

Tree Assessment

Proposed incline lift, boat shed & landscaping

**6 Wirringulla Avenue
Elvina Bay**

Report Prepared by Julia Stanton
Syncarpia Vegetation Management
24 Windsor Street Tarbuck Bay 2428
juliastanton@ozemail.com.au
Mob:0417398050
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1.0 Introduction

This Tree Assessment & Management Plan has been prepared for Stephen Crosby & Associates on behalf of clients L & T Longhurst.

This report is to accompany a development application to Northern Beaches Council for a proposed incline lift, boat shed & landscaping at Lot 3 DP 13449 6 Wirringulla Avenue Elvina Bay.

The report includes:

- an overview of existing indigenous trees;
- a photographic record of existing trees, and site conditions
- an assessment of the health and condition of existing trees within 5m of the proposed development;
- an assessment of the likely impact of the proposed development on existing trees and vegetation;
- recommendations for the protection of existing trees to be retained in accordance with AS 4970 *Protection of Trees on Development Sites*. Standards (2009).
- details of exclusion fencing required prior to commencement of construction works;

The following documentation has been reviewed in preparation of this Tree Assessment Report:

- Site plan & section incline lift & landscaping prepared by Stephen Crosby and Associates DA01 dated August 2020;
- Boat shed landscaping site plan prepared by Stephen Crosby and Associates DA02 dated August 2020;
- Elevations & sections, incline lift landscaping & boatshed DA03 dated October 2020;
- AS 4970 *Protection of Trees on Development Sites* Standards Australia (2009)

2.0 Proposed Development

The proposed development is for an incline lift, small boatshed & landscaping. Two existing trees (Trees 1 & 6), & numerous native & exotic garden shrubs are proposed for removal.

Incline lift

Excavation of existing soil levels is proposed to accommodate the line of the inclinor track and for pier footings. Existing vegetation to be removed includes Giant Strelitzia, Kentia Palm, Blueberry Ash & Tree 6 a semi mature specimen of the planted native rainforest shrub / tree *Melicope elleryana* (Pink Euodia).

Boatshed

Minor excavation of the existing bank is proposed to accommodate the rear of the boat shed.

Landscape works

Excavation into the existing bank is required for construction of timber retaining walls to stabilize the bank for access stairs, lawn & garden area. Tree 1 a semi – mature specimen of *Corymbia maculata* (Spotted Gum) in fair health & condition and of fair form is proposed for removal.

The site supports fragmented & degraded vegetation with remnant tree species characteristic of Pittwater Spotted Gum Forest. Indigenous understory vegetation has been substantially removed & modified by past development activity.

The site includes an existing residential dwelling.

There has been previous modification to existing soil levels to accommodate the existing path to the dwelling, existing timber retaining walls, garden & lawn area adjacent to existing seawall.

Six (6) existing trees, Trees 1, 2, 3, 4, 5 & 6 are located within 5m of the proposed development.

Tree & vegetation protection and management recommendations are detailed in this report.

3.0 Site Description

The property includes an existing residential dwelling **Lot 3 DP 13449 6 Wirringulla Avenue Elvina Bay**.

The property has a north easterly aspect and slopes down to the Pittwater waterway, with existing residential dwellings to the east and west.

Existing vegetation supports remnant indigenous trees characteristic of Pittwater Spotted Gum Forest Endangered Ecological community. The site supports a number of semi-mature & mature specimens of *Corymbia maculata* (Spotted Gum).

The indigenous understory vegetation has been predominately removed by previous development activity including construction of garden beds and retaining walls & access path to dwelling.

4.0 Tree Assessment

To be read in conjunction with Figure 1 Tree Survey, Figure 2 Site Photos and Table 1 in Appendix.

Six (6) existing trees (Trees 1, 2, 3, 4, 5 & 6) are located within 5m of the proposed boat shed and inclinator.

Indigenous understory vegetation has been substantially removed from throughout the property.

Tree assessment is based on Visual Tree Assessment (VTA) and similar tree assessment guidelines (Dunster, Smiley, Matheny & Lilly 2013, Mattheck, 1999 and Matheny and Clark, 2004 & 1999).

Site inspection was conducted by Julia Stanton in October 2020.

