# Pre DA Impact Assessment and Management Plan

## 189 Riverview Road, Avalon Beach.

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Dated: **May, 2021.**

# Contents

# 1.0 INTRODUCTION

## 1.1 Background

1.1.1 This Impact Assessment and Management Plan has been prepared for Amandio Castanheira at Alchemy Architects, on behalf of the property owners. This documentation has been requested to detail the size, location and significance of all existing trees to better determine appropriate construction setbacks.

1.1.2 The residence has recently been purchased by the current owner and is in the early design stages of a renovation process that is likely to extend the current building footprint. The site runs down from the western side of Riverview Road to the Pittwater foreshore. Site topography is significantly influenced by underlying sandstone bedrock. Site access is via a driveway and walkways to allow access to the residence, located centrally on site. These factors will have affected the abiotic development of all roots.

1.1.3 The purpose of this report is to identify all existing trees, assess both health and condition, determine landscape significance and life expectancy. A determination for preservation, removal or transplantation will be made based on sustainability and suitability within the setting. For the purpose of this report *Botanics* has assessed the likely impact that any proposed development will have on the subject trees. This report will then provide recommendations in relation to the management of these in accordance with Australian Standard (AS) *4970 for the Protection of Trees on Development Sites.* Pruning and removal works will be based on *AS4373 for the Pruning of Amenity trees* where applicable.

# 2.0 RESULTS

## 2.1 The Site

2.1.1 The site is a residential block located on the western side of Riverview Road, Avalon Beach. This is part of the Pittwater Spotted Gum Forest. [1]. This site and proposed development requires consideration as part of the the Northern Beaches Council Development Controls and has been identified as an Endangered Ecological Community. [2].

2.1.2 As noted, the site topography is significantly influenced by the underlying sandstone bedrock. This will affect the abiotic development of tree roots and make a practical assessment of the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) theoretical.[3].

1. https://www.northernbeaches.nsw.gov.au/environment/native-flora/pittwater-spotted-gum-forest.

2. https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/Pages/Plan/Book.aspx?exhibit=PDCP&hid=11861.

3. https://en.wikipedia.org/wiki/Abiotic_component

## 2.2 The Trees

2.2.1 All trees have been assessed using Visual Tree Assessment (VTA) criteria and notes. This is a requirement of Clause 2.3.2 of the *Australian Standard 4970* (2009) for the *Protection of Trees on Development Sites,* each tree has been allocated a Retention Value based on the tree's Useful Life Expectancy and Landscape Significance with consideration to its health, structure, condition and site suitability.

2.2.2 The Retention Value does not take into account any proposed development. All trees have been allocated 1 of 4 Retention Values;

- High Value - Priority for Retention.
- Moderate Value - Consider for Retention.
- Low Value - Consider for Removal.
- Remove - Recommended for Removal Irrespective of works.

2.2.2 Both the upper and lower garden escarpments have been planted out with a number of native and exotic tree and plant species. These have all however been partially suppressed by the endemic *Corymbia maculate*, or Spotted Gums.

2.2.3 The dominant tree species is the *Corymbia maculate*, or Spotted Gum. There are twelve (12) located on site, with an additional five (5) located within neighbouring residences. The largest of these are over 24m in height and are supported on trunks of over 80cm with a basal flare of over 1m (Tree 13). The mature trees here are High Significance and should be considered for retention.

2.2.4 There are a number of smaller *Ligustrum lucidum*, or Broad Leafed Privets that have established adjacent to the front boundary. Trees 1-3 have been documented, while the remainder have not been further considered. All have been recommended for removal irrespective of the proposed. 1

2.2.5 Tree 5 is part of the mid canopy foliage. These mid canopy trees have been partially suppressed by the dominant Spotted Gums and may have reached maturity given this environment. Moderate significance and considered for Retention.

2.2.6 Tree 6 is the largest of a stand of more recently planted *Cupaniopsis anacardioides,* or Tuckeroo trees that have been planted on the upper portion of the neighbouring property. Moderate significance and recommended for Retention.

