Construction Impact Assessment and Management Plan

Site Address: 41-43 Beach Road, Collaroy
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1.0 INTRODUCTION

1.1 Background

1.1.1 This Construction Impact Assessment and Management Plan has been prepared for, and in consultation with Virginia Kerridge Architecture on behalf of the property owners. This has been requested to detail the arboricultural impacts associated with the works documented. These works will involve the consolidation of the two (2) existing residences to allow for that proposed.

1.1.2 The proposed works will involve the demolition of both residences to allow for the construction. The most significant portion of this will involve the excavation to allow for the construction of the basement parking facilities. This will require partial excavation adjacent to a semi mature Paperbark tree located within the front garden, as well as excavation adjacent to the Tree Protection Zone (TPZ) of the mature Norfolk Island Pines located between the residence and the foreshore. These are well established High value trees that have been seen as a material constraint to the proposed.

1.1.3 The front gardens and verge have been planted out with a range of predominantly native tree species. These will have been planted as part of more recent landscape works and have been considered as Moderately significant and recommended for retention. The site's most arboriculturally significant trees are the two (2) mature Norfolk Island Pines located between the existing residence and the foreshore. Theoretical Tree Protection Zone (TPZ) setbacks will have been affected by both the existing building footprint and landscape contours.

1.1.4 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 the 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.

1.1.5 The impacts of the proposed works have been assessed based on the following supplied plans:

- Virginia Kerridge Architect Sketch Design Basement Plan SD110
- Virginia Kerridge Architect Sketch Design Ground Floor plan SD120
- Virginia Kerridge Architect Sketch Design First Floor Plan SD130.

1.2 The Proposal

1.2.1 The supplied plans show that the works will require;

- The demolition of both existing residences.
- The excavation to allow for the construction of the basement parking facility.
- The excavation to allow for the construction of the swimming pool adjacent to the western boundary.

1.2.2 The most significant portion of the proposed works will involve the excavation to allow for the construction of the proposed carport and storage facilities. While this portion of the construction process will not directly require the removal of any of the documented trees, portions of it will conflict with theoretical TPZ of the mature Norfolk Island Pines and the theoretical Structural Root Zone (SRZ) of the Paperbark in the front garden. All removal recommendations have been made irrespective of the proposed works for reasons outlined.

2.0 RESULTS

2.1 The Site

2.1.1 The site is a large irregular shaped, residential block on the eastern side of Beach Road in Collaroy. The site comprises two (2) free standing double level residences with patios that extend to the foreshore reserve known as Fox Park. The southern block sits on the upper portion of a small escarpment that extends along this boundary to the base of the Norfolk Island Pine. A swimming pool has been constructed into the lower terrace that forms the site's south eastern corner.

2.1.2 Both the building footprints, the swimming pool, patios and infrastructure will have affected the development of all root development. This abiotic affect on root growth can be seen on both Norfolk Island Pines with large diameter surface roots noted on both trees.

2.1.3 The site will have been part of the Heath on Sandstone Plant Community which comprises mostly smaller trees and shrubs. These will have been cleared as part of both the original subdivision and subsequently as part of ongoing landscape works.

2.1.4 Landscape plantings throughout the front garden comprise a range of foreshore tolerant tree species that have been selected for their hardy nature as a horticultural priority. It is estimated that these will have been installed within the past thirty (30) years and none are part of the endemic plant community or considered as a material constraint to any significant development proposal.

2.2 The Trees

2.2.1 A total of thirteen (13) trees have been assessed using Visual Tree Assessment (VTA) criteria and notes. As required under 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. 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.

Refer to Tree Table and Tree Assessment Schedule.

2.2.2 Trees 1 and 2 are both located on the front verge. Tree 1 is a semi mature *Casuarina glauca,* or She Oak. This is a relatively well suited tree species that has grown to a height of approximately 9m and supported on a co dominant trunk 48cm in diameter. The tree remains in good health a small fraction of its full biological potential.

2.2.3 Tree 2 is a more recent planting. This juvenile *Araucaria heterophylla,* or Norfolk Island pine has planted within 1m of the Council footpath and several meters from the power lines. The tree remains a very small fraction of its full biological potential and should not be considered as anything beyond Moderately significant.

