Dictionary for Managing Trees in Urban Environments.** CSIRO Publishing. Collingwood. Victoria.

c. Tree species & tolerance to root disturbance:
   Trees 8, 12 & 13 (Syncarpia glomulifera) will have a good tolerance to root disturbance due to the small number of roots affected by the construction activity (basement and pier excavations).
d. Age, vigour & size of tree – refer Annexure A.
e. Lean and stability of tree:
   Tree 8, 12 & 13 are stable with no leaning.
f. Soil characteristics and volume, topography and drainage: *Site soil is classified as Erina [4]- moderately deep (<100 - 200cm). The site slopes from front to rear with good surface drainage.*
g. The presence of existing or past structures or obstacles affecting root growth: *"The existing structures have minimally affected these trees – existing residence near Trees 11 & 12.*
h. Design factors: *The development can be located near Tree 8, 12 & 13. However, the impacts are considered excessive on Tree 11 and removal is recommended.*

Root Mapping Conclusions:

The following conclusions can be advised:

1. Trees 8, 11, 12 & 13 show good condition and are stable.
2. The retention of Trees 8, 12 & 13 will be achieved with very minor root pruning due to a rapid tapering of roots at the distances the buildings are located.
3. Tree 11 is unretainable due to the extent of encroachment within its TPZ.
4. The proposed building can be located and built as shown in Annexure C.
5. The pruning of roots from Tree 8, 12 & 13 will not have a long-term impact on the tree's stability and longevity.

4. RECOMMENDATIONS

The following recommendations are advised:

a) Retain the following trees on site: Tree 4, 7, 8, 12 & 13.
b) Remove the following trees on site: Tree 1, 5, 6, 9, 10, 11, 14 & 15.
c) Retain the following street trees: Tree 2 & 3.
d) Retain the following neighbour's trees: Tree 16 & 17.
e) That the proposed development works be constructed as shown in Annexure C in DA 2020/1172.
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) 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 – refer Annexure D on Trees 2, 4, 7, 8, 12 & 13.
h) Install the following Tree Protection Measures around the retained trees: Tree 2, 3, 4, 7, 8, 12 & 13, protection measures shall be a temporary fence of chain

[4] Chapman. G. A. & Murphy. C. L. (1989). **Soil Landscapes of the Sydney 1:100,000 Sheet.** Soil Conservation Service of NSW. Sydney.

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.

i) 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.
j) An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures.
k) The tree location plans can be found on Annexure B; &
l) The tree impact plans 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 (radius m)	SRZ (radius m)	Condition comments as seen on site	ULE
1	*Fraxinus griffithii*	M	4	4	15	25	1.8	1.8	F vitality. Low retention.	3a
2	*Syncarpia glomulifera*	M	12	6	45	55	5.4	2.6	G vitality. OHPL pruning. Medium retention. ST.	2
3	*Eucalyptus crebra*	M	14	8	40	50	4.8	2.5	G vitality. Slight lean towards street. OHPL. Medium retention. ST.	2
4	*Eucalyptus punctata*	M	14	12	65	75	7.8	2.9	G vitality. High retention.	2
5	*Syncarpia glomulifera*	M	14	12	45, 75	100	10.5	3.3	G vitality	2
6	*Acer palmatum*	M	5	7	45	55	5.4	2.6	G vitality	3
7	*Syncarpia glomulifera*	M	16	16	40, 60	90	8.7	3.2	G vitality	2
8	*Syncarpia glomulifera*	M	16	14	40, 45, 60	120	7.2	3.6	G vitality	2
9	*Eucalyptus botryoides*	M	16	16	65	90	7.8	3.2	F - A vitality. Suppressed form. Thinning foliage density.	3b
10	*Banksia serrata*	SM	4	5	20	30	2.4	2.0	F vitality	5a
11	*Syncarpia glomulifera*	M	16	16	85	100	10.2	3.3	G vitality	2
12	*Eucalyptus botryoides*	M	16	10	65	75	7.8	2.9	G vitality	2
13	*Syncarpia glomulifera*	M	16	10	70	90	8.4	3.2	G vitality	2
14	*Syncarpia glomulifera*	M	10	7	35	45	4.2	2.4	F vitality	2
15	*Syncarpia glomulifera*	M	10	7	25	35	3.0	2.1	F vitality	3
16	*Eucalyptus botryoides*	M	18	12	50	60	6.0	2.7	G vitality	2
17	*Eucalyptus crebra*	M	18	16	80	90	9.6	3.2	G vitality	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 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.

