

Arboricultural Impact Assessment Report

286 Mafeking Rd,
Goonengerry
NSW 2480

Report compiled by
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1. Introduction

Peter Gray has compiled this report on request from Mr and Mrs Peterson of 286 Mafeking Rd, Goonengerry. NSW 2482. Lot 3 in DP 601327 and Lot 2 in DP 580115. Mr and Mrs Peterson have made a development application No. 10.2018.307.1, to make additions and alterations to an existing dwelling, new expanded dwelling module, new studio and a boundary adjustment. Byron Shire Council have requested further information regarding the DA including a description of the trees close to the proposed new buildings.

2. Scope

This report describes the trees and assesses the potential impact of the development on the trees. The trees described were identified in the Site Plan provided by Thomson Adsett. There are other trees growing on the site that are well away from the proposed development. These trees are not described in this report. Tree protection measures recommended to be undertaken are described in the report. Where it is considered appropriate, recommendations for the suitability of retaining the trees in the development have been made.

3. Method

The trees were assessed visually from the ground. The diameter at breast height (DBH) was measured at 1.4 m above ground level with a girthing tape. The height of the trees was measured with a hypsometer or estimated. The methods recommended in the Australian Standard AS 4970-2009 *Protection of trees on development sites* was used assess the trees.

The health and condition of the trees was assessed using the Visual Tree Assessment method (Mattheck & Breloer 2003). This is a method of assessing the trees using the body language or shape and features of the trees to indicate their condition. These tree shapes or body language are a reliable indicator of the underlying condition of that part of the tree. The trees were identified using the signs and features present at the time of inspection. Positive identification of some Gum trees is problematic without access to fruit and flowers. The identification has been done using the bark, leaf and branching characteristics of the subject trees.

The information in this report is derived from a site visit carried out on 3rd April, 2019 and from documents and drawings supplied by RJA Projects. The documents and drawings include:

- *Diagrammatic Site Plan Layout.* Floate Pty Ltd. July, 2017.
- *Ecological Assessment.* JWA Ecological Consultants. April, 2019.
- *Vegetation Management Plan.* JWA Ecological Consultants. April 2019.
- *Bushfire Assessment Report.* Bushfire Certifiers. 8th April, 2019.

4. Description

The site is located in a rural area of Goonengerry. It is known as 286 Mafeking Rd, Goonengerry Lots 3 in DP 601327 and Lot 2 in DP 580115. The property is bounded by Mafeking Rd to the east and private property to the north and west. A boundary adjustment is proposed to be made to the southern boundary to allow an access road and construction of a new garage. The land near the existing and proposed new buildings is relatively flat. It slopes away on all sides, particularly to the north away from the main area that is used for the dwelling. The soil is clay loam, red krasnozem and has a large number of basalt rocks on and near the surface of the ground. The site is heavily vegetated with naturally occurring rainforest species. Only the trees identified in the survey by Thomson Adsett have been described in this report. There are a large number of young seedling trees in the understorey that have not been individually described.

The proposed development has a number of elements including renovating the existing dwelling, construction of a new building and a boundary adjustment. There are a number of other reports including a Bushfire Threat Assessment Report and an Ecological Assessment that have been carried out for this development. This report does not attempt to address the issues covered by these other reports.

The trees subject of this report are described in detail in Table 1. Tree Data below.

Table 1. Tree Data.

Tree #	Name	Age	Condition	Height m	DBH mm	Crown m	TPZ m	Protected	Comments
1	Firewheel <i>Stenocarpus sinuatus</i>	Mature	Fair	16	550	8	6.6	Yes	Decay at the base
2	Flooded Gum <i>Eucalyptus grandis</i>	Mature	Good	22	750	10	9.0	Yes	Tall tree
3	Black Teak <i>Pentaceros australis</i>	Mature	Good	18	400	8	4.8	Yes	Growing close to the old garage
4	Guioa <i>Guioa semiglauca</i>	Mature	Good	18	450	8	5.4	Yes	Growing close to old garage
5	Bopple Nut <i>Hicksbeachia pinnatifolia</i>	Mature	Good	7	160	3	2.0	Yes	Small tree growing at the rear of old garage
6	Bopple Nut <i>Hicksbeachia pinnatifolia</i>	Mature	Good	8	400	6	4.8	Yes	Growing in the veranda
7	Black Teak <i>Pentaceros australis</i>	Mature	Good	8	300	8	3.6	Yes	Close to existing building
8	Black Teak <i>Pentaceros australis</i>	Mature	Good	9	370	8	4.5	Yes	Close to existing building
9	Black Teak <i>Pentaceros australis</i>	Mature	Good	7	80	3	2.0	Yes	In footprint of proposed building
10	Guioa <i>Guioa semiglauca</i>	Mature	Good	7	120	5	2.0	Yes	In footprint of proposed building
11	Red Cedar <i>Toona ciliata</i>	Mature	Fair	9	220	6	2.6	Yes	In footprint of proposed building
12	Bangalow Palm <i>Archontophoenix cunninghamiana</i>	Mature	Good	6	200	3	2.5	Yes	In footprint of proposed building
13	Bangalow Palm <i>Archontophoenix cunninghamiana</i>	Mature	Fair	5	120	3	2.5	Yes	In footprint of proposed building

