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Arboricultural Impact Assessment Report

PREPARED FOR

Mr Ray Balcomb
At
83 - 85 Bower St, Manly

PREPARED BY

Glenice Buck

ON

15th July 2020

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1. INTRODUCTION

This report was commissioned by Ray Balcomb (the owner of the site) to assess the eight (8) trees growing in the front/side gardens at 83 - 85 Bower St, Manly (the site). For the purpose of this report these trees will be known as the subject trees. Refer to Tree Data Summary (Figure 1) and Site Plan (Appendix 5) for tree locations and tree numbers.

This report shall reflect the expert opinion of Glenice Buck Designs. Glenice Buck Designs is acting independently of and not as the advocate for the owner of the subject trees. Glenice Buck Designs shall not receive any commission to prune or remove the trees which are the subject of this Arborist Report.

The subject trees were inspected on 5th December 2019.

The purpose of this report is to identify the existing trees, assess their health and condition, to determine their landscape significance within the surrounding environment and their life expectancy. We will determine their sustainability and suitability for retention within the existing landscape. For the purpose of this report we have assessed the likely impact the proposed development will have on the subject trees. This report will then provide recommendations in relation to the management of the trees through this development process and in the long term.

2. METHODOLOGY

2.1 General Assessment

The subject tree was visually inspected from ground level. This report is limited to the methods of assessment listed below (refer to Appendix 1 – Tree Inspection Sheet).

- Tree Species (botanical and common name)
- Tree height and age was estimated;
- Canopy spread was estimated;
- Diameter at Breast Height (DBH) was measured 1.4 metres above ground level;
- Health and vigour, including foliage size, colour, condition, extension growth, presence of disease or pest infestation, canopy density, branch structure, scar tissue, the presence of deadwood, dieback, epicormic growth as indicators;
- Condition, using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators;
- Suitability of the tree to the site and its existing location;
- The surface cover, soil level and drainage patterns were all noted.
- A data collection sheet was used to record information (Refer to Figure One and Appendix 1)
- The photographs included in this report were taken at the time of inspections;
- Notes were also taken on the obstructions to each tree, surrounding services, use of the land underneath the tree(s) and possible targets in this area.
- The comments and recommendations in this report are based on findings from the site inspection;
- Council's planning instruments and other applicable documentation were sourced and have been used for assessment purposes;
- A list of literature used in the preparation of this report is provided in the references section.

There were no root excavations, aerial surveys or internal inspections of the wood (for decay) completed.

2.2 IACA Significance of a Tree, Assessment Rating System

The value of the tree for retention has been determined using the IACA Significance of a Tree, Assessment Rating System (STARS)(IACA 2010), from the Institute of Australian Consulting Arboriculturists, Australia, (Refer Appendix 2). This system looks at the life expectancy of the tree and the landscape significance of the tree. These two factors are then compared to give the tree a retention value. The tree's retention value is classed at High, Moderate or Low. The trees with the higher value we see to have a longer life expectancy and high landscape significance.

The remaining life expectancy of the tree is classed as;

Long – Greater than 40 years

Medium – 15 – 40 years

Short – 1 – 15 years

Imminent Hazard (structurally unstable) or Dead

The landscape significance rating takes into account the amenity, ecological and heritage values. A rating is given to the tree of high, medium or low.

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 Council's 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 structurally unsound and/or unstable and is considered potentially dangerous.
- The tree is dead, or is in irreversible decline, or has the potential to fail 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.

A high retention value means that we would recommend that the tree be maintained and protected. These trees are considered important for retention and should be retained or protected. Design modification or re-location of building/s should be considered to accommodate the setbacks prescribed by the Australian Standard AS 4970 Protection of Trees on Development Sites. Tree sensitive construction measures must be implemented e.g. pier and beam footings etc, if works are to proceed with the tree protection zone.

A moderate retention value means that these trees may be retained and protected. These are considered less critical however their retention should remain a priority with removal only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

A low retention value (considered for removal) means that the trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

A very low retention value means the trees are considered hazardous, or in irreversible decline or are weeds and should be removed irrespective of development.

The proposed following plans were examined and assessed

- * Landscape Plans from Landart dated July 2020.
- * Architecture Plans from Evans and Green July 2020.

Notes were taken on the impact that these proposed works will have on the existing trees.

An Impact Assessment was completed on the tree (Figure Fourteen). This included determining for the subject trees;

* Construction tolerance – This has been divided into three categories.

- H – High
- M – Medium
- P- Poor

As there is very little documentation available on the construction tolerance of trees under Australian conditions these categories were given to each tree based on our previous knowledge and experience.

* The Tree Protection Zones (TPZ). The TPZ is a determined area around the trees that are to be maintained.

The TPZ specify a radial distance from the centre of the trunk of the tree which should be protected throughout the development process. The aim of protecting this area is to minimize any incursions to the root system of the tree and/or the trees canopy.

This will ensure the long term health and maintain the stability of the tree to be retained.

The TPZ is calculated by multiplying the diameter at breast height (DBH) x 12. This formula is in accordance with the Australian Standard 4970-2009- Protection of Trees on Development Sites.

*The Structural Root Zones (SRZ) is the area which must be maintained to provide the tree with anchorage and stability. It is a radial distance measured from the centre of the trunk of the tree which is to be maintained.

This is calculated when there is a major encroachment into the TPZ. SRZ is calculated by;
 $SRZ = (D \times 50)^{0.42} \times 0.64$ where D = Trunk diameter in metres. This is measured above the root buttress. This formula is in accordance with the Australian Standard 4970 - 2009- Protection of Trees on Development Sites.