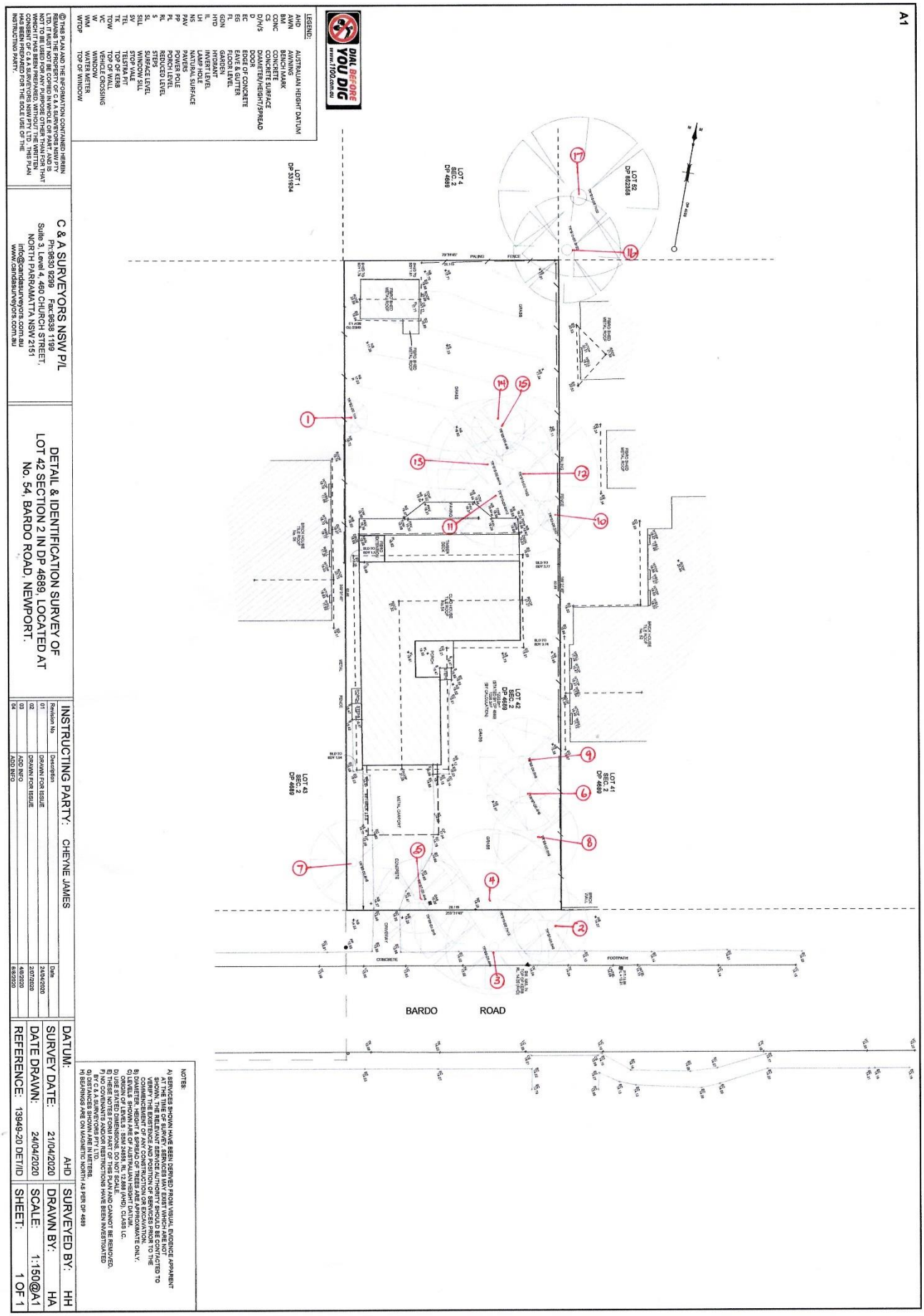
(TPZ) Tree Protection Zone & Structural Root Zone (SRZ) as defined by AS 4970 – 2009 Section 3

(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).