The assessment includes details of the health, condition and impact of the proposed development on all trees within 5m of the proposed development,

The inspection and assessment was from ground level, no aerial or subterranean inspections were carried out. The report includes the following information (Refer Table 1 Appendix):

- botanical name, common name, diameter at breast height (DBH), height, canopy spread, tree health, form, tree defects, site conditions, hazard rating, Health & Condition rating* SULE rating**;
- an assessment of the potential impact of the proposed development
- recommendations of tree protection and management prior to, during and post construction; and
- a site plan and photographic record of existing trees and site conditions.

This report is not intended as a detailed or comprehensive hazard / risk assessment.

5.0 Discussion Development Impacts

Refer to Figure 1 Tree Survey, Figures 2 & 3 Site Photos

The most common impacts of development on existing trees include:

- significant changes to natural soil levels;
- excavation and mechanical damage to existing root system;
- mechanical damage to trunk and branches;
- soil compaction or inversion of soil profile, resulting in reduced soil water and air movement;
- changes in natural hydrology, increased nutrient levels, changes to soil pH and soil contamination.

Estimating the extent of the root system of an existing tree is often used as the basis for assessing the potential adverse impact of a development on a tree. The area of significant root system (structural & feeder) that a tree relies on for survival is often calculated by the use of formulae related to the diameter of the trunk. Various terms and formulae exist to describe the area of root system that requires protection and in which development should be limited or excluded. These terms include Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) or Primary Root Zone (PRZ) and Critical Root Zone (CRZ).

Calculating the area of a root system that requires protection is often used to predict the potential adverse impact of a proposed development on the root system of existing trees. It is noted that the definition and formulae for calculating the area of root system that requires protection is considered a guide in estimating the extent of the root system of a tree.

When assessing the potential adverse impact of a proposed development on an existing tree the following must be considered:

- the type and extent of development, including building envelope, services and landscaping.
- extent of excavation
- use of machinery or vehicles on site
- the area of a root system identified as requiring protection or management during development, and establishment of a (TPZ)
- an assessment of the subject tree including species, age, vigor, vitality, health and condition; and
- site and soil characteristics.

Development activity does not necessarily need to be excluded from within the identified SRZ & TPZ.

Some level of development activity within an identified (SRZ) & (TPZ) such as minor excavation, minor fill and changes to hydrological patterns are often within acceptable limits when specific tree management and protection recommendations and sensitive construction techniques are adopted & implemented.

5.1 Potential adverse impacts of the proposed development on existing trees. Refer to detailed assessment in Table 1.

The proposed development is for - incline lift, boat shed & landscaping. Excavation into the existing bank is required for construction of the boat shed and construction of timber retaining walls to stabilize the bank for access stairs, garden & lawn areas.

Six (6) existing trees are located within 5m of the proposed development. Two existing trees are proposed for removal, Trees 1 & 6

Trees proposed for removal to accommodate the proposed development.

Two existing trees are proposed for removal.

Tree 1 is a semi mature specimen of *Corymbia maculata* (Spotted Gum) in fair health & condition and of fair form. This tree is located adjacent to existing access track & existing modified garden area with evidence of previous modification / disturbance to natural soil levels in calculated SRZ & TPZ. This tree is located 2.75m from excavation associated with proposed incline lift and adjacent to timber retaining walls to stabilize the bank for access stairs, lawn & garden.

To compensate for tree loss & to enhance the ecological values of the site 3 healthy structurally sound specimens of *Corymbia maculata* (Spotted Gum) are to be planted in a suitable location in the foreshore vegetation area.

Tree 6 is a semi-mature specimen of the planted native rainforest shrub / small tree *Melicope elleryana* (Pink Euodia) good health & condition. This tree is direct conflict with the incline lift cart & is proposed for removal.

Trees located within 5m of the proposed development to be retained

Four (4) existing trees (Trees 2, 3, 4 & 5) are located within 5m of the proposed development and are to be retained.

Tree 2 is a mature specimen of *Corymbia maculata* (Spotted Gum) in fair - good health & condition.

Calculated SRZ 3m. Minor encroachment into calculated SRZ with a small area of excavation to accommodate rear of boat shed located at 2.75m.

Excavation for boatshed within 15% of calculated TPZ.

Tree to be protected & retained, tree protection fencing to be established prior to commencement of site works, all excavation within 5m to be undertaken by hand.

Tree 3 is a mature specimen of *Corymbia maculata* (Spotted Gum) in good health & condition.

Calculated SRZ 2.5m

Minor excavation to accommodate incline lift footings @ 2m from this tree.

Tree to be protected & retained, tree protection fencing & trunk protection to be established prior to commencement of site works, all excavation within 5m to be undertaken by hand, final location of footings to be flexible to accommodate any significant structural roots that may be encountered.