2.2.7 Sub dominant, mid canopy endemic tree species include *Casuarina glauca,* or She Oaks (Trees 8, 10, 11, 20 and 21). These have all been partially suppressed by the more dominant canopies of the surrounding Spotted Gums. Tree 21 has a large section of visible surface decay noted at approximately 4m above ground level. This is unlikely to compartmentalise given its diameter. All have been considered as Low Value.

2.2.8 Tree 9 is a *Stenocarpus sinuatus,* or Firewheel tree. This is a native species that is part of the more recently installed planting. Moderate Value.

2.2.9 Tree 12 is a mature *Livistona australis,* or Cabbage tree palm located within the neighbouring residence. This is another endemic species that has been considered as High Value and required for retention.

2.2.10 Tree 14 is a well established *Eucalyptus punctata,* or Grey Gum located adjacent to the site's northern boundary. The tree's canopy is supported on a co dominant trunk from 5m and the larger leader holds an arboreal termite nest. This will affect the structural integrity of this limb and reduce its significance here. Moderate Significance.

2.2.11 Tree 15 is a well established Toona ciliata, or Australian Red Cedar located within the neighbouring residence. The tree has established free of the Shoot-borer moth and has been allowed to establish with a strong apical leader. https://www.planthealthaustralia.com.au/wp-content/uploads/2015/07/Shoot-borer-FS.pdfn

2.2.12 Tree 16 is a juvenile *Pittosporum undulatum,* or Sweet Pittosporum. This a contentious native tree species that can become an invasive weed in multiple environments. Low Value. Remove.

2.2.13 Tree 18 is a *Eucalyptus robusta,* or Swamp mahogany located adjacent to the pedestrian walkway. The tree appears to have entered into a cycle of decline with dead wood throughout its upper canopy. Low Value. Remove.

2.2.14 Tree 22 is a semi mature *C. maculata,* or Spotted Gum tree located adjacent to the existing construction footprint. This construction is likely to have required the removal of roots or will have affected the development of new roots resulting this tree entering a cycle of decline. Dead wood has been noted throughout the upper canopy. Low Value.

2.2.15 Trees 23, 24 and 25 are all part of a stand of *C. maculata,* or Spotted Gums located within the neighbouring residence. These are High Value and required for Retention.

2.2.16 Trees 26 is a semi mature *Syzgium australe,* or Creek Lilly-pilly located on the northern boundary. This is a naive tree species that is likely to have been planted here to provide screening between these residences. Moderate Value.

2.2.15 Tree 27 is another well established and High value, native tree that is likely to have been planted here as part of early plantings following initial construction.. The tree has grown to a height of over 24m and is supported on a trunk of almost 80cm. High Value.

2.2.16 Tree 28 is another semi mature example of the species located centrally within this upper portion of the site. The tree has poor canopy development as a result of suppression and possible early construction impacts associated with the walkway construction.

2.2.17 Tree 30 is a more recently installed *Howea forsteriana,* or Kentia palm located in the foreshore garden. This is a non endemic native species of limited value here given context.

2.2.18 Trees 31, 33, 34, 35, 38 and 39 are all well established *C. maculata,* or Spotted Gum trees located throughout the foreshore landscape. These provide a High Value amenity for the site and are viable from a broad area. Retain.

# 3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 The existing residence has been constructed centrally within the block. The construction of this, the vehicular access driveway and pedestrian walkways will have affected the spread and development of neighbouring tree roots.

3.2 Site topography has been significantly affected by both the exposed and underlying sandstone bedrock. This is often characterised by “floating” blocks that will continue to move and erode. This will limit surface soil volumes and result in the asymmetrical development of tree roots throughout these “floaters”.

3.3 The planting and establishment of additional vegetation will also have affected the development of endemic tree roots. These factors will have shaped the location, size and health of all trees.

3.4 The existing residence no longer meets the domestic living requirements of the current owners. The opportunity to better utilise the unique location and foreshore amenity will be addressed.

# 4.0 DISCUSSION

4.1 The site’s current amenity predominantly comes from the more mature Spotted Gums. These are the species that characterises this location and should be seen as High Value trees required for retention.