14	Snow Wood <i>Pararchidendron pruinatum</i> var. <i>pruinatum</i>	Mature	Good	8	140	6	2.0	Yes	In footprint of proposed building
15	Lilli Pilli <i>Syzygium</i> sp.	Semi mature	Good	6	90	4	2.0	Yes	In footprint of proposed building
16	Mangobark <i>Canarium australasicum</i>	Mature	Good	8	150	5	2.0	Yes	Close to proposed building
17	Hard Quondong <i>Alaocarpus obovatus</i>	Young	Good	4	80	4	2.0	Yes	In footprint of proposed building
18	Queensland Kauri <i>Agathis robusta</i>	Young	Good	5	70	4	2.0	Yes	In footprint of proposed building
19	Deep Yellowwood <i>Rhodospharera rhodanthema</i>	Young	Good	4	50	3	2.0	Yes	In footprint of proposed building
20	Three Veined <i>Cryptocarya</i> <i>Cryptocarya triplinervis</i>	Mature	Good	15	360	8	4.3	Yes	Tall tree
21	Rainforest sp	Mature	Good	18	360	8	4.3	Yes	Tall tree
22	Native Tamarind <i>Diploglottis australis</i>	Mature	Good	18	380	6	4.6	Yes	Tall tree

(Harden et al. 2009).

Tree # 5 and 6 are Bopple Nut trees that are listed as a vulnerable species by the Office of Environment and Heritage (OEH 2019). Tree # 6 has the existing veranda built around the tree. The proposed building renovations will seek to retain the tree.

5. Appraisal

As many trees as is practicable are proposed to be retained in the development. A number of the trees close to the proposed new construction are proposed to be retained. The guidelines for maintaining trees for with respect to the bushfire threat abatement have not been addressed in this report.

Tree # 1

Firewheel tree *Stenocarpus sinuatus*.

This is a medium to large sized tree growing beside the current driveway. There is a decay area at the base of the tree. The tree has produced significant reaction wood to compensate for the loss of wood to the decay. It is considered that the tree does not have a high likelihood of failure.

The proposed new studio is proposed to be built approximately 3 m from this tree. The encroachment into the TPZ is approximately 14% which is a major encroachment as defined by the Australian Standard AS 4970-2009 *Protection of trees on development sites*. The foundations of the studio are planned to be constructed from pier footings. The use of pier footings will mean the actual encroachment into the TPZ of this tree is less than 10%. There is an area contiguous with the existing root system available for the roots of the tree to grow compensatory roots. The actual encroachment into the TPZ is considered to be a minor encroachment according to the Standard and is not expected to cause the tree to become unviable.

Tree # 2

Flooded Gum *Eucalyptus grandis*.

This is a large mature aged tree. It is the only Eucalyptus species in the subject area. There is a very small theoretical encroachment into the TPZ from the proposed new studio. The canopy of the tree does not overhang the footprint of the proposed studio.

Tree # 3.

Black Teak *Pentaceros australis*.

This tree is growing close to the existing carport. The new garage is proposed to be constructed in a similar location. There will be very little additional impact on the tree from the proposed construction. The construction of a concrete slab on the existing soil grade will not be expected to have a significant effect on the roots of the tree or to cause the tree to become unviable.

Tree # 4.

Guioa *Guioa semiglauca*.

