

# ARBORICULTURAL IMPACT REPORT

13A OCEAN ROAD  
PALM BEACH NSW

4 JULY 2016

PREPARED FOR MICHELE AND TREVOR MATTHEWS



Prepared by:  
Guy Paroissien  
Landscape Matrix Pty Ltd.  
ABN 53 110 564 102  
T/F. 9943 6510, M. 0425 342 051  
40 Timbarra Road St Ives NSW 2075  
E-mail: [landscapematrix@optusnet.com.au](mailto:landscapematrix@optusnet.com.au)

## **1. BACKGROUND**

Landscape Matrix Pty Ltd has been engaged by Michele and Trevor Matthews to prepare an Arboricultural Impact Report in respect to 11 trees potentially affected by a proposed secondary dwelling and swimming pool at 13A Ocean Road Palm Beach (the site). The trees assessed for this report are located in the rear garden area of the site and in the adjoining properties to the south.

This report has been prepared by Guy Paroissien a Director of Landscape Matrix Pty Ltd. The site was inspected on 19<sup>th</sup> May 2016 to collect the data for 11 trees at and adjoining the site.

The assessment of the trees is based upon a visual inspection of the trees from ground level using elements of the Visual Tree Assessment (VTA) method described by Mattheck & Breloer (1994). The Useful Life Expectancy (ULE) categories identified in the report follows Barrell (1996).

The inspection was limited to visual inspection of the trees without dissection, probing or coring. No aerial inspection of the trees was carried out and the assessment did not include any woody tissue testing or subterranean root investigation. The tree heights and canopy spreads were estimated and are expressed in metres and the tree diameters at breast height (DBH) were measured using a standard metal tape and are expressed in millimetres.

The DBH for the trees on the adjoining property to the south were estimated from the nearest site boundary as was the DBH for tree number 10.

Measurements from the trees referred to in this report are to be taken as if measured from the centre of the trees' trunks.

## **2. TREES ASSESSED FOR THIS REPORT**

Eight semi mature to mature trees have been assessed in preparing this report. The trees assessed for this report are located in the rear garden area of the site and in the adjoining properties to the south. The location and context of the site is illustrated in the photograph on the cover page of this report.

A summary of these trees, their dimensions, condition, Useful Life Expectancy (ULE) and landscape significance is attached in Appendix B. The ULE categories identified in Appendix B follow those of Barrell (1996). The locations of the trees are shown on the attached Site Plan prepared by MacCormick and Associates dated 12/05/2016 and identified as Job Number 1408, Drawing Number DA01.01\_P1.

The eleven trees are summarised in table 1 as follows:

