Arboricultural Impact Assessment

Proposed Landscape Alterations at

22-26 Addison Road, Manly

Client: Stata Plan No. 40956
Date: April 2023
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1 Contents

2 Summary

This Arboricultural Impact Assessment (AIA) is based on eighteen (18) trees located at 22-26 Addison Road, Manly (subject site). Landscape alterations at the front of the site are proposed.

This report aims to describe the likely impacts of the proposed works on the site trees and make recommendations about the suitability of trees proposed for retention.

The Retention Values of the subject trees were rated as outlined in the following Table. Refer to Figure A (following page) and the Tree Protection Plan (Attachment C) for tree locations.

Table A: Retention Values of the Subject Trees.

	High Retention Value (Tree Number)	**Medium Retention Value (Tree Number)**	**Low Retention Value (Tree Number)**
To be Retained	-	15	1, 2, 3, 12, 13, 14, 18
To be Removed	-	8, 9, 10, 11	4, 5, 6, 7, 16, 17

Ten (10) trees are proposed to be removed as part of the proposed works described in this DA. This includes four (4) Medium Retention Value Trees and six (6) Low Retention Value trees. Eight (8) of these trees proposed for removal are exempt from protection within the Northern Beaches LGA as they are either Exempt Species or are less than 5.0m in height. Approval is not required to remove these trees.

Eight (8) trees within the site are proposed to be retained. Of these, seven (7) were assessed as being of Low Retention Value. Removal of the seven (7) Low Retention Value trees is recommended irrespective of the proposed landscape alteration works due to their inappropriate location and potential to damage retaining walls. Seven (7) of these trees (1, 2, 3, 12, 13, 14) are exempt from protection within the Northern Beaches LGA as they are either Exempt Species or are less than 5.0m in height. Approval is not required to remove these seven (7) trees.

3 Introduction

3.1 Background

This Arboricultural Impact Assessment (AIA) was prepared for Strata Plan 40956 in relation to the existing trees and proposed landscape alterations at 22-26 Addison Road, Manly (subject site).

The purpose of this AIA is to assess the likely impacts of the proposed works on the existing site trees and make recommendations about the suitability of trees proposed for retention.

This AIA has been prepared in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites.*

3.2 Subject Site/Proposed Works

The subject site is currently occupied by a multi storey brick unit building. The landscape is formed by raised garden beds formed by masonry retaining walls and paved walkways.

It is proposed to undertake landscape alterations including removal of some of the raised garden beds and replacement with new garden beds at grade.

3.3 Subject Trees

All trees within the site have been assessed. The tree population of the site is made up of planted exotics and planted Australian natives.

The majority of the trees within the site are exempt from protection within the Northern Beaches LGA as they are either Exempt Species or are less than 5.0m in height.

Refer to Figure A for tree locations and numbers. A detailed description of the subject trees is included in the Tree Assessment Table (Attachment A).