This is a large tree for this species. It is growing very close to the existing carport. The new garage is proposed to be constructed in the same location as the existing carport next to this tree. The construction of a concrete slab on the existing soil grade will not be expected to have a significant effect on the roots of the tree or to cause the tree to become unviable.

Tree # 6.

Bopple Nut *Hicksbeachia pinnatifolia*

This is a small tree growing at the rear of the existing carport. It is planned to retain the tree in the development. The new garage is proposed to be constructed approximately 2 m from this tree and that is outside the TPZ for the tree.

Tree # 6.

Bopple Nut *Hicksbeachia pinnatifolia*

This tree is growing in the existing veranda. It is proposed to construct the renovation of the existing dwelling so as to retain this tree. The tree will be enclosed on all sides with a perspex or other material and the roof will be left open. The lower trunk and roots of the tree will be unaffected by the construction. It is considered that as the tree is to be retained in a similar way to the way it has been growing for some years, there will be little change in the conditions for the tree. It is not expected that the retention of the tree will cause it to become unviable. A tree of this species and age can be expected to grow very slowly. Some minor pruning may be required to complete the renovations as planned. The tree is listed as a vulnerable species and the retention of the tree is considered to be highly desirable.

Tree # 8.

Black Teak *Pentaceros australis*.

This is a medium sized tree growing close to the existing dwelling. It is proposed to be retained in the development. The renovation of the existing dwelling will require a small amount of excavation to level the soil next to the existing water tank. The area proposed to be excavated is approximately 3 ~ 4 m². This is considered to be a minor encroachment into the TPZ of the tree. The small change to the existing conditions is not expected to cause the tree to become unviable.

Tree # 16.

Mangobark *Canarium australasicum*

This is a small rainforest tree. It is growing close to the proposed studio. The tree has a theoretical TPZ of 2 m however the root zone of this tree is quite small. It is proposed to retain the tree if possible.

Tree # 20.

Three Veined Cryptocarya *Cryptocarya triplinervis*.

A medium to large sized tree growing to the east of the existing dwelling. The proposed new studio will encroach into the TPZ of this tree approximately 9% which is a minor encroachment according to the Australian Standard AS 4970-2009 *Protection of trees on development sites*. The construction of the proposed new studio is not expected to cause the tree to become unviable.

Tree # 21

Rainforest species.

This is a medium sized tree growing to the east of the existing dwelling. There is a minor theoretical encroachment into the TPZ of this tree. It is not expected that the proposed renovations of the existing dwelling will have a significant impact on this tree.

Tree # 22.

Native Tamarind *Diploglottis australis*.

This is a medium to large tree growing to the east of the proposed development. The construction of the proposed development is outside the TPZ of the tree and is not expected to have a significant effect on the tree.

6. Recommendations

The proposed development is in a high value native vegetation area. The development application has included a number of reports and considerations. This report focuses on the arboricultural issues while taking into account the wishes of the property owners to retain as many trees in the development as possible.

It is recommended that the development be carried out as planned. To enable construction of the renovation to the existing dwelling and construction of the new studio a total of eleven (11) described trees will be required to be removed. These are trees # 7, 9, 10, 11, 12, 13, 14, 15, 17, 18 and 19.

The trees to be retained should be protected during construction. The site is very constrained and the techniques for protecting the trees are limited by the practicalities of construction. The details of the recommended protection measures are given in 7. Tree Protection.

The trees to be retained include tree # 16 a Mangobark. It is quite close to the proposed studio. The tree should be retained and protected to the extent it is reasonably practicable during construction. The tree should be assessed following construction and its health and viability checked. If it is considered that it is not likely to grow in a healthy viable state it should be removed.

7. Tree Protection

The trees retained on the site should be protected during construction in accordance with the recommendations of the Australian Standard AS 4970-2009 *Protection of trees on development sites*. The standard sets out a Tree Protection Zone that is calculated to be an area around the tree with a radius of 12 times the diameter at breast height (DBH). The TPZ has a maximum radius of 15m. The TPZ should be protected during development to ensure the viability of the tree. Some of the construction work will be carried out within the TPZ of trees. Where the work is carried out within the TPZ, as much of the TPZ as is practicable should be protected with a high visibility fence.