* Percentage incursion has been calculated by dividing the area of incursion by the TPZ. It is generally accepted that a 10% incursion on one side of the TPZ is allowable. However anything above this is considered to have an adverse impact on the trees health and stability. Any incursion into the TPZ will need to be compensated for on the other sides of the tree.

*Impact Category

0% of root zone impacted – no impact of significance

0 to 10% of root zone impacted – low level of impact

10 to 15% of root zone impacted – low to moderate level of impact

15 to 20% of root zone impacted – moderate level of impact

20 to 25% of root zone impacted – moderate to high level of impact

25 to 35% of root zone impacted – high level of impact

>35% of root zone impacted – significant level of impact

No plans have been supplied for the installation of services, hydraulics/storm water and/or structural works.

3.0 OBSERVATIONS

3.1. The Site

The site is spread between two street frontages - Bower St on the northern side of the site and Montpelier Place on the southern side of the site. The house is constructed along the eastern side of the site. The majority of the garden is located on the western side of the block. This is divided mainly into two (2) levels. There is a large open grass area and pool area on the higher level. Below this level there is a grassed area surrounded by plantings.

The subject trees are located throughout this area.

3.2 The Trees

The main characteristics of each tree are set out in the Data Collection Sheet below with photos following. Refer to Appendix 1 also.

Tree ID	Species	Height (m)	Canopy dims n/s in metres	DBH (cm)	DGL (cm)	Foliage condition	Maturity	Trunk type	Trunk lean	Canopy Balanced	Past Pruning	Stability	Vigour	Canopy deadwood	Significance value	Notes	TPZ (M) Radius	SRZ (M) Radius	N O T					DBH1	DBH2	DBH3	DBH4	DBH TOTAL
T1	<i>Acacia saligna</i> (Blue Gum)	14	16	70	80	Good	Mature	Single	Upright	Yes	Minor - historical	Appears stable	Good	0.5%	High	Affected by silver on lower trunk - signs of hollow formation on lowest first order branch to South. Some bracket rot - white wood.	8.4	3.2	U					0	0	0	0	0
T2	<i>Melaleuca quinquenervia</i>	12	16	68	88	Good	Mature	Single	Upright	Yes	Through out	Appears stable	Good	0.5%	High	A large well kept tree with broad canopy. 200y left noted at base of tree. Soil depth avg. 10m as probed around tree. First order roots as indicated.	8.2	3.1	E					0	0	0	0	0
T3	<i>Melaleuca quinquenervia</i>	14	8	67	78	Good	Mature	Single	Distinct NW	Entirely NW	Minor - historical	Appears stable	Good	0.5%	High	Large tree growing adjacent to masonry pathway. Tree has started to envelop path. Existing dwelling prop. for demolition located on tension side of tree and Pruning focussed on neighbour's side of tree. Signs of decay in northern co-dominant stem - monitor.	8.0	3.0	D					0	0	0	0	0
T4	<i>Glochidion forsterianum</i> (Cheese Tree)	10.5	8	40	50	Good	Mature	Twin	Upright	Yes	Yes - historical	Appears stable	Good	0.5%	Moderate	Tree located on boundary - exempt due to location within 2m of neighbouring dwelling.	4.8	2.5						0	0	0	0	0
T5	<i>Agave flexosa</i>	9		86	61	68					Lower limit to					Tree located on boundary - exempt due to location within 2m of neighbouring dwelling.	8.0	2.8						38	28	47	0	86.081
T6	<i>Agave flexosa</i>	11		63	75						Lower limit to					Tree located on boundary - exempt due to location within 2m of neighbouring dwelling.	7.6	2.9						0	0	0	0	0
T7	<i>Plumeria</i>	5.5	5	35	40	Good	Mature	Single	Upright	Bias North	Minor - historical	Appears stable	Good	0.5%	Low	A small old tree.	4.2	2.3						0	0	0	0	0
T8	<i>Drosera draca</i>	5	4	30	35	Good	Mature	Single	Upright	Yes	No	Appears stable	Good	0%	Moderate	A mature established tree.	3.6	2.1						0	0	0	0	0



Figure Two - An overall image of Tree 1.
Viewed from eastern side.

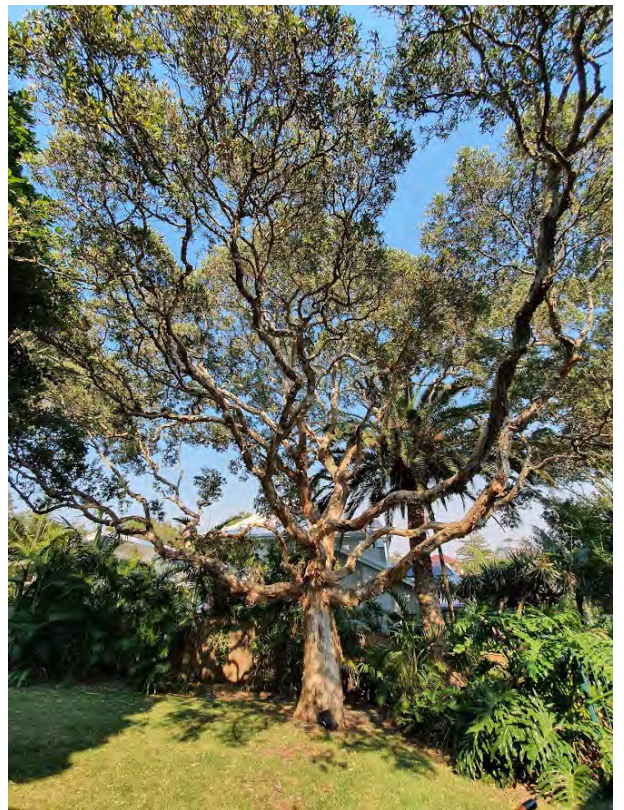


Figure Three - This image shows the overall of Tree 2 viewed
from eastern side. This tree is in good health and condition.