**Table 1: Summary of trees assessed at 13A Ocean Road Palm Beach**

| <b>Tree Number</b> | <b>Species and Common Name</b>                                  | <b>Summary</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                  | <i>Banksia integrifolia</i><br>(Coast Banksia)                  | A mature, single trunked specimen approximately 7 metres in height with a canopy spread of 4 metres and a diameter at breast height (DBH) of ca. 280mm. In moderate health and of low to moderate landscape significance. Basal trunk not seen (access limited). At the time of inspection the tree was of moderate health and fair vigour and exhibited reduced foliage density and high levels of dieback.                                                                                                                                               |
| 2                  | <i>Banksia integrifolia</i><br>(Coast Banksia)                  | A mature, single trunked specimen approximately 7 metres in height with a canopy spread of 4 metres and a DBH of ca. 200mm. In good health and of low to moderate landscape significance. The tree displays a slight trunk lean and canopy bias to the south. At the time of inspection the tree was of fair vigour and exhibited moderate levels of dieback.                                                                                                                                                                                              |
| 3                  | <i>Banksia integrifolia</i><br>(Coast Banksia)                  | A mature, single trunked specimen approximately 8 metres in height with a canopy spread of 7 metres and a DBH of ca. 350mm. In good health and of moderate landscape significance. At the time of inspection the tree was of fair vigour and exhibited moderate levels of dieback.                                                                                                                                                                                                                                                                         |
| 4                  | <i>Banksia integrifolia</i><br>(Coast Banksia)                  | A mature, single trunked specimen approximately 9 metres in height with a canopy spread of 8 metres and a DBH of 410mm. In poor health and of low landscape significance. The tree displays fair branch attachment with codominant leaders from 1.4 metres - not considered at risk of failure in the short to medium term. At the time of inspection the tree was of poor health and poor vigour and exhibited significantly reduced foliage density and significant levels of dieback. There are lesions on the lower trunk indicative of fungal canker. |
| 5                  | <i>Syzigium paniculatum</i> (Brush Cherry, Magenta Lilly Pilly) | A mature, multi trunked specimen approximately 5 metres in height with a canopy spread of 1 metre and DBH of up to 110mm. In poor health and of low landscape significance. At the time of inspection the tree was of poor health and poor vigour and was almost dead (95% deadwood). Identification based on limited epicormic shoots.                                                                                                                                                                                                                    |
| 6                  | <i>Ficus rubiginosa</i><br>(Port Jackson Fig)                   | A semi mature, single trunked specimen approximately 7 metres in height with a canopy spread of 9 metres and a DBH of 340mm. In good health and of moderate landscape significance. The tree has a slight lean along the rock face on which it is growing. Exposed woody roots from tree within site to east of trunk.                                                                                                                                                                                                                                     |
| 7                  | <i>Banksia integrifolia</i><br>(Coast Banksia)                  | A mature, single trunked specimen approximately 5 metres in height with a canopy spread of 3 metres and a DBH of 200mm. In moderate health and of low to moderate landscape significance. Distinct trunk lean to the east for 2 metres then upright. At the time of inspection the tree was of moderate health and fair vigour and exhibited reduced foliage density and moderate levels of dieback.                                                                                                                                                       |

|    |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8  | <i>Ficus rubiginosa</i><br>(Port Jackson Fig)  | A semi mature, twin trunked specimen approximately 9 metres in height with a canopy spread of 12 metres and DBH of ca. 250 and 320mm. In good health and of moderate landscape significance.<br>Located on adjoining property and immediately adjacent to the dwelling on that property.                                                                                                                                                                                                                                                            |
| 9  | <i>Banksia integrifolia</i><br>(Coast Banksia) | A mature, single trunked specimen approximately 5 metres in height with a canopy spread of 4 x 6 metres and a DBH of 310mm. In good health and of moderate landscape significance.<br>The tree has an upright trunk for 3 metres then a distinct trunk lean (and associated canopy bias) to the SE. There is evidence of decay in the trunk at 1.3 metres on north side - appears limited in extent                                                                                                                                                 |
| 10 | <i>Ficus rubiginosa</i><br>(Port Jackson Fig)  | A mature, multi trunked specimen approximately 9 metres in height with a canopy spread of 16 metres and DBH of up to ca. 450mm (ca. 700mm above the root flare). In good health and of high landscape significance.<br>The tree displays fair branch attachment with multiple leaders with some evidence of poor attachment at the junctions - the junctions are weak points in the tree's structure with increased risk of failure but are not considered at risk of failure in the short term. Exposed woody roots from the tree within the site. |
| 11 | <i>Banksia integrifolia</i><br>(Coast Banksia) | A mature, multi trunked specimen approximately 8 metres in height with a canopy spread of 7 metres and DBH of up to 260mm (300mm above the root flare). In moderate health and of moderate landscape significance.<br>The tree displays fair to poor branch attachment with codominant leaders form 1 metre with evidence of decay in the trunk at the junction of leaders. At the time of inspection the tree was of moderate health and fair vigour and exhibited moderate to high levels of dieback.                                             |

### 3. IDENTIFICATION OF SETBACKS FOR THE TREES

A number of methods to determine the likely extent of root zones and appropriate setbacks for tree root protection zones for trees on development sites have been developed in the past. The key criteria used in determining setbacks is the tree's trunk diameter at breast height (DBH) in conjunction with other factors including the sensitivity of the species in question to environmental disturbance/change, the age of the tree and the tree's health and vigour at the time.

