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Arboricultural Impact Assessment
For
Proposed development at
53 - 55 Donnison St West Gosford NSW

Prepared for
Matthew Wales

By
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1. Brief

1.1. I am requested by Matthew Wales from Wales and Associates Pty Ltd to identify and assess all trees at or near 53 - 55 Donnison St West Gosford that will be potentially affected by the proposed development, and to provide an arboricultural impact assessment which discusses relevant aspects of the proposed development's impact on existing trees.

2. Scope

2.1. This report focuses on trees within and close to the subject site that may be affected by the proposed development.

All trees were assessed visually from ground level in accordance with Mattheck and Breloer's Visual Tree Assessment methodology.

No excavation or invasive testing was conducted as a part of the visual tree assessment.

3. The proposed development

3.1. The proposed development is for the demolition of an existing residential structure and the construction of a multi storey residential structure and associated landscaping.

The proposed development is located within the residential suburb of West Gosford in the Central Coast local government area.

All recorded trees at and near the site will be affected if the proposed development occurs as planned.

4. Site description

4.1. The subject site (53 - 55 Donnison St West Gosford) consists of two adjacent residential land parcels currently containing one house at number 53 and 55 is vacant land.

Trees at the site are located mainly on the periphery of the subject property, and on the Batley St nature strip and existing vegetation consists mainly of low quality, insignificant and unkempt small trees and shrubs.

The site is within a NSW Rural Fire Service (RFS) 10/50 Clearing entitlement area and is therefore subject to the vegetation clearing exemptions that apply.

5. Site visit details

5.1. One site visit was made by the author on 11 October 2021 for the purposes of data collection and tree assessment for this document.

During this visit, tree location and other data was collected and assessments undertaken for the subject trees in relation to the proposed development.

The weather at the time of the site visit was showery and the effect of wind was negligible.

Site location (Google maps)

6. Main documents utilised

The following documents were provided for the author's information by Matthew Wales from Wales and Associates Pty Ltd,

- Architectural documentation 19074 (46 sheets), by ELK Designs, dated 24/09/2018
- Site survey by Clarke Dowdle and Associates, dated 07/04/2021

Other documents and information may have been provided, however the main ones used to assist the author with this assessment are listed above.

These documents were provided to the author in electronic format via email.

7. Methodology

7.1. All tree assessments were carried out utilising the following methods

- Visual Tree Assessment Method (VTA) (Mattheck and Breloer,)
- Tree AZ (Barrell)
- Significance and retention value were assessed using STARS (IACA 2010)
- No aerial inspections, root excavations or soil sampling were conducted as part of this assessment
- Tree identification was based on visual inspection of features available at the time of inspection. A complete taxonomical process of identification was not conducted; therefore, the identification of trees in this document represents the probable identity of the species.

7.2. Measurements and observations were taken using

- Positioning and data recording conducted using a Trimble Nomad 5 GPS PDA device.
- Binoculars and naked eye
- DBH (Diameter at Breast Height) was measured with a diameter tape or estimated at approx. 1.4 metres above existing levels
- Tree height and canopy spread was estimated or measured using a laser range finder and an inclinometer and/or based on surveyor's estimates

7.3. Data collection and encroachment calculation

All assessed and recorded trees have been identified with a number which corresponds with the number on the tree survey data table at Appendix 3 and its location at the subject site may be viewed on the aerial image at Appendix 4 Images.

The author attempted to locate the trees as accurately as possible by using Google Earth in conjunction with plan drawings and provided professional survey images, which were overlaid using the tools available in the Google Earth application. These images were placed manually, as accurately as possible and cross referenced with the location point data collected by the author and displayed on the Google Earth interface screen.

Measurements to the nearest TPZ/SRZ disturbance was measured using tools available in the Google Earth application and encroachment percentages were calculated using the "Proofdocs" TPZ Incursion Calculator which is available online.

The majority of existing trees which may be affected were not shown on the provided survey therefore these trees were placed manually as accurately as possible in the google earth application based on measurements, compass bearings and observations taken during the site visit.

Although the tree measured tree positioning should be accurate to within approximately 10cm or better, accuracy of location and calculations relating to these trees cannot be guaranteed.