Figure Four - This image shows the base of the trunk of Tree 2
It is growing within the lawn area.



Figure Five -This image shows Tree 3 viewed from southern side. This image also shows Tree 8 on right hand side of the image.



Figure Six -This image shows the base of the trunk of Tree 3 viewed from southern side . This image also shows the lean on the main trunk and how it is growing over the pathway.

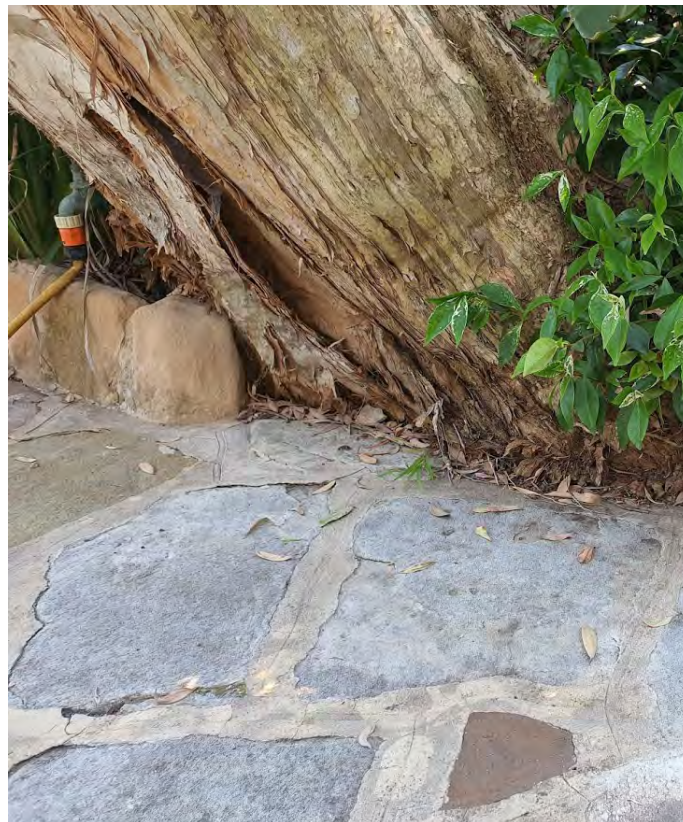


Figure Seven -This image shows the close up of the base of the trunk of Tree 3 viewed from western sde. We are unsure how reliant this trunk is on the existing pathway for support.

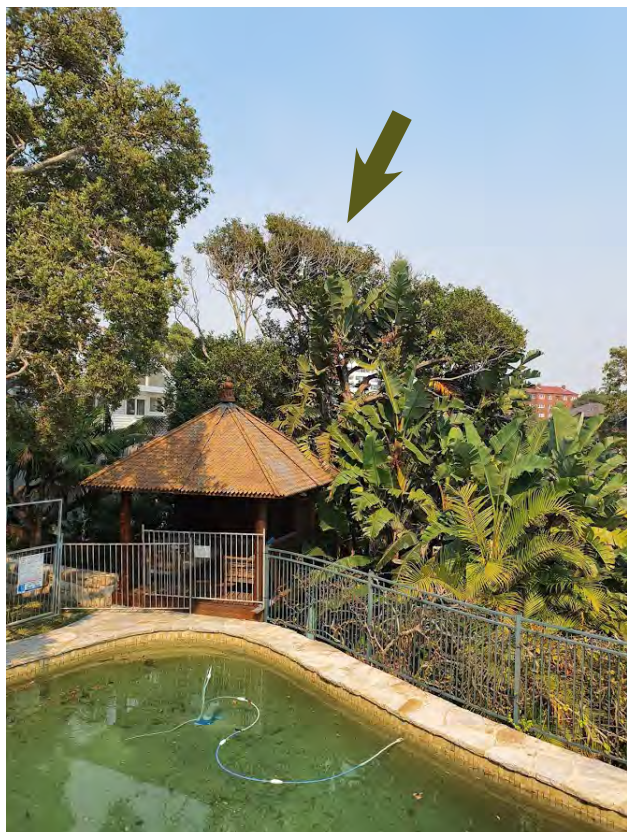


Figure Eight - This image shows Tree 4 viewed from north eastern side.



Figure Nine - This image shows Trees 6 and 5 viewed from western side (from left to right).



Figure Ten - This image shows the closeness of the trunks of Tree 5 and 6 to the neighboring property. Viewed from southern side.



Figure Eleven - This image shows Tree 7 viewed from northern side.

3.3 The Impact

It is proposed to complete renovations on the existing house and garden. It is proposed that the footprint of the existing house will change mainly on the western side, there are some small changes in the footprint on the eastern side of the house along with a new garage area. There will be changes with the front entrance of the property where the front entrance will be set back off the street frontage. This area will be created with timber decking. The timber decking will sit above ground level and have minimal impact. The existing pool will be removed. It is proposed to construct a plunge pool at the northern end of where the existing pool is located.