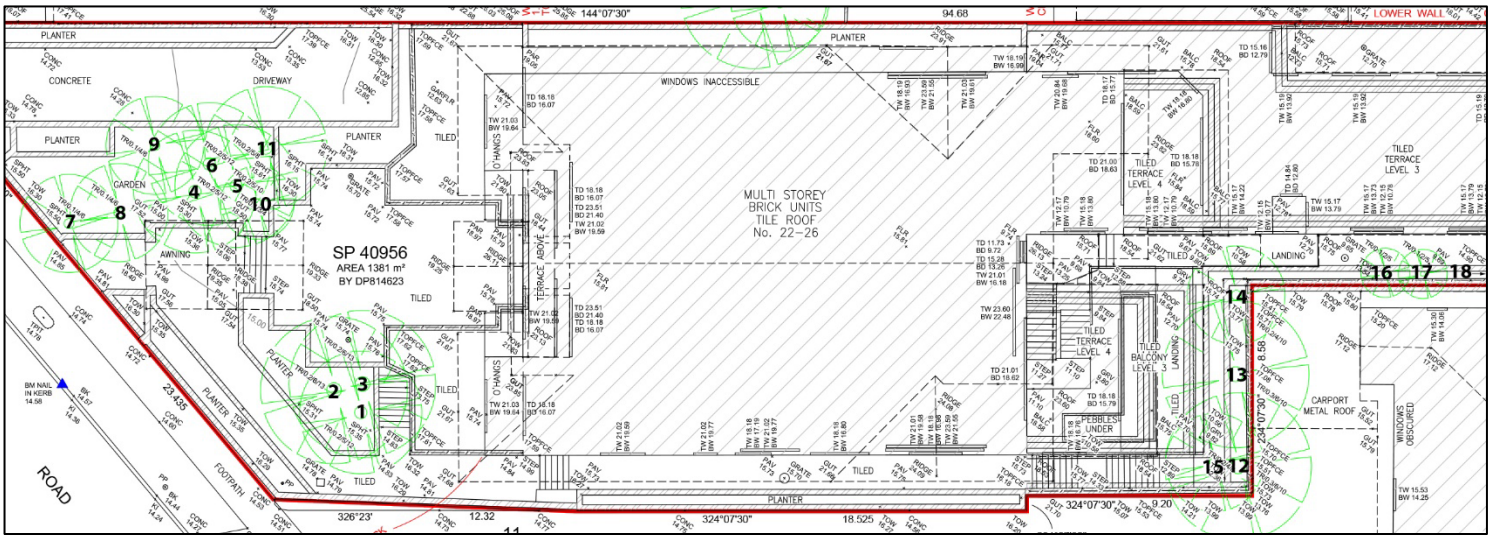

Figure A: Excerpt from the Survey Plan showing tree locations and numbering.

4 Methodology

4.1 Site Inspection

Site inspection and tree assessment was undertaken on the 29th of March, 2023. The trees were assessed from ground level using a Tree Assessment Table, which is included as Attachment A. The definitions and explanations of terms used are outlined in the Tree Table Definitions page which is included at Attachment B.

The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.

4.2 Plan Review

The set of architectural plans provided by Bennet Murada Architects (Revision 1 -16/2/23) were reviewed as part of this assessment.

4.3 Tree Protection Zones

Tree assessments in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites*, require calculation of a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ). The following is a brief explanation of these terms:

Tree Protection Zone -TPZ: This is the area that should be isolated from construction disturbance so that the tree remains viable. Some disturbance within the TPZ may be possible following arboricultural assessment.

Structural Root Zone -SRZ: This is the area or undisturbed soil and roots required to maintain tree stability. Excavation within the SRZ can lead to whole tree failure.

Refer to the Tree Assessment Table (Attachment A) for the Tree Protection Zones of the assessed trees.

4.4 Retention Values

Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

- **HIGH Retention Value**: These trees are worthy of retention and design consideration should be made where possible to allow their retention.
- **MEDIUM Retention Value**: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, stormwater pipes, garden retaining walls, driveway levels).
- **LOW Retention Value**: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.

4.5 Consideration for Tree Retention and Removal

Where demolition of existing structures, excavation or fill is proposed within the Tree Protection Zone (TPZ), arboricultural assessment and sensitive construction methods will be required. Where works are proposed outside of the TPZ, no sensitive construction methods are required.

Tree removal recommendations have been based on tree Retention Values and construction offsets. Trees may generally be recommended for removal in the following circumstances:

- Trees located within construction footprints.
- Trees with construction proposed within SRZ where root loss cannot be avoided through sensitive design.
- Trees with a TPZ loss of more than 25%, may be recommended for removal providing tree sensitive design cannot be implemented to avoid significant root and canopy loss.
- Trees with low Retention Values may be recommended for removal irrespective of proposed development.

5 Potential Impacts of Proposed Works

5.1 Trees to be removed

Tree Number	Retention Value	Reason for Removal
4, 5, 6	Low	Within the area of proposed landscape re-grading. Each of these trees is exempt from protection within the Northern Beaches LGA. Approval is not required for the removal of these trees.
7, 8, 9, 10, 11	Medium	
16, 17	Low	Potential to damage the garden bed wall. Provides limited screening benefit.

Photo A: Trees 4-11. Proposed to be removed to allow landscape re-grading.

Photo B: Trees 16 and 17.

5.2 Potential Impacts of Proposal on Retained Trees

Tree Number	Retention Value	Works proposed within the Tree Protection Zone (TPZ)
1, 2, 3, 12, 13, 14, 18	Low	No works are proposed within the TPZ's of these trees. No impact is expected. Each of these is recommended for removal irrespective of the proposed DA works due to their potential to damage nearby garden retaining walls (Photo B and C).
15	Medium	No works are proposed within the TPZ's of these trees. No impact is expected.