2.2.4 Tree 3 is a small *Schefflera,* or Umbrella tree. This tree has grown to a height of less than 5m and is a poor tree species for a broad range of reasons. Low value and recommended for removal irrespective of the proposed.

2.2.5 Tree 4 is a semi mature *Melaleuca quinquenervia,* or Paperbark located within the front garden. This tree has grown to a height of approximately 10m and supported on a co dominant trunk. The tree has been planted adjacent to the site's southern boundary and adjacent to the existing driveway. This structure will have had an abiotic impact on the development of both feeder and structural roots.

2.2.6 Tree 5 is a semi mature *Araucaria columnaris,* or Cooks Pine located centrally within the front garden. The tree has grown to a height of approximately 10m and is supported on a trunk of 37cm in diameter. The tree's natural lean is to the north east. The tree remains a small fraction of its full biological potential and can be expected to continue to grow towards this in time given its current good health.

2.2.7 Tree 6 is a *Callistemon viminalis,* Bottle Brush. This is a semi mature example of this common tree species that has been considered as Low Value.

2.2.8 Tree 7 is a semi mature *Lagunaria petersonii,* or Norfolk Island Hibiscus. This tree is located within the northern neighbours front garden and directly adjacent to the boundary wall. The tree is a poor species for a broad range of reasons.

2.2.9 Tree 8 is a semi mature *Tristaniopsis laurina,* or Water Gum located within the same northern neighbours front garden. This is a well suited tree species that has grown to a height of less than 6m. This is a small fraction of its full biological potential and while remaining in good health should expect to continue to grow towards this in time.

2.2.10 The small stand of *Archontophoenix cunninghamiana,* or Bangalow palms have together been documented as Tree 9, these comprise four (4) semi mature examples of this well suited tree species. These are again all located within the northern neighbours front garden.

2.2.11 Tree 11 is a small *Cupaniopsis,* or Tuckeroo located in the site's south western corner. This is a more recent planting that has grown to a height of less than 7m. The tree remains in good health.

2.2.12 Trees 12 and 13 are the site's most significant trees. These are both *Araucaria heterophylla,* or Norfolk Island Pines. These are fully mature examples of the species that have been considered as High Significance. Both have been seen as a material constraint to the proposed development and documented for retention.

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 The proposed works will involve the excavation of the basement building footprint to allow for its construction. This is the single most significant arboricultural impact of the works. This portion of the construction process will not however require the removal of any of the documented trees. All removal recommendations have been made for additional reasons beyond the impact of the proposed development.

3.2 It will be proposed that the juvenile Araucaria documented as Tree 2 be removed due to its biological potential and location in relation to adjacent infrastructure. The removal of this small tree will allow the continued development of the neighbouring She Oak (Tree 1), as well as adjacent Melaleuca (Tree 4).

3.3 Tree 3 is a small *Schefflera,* or Umbrella tree. This is a well recognised, environmental weed species that has seeded adjacent to an existing boundary wall. The tree remains a small fraction of its full biological potential and should be removed to eliminate the multiple hazards associated with its retention.

3.4 Tree 4 is a semi mature *Melaleuca quinquenervia,* or Paperbark. This is an important native tree species that will have been planted here within the past twenty (20) years. The tree provides a Moderate Value and should be considered for retention. The proposed driveway is located within 2m of the tree's base and will theoretically affect 17% of its TPZ. The adjacent driveway and infrastructure here will have affected the otherwise symmetrical development of the tree's root system. The proposed driveway does not require excavation as detailed and the practical impacts of the works should not be considered to be signifiant (beyond 10%).

3.5 The juvenile *Callistemon* documented as Tree 6 is less than five (5) years of age and considered as Low Value. The tree is located adjacent to the existing construction footprint and should be removed and replaced.

3.6 Tree 7 is a semi mature *Lagunaria petersonii,* or Norfolk Island Hibiscus, otherwise known as an Itchy Cow Tree. These have naturalised throughout our coastal forest plant community due to their hardy nature. The tree however produces seed pods that germinate with the production of sharp needles that penetrate the skin and lead to "Itchy Cows" and itchy beach goers. The tree is however located within the neighbouring residence and will require approval before removal.