Harris et al (2004) provide formulae for calculating tree protection zones based on the above criteria and modified from the 1991 British Standard for protection of trees on construction sites (BS 5837:1991). The 2005 version of the British Standard (BS 5837:2005) recommends a radius of 12 times the tree's DBH. For multi trunked trees BS 5837:2005 recommends a setback of 10 times the basal trunk diameter.

The Australian Standard AS 4970-2009 Protection of Trees on Construction Sites also identifies a 'Tree Protection Zone' of 12 times the tree's DBH. The Australian Standard also provides a formula for calculating the "Structural Root Zone" of trees on development sites. In regard to palms, other monocots, cycads and tree ferns the Standard identifies the Tree Protection Zone should not be less than 1 metre outside the crown projection. (Australian Standards Association 2009)

The tree protection zones identified below have been calculated using the Australian Standard AS 4970 Protection of Trees on Construction Sites and are the optimum setback from the trees where disturbance (e.g. soil level changes, compaction, excavation etc) should be minimised to reduce potential impacts on the long term health of the trees.

**Table 2: Tree Protection Zones - 13A Ocean Road Palm Beach**

| <b>Tree Number</b> | <b>Species and Common Name</b>                                  | <b>Tree Protection Zone</b> | <b>Structural Root Zone</b> |
|--------------------|-----------------------------------------------------------------|-----------------------------|-----------------------------|
| 1                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 3.4 metres                  | 2 metres                    |
| 2                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 2.6 metres                  | 1.8 metres                  |
| 3                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 4.2 metres                  | 2.2 metres                  |
| 4                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 4.9 metres                  | 2.4 metres                  |
| 5                  | <i>Syzigium paniculatum</i> (Brush Cherry, Magenta Lilly Pilly) | 3 metres                    | 1.8 metres                  |
| 6                  | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | 4.1 metres                  | 2.4 metres                  |
| 7                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 2.4 metres                  | 1.8 metres                  |
| 8                  | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | 5.2 metres                  | 2.1 metres                  |
| 9                  | <i>Banksia integrifolia</i> (Coast Banksia)                     | 3.7 metres                  | 2.1 metres                  |
| 10                 | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | 8.4 metres                  | 2.8 metres                  |
| 11                 | <i>Banksia integrifolia</i> (Coast Banksia)                     | 3.6 metres                  | 2 metres                    |

Preferably, no more than 10% of the tree protection zone should be disturbed with compensation made by extension of other areas of the tree protection to compensate for the area(s) disturbed. Where greater than 10% of the tree protection zone is potentially disturbed the tree's viability needs to be investigated and demonstrated by the project arborist. The structural root zone is the area required for stability and where disturbance of any sort should be avoided.

#### 4. POTENTIAL IMPACTS ON THE TREES

The extent of impacts to the trees has been assessed on the basis of the information provided in the Site Plan prepared by MacCormick and Associates dated 12/05/2016 and identified as Job Number 1408, Drawing Number DA01.01\_P1. The extent of potential impacts to the trees is summarised in the table 3 as follows:

**Table 3: Summary of potential impacts on the trees – 13A Ocean Road Palm Beach**

| Tree Number | Species and Common Name                                         | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The tree is within the footprint of the proposed dwelling and will require removal.                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The proposed lift is located 4 metres from the tree and the dwelling is located 4.08 metres from the tree – these structures are outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                       |
| 3           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The proposed dwelling is located 4.1 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                       |
| 4           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The tree is within the footprint of the proposed dwelling and will require removal.                                                                                                                                                                                                                                                                                                                                                                                                                |
| 5           | <i>Syzigium paniculatum</i> (Brush Cherry, Magenta Lilly Pilly) | The proposed dwelling is located 5.39 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                      |
| 6           | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | The proposed dwelling is located 6.57 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                      |
| 7           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The proposed dwelling is located ca. 8.5 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                   |
| 8           | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | The proposed dwelling is located 8.94 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                      |
| 9           | <i>Banksia integrifolia</i> (Coast Banksia)                     | The proposed dwelling is located ca. 10 metres from the tree and is outside the tree’s identified TPZ – no impact of substance.                                                                                                                                                                                                                                                                                                                                                                    |
| 10          | <i>Ficus rubiginosa</i> (Port Jackson Fig)                      | The proposed dwelling is located 2.9 metres from the tree at the closest point and is calculated to encroach within 34.26m <sup>2</sup> or 15.46% of the tree’s identified TPZ – this is a moderate level of impact and within an acceptable threshold. The root zone impacts will be reduced to a degree by the exposed sandstone outcrops in the area impacted. While some canopy pruning is likely the extent of pruning will be reduced due to the level change between the tree and dwelling. |