Figure Twelve - Impact Assessment Schedule

Tree No.	Construction Tolerance	TPZ (mR)	SRZ (mR)	% Incursion to root zone and or canopy	Likely Impact HS/S/M/L
1	L	8.4	3.2	0% Incursion to TPZ and SRZ	No Impact to TPZ No Impact to SRZ
2	L	8.2	3.1	0% Incursion to SRZ 0% Incursion to the TPZ	No Impact to TPZ No Impact to SRZ
3	L	8	3	15% Incursion to TPZ Less than 5% Incursion to SRZ	REMOVE DUE TO LEAN
4	L	4.8	2	Less than 10% Incursion to TPZ 0% Incursion to SRZ	Very Low impact TPZ No Impact to SRZ
5	L	8	2.8	REMOVE DUE TO POOR HEALTH and closeness to neighboring property	REMOVE
6	L	7.6	2.9	REMOVE DUE TO POOR HEALTH and closeness to neighboring property	REMOVE
7	L	4.2	2.3	100% Relocation	Refer to Transplant Methodology Appendix 8
8	L	3.6	2.1	100% Relocation	Refer to Transplant Methodology Appendix 8

The palms and strelitzia listed for removal on the landscape plan are exempt as they are under the height requirement listed in Council's Tree Preservation Order.

Calculations as discussed in Methodology

Construction tolerance – This has been divided into three categories.

H – High

M – Medium

P- Poor

TPZ- Tree Protection Zone

SRZ – Structural Root Zone

4. DISCUSSION

There are eight (8) subject trees we refer to in this report. Tree 1 is a mature *Eucalyptus saligna* (Sydney Blue Gum) which overall is in good condition and has signs of good vigour. There are some signs of hollow formation on the lowest first order branch on the southern side of the tree. There is also some interconnecting branch contact within the canopy. It will not be affected by the proposed development. Tree 2 is a large mature, *Melaleuca quinquenervia* (Paperbark) which is in good health and condition with signs of good vigour. The proposed landscape plan is to maintain the existing lawn through this area, to stabilise the existing deco - granite pathway and to create a stone wall that will rake at existing ground level. This should have little to no impact on Tree 2.

Tree 3 is a mature *Melaleuca quinquenervia* (Paperbark) which is growing on a strong north westerly lean. The trunk and canopy is growing in this direction. The trunk at its base is growing across and over the existing pathway. The canopy does have good vigour however structurally we are unsure of its reliance on the pathway for support. The proposed development is to remove this existing pathway. If this pathway is removed we could not guarantee that the tree will remain structurally stable. Due to the strong lean on this tree any renovation work around its base could have an affect on its stability. It is proposed to change the levels within this area and where this tree is located will become a main pathway from the house down onto the lawn area.

Tree 4 is a *Glochidion ferdinandi* (Cheese Tree) it is a co-dominant trunked tree which has had some significant pruning over time mainly focused on the neighbour's side of the tree. There are signs of decay in the northern co-dominant stem which should be monitored. The proposed development will have very little impact on this tree. There is small incursion into this tree's TPZ from the new proposed plunge pool.

Tree 5 and Tree 6 are both *Agonis flexuosa* (Willow Myrtle) which are located on the eastern boundary fence of the site. They both have poor form and habit. These trees have a low retention value due to their low landscape significance and short life expectancy. Due to their location they are exempt from requiring permission for removal as they are growing within two (2) metres of the neighbouring dwelling.

Tree 7 is a mature *Plumeria* (Frangipani) which is in good condition and has good form and signs of good vigour. The proposed development in this area is to construct a set of stairs where this tree is located. This stairway will connect the main veranda on the northern end of the house to the garden and also around to the access pathway to Bower St. This tree will need to be removed. It is a species which will relocate to another location. Tree 8 is a mature *Dracena draco* (Dragon Blood Tree). It has good form and signs of good vigour. The proposed development will require this tree to be removed due to changes in level and the construction of new retaining wall. It will also be directly in the main pathway/access from the courtyard down on to the lawn area. We have recommended that Tree 3 be removed due to its structural stability and as they are both growing very close together we do not think Tree 3 will be able to be removed without damaging Tree 8. This tree will relocate to another location.

5. CONCLUSION AND RECOMMENDATIONS

The subject trees are in varying levels of health. The proposed development will have very little affect on Trees 1, 2 and 4. They should be managed and protected as per management procedures listed below. Tree 1 should have tree protection fencing installed as per clause 5.2.0 Tree Protection.

Trees 2 and 5 should both have either tree protection fencing or trunk protection (as per clause 5.2.0 Tree Protection) installed prior to works commencing. This protection shall remain on the trees until works have been completed on site. Tree 3 is growing on a significant northwesterly lean. Its lower trunk has also enveloping the pathway adjacent to the trunk. This pathway could not be removed without risking the tree's stability. Due to these two (2) factors we would recommend its removal.

Tree 8 is growing in close proximity to Tree 3 - we would recommend that this tree is relocated. Please refer to the Transplant Method Statement in Appendix 8. Tree 5 and 6 are both poor specimens with low retention values we would recommend that they are removed. Due to their closeness to the neighboring property they are exempt from requiring permission from Council for removal.

We would recommend that Tree 7 be relocated. Please refer to the Transplant Method Statement in Appendix 8. If these trees are removed we would recommended that replacement trees are planted out in alternate locations. Ideally these trees should be indigenous or native as per Council's list of recommended species.

Below we have outlined the correct management procedures for the subject trees if this proposed development is approved.

5.1.0 Activities to be avoided within root zones of trees to be retained.

The following activities should be avoided within the TPZ;

Removal of any plant material with machinery

Ripping or cultivation of soil

Storage of any spoil, soil or any such materials

Placement of site shed or temporary services

Soil disturbance or movement of natural features (such as rocks)

Disposal of waste materials and chemicals such as cement, paint, solvents, fuel, oil and other toxic liquids.