8. Trees potentially affected by the proposed development

Discussion

8.1. Tree 1

Is a mature deodar cedar which is located on the Batley St nature strip just outside the south western corner boundary of the subject properties.

This tree is located in very close proximity to the proposed construction footprint and will require removal if the development proceeds as planned due to direct conflict with aspects of the proposed driveway access construction process combined with a major and unsustainable encroachment.

It will be necessary to remove this public tree if the development proceeds as planned.

8.2. Tree 2

Is a small mature grevillea which is located on the Batley St nature strip just outside the south western boundary of the subject properties

This insignificant public tree is located directly within the proposed driveway access footprint and removal will be necessary if the development proceeds as planned.

8.3. Tree 3

Is a small semi mature silky oak which is located on the Batley St nature strip just outside the south western boundary of the subject properties.

This insignificant public tree is located directly within the proposed driveway access footprint and removal will be necessary if the development proceeds as planned.

8.4. Trees 4, 5, 6, 7, 8, 9, 13, 14, 15 and 16

Includes generally insignificant and low value trees and shrubs which are located where indicated at the image at Appendix 4 and are all within the subject property boundary.

All of these trees are exempt from protection either because they are below the size specified in the DCP to be protected, are exempt species under the DCP or are within 10 metres of the wall of the existing structure and hence, are

unprotected under the provisions of both the DCP and the Rural Fire Service 10/50 legislation.

All of these trees are either within the proposed construction envelope, or are located too close to proposed works and will be unsustainably affected.

All of these exempt trees will be removed to facilitate the proposed development.

8.5. **Tree 10**

Is a young mature cabbage tree palm which is located on the nature strip outside the north western subject property boundary.

Based on the current design, tree removal is necessary due to major and unsustainable tree protection zone (TPZ) and structural root zone (SRZ) encroachment from soil disturbance and level changes necessary to install the nearby proposed retaining wall and removal will be subject to Council's consent being provided, as part of DA determination process.

8.6. **Tree 11**

Is a young mature mulberry which is located on the nature strip outside the north western subject property boundary.

This public tree is located directly within the proposed pedestrian footpath alignment and removal will be necessary if the development proceeds as planned.

8.7. **Tree 12**

Is a small dwarf umbrella tree which is located on the nature strip outside the north western corner of the subject property boundary.

This insignificant public tree is located directly within the proposed pedestrian footpath alignment and removal will be necessary if the development proceeds as planned

All other recorded trees not specifically mentioned here will be unaffected by the proposed development if appropriately protected.

9. General Tree Protection Instructions

All other trees not listed specifically here will not be affected by the proposed development if protected in accordance with AS4970-2009.

Basic tree protection measures may have been recommended in this document however, more comprehensive and detailed tree protection specifications may be mandated by the consenting authority in the form of a tree protection management plan which is to be provided by an AQF5 arborist in cooperation with the project manager.

All tree protection measures must be installed before any phase of development related activity occurs (including demolition).

Tree protection measures must be assessed and certified in writing by an AQF5 consulting arborist with a sufficient time allowance to make physical adjustments to protection measures in order to ensure efficacy of tree protection before any works commence.

Any soil disturbance in the form of trenching or fill placement or tunnelling for the installation of infrastructure including but not limited to pipes for communications, electrical, drainage, water or sewer must be considered in relation to retained trees and advice shall be sought from an AQF5 consulting arborist if any infrastructure as described above is proposed to be installed within the TPZ radius for any tree to be retained.

Ground protection to protect the soil within the TPZ may be utilised as an alternative to erecting a fenced exclusion zone if the practicalities of the development process necessitates it.

If ground protection is used as an alternative to protective fencing, the ground surface within the TPZ is to be protected in accordance with Section 4.5.3 of AS4970 and a thick (200-300mm) layer of wood chip mulch is to be placed on the ground within the TPZ and load spreading plates, rumble boards or heavy timber planking is to be placed on top of the mulch and strapped together to prevent movement so as to spread the load and to prevent compaction of the soil.

The level of soil protection and materials to be used within the TPZ will vary depending on the plant proposed to be utilised and specific protection measures will need to be discussed and agreed upon in writing by the project manager and an AQF5 qualified arborist before works commence.