Tree 4 is a semi - mature specimen of *Corymbia maculata* (Spotted Gum) in in good health & fair – good condition.

Calculated SRZ 2m

Minor excavation to accommodate incline lift footings @ 2.75m & 2m

Tree to be protected & retained, tree protection fencing to be established prior to commencement of site works, all excavation within 5m to be undertaken by hand, final location of footings to be flexible to accommodate any significant structural roots that may be encountered.

Tree 5 is a mature specimen of *Corymbia maculata* (Spotted Gum) in fair - good health condition.

Calculated SRZ 2.5m

Minor excavation to accommodate incline lift footing @ 2m

Tree to be protected & retained, tree protection fencing & trunk protection to be established prior to commencement of site works, all excavation within 5m to be undertaken by hand, final location of footing to be flexible to accommodate any significant structural roots that may be encountered.

**Tree Protection recommendations in accordance with AS 4970
Protection of Trees on Development Sites. Australian Standards (2009),
Refer to Figure 1 recommended Tree Protection Zones (TPZ).**

Recommendations to minimise the potential adverse impact of the proposed development on existing trees to be retained include:

- Establishing adequate Tree Protection Zones & specifically trunk protection prior to the commencement of construction of the proposed development. Tree protective fencing & trunk protection must be maintained for the duration of construction works;
- Adopting & implementing sensitive construction techniques specifically undertaking all excavation within 5m of existing trees by hand, and allowing for flexibility in final footing locations;

Vegetation proposed for removal

There is no significant indigenous understory vegetation proposed for removal. The proposed inclined lift track runs through existing garden area which include exotic shrub & planted native species.

6.0 Tree and Vegetation Protection and Management Recommendations.

Recommendations have been included for the protection and management of existing indigenous trees.

Recommendations:

- Tree & soil protective fencing is to be in place prior to commencement of site works (Trees 2, 3, 4 & 5) and is to be maintained for the duration of construction works. Refer to Figure 1 for recommended tree protective / exclusion fencing.
- Specifically trunk protection is recommended for Trees 3 & 5. Suitable trunk protection would include geotextile or similar around trunk covered with timber or sheet metal. Trunk protection **must not** be nailed to the trunk of trees.
- Excavation for proposed inclined lift track, all pier footings and boat shed is to be undertaken by hand. Final footing locations must be flexible to avoid damage to structural roots that may be encountered.
- Structural roots greater than 50mm must not be cut. If roots greater than 50mm are encountered during excavation and cannot be avoided the project arborist is to be notified. The project arborist is to assess and report on the likely impact of damage to the roots on the health and structural stability of the tree.
- Exclusion fencing / Tree Protective fencing is to be maintained for the duration of building work.
- Materials to be stored in designated storage areas, suitable storage areas include lawn area adjacent to sea wall.
- There is to be no storage of materials or disposal of excavated soil, or building waste, within 5m of existing trees to be retained or designated Tree Protection Zones.
- Excavated soil is not to be disposed of or stored within 5m of existing trees, and is to be removed from site if required.
- All indigenous trees to be retained, have been identified as bushland / significant vegetation to be retained for the life of the development.
- To compensate for tree loss & enhance the ecological values of the site 3 healthy structurally sound specimens of *Corymbia maculata* (Spotted Gum) are to be planted in a suitable location in the foreshore vegetation area.
- To re-establish boundary screening suitable replacement screening shrubs to be planted along eastern boundary suitable species listed in appendix.
- Crown maintenance pruning (removal of dead, diseased & defective branches) is recommended for all trees to be retained. Additional tree maintenance recommendations are detailed in the appendix of this report.
- All pruning works is to be undertaken by an experienced and qualified arborist in accordance with AS4373- 2007 Pruning of Amenity Trees.

7.0 Conclusions

The proposed development for - incline lift, boat shed & landscaping & includes excavation to accommodate the inclinor track & pier footings, boat shed & for construction of timber retaining walls to stabilize the bank for access stairs, garden & lawn areas.

Six (6) existing trees are located within 5m of the proposed development.

Two existing trees are proposed for removal;

Tree 1 a semi- mature specimen of *Corymbia maculata* (Spotted Gum) in fair health & condition & of fair form; &

Tree 6 a semi mature specimen of the planted native rainforest shrub / small tree *Melicope elleryana* (Pink Euodia) good health & condition.