Photo B: Trees 1, 2, 3

Photo C: Trees 12, 13, 14

6 Recommendations

Tree Removal: Ten (10) trees are proposed to be removed as part of the project. Tree removal works should be undertaken in accordance with the WorkSafe Australia *Guide to Managing Risks of Tree Trimming & Removal Work.*

Replacement Tree Planting: Replacement tree planting in the front garden area is recommended. The replacement tree species should be determined by the residents committee in consultation with a Landscape Architect.

Trees 1, 2, 3, 12, 13, 14, 18: Removal of these trees is recommended irrespective of the proposed DA works due to their potential to damage nearby garden retaining walls. The retention/removal of these trees shall be determined by the residents committee. The narrow garden beds where these trees are located is not suitable for planting of replacement canopy trees. If they are removed, replacement of small tree/shrub species should be determined by the residents committee in consultation with a Landscape Architect.

7 Statement of Impartiality

- This report prepared by Bluegum Tree Care & Consultancy (BTCC) reflects the impartial and expert opinion of Alexis Anderson.
- BTCC is acting independently of and not as the advocate for the owners of the subject trees.
- BTCC does not undertake tree pruning and removal works and will not have any involvement with pruning or removing trees which are the subject of this report.

8 Limitations

- The findings of this report are based upon and limited to visual examination of trees from ground level without any climbing, internal testing or exploratory excavation.
- The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.
- This report reflects the health and structure of trees at the time of inspection. Bluegum cannot guarantee that a tree will be healthy and safe under all circumstances or for a specified period of time. There is no guarantee that problems or defects with assessed trees, will not arise in the future. Liability will not be accepted for damage to person or property as a result of failure of assessed trees.

Tree No.	Common Name/ Genus Species	Trunk Diameter (cm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health/Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Works Proposed within the TPZ	Recommended Action
1	Cocos Palm, *Syagrus romanzoffiana*	25	7	2	M	F	G	3.0	1.0	Long (30+ yrs)	4	Low	Potential to cause damage to the stairwell retaining wall. Exempt species within the Northern Beaches LGA. May be removed without Council approval.	Nil.	Remove.
2	Cocos Palm, *Syagrus romanzoffiana*	21	9	2	M	G	G	3.0	1.0	Long (30+ yrs)	4	Low		Nil.	Remove.
3	Cocos Palm, *Syagrus romanzoffiana*	30	9	2	M	G	G	3.0	1.0	Long (30+ yrs)	4	Low		Nil.	Remove.
4	Cocos Palm, *Syagrus romanzoffiana*	27	8	2	M	G	G	3.0	1.0	Long (30+ yrs)	4	Low	Exempt species within the Northern Beaches LGA. May be removed without Council approval.	Within the area of proposed landscape re-grading.	Remove.
5	Cocos Palm, *Syagrus romanzoffiana*	30	7	2	M	G	G	3.0	1.0	Long (30+ yrs)	4	Low		Within the area of proposed landscape re-grading.	Remove.
6	Cocos Palm, *Syagrus romanzoffiana*	28	8	2	M	G	G	3.0	1.0	Long (30+ yrs)	4	Low		Within the area of proposed landscape re-grading.	Remove.
7	Tree Fern, *Cyathea cooperi*	10	3	1	M	G	G	2.0	1.0	Long (30+ yrs)	3	Medium	Exempt from Council protection as it is less than 5m height. May be removed without Council approval.	Within the area of proposed landscape re-grading.	Remove.
8	Pygmy Date Palm, *Phoenix roebelenii*	10	3	1	M	G	G	2.0	1.0	Long (30+ yrs)	3	Medium		Within the area of proposed landscape re-grading.	Remove.
9	Bangalow Palm, *Archontophoenix cunninghamiana*	10	3	1	M	G	G	2.0	1.0	Long (30+ yrs)	3	Medium		Within the area of proposed landscape re-grading.	Remove.
10	Tree Fern, *Cyathea cooperi*	9, 6	3	1	M	G	G	2.0	1.0	Long (30+ yrs)	3	Medium		Within the area of proposed landscape re-grading.	Remove.
11	Tree Fern, *Cyathea cooperi*	13, 6	4	2	M	G	G	3.0	1.0	Long (30+ yrs)	3	Medium		Within the area of proposed landscape re-grading.	Remove.
12	Bangalow Palm, *Archontophoenix cunninghamiana*	12, 12, 8	8	2	M	F	G	1.0	0.5	Medium (10-30 yrs)	4	Low	Growing within a narrow raised masonry garden bed. The garden retaining wall is likely to crack in the future as the root plate expands. Exempt species within the Northern Beaches LGA. May be removed without Council approval.	Nil.	Remove.
13	Bangalow Palm, *Archontophoenix cunninghamiana*	11, 9	8	2	M	F	G	1.0	0.5	Medium (10-30 yrs)	4	Low		Nil.	Remove.
14	Bangalow Palm, *Archontophoenix cunninghamiana*	14	7	2	M	F	G	1.0	0.5	Medium (10-30 yrs)	4	Low		Nil.	Remove.
15	Tree Fern, *Cyathea cooperi*	11	7	2	M	G	G	1.0	0.5	Long (30+ yrs)	3	Medium		Nil.	Retain.
16	Orange Jessamine, *Murraya paniculata*	9	6	1	M	F	F	1.0	0.5	Medium (10-30 yrs)	4	Low	Potential to damage the garden bed wall. Provides limited screening benefit.	Nil.	Remove.
17	Orange Jessamine, *Murraya paniculata*	8	6	1	M	F	F	1.0	0.5	Medium (10-30 yrs)	4	Low	Potential to damage the garden bed wall. Provides limited screening benefit.	Nil.	Remove.
18	Orange Jessamine, *Murraya paniculata*	9	4	1	M	G	F	1.0	0.5	Medium (10-30 yrs)	4	Low	Potential to damage the garden bed wall. Exempt from Council protection as it is less than 5m height. May be removed without Council approval.	Nil.	Remove.