3.7 Tree 11 is a small Tuckeroo. This is an important locally native tree species that has been part of more recent works. The tree is located adjacent to the proposed excavation and should be considered for removal and replacement.

3.8 The sites most arboriculturally significant trees are the *A. heterophylla,* or Norfolk Island Pines documented as Trees 12 and 13. These will have been planted over 100 years ago for coastal navigation and to signify coastal development. Tree 12 has been planted on the upper portion of this coastal escarpment. Erosion and weather will have further altered localised topography here and these trees will have played an important part in stabilising this coastal dune. Both trees do however have exposed surface roots that will be an indication of surface erosion.

3.9 The proposed excavation to allow for the construction of the basement will theoretically affect less than 10% of Tree 13's TPZ. This is within the range considered as allowable under Australian Standard AS4970 Guidelines for the Protection of Trees on Development Sites.

4.0 DISCUSSION

4.1 The proposed works will greatly improve functionality and visual amenity while retaining the site's most significant trees. The proposed excavation to allow for the construction will come to within 6.8m of the base of Tree 13. This will affect less than 10% of the trees theoretical TPZ as outlined within AS4970 standards for the Protection of Trees on Development Sites and should not be considered as significant. See Figure 4.

4.2 The Araucaria columnaris, or Cook Island Pine documented as Tree 5 remains a small fraction of its full biological potential and will affect both the proposed construction and planting works. The tree is required for removal to allow construction.

Both of these Araucarias (Trees 12 and 13) have been seen as a material constraint to the proposed development and works have been set back to allow for their retention. All excavation and construction works will be carried out from within the documented building footprint. Continual peering will be undertaken from within the construction footprint to define the excavation and construction footprint as detailed.

4.3 The excavation of the driveway will be graded from adjacent to the base of the Melaleuca documented as Tree 4. The existing driveway and garden edge will have affected the development of tree roots beyond this physical barrier. This is a semi mature example of this well suited tree species that remains a small fraction of its full biological potential. While retaining good health, it can be expected to continue to grow towards maturity in time and adapt to the changes in its surrounding environment.

4.4 The Umbrella tree documented as Tree 3 is an exotic species that remains a small fraction of its biological potential. The neighbouring *Lagunaria petersonii* or Itchy Cow (Tree 7) is a problematic tree species that should be removed irrespective of the proposed due to the irritating affect of the flower pods. The Callistemon documented as Tree 6 has been planted within the past five (5) years and is considered as Low Value. The Tuckeroo, documented as Tree 11 is another more recent planting considered as Low Value and exempt from Northern Beaches Tree Preservation Legislation https://nbcweb01prod.azureedge.net/sites/default/files/documents/general-information/removing-and-pruning-trees-on-private-land/exemptspecieslist_0.pdf.

4.5 The remainder of the neighbouring trees documented as Trees 8, 9 and 10 are all semi mature examples of their species who's structural and feeder root development will have been affected by adjacent boundary walls.

Trees 9 and 10 are both monocotyledons with fibrous roots systems that allow them to absorb soil moisture and nutrients from throughout their length, enabling them to cope with a broad range of construction impact.

4.6 While not required for removal to allow the proposed construction, it will be recommended that the juvenile Norfolk Island Pine documented as Tree 2 be removed from the front verge. The tree remains a small fraction of its full biological potential and is within 1.5m of infrastructure such as power lines, water and gas, as well as the existing and proposed driveway. All of these services will be affected by this future growth will require regular and significant root and canopy pruning to maintain.

5.0 CONCLUSIONS

5.1 As noted, the proposed works will greatly improve both the functionality and aesthetic appeal of the residence. This development recognises the significance of the site's most important trees and has been set back to allow and ensure their long term retention. Appropriate construction methodology will ensure that the works will not extend the construction footprint beyond that documented. As noted all works will be carried out from within the existing/proposed construction footprint with no machinery to be stationed outside this zone.