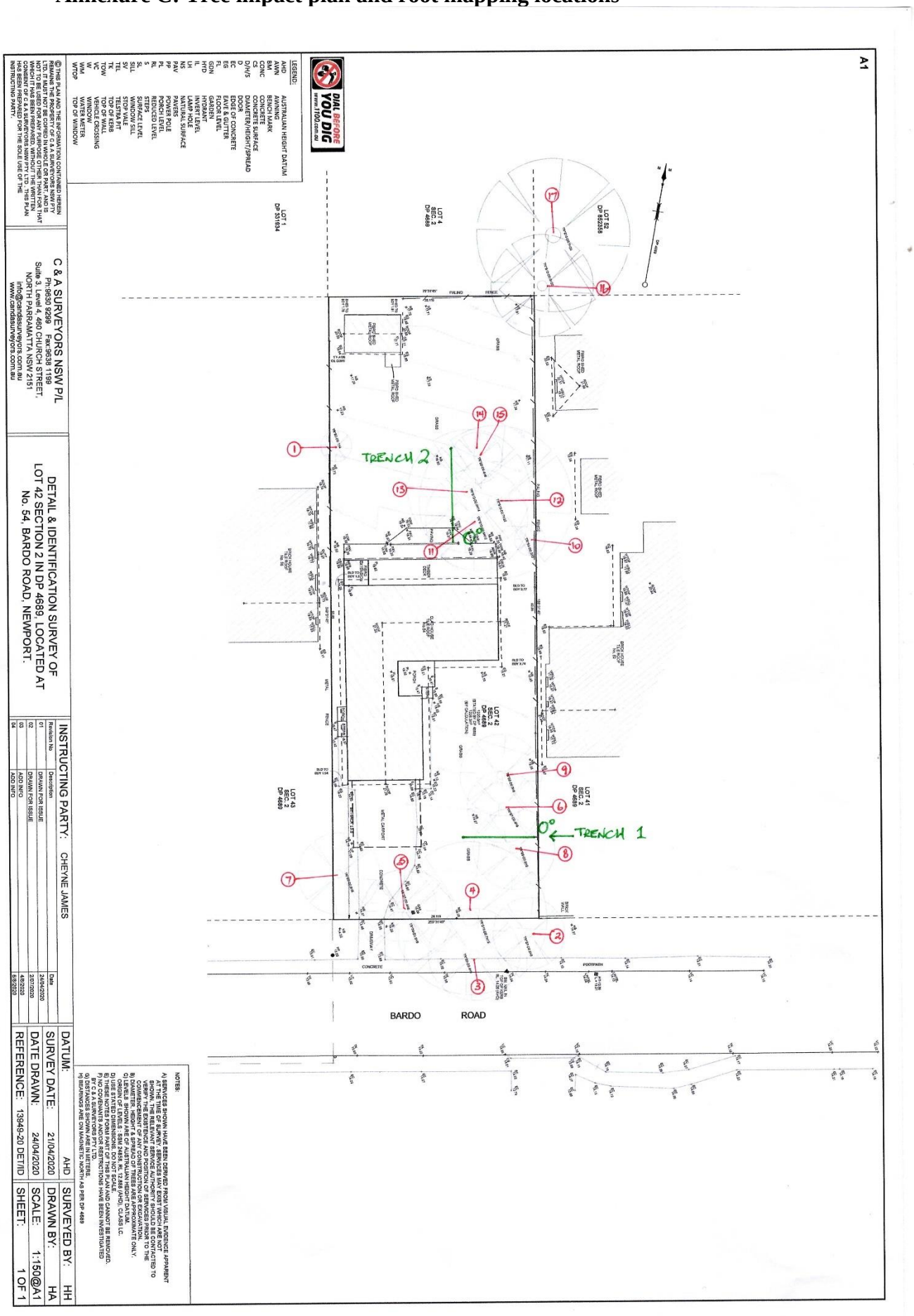
ULE RATING (UPDATED 1/4/01) BARRELL

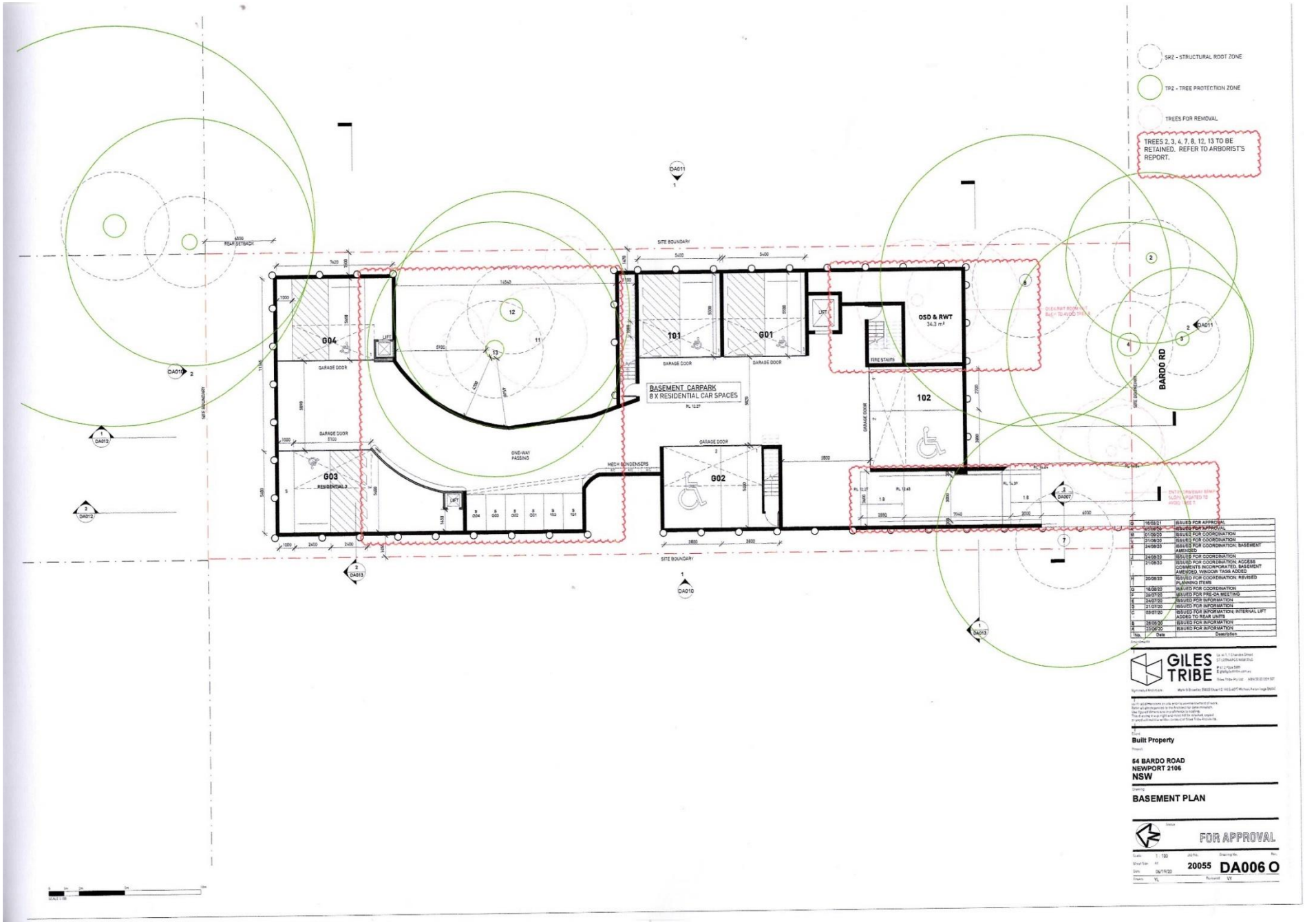
1.Long ULE: Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	**2.Medium ULE:** Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	**3.Short ULE:** Trees that appear 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 and root mapping locations





No.	Date	Description
Q	16/03/21	ISSUED FOR APPROVAL
P	2/09/20	ISSUED FOR APPROVAL
M	01/09/20	ISSUED FOR COORDINATION
L	31/08/20	ISSUED FOR COORDINATION
K	24/08/20	ISSUED FOR COORDINATION; BASEMENT AMENDED
J	24/08/20	ISSUED FOR COORDINATION
I	21/08/20	ISSUED FOR COORDINATION; ACCESS COMMENTS INCORPORATED, BASEMENT AMENDED, WINDOW TAGS ADDED
H	20/08/20	ISSUED FOR COORDINATION; REVISED PLANNING ITEMS
G	16/08/20	ISSUED FOR COORDINATION
F	29/07/20	ISSUED FOR PRE-DA MEETING
E	24/07/20	ISSUED FOR INFORMATION
D	21/07/20	ISSUED FOR INFORMATION
C	03/07/20	ISSUED FOR INFORMATION; INTERNAL LIFT ADDED TO REAR UNITS
B	26/06/20	ISSUED FOR INFORMATION
A	23/06/20	ISSUED FOR INFORMATION