The Standard lists activities that are prohibited in the TPZ. They are:

- (a) machine excavation including trenching;
- (b) excavation for silt fencing;
- (c) cultivation;
- (d) storage;
- (e) preparation of chemicals, including preparation of cement products;
- (f) parking of vehicles and plant;
- (g) refuelling;
- (h) dumping of waste;
- (i) wash down and cleaning of equipment;
- (j) placement of fill;
- (k) lighting of fires;
- (l) soil level changes;
- (m) temporary or permanent installation of utilities and signs, and
- (n) physical damage to the tree.

It is recommended that a high visibility plastic mesh fence approximately 1 m high be installed around trees to be retained on the site. An example of a suitable fence is shown in Figure 1 below.

Figure 1. High Visibility Plastic Mesh Fence.



8. Disclaimer

The information contained in the report is true and accurate to the best knowledge of the author. Best professional judgement was used to make recommendations. However the author of this report is not responsible for any action which might be taken or not taken in reliance on it.

This report remains the property of the author and Sally and Hugo Peterson. It may not be used or reprinted without their express permission.

9. Bibliography

Australian Standards. 2009. *AS 4970 Protection of Trees on Development Sites*. Australian Standards. Sydney.

Barrell J. 2006. *Workshop Manual Trees on Construction Sites*. Barrell Tree Consultancy. Brisbane.

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Office of Environment and Heritage. *Search for Threatened Species Hicksbeachia pinnatifolia*. Accessed 27/07/2019.

<https://www.environment.nsw.gov.au/threatenedspeciesapp/speciesbytype.aspx>

10. About the Author

This report was compiled by Peter Gray, of Northern Tree Care. The author is an arborist who has been providing Arborist Assessment Reports for Local Government, State Government and private clients for over 15 years. His qualifications include:

- Graduate Certificate in Arboriculture
- Diploma of Arboriculture
- Diploma of Horticulture (Arboriculture)
- Quantified Tree Risk Assessment (QTRA)
- Tree Risk Assessment Qualification (ISA).

Peter Gray is an (AQF) level 8 Consulting Arborist general member No. 2344 with Arboriculture Australia. He is a trained and registered practitioner of Quantified Tree Risk Assessment (QTRA) Registered User number 980.

I declare that I have compiled this report impartially using best professional judgement. I have no financial interest in the outcome of the report.

Signed Peter Gray, Northern Tree Care
29th July, 2019.