To compensate for tree loss & enhance the ecological values of the site 3 healthy structurally sound specimens of *Corymbia maculata* (Spotted Gum) are to be planted in a suitable location in the foreshore vegetation area.

Trees 2, 3, 4 & 5 are semi mature & mature specimens of *Corymbia maculata* (Spotted Gum).

Minor excavation within the calculated SRZ of Tree 2, 3, 4 to accommodate pier footings is proposed.

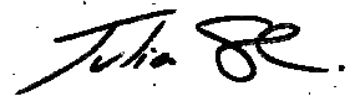
Excavation is proposed within less than 15% of the calculated TPZ for Trees 2, 3, 4 & 5.

To manage encroachments into calculated SRZ & TPZ, excavation for proposed inclined lift track, all pier footings and boat shed is to be undertaken by hand. Final footing locations must be flexible to avoid damage to structural roots that may be encountered.

There is no significant indigenous understory vegetation proposed for removal.

Crown maintenance pruning (removal of dead, diseased & defective branches) is recommended for all trees to be retained.

Existing trees are unlikely to be adversely effected by the proposed development provided tree protection and management recommendations detailed in Sections 6 of this report are adopted & implemented.



Julia Stanton B.Sc. (Environmental and Urban Horticulture)
31th October 2020
Arborist/Bushland Management Consultant

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Photo 1 existing vegetation incline lift foot print & Trees 3 & 4



Photo 2 Existing vegetation on incline lift foot print & Trees 3 & 4



Photo 3 Tree 5 on neighbouring property



Photo 4 Tree 6 to be removed



Photo 5 Tree 6

**Site Photos 1
Trees within 5m of incline lift
6 Wurringulla Ave
Elvina Bay
October 2020**

Figure 2



Photo 1 Trees 2 & 1



Photo 2 Tree 1



Photo 3 Tree 1



Photo 4 view of site from Pittwater Trees 1 & 2 in foreground

**Site Photos
Trees 1 & 2
6 Warringulla Avenue
Elvina Bay
October 2020**

Figure 3

Table 1 Existing Trees within 5m of proposed development 6 Wirringulla Elvina Bay

Tree No.	Botanical Name	Common Name	Age	Hgt m	Av. Can	DBH mm	DGL mm	Health	Condition	Site Condition	Comments	Sule	H&C rate	Hazard rating
1	<i>Corymbia maculata</i>	Spotted Gum	M	12	5m	280 300	700	Fair Moderate epicormics growth Vigorous foliage in crown	Fair Codominant trunks at 300mm Evidence of storm damage in crown Reduced crown Fair form.	Remnant indigenous tree located adjacent to existing access track and existing garden area. Evidence of previous disturbance to natural soil levels in calculated SRZ & TPZ	To be removed Calculated SRZ 3m In conflict with proposed timber retaining wall. 2.75m from excavation associated with proposed incline lift. Excavation into existing bank is required for construction of timber retaining walls to stabilize bank for access stairs & lawn & garden	3	3	Low
2	<i>Corymbia maculata</i>	Spotted Gum	M	18	10m	380 380	800	Fair Sparse foliage in crown.	Fair – good Co-dominant trunks @ 0.5m Trunks scar with wound wood development 15% deadwood in crown	Remnant indigenous tree growing on edge of bank	Retain & protect Calculated SRZ 3m Minor encroachment into calculated SRZ, small area of excavation to accommodate rear of boat shed located @ 2.75m To manage encroachment into calculated SRZ/TPZ, tree protection fencing to be established and sensitive construction techniques such as hand excavation within 5m is to be undertaken.. Deadwood to be removed	3	3	Low

Tree No.	Botanical Name	Common Name	Age	Hgt m	Av. Can	DBH mm	SD mm	Health	Condition	Site Condition	Comments	Sule	H&C rate	Hazard rating
3	<i>Corymbia maculata</i>	Spotted Gum	M	22	12m	480	950	Good Vigorous foliage in canopy.	Good Fair form suppressed development of crown.	Remnant indigenous tree located adjacent to existing access path.	<p>Retain & protect Calculated SRZ 2.5m</p> <p>Minor excavation to accommodate Pier footings for inclinators track at 2m.</p> <p>To manage encroachment into calculated SRZ/TPZ, tree & trunk protection is to be established prior to commencement of work and sensitive construction techniques such as hand excavation of pier footings with flexibility of final footing locations.</p> <p>Flexibility of footing location provides the opportunity to protect and retain structural roots that may be encountered during excavation.</p>	2	4	Low