|    |                                                |                                                                                                                                                                                                                                                  |
|----|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | <i>Banksia integrifolia</i><br>(Coast Banksia) | The proposed dwelling is located 2.9 metres from the tree at the closest point and is calculated to encroach within 0.87m <sup>2</sup> or 2.14% of the tree's identified TPZ – this is a low level of impact and within an acceptable threshold. |
|----|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The potential impacts can be summarised as follows:

- The proposed works are outside the identified tree protection zones (TPZ) of tree numbers 2, 3, 5, 6, 7, 8 and 9 and no impact of substance is predicted for this tree.
- The proposed works will impact on 2.14% of the identified TPZ of tree number 11– this is a low level of impact and within an acceptable threshold.
- The proposed works will impact on 15.46% of the identified TPZ of tree number 10– this is a moderate level of impact and within an acceptable threshold. While some canopy pruning is likely the extent of pruning will be reduced due to the level change between the tree and proposed dwelling.
- Tree numbers 1 and 4 are proposed to be removed as part of the development works.

## **5. TREE PROTECTION MEASURES**

The following generic tree protection measures are recommended to assist in minimising potential impacts to trees proposed for retention (including during the implementation of landscape works on the site).

### **A. Measures to be implemented prior to the commencement of any works on the site.**

1. Tree to be retained are to be clearly identified by signage as protected trees.
2. The tree protection zones of trees to be retained are to be protected by fencing during the entire construction period except for specific areas directly required to achieve construction works.
3. The tree protection fence shall be constructed of galvanised pipe at 2.4 metre spacing and connected by securely attached chain mesh fencing to a minimum height of 1.8 metres and shall be installed prior to work commencing.
4. The tree protection fencing shall be installed as closely as possible to the alignment of the identified tree protection zone and shall be approved and certified by the site arborist prior to commencement of any construction or demolition works on the site.

### **B. Measures to be implemented and maintained during the life of construction works on the site.**

5. Any excavation within the identified root protection zones of trees to be retained shall be carried out by hand to minimize disturbance to tree roots. Roots greater than 40mm are not to be damaged or severed without prior assessment by an arborist to determine likely level of impact and the restorative actions required to minimise the impacts of root damage.
6. Tree roots between 10mm and 25mm diameter, severed during excavation, shall be cut cleanly by hand by an experienced Arborist/Horticulturist with a minimum qualification of the Horticulture Certificate or Tree Surgery Certificate.
7. The following activities/actions are prohibited from the tree protection zones:
  - Soil cut or fill including excavation and trenching
  - Soil cultivation, disturbance or compaction
  - Stockpiling storage or mixing of materials
  - The parking, storing, washing and repairing of tools, equipment and machinery
  - The disposal of liquids and refueling
  - The disposal of building materials
  - The sitting of offices or sheds
  - Any action leading to the impact on tree health or structure

8. Canopy pruning of trees identified for protection which is necessary to accommodate approved building works shall be undertaken in accordance with Australian Standard 4373-2007 'Pruning of Amenity Trees'.

## 6. CONCLUSION

Eleven trees have been assessed for this report. The trees assessed for this report are located in the rear garden area of the site and in the adjoining properties to the south.