4.2 Appropriate construction setbacks will need to be considered where works affect more than 10% of the Tree Protection Zone (TPZ) as outlined. The nature of tree root growth is however such that their location will be directly affected by underlying abiotic components of the topography and an assessment of the impacts of any construction will need to be made based on this.

4.3 All construction will need to recognise the importance of larger diameter (30mm +) tree roots wherever they are found.

# 5.0 CONCLUSIONS

5.1 Any proposed works will greatly improve both the functionality and aesthetic appeal of the residence as well as its surrounding gardens. All works should focus on the retention of the site's largest and more significant trees. This should be done with the implementation of the following list of tree preservation recommendations. These have been made to represent both site conditions and current industry standards.

# 6.0 RECOMMENDATIONS

6.1 It will be recommended that all significant trees are retained and protected throughout any construction process. Tree Protection Fencing design and locations have been detailed and should be installed prior to the commencement of site works.

6.2 The remainder of the indirect construction impacts should be mitigated with the implementation of the following:

6.3 **Appointment of Site Arborist**

A site arborist shall be appointed prior to the commencement of work on site. The Site Arborist shall clearly mark out all trees to be removed and ensure that all trees documented for retention are preserved with the implementation of the following tree protection measures. The Site Arborist shall have a minimum qualification equivalent to a NSW TAFE Certificate Level 5 or above in Arboriculture.

6.4 **Inspection Points**

Give 5 working days notice to allow inspections to be undertaken at the following stages;

| Inspection Point | Inspection Personnel |
|---|---|
| Installation of Tree Protection Zones including Tree Protection Fencing, Silt Fencing and Signage | Site Arborist |
| Modification of the Tree Protection Zone | Site Arborist |
| Works within the Tree Protection Zone | Site Arborist |
| Completion of Construction Works | Site Arborist Site Supervisor. |

6.5 **Education**

Contractors and site workers shall receive a copy of these specifications prior to the commencement of work. Contractors and site workers undertaking any works within a TPZ shall sign the site log to confirm that they have read and understand these specifications prior to their undertaking.

6.6 **Tree Protection Zones**

Where applicable, all trees to be retained through the construction process shall be protected from mechanical damage and the indirect impacts of the construction process with the installation of Tree Protection Zones. Unless otherwise stated, the following activities must not be carried out within a TPZ;

- modification of existing soil levels
- excavation or trenching
- cultivation of soil
- mechanical removal of vegetation
- movement of natural rock
- storage of materials, plant or equipment
- erection of site sheds
- affixing signage or hoarding to trees
- disposal of chemical waste or construction material
- any activity that may directly or indirectly affect the health of these or surrounding trees.

Note: If access to a TPZ is required as part of the approved development, prior authorisation is required by the Site Arborist.

6.7 **Tree Protection Fencing**

Tree Protection Fencing shall be installed at the perimeter of the TPZ. As a minimum the Tree Protection Fencing shall be 1.8 meters high temporary chain supported by steel stakes. This shall be fastened and supported to prevent sideways movement. The trees woody roots shall not be damaged during the installation of this Tree Protection Fencing.

This Tree Protection Fencing shall be erected prior to the commencement of works on site and shall be maintained for the duration of the construction process.

6.8 **Signage**

Tree Protection Signage shall be attached the the PTZ and displayed in a prominent location. These signs shall be repeated in 10m intervals or closer where the fence changes direction. These shall be a minimum of a 72 font size and each sign at-least 600 x 500mm.

6.9 **Mulching**

The area within the TPZ shall be mulched and maintained with 80mm of leaf litter mulch for the duration of the construction process. This mulch shall be spread by hand to limit the impact on underlying roots and shall be installed prior to the commencement of works on site.

6.10 **Site Arborist**

The Site Arborist shall inspect and approve the TPZ including mulching. signage, Tree ProtectionFencing, Silt fencing and Signage prior to the commencement of works on site.

6.11 **Site Management**

Materials and waste storage, site sheds and temporary services shall not be located within the TPZ unless specified. Storage points shall be covered when not in use and be no greater than 2m in height.