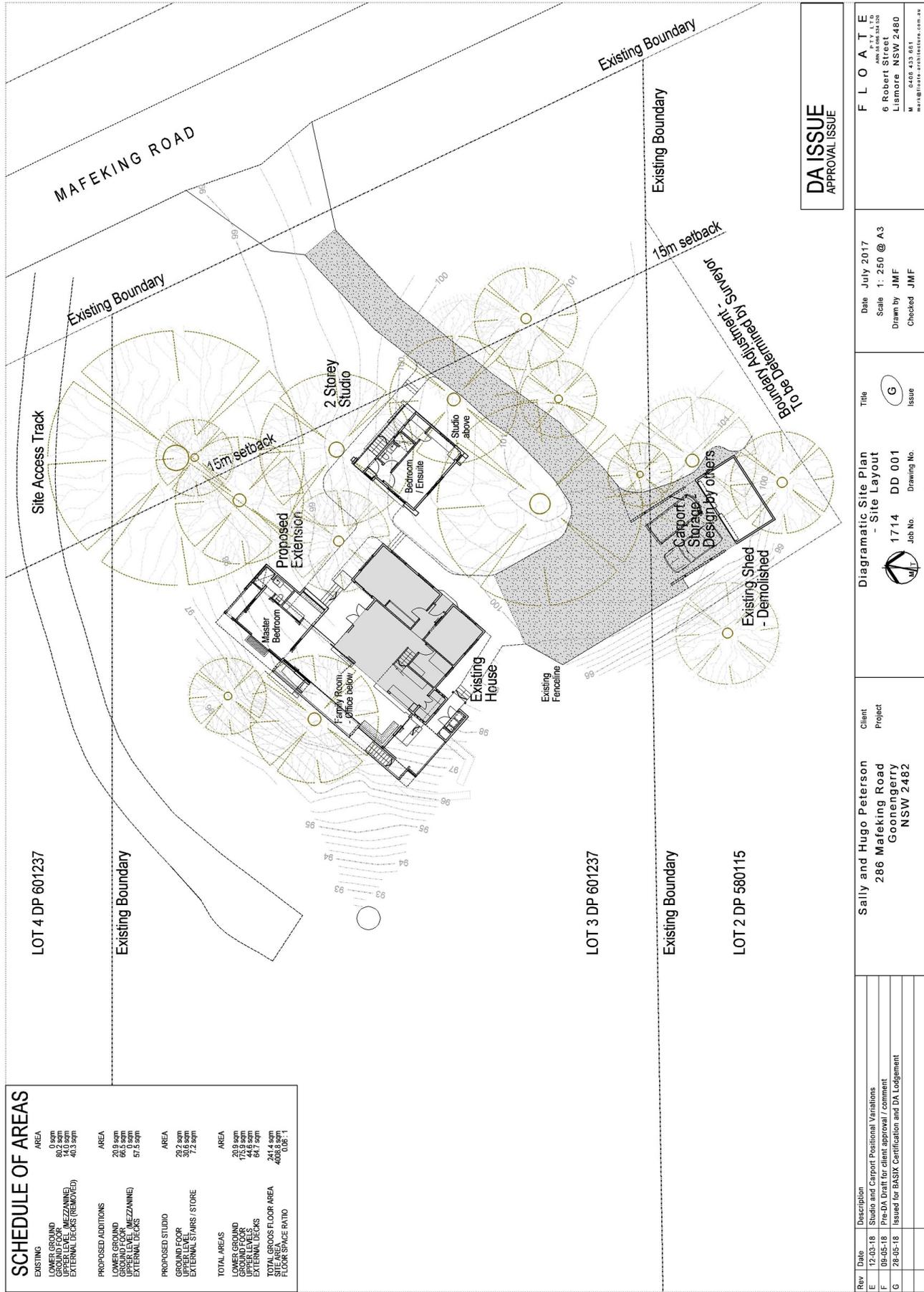


11. Attachment 1. Location Plan.



6 Maps

12. Attachment 2. Site Plan



SCHEDULE OF AREAS

EXISTING	AREA
LOWER GROUND	0 sqm
GROUND FLOOR	90.2 sqm
UPPER LEVEL (MEZZANINE)	0 sqm
EXTERNAL DECKS (REMOVED)	40.3 sqm
PROPOSED ADDITIONS	AREA
LOWER GROUND	20.9 sqm
GROUND FLOOR	28.2 sqm
UPPER LEVEL (MEZZANINE)	0 sqm
EXTERNAL DECKS	57.5 sqm
PROPOSED STUDIO	AREA
GROUND FLOOR	28.2 sqm
UPPER LEVEL	30.6 sqm
EXTERNAL STAIRS / STORE	7.2 sqm
TOTAL AREAS	AREA
LOWER GROUND	20.9 sqm
GROUND FLOOR	175.9 sqm
UPPER LEVEL	30.6 sqm
EXTERNAL DECKS	97.7 sqm
TOTAL GROSS FLOOR AREA	241.4 sqm
SITE AREA	408.8 sqm
FLOOR SPACE RATIO	0.06 : 1