All of the trees assessed are considered to be remnant specimens of the original vegetation of the site and locality. The majority of the trees were in moderate to good health at the time of inspection and did not exhibit any visual evidence of significant pest or disease.

Tree numbers 1, 4, 5, 7 and 11 were of reduced vigour and exhibited reduced foliage density and/or low to moderate levels of dieback. In particular, trees 4 and 5 are considered to have very short useful life expectancy (ULE).

The potential impacts can be summarised as follows:

- The proposed works are outside the identified tree protection zones (TPZ) of tree numbers 2, 3, 5, 6, 7, 8 and 9 and no impact of substance is predicted for this tree.
- The proposed works will impact on 2.14% of the identified TPZ of tree number 11– this is a low level of impact and within an acceptable threshold.
- The proposed works will impact on 15.46% of the identified TPZ of tree number 10– this is a moderate level of impact and within an acceptable threshold. While some canopy pruning is likely the extent of pruning will be reduced due to the level change between the tree and proposed dwelling.
- Tree numbers 1 and 4 are proposed to be removed as part of the development works.

In addition to the trees assessed for the report it is noted the upper area of the site is heavily vegetated with a high number of ground covers, lower vegetation and small trees including specimens of *Glochidion ferdinandi* (Cheese Tree), *Pittosporum undulatum* (Native Daphne, Sweet Pittosporum), *Elaeocarpus reticulatus* (Blue Berry Ash), *Banksia integrifolia* (Coast Banksia) and *Eucalyptus robusta* Swamp Mahogany). The weed species *Olea europaea* subsp. *Cuspidata* (African Olive) was also noted on site together with varying levels of other weed species in the lower vegetation stratum.



Guy Paroissien MAIH, MIACA, MISAAC  
M Env. Mgt. & Restor., Dip. Arboriculture, Hort. Cert., Tree Care Cert.  
Director  
Landscape Matrix Pty Ltd  
4<sup>th</sup> July 2016

## **BIBLIOGRAPHY/REFERENCES**

Australian Standards Association (2007) AS 4373- 2007 - Australian Standard 4373-2007 'Pruning of Amenity Trees'.

Australian Standards Association (2009) AS 4790- 2009 - Australian Standard 4790-2009 'Protection of trees on development sites'.

Barrell J (1996) - Pre-planning Tree Surveys: SULE is the Natural Progression. Arboricultural Journal 17, 33-46.

Harris et al (2004). Harris RW, Clark JR, Matheny NP: Arboriculture – Integrated Management of Landscape Trees Shrubs and Vines 4<sup>TH</sup> Edition. Prentice Hall, New Jersey 07458.

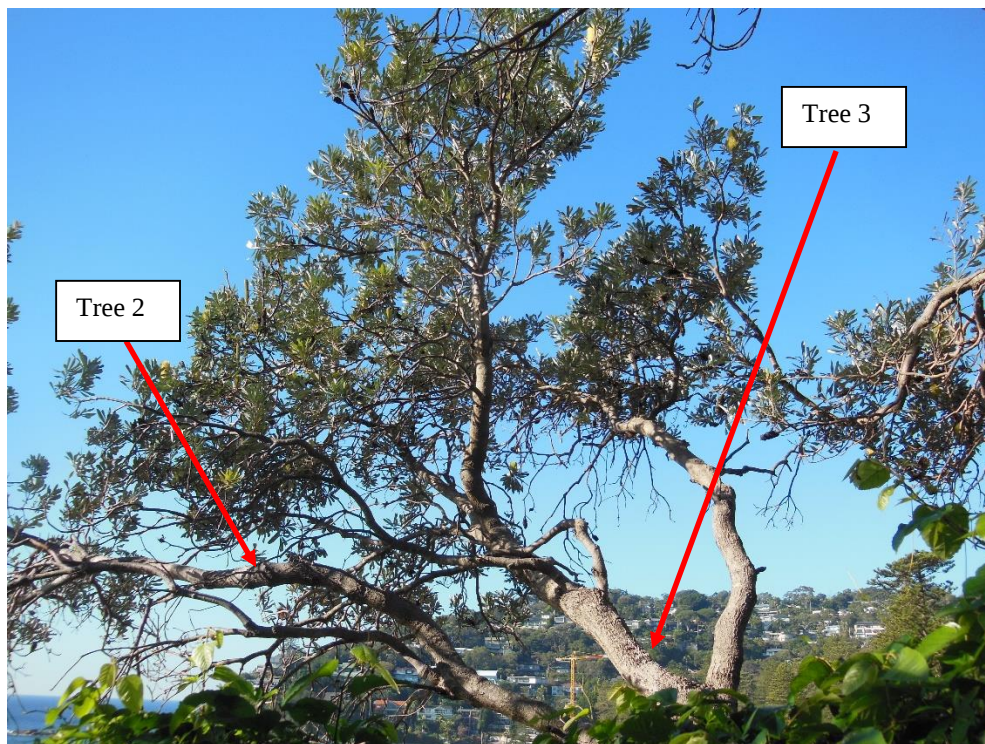
MacCormick and Associates (2016) - Site Plan prepared by MacCormick and Associates dated 12/05/2016 and identified as Job Number 1408, Drawing Number DA01.01\_P1.