6.12 **Works Within the TPZ**

The TPZ may need to be modified during the works to allow access between the protected tree and the proposed construction. The TPZ shall remain as specified and only those works detailed in the proposed construction undertaken.

6.13 **Completion of Works within Specified TPZ**

Upon the completion of works within a TPZ the protective fencing shall be reinstated as specified. Where the construction of new structures does not allow for the reinstallation of fencing the TPZ shall be modified by the Site Arborist.

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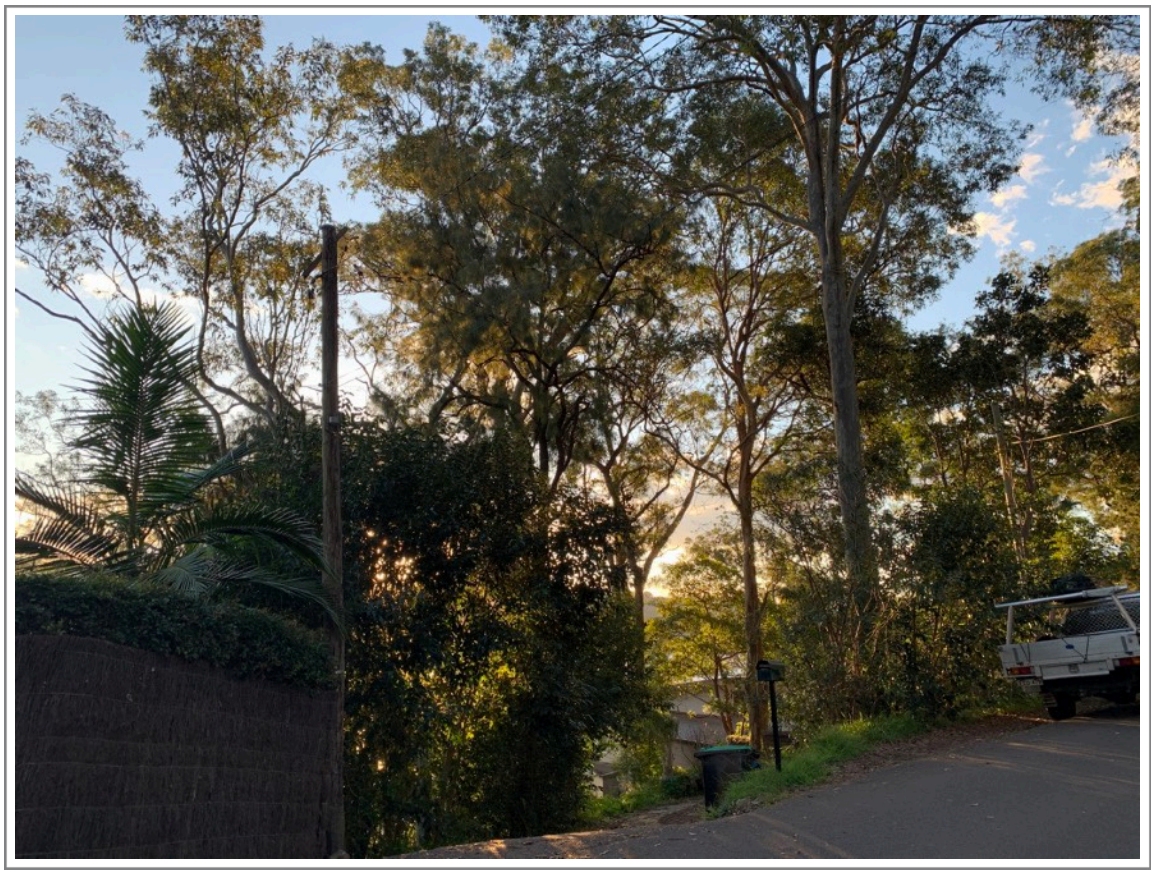
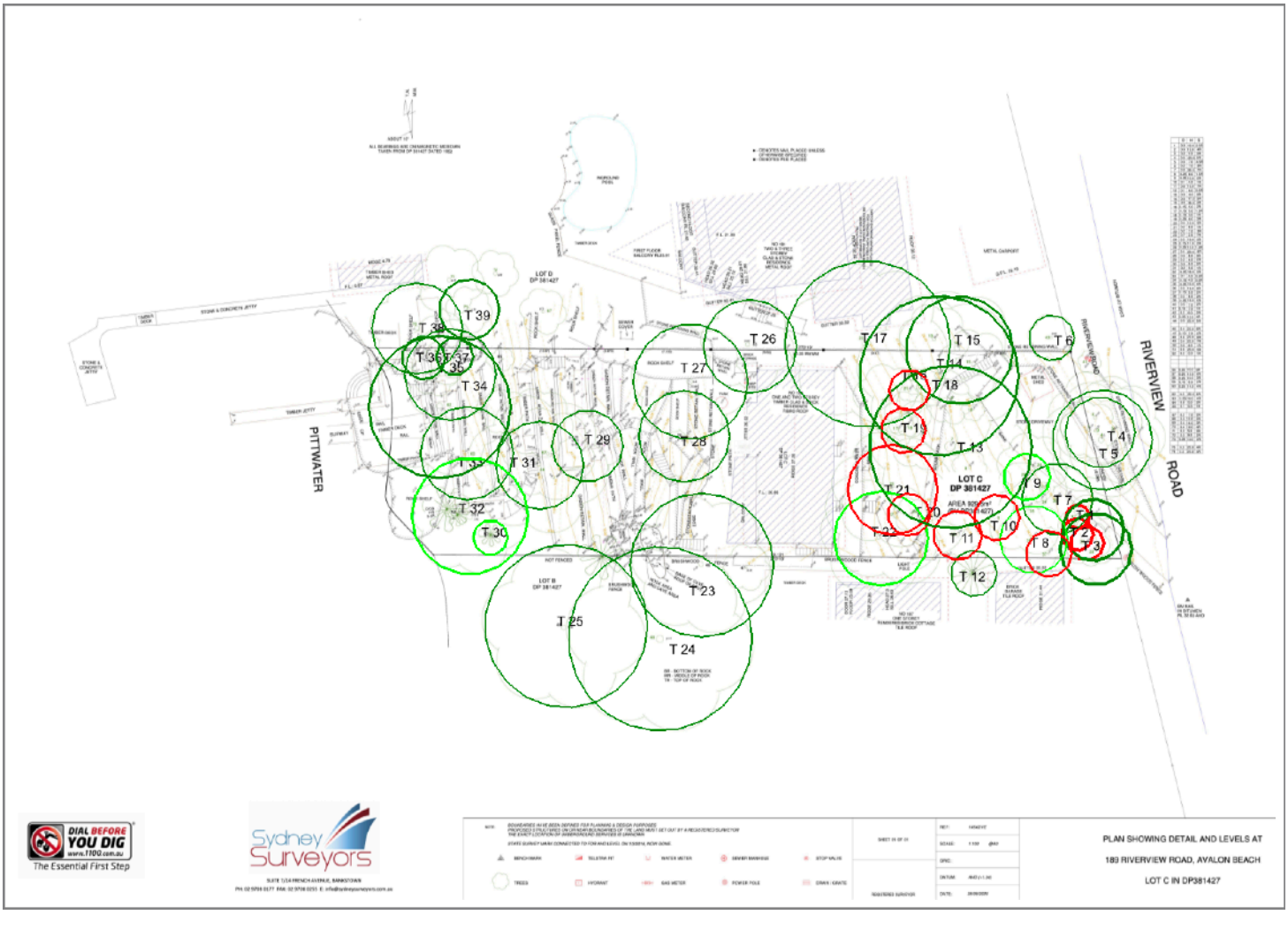


**Figure 1** Shows the front boundary planting.

**Figure 2** Shows the Syzgium (T26) and neighbouring properties.

**Figure 3** Shows the existing foreshore garden.

**Figure 4** Shows the documented trees in relation to the existing building footprint.



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