Tree No.	Botanical Name	Common Name	Age	Hgt m	Av. Can	DBH mm	SD mm	Health	Condition	Site Condition	Comments	Sule	H&C rate	Hazard rating
4	<i>Corymbia maculata</i>	Spotted Gum	Sm	18	5m	220	220	Good Minor epicormics growth vigorous foliage in crown.	Fair – good Basal trunk scar with good wound wood development. One sided development of crown. Growing as part of a group with Trees 5 & 6.	Remnant indigenous tree located adjacent to existing stone path	Retain & protect Calculated SRZ 2m Incline lift footings @ 2m & 2.75m Tree protection & management as above	2	4	Low
5	<i>Corymbia maculata</i>	Spotted Gum	M	28	12m	450	460	Good Vigorous foliage in crown. Minor epicormics growth	Fair - good Dead wood to 40mm	Remnant indigenous tree located on adjacent property 1m from existing neighbouring dwelling	Retain & protect Calculated SRZ 2.5m Incline lift footings @ 2m Tree protection & management as above	2-3	4	Medium
6	<i>Melicope Elleryana</i>	Pink Euodia	Sm	10	6m	200	200	Good	Good	Planted native small tree located on property boundary	To be removed In conflict with inclinor cart	5a	4	Low

Notes

Hgt = Height in metres, Age = Age Class, Av Can = Average Canopy Spread in metres, DBH = Diameter @ breast height (1.5m) in millimetres

I = Immature, Sm = Semi-mature, M = Mature, Om = over-mature

NOTES

Hgt = Height in metres, Age = Age Class, Av Can = Average Canopy Spread in metres
DBH = Diameter @ breast height (1.5m) in millimetres

Age classes (I) *immature* refers to a well established but juvenile tree. (S) *Semi-mature* refers to a tree at growth stages between immaturity and full size. (M) *Mature* refers to a full sized tree with some capacity for further growth. (O) *Overmature* refers to a tree about to enter decline or already declining.

Health refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and the degree of dieback.

Condition refers to the tree's form & growth habit, as modified by its environment. And includes the state of the scaffold (ie trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions (inclusions) and condition of the root system. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

Adapted from Matheny and Clark (1999) Conducting a Resource Evaluation, from *Care and Management of Trees on Development Sites Proceedings of the 2nd NAAA Tree Management Seminar and Workshop*.

*** H & C (Health & Condition) rating** - summary of the health and structure of the tree on a scale of 0 - 5

5 A healthy vigorous tree, little if any signs / symptoms of disease or stress with good structure and form typical of the species

4 Trees with some evidence of decline in vigour, minor twig die back, small amount of dead wood, good form and structure.

3 A tree with only moderate vigour, presence of moderate amounts of twig die back and dead wood, crown may be thinning, moderate form, or a tree with some branch or trunk damage but canopy/ foliage cover good, or a tree with good overall condition, but poor form.

2 A tree in a state of decline, large amount of twig die back or epicormic growth, dieback of medium to large branches, cause of decline cannot be rectified or alleviated. Or a tree with significant structural defects (inclusions, root girdling, and cavities) which cannot be rectified or satisfactorily remediated.

1 A tree in serve decline, die back of dominant branches or trunk, large amounts of twig die back or the majority of foliage epicormic. Cause of decline cannot be rectified or alleviated. Or a tree with significant structural defects (inclusions, root girdling, and cavities) which cannot be rectified or remediated.

0 Dead tree

****SULE categories (Barrell.**

Safe Useful Life Expectancy Categories (Updated 01/04/01) Barrell (2001)

1: Long SULE: Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.

- (a) Structurally sound trees located in positions that can accommodate future growth.
- (b) Trees that could be made suitable for retention in the long term by remedial care.
- (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

2: Medium SULE: Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.

- (a) Trees that may only live between 15 and 40 more years.
- (b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that could be made suitable for retention in the medium term by remedial tree care.

3: Short SULE: Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.

- (a) Trees that may only live between 5 and 15 more years.
- (b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.

4: Remove: Trees that should be removed within the next 5 years.

- (a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
- (b) Dangerous trees because of instability or recent loss of adjacent trees.
- (c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- (d) Damaged trees that are clearly not safe to retain.
- (e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (f) Trees that are damaging or may cause damage to existing structures within 5 years.
- (g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
- (h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5: Small, young or regularly pruned: Trees that can be reliably moved or replaced.

- (a) Small trees less than 5m in height.
- (b) Young trees less than 15 years old but over 5m in height.
- (c) Formal hedges and trees intended for regular pruning to artificially control growth.