Mattheck & Breloer (1994) – The Body Language of Trees – a handbook for failure analysis - Research for Amenity Trees No. 4. Published by TSO (The Stationary Office) Norwich UK.

## APPENDIX A



Photograph 1: Tree #1 - Illustrating the reduced foliage density and high levels of dieback.



Photograph 2: Illustrating the tree numbers 2 and 3.



Photograph 3: Tree # 4 - Illustrating the significantly reduced foliage density and significant levels of dieback.



Photograph 4: Tree # 4 - Illustrating the lesions on the lower trunk indicative of fungal canker.



Photograph 5: Tree # 6 - Illustrating the slight lean along the rock face on which it is growing.



Photograph 6: Tree # 10 - Illustrating the location and context.



Photograph 7: Tree # 11 - Illustrating the codominant leaders from 1 metre with evidence of decay in the trunk at the junction of leaders.



Photograph 8: Illustrating an exposed rock face and level change within the site in the vicinity of trees 10 and 11.



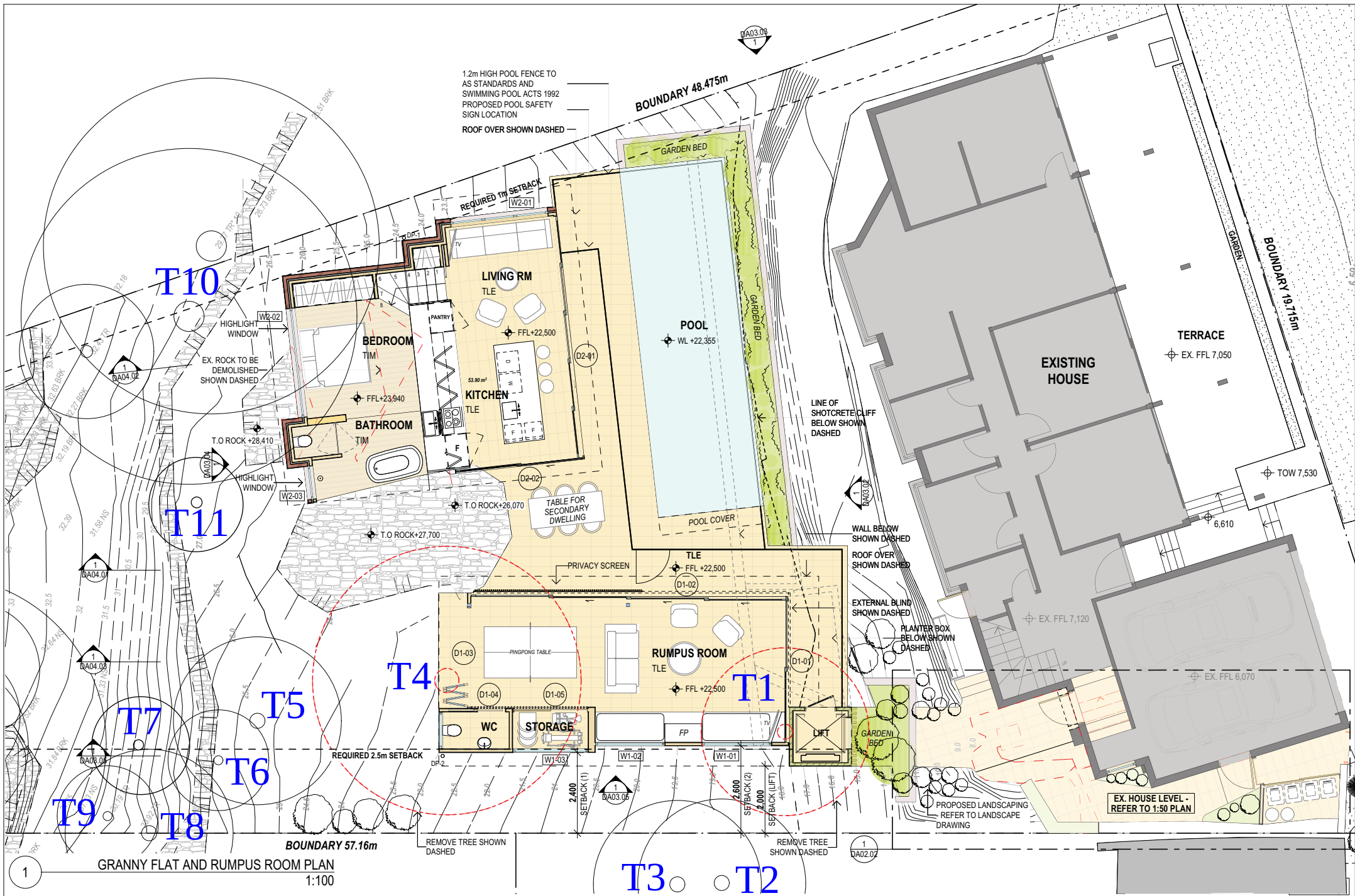
Photograph 9: Illustrating the vegetated nature of the site.



Photograph 10: Illustrating the vegetated nature of the site.

## APPENDIX B - TREE DATA SUMMARY - 13 OCEAN ROAD PALM BEACH

[illegible]



MACCORMICK + ASSOCIATES ARCHITECTS  
13 VICTORIA STREET QUEENS PARK NSW 2022  
T 9037 0437 E hello@maccormickarchitects.com.au  
ACN 147 572 807 Architect Reg 6702

|      |                       |            |