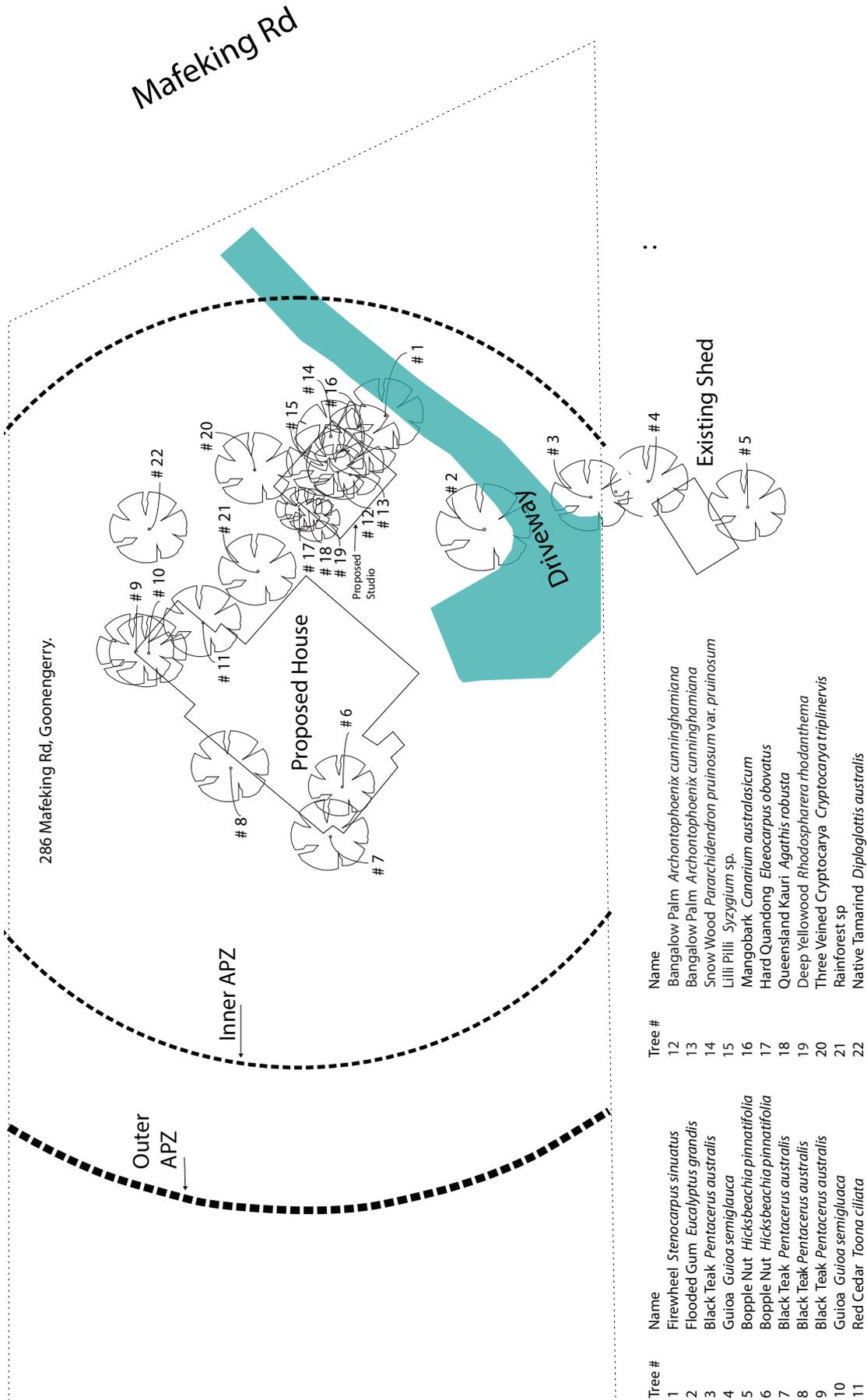
DA ISSUE
APPROVAL ISSUE

Rev	Date	Description
E	12-03-18	Studio and Carport Positional Variations
F	09-05-18	Pre-DA Draft for client approval / comment
G	28-05-18	Issued for BASIX Certification and DA Lodgement

Client	Sally and Hugo Peterson
Project	286 Mafeeking Road Goonengerry NSW 2482
Job No.	1714
Drawing No.	DD 001
Title	Diagrammatic Site Plan - Site Layout
Issue	G
Date	July 2017
Scale	1: 250 @ A3
Drawn by	JMF
Checked	JMF