5.2 Both the existing and proposed construction footprints are adjacent to the Structural Root Zone (SRZ) of the Paperbark documented as Tree 4. This will theoretically affect 17% of the TPZ and needs to be considered. There is no practical requirement to start excavation at the properties western boundary and the existing driveway will have affected the biotic development of both feeder and structural roots to the south. As noted, the tree is a well suited species that remains a small fraction of its full biological potential, as such it can be expected to continue to grow and adapt to an altered surrounding environment and cope with a broad range of impacts, including those documented here.

6.0 RECOMMENDATIONS

6.1 It will be recommended that Trees 2, 3, 6, 7 and 11 be removed for the reasons outlined. This should be done in accordance with current industry standards following approval from Northern Beaches Council. https://www.northernbeaches.nsw.gov.au/planning-development/tree-management/private-land.

6.2 The remainder of the documented trees are located outside the construction impact zone and will be retained. Ongoing arboricultural consideration will need to be taken in relation to the works as they occur adjacent to Trees 4, 12 and 13. This should be done in accordance with AS490 guidelines, current industry standards and following approval from Northern Beaches Council.

6.3 Construction impacts will be limited to those documented unless formally approved. All works are to be carried out from within the construction footprint detailed. All access will be via the existing driveway and all storage contained within the existing or proposed construction footprints. All remaining permeable soil surface

areas will be retained as a TPZ for the duration of the works where applicable to limit the indirect impacts of the construction process on surrounding and underlying soil profiles.

6.4 The eastern edge of the excavation footprint will be defined with the continual concrete peering. This will be encased to limit the affects on the surrounding soil profile. The remaining permeable surface area throughout the foreshore gardens will be seen as a Tree Protection Zone with defined access to limit the affects of compaction throughout this area.

6.5 Any tree roots exposed and required for removal to allow for the construction should be cut cleanly at the edge of the proposed excavation. These should be covered to limit exposure and retained within the temporarily retained soil profile.

6.6 The remainder of the indirect construction impacts should be mitigated with the implementation of the following.

6.7 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.

6.8 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.

6.9 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.

6.10 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.

6.11 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.

6.12 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.

6.13 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.

6.14 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.

6.15 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.

6.16 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.

6.17 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.

Figure 1 Shows the edge of the existing garden bed and driveway in relation to the Paperbark documented as Tree 4.

Figure 2 Shows the juvenile Norfolk Island Pine in relation to the footpath, power poles and driveway.

Figure 3 Shows the base of Tree 13 in relation to the existing footprint.