Attachment B: TREE ASSESSMENT DEFINITIONS

Height. Tree height is estimated from ground level. This assessment is made independently of data plotted on survey plan. These measurements have not been confirmed with clinometer or other surveying instrument.

Diameter at Breast Height (DBH). Trunk diameter is measured at 1.4 metres above ground level. A diameter tape is used which calculates the diameter from a measurement of the circumfrence. DBH is primarily used for the calculation of the TPZ. The trunk diameter above the root buttress is measured to calculate the Structural Root Zone. If a tree has more than 4 trunks, the diameter of the four largest trunks is recorded. For irregular trunk formations the DBH is calculated as outlined in Appendix A of AS4970-2009 -*Protection of Trees on Development Sites*.

Canopy Spread Radius. Average canopy spread radius is estimated from the centre of trunk to the outer edge of canopy. Refer to Comments column for detail of heavily skewed canopy spread.

Age Class - This is an estimation of the tree's current age class based on size, growth habit, local environmental conditions and comparison with surrounding trees.

- **Immature (IM)**: This is a juvenile specimen that is likely to have germinated within the previous 5 years.
- **Early Mature (EM)**: This is a tree that is established within its growing environment, though has not reached an age of reproductive maturity or the natural growth habit of a mature individual.
- **Mature (M)**: This is a tree has reached both reproductive maturity and a physical form and shape typical for the species. Trees can have a Mature Age Class for the majority of their life span.
- **Late-Mature (LM)**: There trees show early signs of senescence with symptoms such as reduced canopy density and an accumulation of dead branches.
- **Over-mature (OM)**: These trees show symptoms of irreversible decline such as canopy dieback with dead branches concentrated in the upper canopy.

Health - Good (G), Fair (F) or Poor (P). This is primarily based on the extent of vigorous new foliage growth at branch tips and the colour, size and density of foliage generally. The percentage of live branches to dead branches is considered. The location of any dead branches is also considered. The presence of any pest or disease is considered as part of this assessment. Health can vary with climatic conditions.

Structural Condition - **Good (G), Fair (F) or Poor (P).** This is an assessment of tree structure and stability. Root anchorage, trunk lean, structural defects, canopy skew and any hazardous features are considered. Dead branches can be considered as part of Structural Condition if they are of a size and location that could cause injury or property damage.