10. Tree protection zone information

- TPZ- (Tree protection zone) the tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

- SRZ- (Structural root zone) The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

- Any trees recorded within the scope of this assessment that are to be retained shall be protected by a physical TPZ exclusion zone to the radius from the trunk calculated in accordance with section 4 of AS 4970-2009 Protection of Trees on Development Sites (Provided at Appendix 3) Tree survey data table) and in consultation with the project arborist.

- It is strongly recommended that a copy of this standard is obtained by the project manager as a reference before any work commences on site.

- Tree protection zones shall be established in accordance with Section 4 of AS 4970-2009 before commencement of any other demolition or construction work. This will include trunk, branch and ground protection if considered necessary by the project arborist and also placement of appropriate and compliant TPZ signage to the physical TPZ fence.

- The TPZ shall remain until the completion of all demolition and construction related activity.

- Any pruning and tree works recommended are to be conducted by a certificate 3 (minimum) qualified and experienced arborist and work is to be conducted according to AS4373: Pruning of Amenity Trees.

- Consent to prune trees may be required from the tree owners and Council.

- Establishment and erection of tree protection zone and signage should be inspected and certified by the project arborist to ensure compliance with the standard.

- Unless approved by the project arborist beforehand, no activity as detailed in section 4.2 of AS 4970-2009 Protection of Trees on Development Sites and Section 10 of this document is to occur within the TPZ.

10.1. Activities prohibited within the Tree Protection Zone

- Modification of existing soil levels
- Excavations and trenching
- Cultivation of the soil
- Mechanical removal of vegetation
- Soil disturbance
- Movement of natural rock
- Storage of materials, plant or equipment
- Erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials
- Disposal of waste materials and chemicals
- Lighting fires
- Refuelling
- Movement of pedestrian or vehicular traffic
- Temporary or permanent location of services, or the works required for their installation
- Any other activities that may cause damage to the tree.

References

- NSW Rural Fire Service 10/50 Vegetation Clearing Code of Practice
- Central Coast Council Gosford DCP 2013 Chapter 6.6
- Standards Australia (2009) "AS4970: Protection of trees on development sites"
- Standards Australia (2007) "AS4373: Pruning of Amenity Trees"
- http://www.treetec.net.au/TPZ_SRZ_DBH_calculator.php
- http://www.proofdocs.com/arborist_report_template/tpz_incursion_calculator/
- Mattheck, C.,Breloer, H (1994) The Body Language of Trees- A handbook for failure analysis . HMSO, London.

Qualifications and experience (Michael Shaw)

Practising AQF level 5 consulting arborist from 2009 - present

AQF level 5 Diploma of Horticulture (Arboriculture)

Licensed QTRA practitioner (quantitative tree risk assessment)

Licensed VALID Tree Risk assessment practitioner April 2021

ISA Tree risk assessment qualification (TRAQ) October 2013

Senior Tree Risk Assessment Officer (Central Coast Council) Sep 2015- Dec 2017

Part time contractor as a Tree Management Officer at Lane Cove, Strathfield and Hornsby Councils between 2013-2015

Tree Assessment and Vegetation Management Officer Port Stephens Council from September 2009 – Dec 2011

ISA conference Canberra 2017

VTA (visual tree assessment) workshop March 2011 and March 2013

ISA 87th annual Conference delegate, Parramatta NSW July 2011.

Matheny & Clark “Arboriculture” Seminar. Melbourne November 2009

Specialising in arboriculture and tree assessment from Feb 2008

Certificate 3 Horticulture (Parks and gardens)

Working in horticultural industry from April 2004

Appendix 1 Tree AZ

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorisation hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