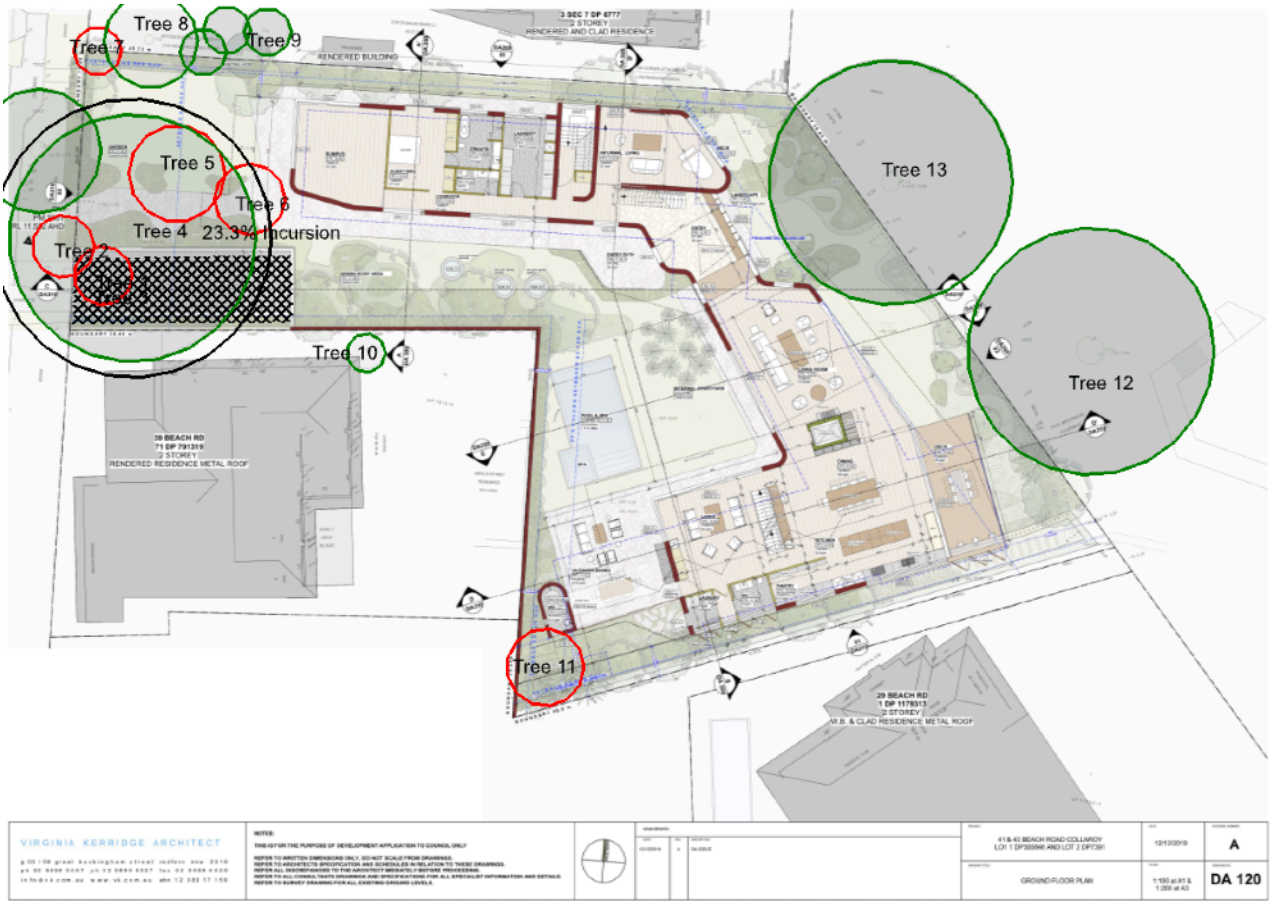

Figure 4 Shows the locations of the documented trees in relation to the existing and proposed development.

7.0 BIBLIOGRAPHY & REFERENCES

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Tree Table for 41-43 Beach Road, Collaroy.

T#	Species	Remnant Native, Exotic.	Age Class	Canopy Height and Spread.	Trunk Diameter DBH	Basal Diameter DGL	Significance	Amenity value	Ecological Value	Defects	SRZ	TPZ	Implications
T1	Casuarina glauca (She oak)	N	SM	12 x 4	48cm	52cm	Moderate	Moderate	Moderate		2.5m	5.5m	A semi mature example of the species located on the front verge. Documented for retention.
T2	Araucaria heterophylla (Norfolk Island Pine)	N	J	6 x 3	10cm	12cm	Low	Low	Low		2m	4m	A recent planting with a biological potential well beyond that suitable for the location. Recommended for removal.
T3	Schefflera (Umbrella tree)	E	J	4 x 3	20cm	25cm	Low	Low	Low	W	2m	3m	An exempt weed species recommend for removal irrespective of the proposed.
T4	Melaleuca quinquenervia (Paperbark)	N	SM	12 x 8	45cm	52cm	Moderate	Moderate	Moderate		2.5m	5.5m	A semi mature example of this well suited native tree species. Located adjacent to the proposed driveway and considered for retention.
T5	Araucaria columnaris (Cooks Pine)	E	SM	9 x 4	37cm	42cm	Moderate	Moderate	Low		2.3m	4.5m	A semi mature well established example of this well suited tree species. Required for removal.
T6	Callistemon viminalis (Bottle Brush)	N	SM	4 x 3	20cm	20cm	Low	Low	Low		2m	3m	Semi mature examples of this common tree species located adjacent to the existing and proposed construction footprint. Remove.