Tree Protection Zone (TPZ). This is a radial distance of (12X) the DBH measured from centre of trunk. TPZ is rounded to the nearest 0.1 metre. A TPZ should not be less than 2m or greater than 15m. The TPZ for palms and other monocots should not be less than 1m outside of the crown projection. Existing constraints to root spread can vary the TPZ. For a tree to remain viable, construction activity should be excluded or undertaken with care within the TPZ. Disturbance within up to 10% of the TPZ area is considered to be a minor encroachment. Disturbance to more than 10% of the TPZ area is considered a major encroachment. Major encroachment into the TPZ is possible depending on the type of disturbance, and species tolerance to disturbance. Exploratory excavation may be required to quantify the presence of roots at the alignment of proposed ground disturbance.
This is based upon the Australian Standard AS 4970, 2009, *Protection of trees on development sites* and the Matheney & Clarke "*Guidelines for adequate tree preservation zones for healthy, structurally stable trees*".

Structural Root Zone (SRZ). This is a radial distance based on the following formula- **SRZ =(D x 50) $^{0.42}$ x 0.64** (for trees less than 150mm Diameter, a minimum SRZ of 1.5 metres). The **D** in the formula is the trunk diameter measured above the root buttress. This wass recorded in the field notes. SRZ measurements are rounded to the nearest 0.1m. The Structural Root Zone is the area of soil and roots required to maintain tree stability. Excavation within the SRZ can result in whole tree failure. Fully elevated construction is possible within SRZ with specific rootzone assessment. Existing constraints to root spread can vary the SRZ. This method of determining SRZ is outlined at Section **3.3.5** of Australian Standard AS 4970, 2009, *Protection of trees on development sites.*

Estimated Remaining Life Expectancy: This gives a length of time that the Arborist believes a particular tree can be retained from the time of assessment with an acceptable level of risk based on the information available at the time of the inspection. This system of rating does not take into consideration the likely impacts of any proposed development. Ratings are **Long** (retainable for 30 years or more with an acceptable level of risk), **Medium** (retainable for 10-30 years), **Short** (retainable for 0-10 years) and **Removal** (tree requiring removal due to risk/hazard or absolute unsuitability).

Landscape & Environmental Significance*. This is an assessment of the impact of the tree on the surrounding landscape amenity and natural environment. Rarity, habitat value, physical prominence, historical and cultural significance of the tree are considered in this rating system. The Landscape & Environmental Value ratings used in this report are:

1. Very High Value: This is an outstanding specimen that holds irreplaceable environmental, landscape or cultural value.

2. High Value: An excellent specimen that holds environmental, landscape or cultural value that is present in other site trees or that could be replaced.

3. Moderate Value: Can be a good to fair specimen with environmental, landscape or cultural value that is common within other trees in the locality.

4. Low Value: Removal would not result in any loss of site amenity or environmental value. Can include undesirable or weed species or trees growing in unsuitable locations.

5. Very Low Value: Dead or hazardous with no other environmental or cultural value. Could also include weed species. These trees should be removed or pruned in a way to make safe irrespective of any development.

***Note**: The concept of using a five (5) point scale to assess tree significance was derived from the Tree Wise Men® Australia Pty Ltd ©Significance Rating Scale.

Retention Value*. Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

<table>
<tr><td rowspan="6">Landscape & Environmental Significance</td><td></td><td colspan="4">Estimated Life Expectancy</td></tr>
<tr><td></td><td>Long</td><td>Medium</td><td>Short</td><td>Removal</td></tr>
<tr><td>Very High (1)</td><td colspan="2" rowspan="2">HIGH</td><td rowspan="2">MEDIUM</td><td rowspan="2"></td></tr>
<tr><td>High (2)</td></tr>
<tr><td>Medium (3)</td><td colspan="2">MEDIUM</td><td rowspan="3" colspan="2">LOW</td></tr>
<tr><td>Low (4)</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>Very Low (5)</td></tr>
</table>

HIGH Retention Value: These trees are worthy of retention and major design consideration should be made where feasible to allow this.

MEDIUM Retention Value: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, garden retaining walls, driveway levels).