This includes washing down tools and brushes

Changes in soil level

Movement and storage of plant, equipment and vehicles

Attachment of signage to trees

Any physical damage to the trunk or root system

Lighting of fires

5.2.0 Tree Protection

Throughout the construction process we recommend that the existing boundary fence between the subject trees and the site be retained. If it was removed we would recommend the following tree protection measure taken. The trees to be retained on site will require a range of protection measures to protect them prior to and during the construction process. These should be installed prior to any work commencing on site.

5.2.1 Tree Protection Fencing

The trees to be retained shall be protected by tree protection fencing. This fence is to be constructed with at least chain wire panels to a height of 1800mm, supported by steel stakes (as required) and fastened together so there is no movement sideways. Ideally these panels should be locked into 200mm x 100mm concrete blocks which will prevent movement and reduce the likelihood of the fencing being disturbed.

The protection fencing is to be placed around the perimeter of the TPZ. The fence shall be erected prior to any work commencing on site and shall be maintained in good condition for the entire construction period.

Wood chip mulch shall be spread across the total area of the TPZ to a depth of 50mm. Mulch shall be spread by hand to avoid any compaction and soil disturbance within the TPZ.

Appropriate signage shall be installed on the fencing to prevent unauthorized movement of fencing and or entry into the TPZ.

5.2.2 Trunk and branch protection

Where tree protection fencing cannot be installed due to its closeness to the proposed works, trunk protection shall be installed around the tree to avoid damage. As a minimum, the trunk protection shall consist of two metre lengths of hardwood timbers (100 x 50mm) spaced at 100-150mm centres tied together with 2mm galvanized wire. These shall be strapped around the tree trunk and/or branches to form a protective barrier from mechanical injury.

At no time should these materials be fixed to the tree in a manner which would damage the bark of the tree. The trunk and branch protection shall be erected prior to any work commencing on site and shall be maintained in good condition for the entire construction period.

5.2.3 Crown protection

Additional crown protection may be required where the radius of the TPZ is less than the radius of the canopy. Tree protection fencing may need to be moved further out to encompass the drip line of the tree's canopy. This shall be done by the site arborist.

5.3.0 Tree Damage

If the trees to be protected on the site are damaged in any way throughout the development period the site arborist shall be engaged to inspect the level of damage. The site arborist will provide advice on any remedial action to take place to prevent or reduce any further impact on the tree. This action shall be implemented as soon as practicable and certified by the site arborist.

5.4.0 Tree and Root Pruning

All pruning work required shall be carried out in accordance with the Australian Standard No 4373 – 2007- Pruning of Amenity Trees. Prior to any pruning of the site's trees being done, written approval from council will be required under the Tree Preservation Order. All pruning to be carried out by a qualified and experienced arborist with a minimum AQF 4 qualification in accordance with the NSW Work Cover Code of Practice for the Amenity Tree Industry (1998). All care shall be taken when operating any equipment near the trees to avoid damage to the tree's canopy (foliage and branches). Under no circumstances shall branches be torn-off by construction equipment. Where there is potential risk that the tree canopy may be damaged by construction activity, the advice of the site arborist must be sought. If the tree is pruned without prior permission from Northern Beaches Council, fines will apply. Where root pruning is necessary, roots shall be severed with a sharp, clean pruning instrument. The severed roots should be kept moist by covering them with a hessian material or mulch, for the duration of the construction period.

5.5.0 Tree removal

The approval of the Northern Beaches Council shall be obtained prior to the removal of any tree. All tree work to be carried out by a qualified and experience arborist or tree surgeon in accordance with the NSW Work Cover Code of Practice for the Amenity Tree Industry (1998).

All care should be taken to avoid the damage to other trees while removal is taking place.

Stumps of trees to be removed shall be grounded out using a stump grinder without damaging the root systems of other trees.

Where tree stumps are located in close proximity to trees that are to be retained, stumps should be cut off at ground level, leaving root systems intact. This applies to those stumps found within TPZ of trees to be retained. If any trees are removed without prior permission from the Northern Beaches Council, fines will apply.

5.6.0 Signage

Signs identifying the TPZ should be attached to the tree protection fencing. The signage should be easily read, clear to understand and made from durable material which will last for the duration of the development. The signage shall remain in place until final completion.

5.7.0 Maintenance of the trees to be protected

The tree to be protected shall have a maintenance program implemented for the period of development. This shall include watering and fertilising as required. This shall be prepared by the site arborist and it should be carried out by he/she or a qualified horticulturist. If any trees are removed without prior permission from Northern Beaches Council, fines will apply.

5.7.1 Tree Watering

The trees to be maintained on site should be well watered prior to the commencement of works and throughout the development period.

This will ensure the tree is not in any stress from drought. The site arborist shall implement a watering program depending on the season and amount of rain fall.

5.8.0 Site Induction

All persons working on the site or accessing the site shall participate in a site induction. This is to inform all persons of the site access, the correct procedure when working around the tree protection zones, what the outcomes will be if any or all of the trees to be protected on site are damaged

6.0.0 Post Construction Measures

6.0.1 Maintenance

The maintenance program shall be continued after final completion for the following year. The signs of any stress in the trees will need to be noted and the site arborist will need to be consulted.

6.0.2 Tree Protection Fencing

The tree protection fencing can be removed once work is completed and no possible damage can be caused by vehicles or equipment.