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T#	Species	Remnant Native, Exotic.	Age Class	Canopy Height and Spread.	Trunk Diameter DBH	Basal Diameter DGL	Significance	Amenity value	Ecological Value	Defects	SRZ	TPZ	Implications
T7	Lagunaria petersonii (Norfolk Island Hibiscus)	E	SM	8 x 3	28cm	30cm	Low	Low	Low	W	2m	4m	An exotic tree species located within the northern neighbours. Recommended for removal for reasons outlined.
T8	Tristaniopsis laurina (Water Gum)	N	SM	6 x 3	25cm	30cm	Low	Low	Low		2m	4m	A semi mature example of this native tree species located within the neighbouring residence and documented for retention.
T9	Archontophoenix cunninghamiana (Bangalow Palm)	N	SM	6 x 3	20cm	25cm	Moderate	Moderate	Moderate		2m	4m	A small stand of 4 Bangalow palm trees located within the neighbouring residence. All located outside the CIZ and documented for retention.
T10	Dypsis lutescens (Golden Cane Palm)	E	SM	5 x 2	x 5cm	x 5cm	Moderate	Moderate	Low		2m	4m	A small stand of Golden Cane palms located within the neighbouring residence and documented for retention.
T11	Cupaniopsis anacardiodes (Tuckeroo)	N	SM	7 x 5	30cm	35cm	High	High	Moderate		2m	4m	A semi mature example of this native tree species located adjacent to the sites south eastern boundary.
T12	Araucaria heterophylla (Norfolk Island Pine)	N	M	22 x 8	85cm	1.8m	High	High	High		4.2m	10m	A well established example of the species located on the southern edge of the foreshore reserve.

Tree Table for 41-43 Beach Road, Collaroy.

T#	Species	Remnant Native, Exotic.	Age Class	Canopy Height and Spread.	Trunk Diameter DBH	Basal Diameter DGL	Significance	Amenity value	Ecological Value	Defects	SRZ	TPZ	Implications
T13	Araucaria heterophylla (Norfolk Island Pine)	N	M	20 x 8	83cm	1.2m	High	High	High		3.6m	10m	Another well established High significance tree located on the foreshore verge.

Genus, Species, and Common name
The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. Is recorded to indicate this.

Height, Spread, Trunk Diameter, DBH and DRB
The Trees height and spread are recorded in meters.
The tree DBH is recorded in millimeters. DBH is an abbreviation of diameter (of the trunk) measured at breast height (or 1.4 meters from the base of the trunk). If more than one trunk is present the DBH is calculated in accordance with AS4970-2009 Protection of Trees on Development Sites.
If the tree has multiple trunks each trunk DBH will be recorded individually.
The tree DRB is recorded in millimeters. DRB is an abbreviation of Diameter (of the trunk) measured above the root buttress. It is required to calculate the SRZ in accordance with AS4970-2009 Protection of Trees on Development Sites when there is major encroachment within the TPZ, i.e. greater than 10% is encroached upon or if there is an encroachment within the SRZ.

Age
The age class of each tree is estimated as either:
J- Juvenile, a young sapling, easily replaced from nursery stock
SM- Semi mature, a tree that has not grown to mature size
M- Mature, a tree that has reached mature size and will slowly increase in size over time.
OM- Over mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches
S- Senescent, an over mature tree that is now in decline

Health
The Tree's health is recorded as a measurement of:
G- Good, the does not appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots
Avg- Average health, the tree appears stressed and has some crown dieback, and/or areas or few epicormic shoots, and/0r some deadwood in the crown and some new growth at the branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health.
F- Fair, the tree may have areas of crown die back, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed fort a short period of time; remediation of the growing environment may improve the trees health.
P- Poor, the tree may have large areas of crown die back, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long time, remediation of the growing environment would not return the tree to good health.

Crown Condition
The crown condition of each tree is assessed and recorded as either:
G- Good Condition: the tree appears to have no visible indication of inherent structural effects.
Avg- Average Condition: the tree has minor structural defects which may be corrected with remedial works or pruning, allowing the tree to return to Good Condition.
F- Fair Condition: the tree has visible structural defects such as (but not limited to) dead branches, and/or an unbalanced crown, and/or leaning trunk and/or signs of decay. These trees do not demonstrate the typical form of their species, of have been damaged or have begun to deteriorate. Remedial works or pruning may return the tree to Average Condition.

Tree Table for 41-43 Beach Road, Collaroy.