LOW Retention Value: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

***Note:** The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.

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Bluegum
Tree Care and Consultancy®

Tree Removal Plan

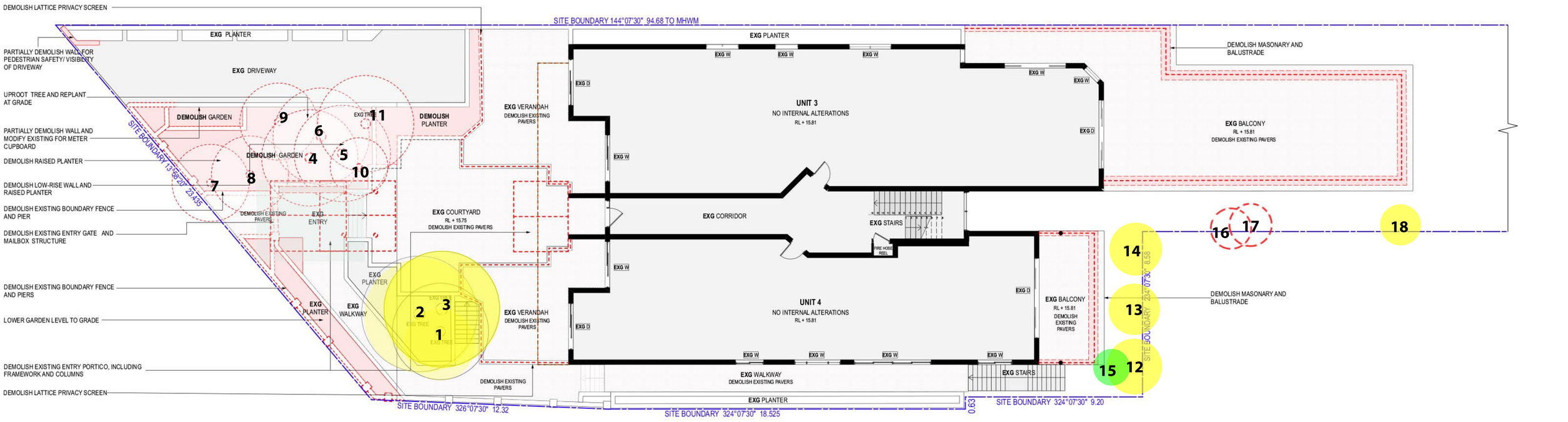
22-26 Addison Road, Manly

LEGEND

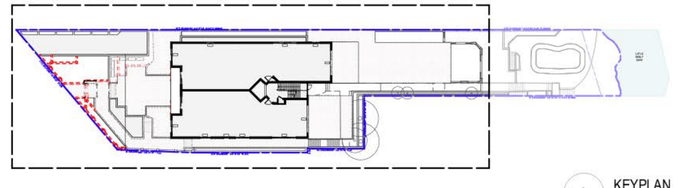
Proposed to be Removed as part of the DA		Recommended for Retention	
Recommended for Removal Irrespective of DA proposal			

-This plan is to be read in conjunction with the Arboricultural Impact Assessment report (April 2023).

-This plan was prepared with the Existing/Demolition Plan, (Revision 1), Bennet Murada Architects as a base.



1 FLOOR PLAN - LEVEL 03
Scale: 1:100



3 KEYPLAN
Scale: 1:500

.5m 1m 2m 5m 11m

NOTES

THIS DRAWING IS PART OF A SET, AND SHOULD BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION OR FABRICATION. REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR VERIFICATION.

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REVISION SCHEDULE

Rev.	Date	Issued By	Revision Notes
1	16/2/23	HS	DA ISSUE

LEGEND / KEY

BAL 01,02,...	BALUSTRADE
CT	CERAMIC TILES
EXG	EXISTING
FNC 1,2,3...	FENCE
MHWM	MEAN HIGH WATER MARK
SCN 1,2,3....	SCREEN

EXISTING WALLS
EXISTING (NO WORKS)
PROPOSED WORKS
DEMOLISHED

Bennett Murada Architects

Project:
ALTERATIONS TO EXISTING RESIDENTIAL FLAT BUILDING
22 - 26 ADDISON ROAD, MANLY NSW 2095

Client:
STRATA PLAN No.40956

Drawing Name:
EXISTING/DEMOLITION : LEVEL 03 & 04

Job Number: **2149**
Scale: 1:100 @ A1 1:200 @A3
Plot Date: 16/2/23
Drawing Status: **DA**
Drawn By: **HS**
Drawing No: **DA_12**
Revision: **1**

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