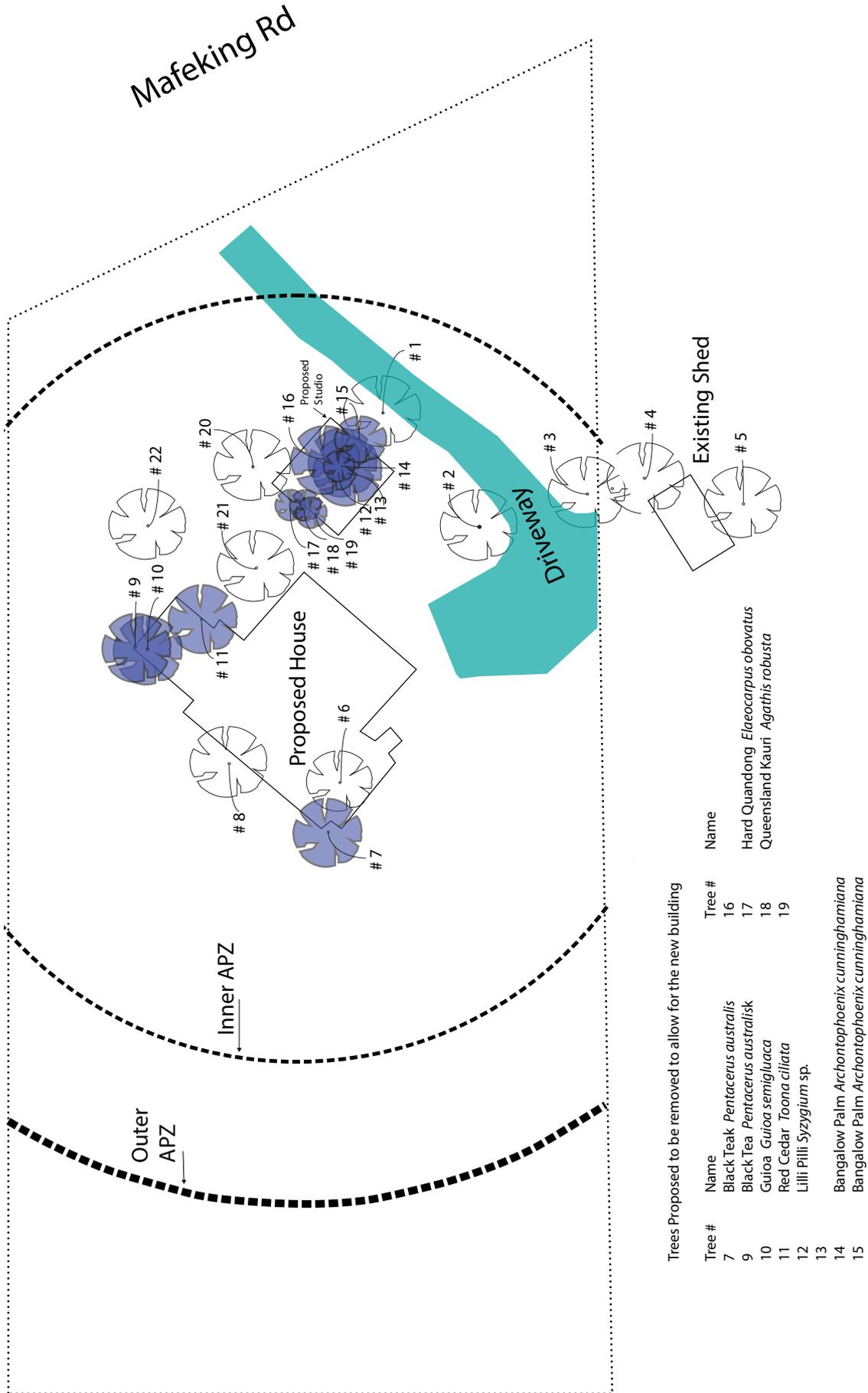
F L O A T E	6 Robert Street Lismore NSW 2480 M 0466 433 861 mep@hpa-architecture.com.au
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13. Attachment 3. Tree Locations