If you have any questions regarding this report please do not hesitate to contact the undersigned.

Glenice Buck
Consulting Arborist (AQF 5)

Assumptions

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However Glenice Buck Designs Pty Limited 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 that were examined and reflects the condition of the tree at the time of inspection: and

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree may not arise in the future.

6. REFERENCES


- Standards Australia (2009) AS2970-2009 "Protection of Trees on Development Sites", Sydney.
- Standards Australia (2007) AS 4373-2007 "Pruning of Amenity Trees", Sydney.
- Council's Tree Preservation Order & relevant tree planning documents.
- IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au .
- Harris et al, 2004, *Arboriculture Integrated Management of Trees, Shrubs and Vines*, Prentice Hall, New Jersey.

APPENDIX 1

TREE INSPECTION INVENTORY SHEET & NOTES

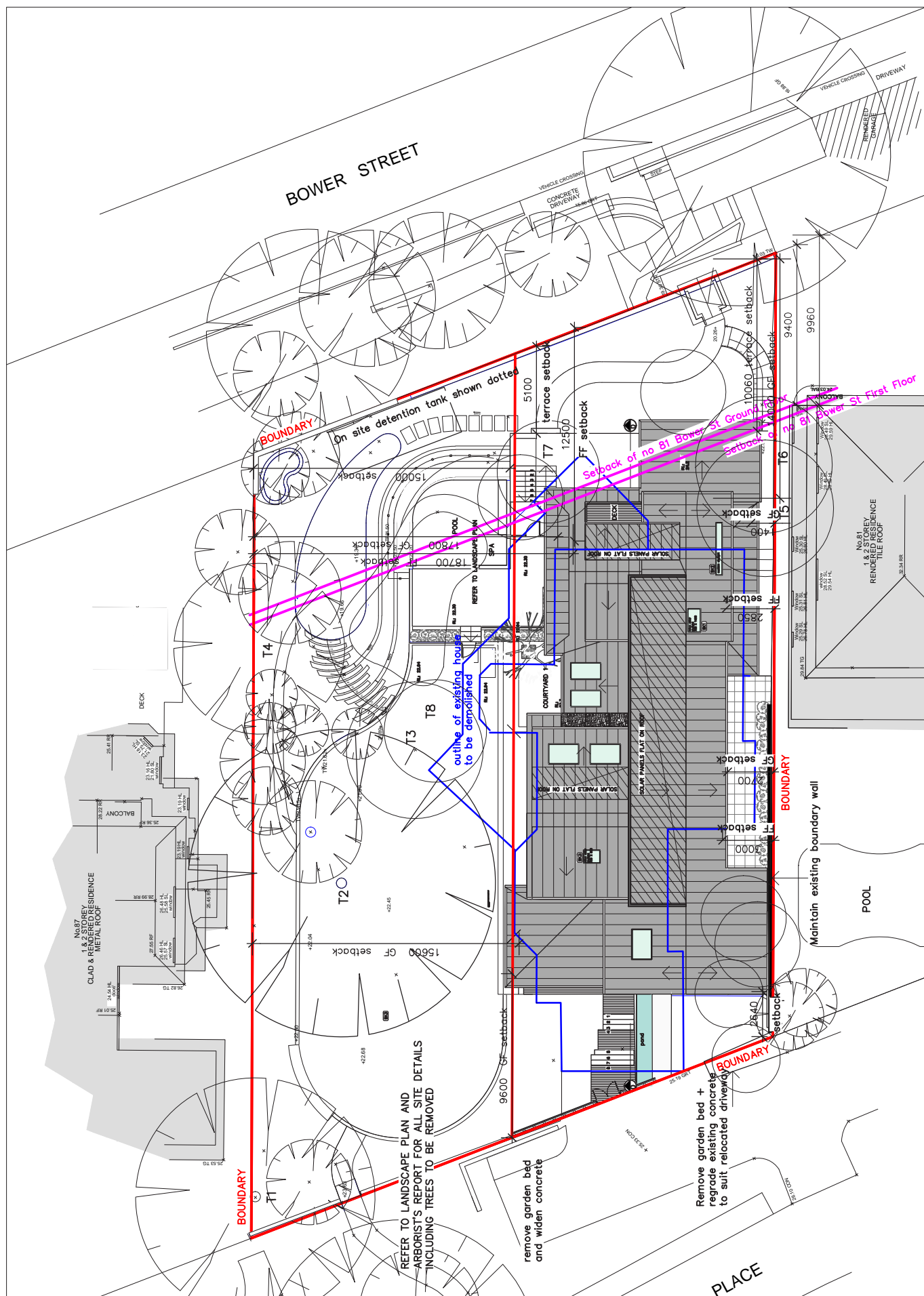
Criterion	Code	Comment/ description
Tree no:		Must relate to the number on your site plan
Species: common Box)		may be coded - include a key to the codes; botanical names and names in key (eg. Lc = Lophostemon confertus Brush
Age class:	Y	Recently planted
	S	Semi-mature (<20% of life expectancy)
	M	Mature (20-80% of life expectancy)
	O	Over-mature (>80% of life expectancy)
Height:		In metres
Spread:		Average diameter of canopy in metres
Crown class: other	D	Dominant (crown extends above general canopy; not restricted by trees)
crowded by	C	Co-dominant (crown forms the bulk of the general canopy but other trees)
quite	I	Intermediate (crown extends into dominant/codominant canopy but crowded on all sides)
	S	Suppressed (crown development restricted from overgrowing trees)
Crown condition: overall vigour and vitality	0	Dead
	1	Severe decline (< 20% canopy; major dead wood)
	2	Declining (20-60% canopy density; twig and branch dieback)
	3	Average (60-90% canopy density; twig dieback)
	4	Good (90-100% crown cover; little on nor dieback or other problems)