A

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

Appendix 2 Landscape significance and tree retention determination

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

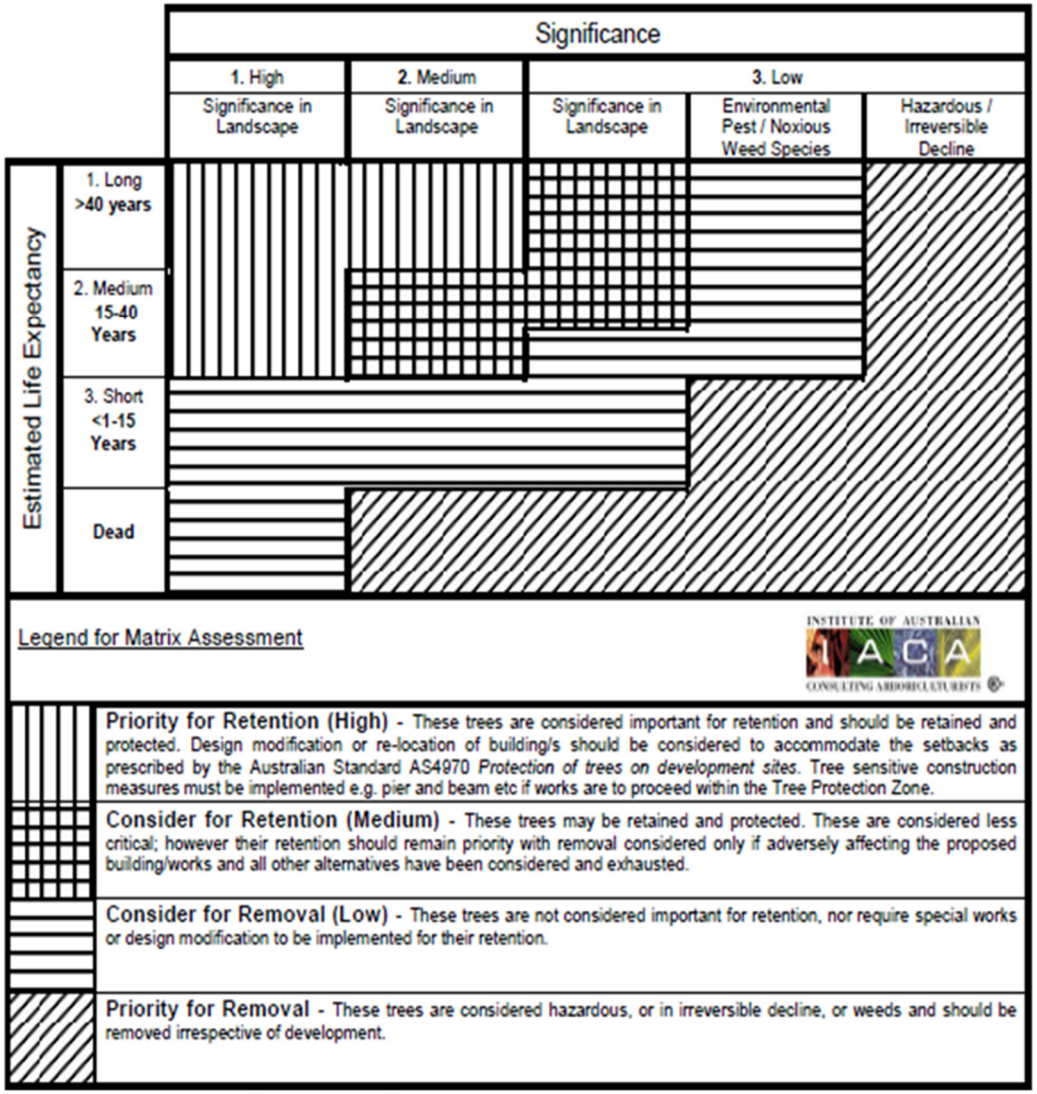
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



Appendix 3 Tree survey data table

Significantly affected trees requiring removal or trees proposed for removal in red text