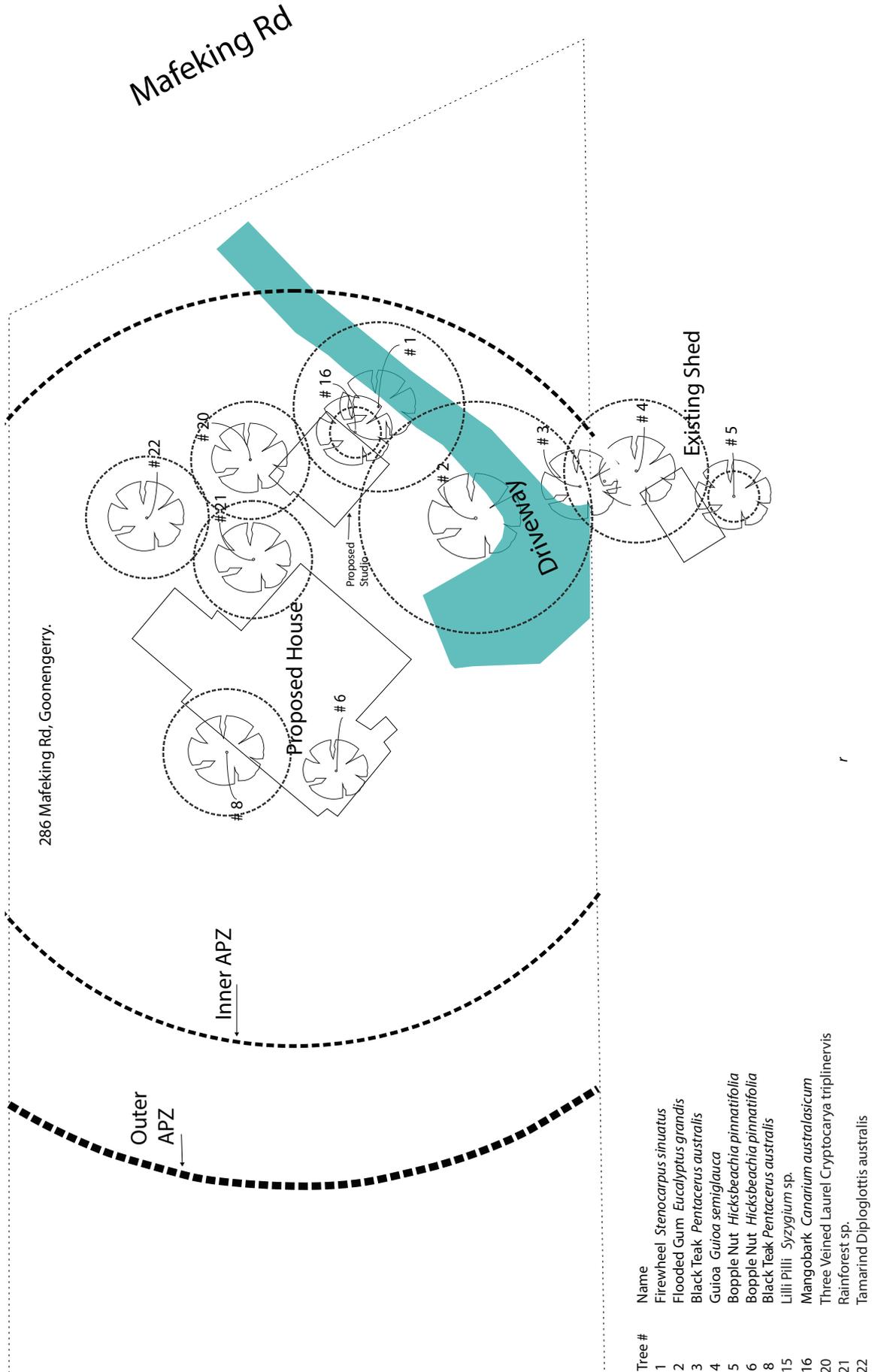


Tree #	Name	Tree #	Name
1	Firewheel <i>Stenocarpus sinuatus</i>	12	Bangalow Palm <i>Archontophoenix cunninghamiana</i>
2	Flooded Gum <i>Eucalyptus grandis</i>	13	Bangalow Palm <i>Archontophoenix cunninghamiana</i>
3	Black Teak <i>Pentaceros australis</i>	14	Snow Wood <i>Pararchidendron pruinosum</i> var. <i>pruinosum</i>
4	Guioa <i>Guioa semiglauc</i>	15	Lilli Pilli <i>Syzygium</i> sp.
5	Bopple Nut <i>Hicksbeachia pinnatifolia</i>	16	Mangobark <i>Canarium australasicum</i>
6	Bopple Nut <i>Hicksbeachia pinnatifolia</i>	17	Hard Quandong <i>Elaeocarpus obovatus</i>
7	Black Teak <i>Pentaceros australis</i>	18	Queensland Kauri <i>Agathis robusta</i>
8	Black Teak <i>Pentaceros australis</i>	19	Deep Yellowwood <i>Rhodoparera rhodanthema</i>
9	Black Teak <i>Pentaceros australis</i>	20	Three Veined Cryptocarya <i>Cryptocarya triplinervis</i>
10	Guioa <i>Guioa semiglauc</i>	21	Rainforest sp
11	Red Cedar <i>Toona ciliata</i>	22	Native Tamarind <i>Diploglottis australis</i>

14. Attachment 4. Trees to Remove



15. Attachment 5. Retained Trees TPZ



16. Attachment 6. Photos



Photo 1
Tree # 1
Firewheel Tree



Photo 2
Tree # 2
Flooded Gum



Photo 3
Tree # 6
Bopple Nut



Photo 4
Tree # 8
Black Teak