APPENDIX 2 - IACA Tree Retention Value - Priority Matrix

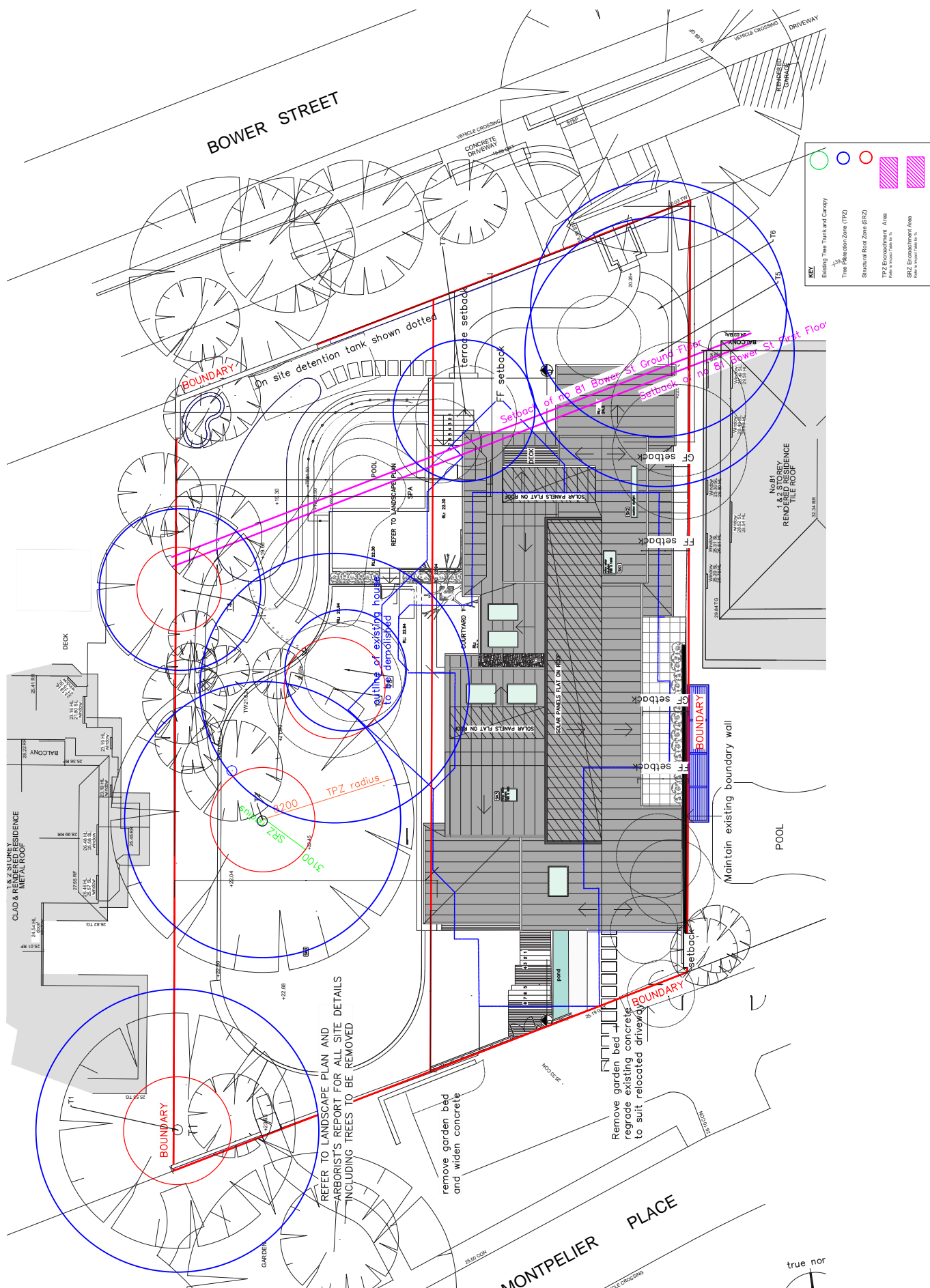
		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					
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 <i>Protection of trees on development sites</i> . 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.				