P- Poor Condition: the tree has significant structural defects such as (but not limited to) very large dead branches, and/or extremely unbalanced crown, and/or subsiding trunk, and/or large areas of decay. These trees do not demonstrate the typical form of their species, or have been severely damaged or have deteriorated significantly. Remedial pruning would not return the tree to fair condition.

Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. When determining a trees significance within the landscape context, the following questions are asked. Significance is measured as high, medium, or low. High being a affirmative answer for 4 or more questions, Medium being 3 affirmative answers, and Low being 2 or less affirmative answers.

- Is the tree a local native remnant; an endangered species, a part of an endangered species community; or does the tree provide critical habitat.

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m²; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m²; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m²;The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the Leichhardt Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Amenity value

Amenity value is a subjective measurement based on the tree's contribution to the landscape, it may be based on the tree's visual form, however it also includes non visual attributes such as provision of shade for a seat, screening of poor views or for privacy, or if it has historical significance. The amenity value is recorded as:

Tree Table for 41-43 Beach Road, Collaroy.

H- High, the trees form is an excellent example of its species and it makes a great specimen and/or it has other attributes such as screening, or its historical significance. These trees are visually prominent and valuable to the community or public domain.
M- Medium, the tree may have an altered form and/or it has attributes that provide amenity to local residents only.
L-Low, the tree is not a good specimen and it does not provide substantial benefit to local residents or the community.

Ecological value

Ecological value is a measurement of the trees contribution to the environment. It is determined by the trees area of origin, its potential to provide habitat to native fauna and its potential to become an environmental pest. The ecological value is recorded as:
H- High, the tree is locally native or reminant and/or it has habitat for native fauna
M- Medium, the tree is native but not locally native
L- Low, the tree is not native and/or it may be a listed nuisance or weed species.
Ha- Habitat, is the tree valued by fauna for food (i.e. foliage, fruit, or sap) or shelter (i.e. nesting, roosting, dray, or hollow).

Form

The form, structure or shape of each tree is assessed and recorded as either one or a combination of several of the below terms may be used to describe the trees form; (U) Upright, (B) Broad, (C) Conical, (Sh) Shrub, (CS) Crown Shy (also referenced is the adjacent dominant tree canopy i.e. T4), (V) Vase, (D) Dome, (P) Palm, (S) Spreading, (L) Leaning or (BM) Basal Multi Trunked.
Crown form may also be assessed in accordance with the relationship with the neighbouring tree and recorded as either: S- Suppressed, the crown is located beneath another larger crown and is leaning away (Crown Shy); C- Codmoninant, the crown is adjacent to another crown of similar size, their crown areas may appear joined; D- Dominant, the crown is above the lower crowns; E- Emergent, the crown emerges from a lower canopy formed by the other dominant or codominant crowns.

Defects

The presence of one or a combination of several defects is recorded (W) Wound, (D) Decay, (F) Fungus, (B) Bulge, (FB) Fibre Buckling, (C) Cracks, (S) Split, (H) Hollow, (DB) Die back, (Epicormic Shoots, (DW) Dead wood, (I) Inclusion, (CA) Cavities, (PF) Previous Failure, (R) Root Damage, (P) Pruning wound, (PD) Pests and Diseases, (ST) Storm Damage.

Structural Root Zone (SRZ

The SRZ is a radial area extending outwards from the center of the trunk. This area contains the majority of the structural woody roots. This area is primarily responsible for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress in to the heartwood, causing internal decay in addition to destabilizing the trees structural integrity. The SRZ is calculated as follows (This calculation is derived from the Australian Standard $4970-2009 Protection of Trees on Development Sites):

$$\text{SRZ (Radius)} = (D \times 50)^{0.42} \times 0.6$$

Tree protection Zone (TPZ)

The TPZ is a circular area with a radius measured by multiplying the DBH by twelve, or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the essential structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The TPZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2009 Protection of Trees on Development Sites. An incursion to 10% within the TPZ is potentially acceptable if no other option is available. A major encroachment (in excess of 10%) is required to be clearly justified by the project Arborist and compensated for elsewhere. Justification methodology mat vary depending on site or individual trees health, vigor and ability to withstand disturbance may require root investigation.