GILES TRIBE

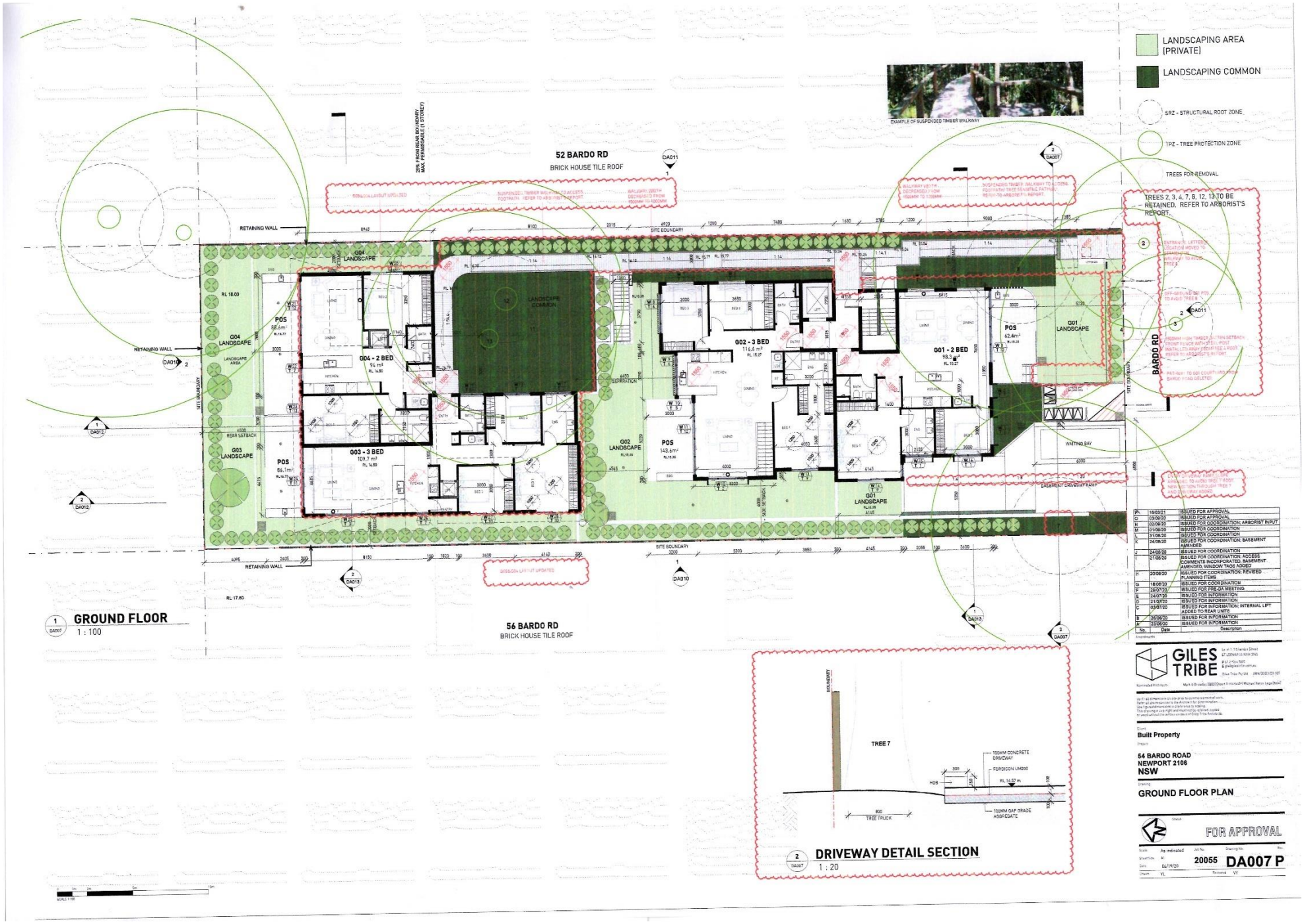
Client
Built Property

Project
54 BARDO ROAD
NEWPORT 2106
NSW

Drawing
BASEMENT PLAN

Status
FOR APPROVAL

Scale: 1:100 | Job No. 20055 | Drawing No. DA006 | Rev. O
Sheet Size: A1 | Date: 04/11/20 | Drawn: YL | Reviewed: VT