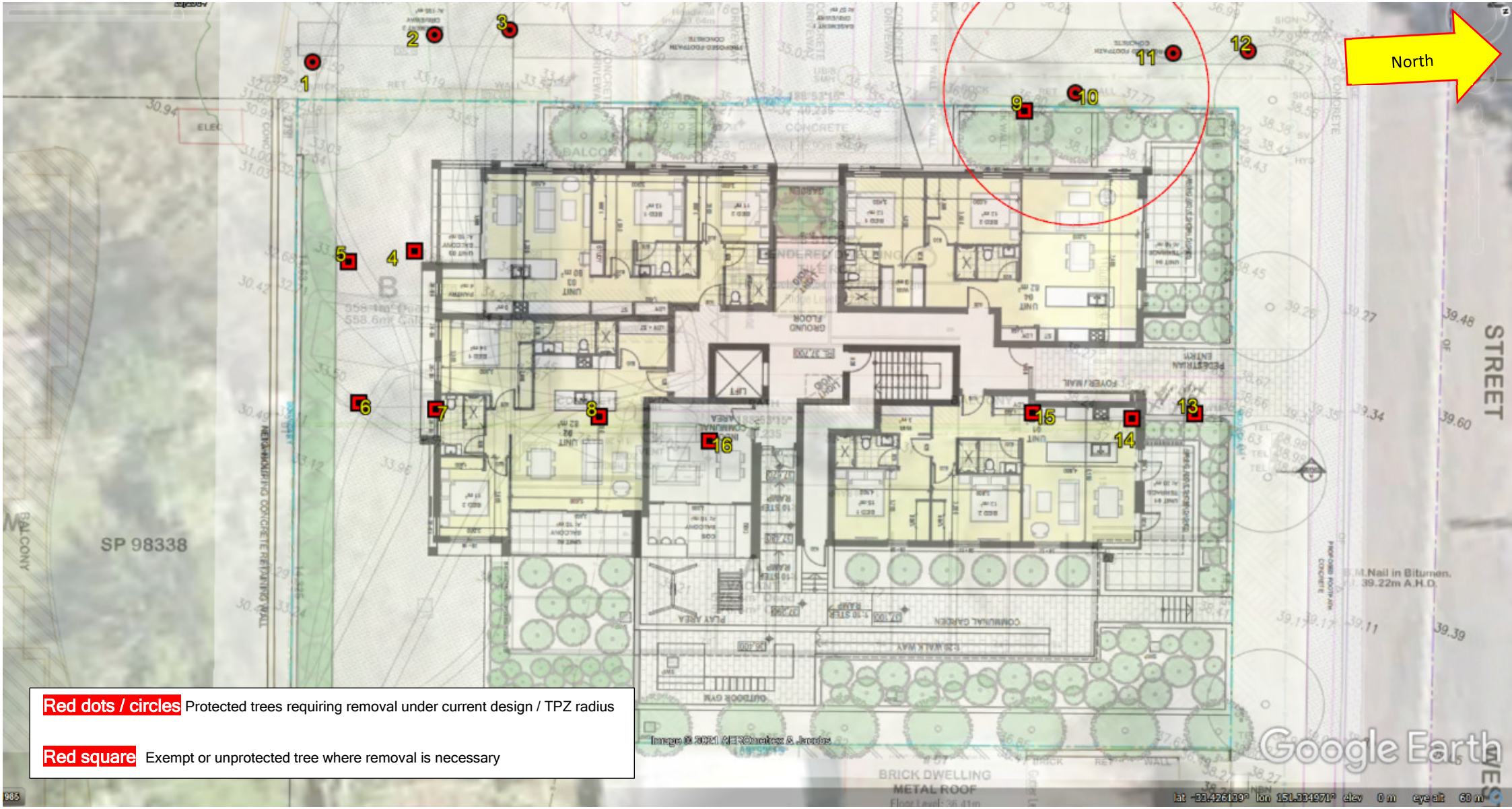
Tree ID	Botanical and common name	DBH cm / TPZ m / SRZ m	Height x radial canopy spread m	Age	Estimated life expectancy	Landscape significance (STARS)	Retention value (STARS)	Vigour and health (% of live canopy)	Tree AZ	Features/Comments
1	*Cedrus deodara (Deodar cedar)*	40cm_4.8m_2.4m	10x10	Mature	Medium 15-40 years	Medium	Medium	Good(80-100% live foliage)	A1 No significant defects and could be retained with minimal remedial care	Street tree
2	*Grevillea sp*	10 10cm_2m_2m	4x5	Mature	Short 5-15 years	Low	Low	Average(50-80% live foliage)	A1 No significant defects and could be retained with minimal remedial care	Street tree
3	*Grevillea robusta (silky oak)*	10cm_2.0m_2.0m	6x3	Semi mature (not quite mature)	Long >40 years	Low	Medium	Good(80-100% live foliage)	"Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc"	Street tree
4	*Prunus sp (cherry or plum)*	Multiple leaders from base,estimated diameter at base,15cm_2m_2m	4x3	Mature	Medium 15-40 years	Low	Low	Good(80-100% live foliage)	"Z3 Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc"	Exempt species