|------|-----------------------|------------|
| Rev: | Description           | Date       |
| 01   | ISSUED TO CONSULTANTS | 12/05/2016 |
|      |                       |            |
|      |                       |            |
|      |                       |            |
|      |                       |            |

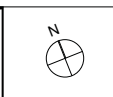
NOT FOR CONSTRUCTION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

S:\01 Projects\141408\_Matthews 2 Palm beach\01\design\1408\_Matthews Palm Beach\_06.05.2016.pln

The builder shall check & verify all dimensions & verify all errors and omissions to the Architect. Contractor to report discrepancies immediately. This drawing is to be used in conjunction with all relevant contracts. Do not scale off the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction. This drawing is copyright and may not be used without written consent from the Architect.

Project Name  
**MATTHEWS RESIDENCE**  
Address  
**13A OCEAN ROAD PALM BEACH NSW**



Drawing Name:  
**FLOOR PLANS-  
GRANNY FLAT AND RUMPUS ROOM PLAN**

Drawing Status:  
**DEVELOPMENT APPLICATION**

|                            |                                      |
|----------------------------|--------------------------------------|
| Paper Size: A3             | Date Printed: 12/05/2016             |
| Drawn By: CS               | Checked By: MM                       |
| Project No:<br><b>1408</b> | Drawing #: Rev:<br><b>DA02.01_P1</b> |