DEFINITIONS (From Tree Risk Assessment Manual ISA (2013), Australian Standard *Protection of Trees on Development Sites* 2009 Australian Standards AS 4373 – 2007 Pruning of Amenity Trees, Matheny and Clark, 1994 and 2004)

Co-dominant stems – stems or trunks of about the same size originating from the same position from the main stem. When the stem bark ridge is turned upwards the union is strong, when the ridge turns inwards the union is weak.

Critical Root Zone (CRZ) – an offset 5 x the trunk diameter of a tree. Within this area significant structural roots are usually encountered. Elevated construction may be possible within this area, subject to an assessment of the subject tree including age, vigor, health and condition and root zone assessment. Specific tree management and protection recommendations and construction techniques required.

C & PRZ – Critical and Primary root zone - The definition and formulae for calculating the C & PRZ of a tree is to be considered only a guide to determine the extent of a tree's root system. The C & PRZ calculation should be used in conjunction with an assessment of the subject tree including age, vigor, health and condition, site and soil characteristics and root zone assessment, when assessing the potential adverse impact of a proposed development on a tree.

Crown lifting – the removal of the lowest branches.

Crown Thinning – General pruning with the additional removal of secondary branches whilst retaining the main structural branches of the tree.

Crown Maintenance General – pruning which consists of removal of dead, diseased, dying, defective and conflicting branches.

Deadwooding – removal of deadwood

DGL- Trunk diameter at ground level

Endemic – having a natural distribution confined to a particular geographic region.

Hazard- situation or condition that is likely to lead to a loss, personal injury property damage, a likely source of harm.

Hazard abatement- Reduction in the likelihood that failure of a tree or a part will result in injury to people or damage to property.

Indigenous – native to the area not introduced

Locally native flora and fauna – plants and animals that are native in Pittwater at any stage of life cycle

Lopping- random cutting of branches or stems between branch union or internodes. This is an unacceptable practice.

Primary Root Zone (PRZ) – an offset 10 x the trunk diameter of a tree. Within this area significant feeder roots area usually encountered. Excavation and fill may possible within this area, subject to an assessment of the subject tree including age, vigor, health and condition and root zone assessment. Specific tree management and protection recommendations and construction techniques required.

Risk – The combination of the likelihood of tree failure and severity of the potential consequences. The likelihood of tree failure occurring and affecting a target and severity of the consequences.

Selective pruning – The removal of identified branches that are causing a specific problem. These branches shall be specified.

Senescence – The process of aging and death.

Significant Trees - trees that contribute substantially, either individually or as a component of a tree group to the landscape character, amenity, cultural values or biodiversity of their locality.

Structural Root Zone (SRZ) The portion of the root plate comprised primarily of structural woody roots (integral with the soil profile) providing the main mechanical support and anchorage of a tree, calculated in accordance with AS 4970:2009, expressed as a radial dimension in metres from the centre of the trunk.

Target – People or property potentially affected by tree failure

Tree Protection Zone (TPZ) - A specified area at a given distance from the trunk set aside for the protection of a trees root system and canopy during land development works to ensure the long term viability and stability of a tree, calculated in accordance with AS 4970:2009.

Table 2 Indigenous plant species suitable for screen planting

Botanical Name	Common Name
<i>Acmena smithii</i>	Lilly Pilly
<i>Backhousia myrtifolia</i>	Grey Myrtle
<i>Banksia integrifolia</i>	Coast Banksia
<i>Allocasuarina torulosa</i>	Forest She-Oak
<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Ficus coronata</i>	Sandpaper Fig

Table 3 Non invasive native & exotic screen planting

Botanical Name	Common Name
Shrub	
<i>Baeckia virgata</i> Dwarf	Baekea
<i>Banksia spinulosa</i>	Hair-pin Banksia
<i>Correa alba</i>	Correa
<i>Doryanthese excelsa</i>	Gymea Lilly
<i>Cordyline</i> sp.	Cordyline
<i>Eriostemon myoporoides</i>	Wax Flower
<i>Grevillea</i> sp.	Grevillea
<i>Gardenia</i> sp.	Gardenia
<i>Strelitzia reginae</i>	Bird of Paradise
<i>Philodendron</i> Xanadu	Dwarf Philodendron
Large Shrub / Screening	
<i>Syzygium</i> sp	Lilly Pilly
<i>Michelia figo</i>	Port wine magnolia