Tree ID	Botanical and common name	DBH cm / TPZ m / SRZ m	Height x radial canopy spread m	Age	Estimated life expectancy	Landscape significance (STARS)	Retention value (STARS)	Vigour and health (% of live canopy)	Tree AZ	Features/Comments
5	*Plumeria acutifolia (frangipani)*	20 15cm_3m_2m	5x5	Mature	Medium 15-40 years	Medium	Medium	Deciduous (reduced foliage)	A1 No significant defects and could be retained with minimal remedial care	Two trunks from base. Exempt from protection
6	*Lagerstroemia indica (crepe myrtle)*	Multiple leaders from base,estimated diameter at base,10cm_2m_2m	3x2	Young mature (mature but still young)	Medium 15-40 years	Low	Low	Good(80-100% live foliage)	"Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc"	Exempt from protection
7	*Rhaphiolepis indica (Indian hawthorn)*	15cm_2.0m_2.0m	3x3	Mature	Medium 15-40 years	Low	Low	Good(80-100% live foliage)	"Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc"	Exempt from protection
8	*Camellia sasanqua (sasanqua camellia)*	10 10cm_2m_2m	5x4	Mature	Medium 15-40 years	Low	Low	Good(80-100% live foliage)	"Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc"	Exempt from protection
9	*Thuja orientalis (Oriental arborvitae)*	Multiple leaders from base,estimated diameter at base,35cm_4.2m_2.3m	5x3	Mature	Medium 15-40 years	Medium	Medium	Good(80-100% live foliage)	A1 No significant defects and could be retained with minimal remedial care	Exempt from protection

Tree ID	Botanical and common name	DBH cm / TPZ m / SRZ m	Height x radial canopy spread m	Age	Estimated life expectancy	Landscape significance (STARS)	Retention value (STARS)	Vigour and health (% of live canopy)	Tree AZ	Features/Comments
10	*Livistona australis (cabbage tree palm)*	30cm_6m_2m	5x5	Young mature (mature but still young)	Medium 15-40 years	Medium	Medium	Good(80-100% live foliage)	A1 No significant defects and could be retained with minimal remedial care	Street tree
11	*Morus sp (mulberry)*	15 10cm_	5x5	Young mature (mature but still young)	Medium 15-40 years	Medium	Medium	Good(80-100% live foliage)	A1 No significant defects and could be retained with minimal remedial care	Street tree
12	*Schefflera arboricola (dwarf umbrella tree)*	Multiple leaders from base,estimated diameter at base,20cm_2.4m_2m	2x3	Young mature (mature but still young)	Medium 15-40 years	Low	Low	Good(80-100% live foliage)	"Z1 Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc"	Street tree
13	*Delonix regia (poinciana)*	35cm_4.2m_2.3m	6x10	Mature	Medium 15-40 years	Medium	Medium	Deciduous (reduced foliage)	A1 No significant defects and could be retained with minimal remedial care	Exempt from protection
14	*Tibouchina sp*	10 10 10cm_2m_2m	5x6	Mature	Short 5-15 years	Low	Low	Good(80-100% live foliage)	"Z2 Too close to a building, i.e. exempt from legal protection because of proximity, etc"	Exempt from protection
15	*Plumeria acutifolia (frangipani)*	15cm_2.0m_2.0m	5x5	Mature	Medium 15-40 years	Low	Low	Deciduous (reduced foliage)	"Z2 Too close to a building, i.e. exempt from legal protection because of proximity, etc"	Exempt from protection. Growing through a hole in the decking

Tree ID	Botanical and common name	DBH cm / TPZ m / SRZ m	Height x radial canopy spread m	Age	Estimated life expectancy	Landscape significance (STARS)	Retention value (STARS)	Vigour and health (% of live canopy)	Tree AZ	Features/Comments
16	*Solanum mauritianum (wild tobacco)*	10cm_2.0m_2.0m	5x5	Mature	Short 5-15 years	Low	Low	Deciduous (reduced foliage)	"Z3 Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc"	Exempt from protection

Appendix 4 Images (Google Earth image with plans and tree locations overlaid)



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