1 DA007 **GROUND FLOOR**
1 : 100

2 DA007 **DRIVEWAY DETAIL SECTION**
1 : 20

No.	Date	Description
PL	16/03/21	ISSUED FOR APPROVAL
O	03/09/20	ISSUED FOR APPROVAL
N	02/09/20	ISSUED FOR COORDINATION; ARBORIST INPUT
M	01/09/20	ISSUED FOR COORDINATION
L	21/08/20	ISSUED FOR COORDINATION
K	24/08/20	ISSUED FOR COORDINATION; BASEMENT AMENDED
J	24/08/20	ISSUED FOR COORDINATION
I	21/08/20	ISSUED FOR COORDINATION; ACCESS COMMENTS INCORPORATED, BASEMENT AMENDED, WINDOW TAGS ADDED
H	20/08/20	ISSUED FOR COORDINATION; REVISED PLANNING ITEMS
G	18/08/20	ISSUED FOR COORDINATION
F	28/07/20	ISSUED FOR PRE-DA MEETING
E	24/07/20	ISSUED FOR INFORMATION
D	21/07/20	ISSUED FOR INFORMATION
C	03/07/20	ISSUED FOR INFORMATION; INTERNAL LIFT ADDED TO REAR UNITS
B	26/06/20	ISSUED FOR INFORMATION
A	23/06/20	ISSUED FOR INFORMATION

GILES TRIBE

Client: **Built Property**

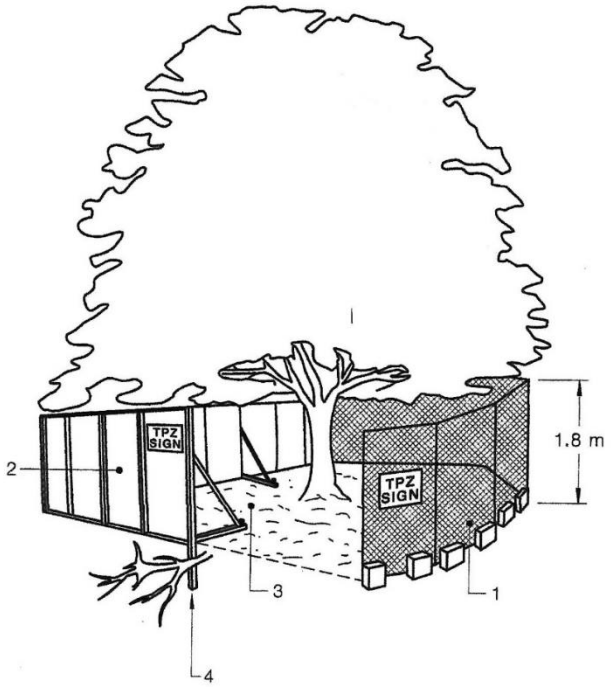
Project: **54 BARDO ROAD NEWPORT 2106 NSW**

Drawing: **GROUND FLOOR PLAN**

FOR APPROVAL

Scale: As indicated | Job No: 20055 | Drawing No: DA007 P | Rev: P
Sheet Size: A1 | Date: 06/19/20 | Drawn: YL | Reviewed: VT

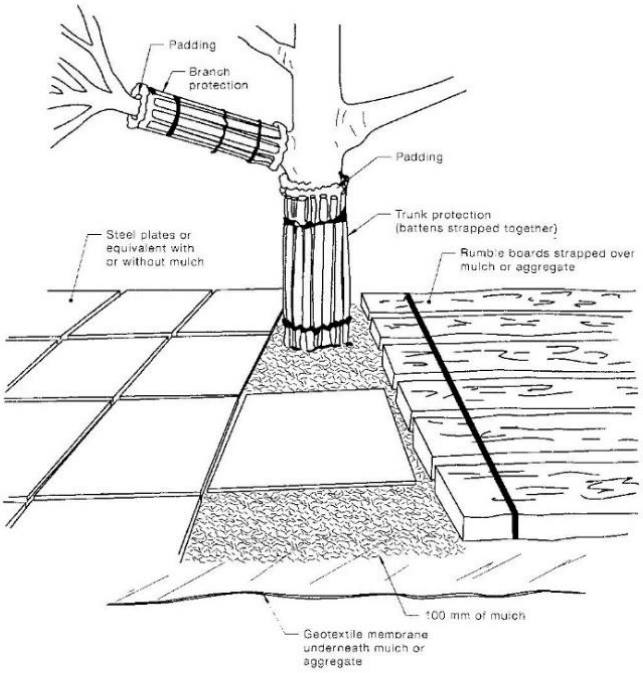
Annexure D: Tree protection details



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