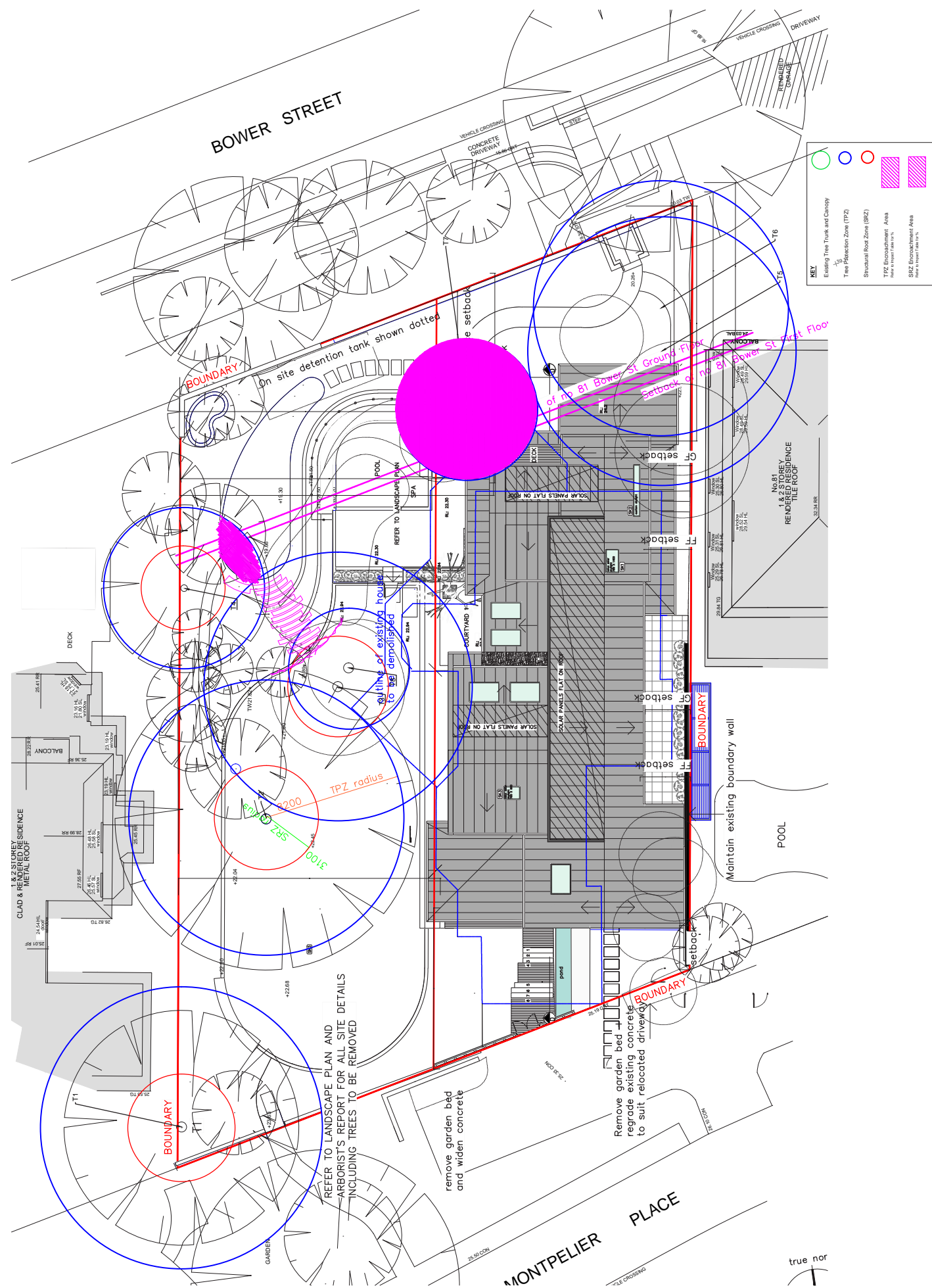
APPENDIX 3 - SITE PLAN SHOWING TREE LOCATION AND NUMBER OF SUBJECT TREES

(NOT DRAWN TO SCALE - scaled to fit onto A4)



APPENDIX 4 - PROPOSED PLANS SHOWING SUBJECT TREES TPZ and SRZ (NOT DRAWN TO SCALE - scaled to fit onto A4)





APPENDIX 7 - TRANSPLANT STATEMENT

PREPARATION

It is recommended to transplant Plumeria (Tree 8) during the late winter months wh. It is recommend to transplant Dracena draco during Autumn and Winter months when soil and air temperatures are highest and there is a corresponding growth in root and shoot growth.

The branches of both subject trees should be protected where possible from damage during transportation/lifting. Live branches shall not be removed as there is little gained from branch and foliage removal if appropriate post irrigation is supplied (p131 Pittenger, Hodel and Downer).

All weeds shall be removed from the root ball of the subject trees. Weed removal shall be undertaken by hand and avoid the use of herbicides.

The root ball shall be watered thoroughly prior to excavation and should occur a minimum of 24 hours prior to excavation.

Underground services shall be identified prior to excavation.

The root ball excavated shall extend a minimum 150cm from the trunk when transplanting.

Excavation shall be undertaken by either high pressure water laser or air spade.

Should the subject trees be stored onsite for some time prior to replanting the root ball shall be wrapped with hessian fabric. The subject trees shall be kept in a vertical position and the roots and trunk shall be shaded and the root ball kept moist.

PREPARATION OF TRANSPLANT SITE

Excavation for the new planting hole shall be excavated by machinery and the hole excavated shall be 0.5 metre larger than the root-ball radius.

Underground services shall be identified prior to excavation.

LIFTING AND TRANSPLANTING

A mobile crane or vehicle shall be operated to lift the subject trees .

Nylon slings shall be used to protect the trunk when lifting and relocating the subject trees

The subject trees shall be orientated so the top of the root ball sits at the same level previous to transplanting. The subject trees should not be planted deeper or higher than its original position.

Backfill the hole with original soil and ensure the soil is not inverted. Firm the backfilled soil around the roots.

Water thoroughly and apply a soil wetting agent.

Ties shall be removed from the trunks.

Apply a composted leaf mulch to a depth of 100mm and a width of 2 metres and maintain a 50mm clearance from the trunk.

POST PLANTING CARE

A consulting arborist shall be contracted to supervise post planting care. The consulting arborist is required to have a minimum level 5 AQF in Arboriculture and a minimum 5 years experience in the industry. The subject trees shall be monitored for vigour, stability, pest and disease.

Post care is to be undertaken for one year following the subject tree transplantation.

Post planted trees shall be watered once or twice weekly for the first three months. Watering shall continue at monthly intervals dependant upon the climatic conditions and following ongoing advice from the consulting arborist.