

Tree report

**16 Northwood Road
Northwood NSW**

Prepared by:
Stuart Pittendrigh *FAILA MAIH M. Arb Aust.*
Registered Landscape Architect
Horticulturist/Consultant Arborist
July 2016

Introduction

This Tree Report was prepared at the request of Morrison Design Partnership on behalf of their client to assist the development of the site known as 16 Northwood Road, Northwood NSW.

The report is prepared in accordance with **Section 2 Planning and the Tree Management Process Cl. 2.3.2 Preliminary Tree Assessment of AS 4970-2009 Protection of trees on development sites**

The report addresses existing trees noted on the attached marked up the Site Survey provided over 16 Northwood Road, Northwood together with additional trees indigenous to the locality that are growing within 5-10m of the subject site.

The trees assessed are noted on the attached marked up site survey now known as Tree Location Plan TP 01.

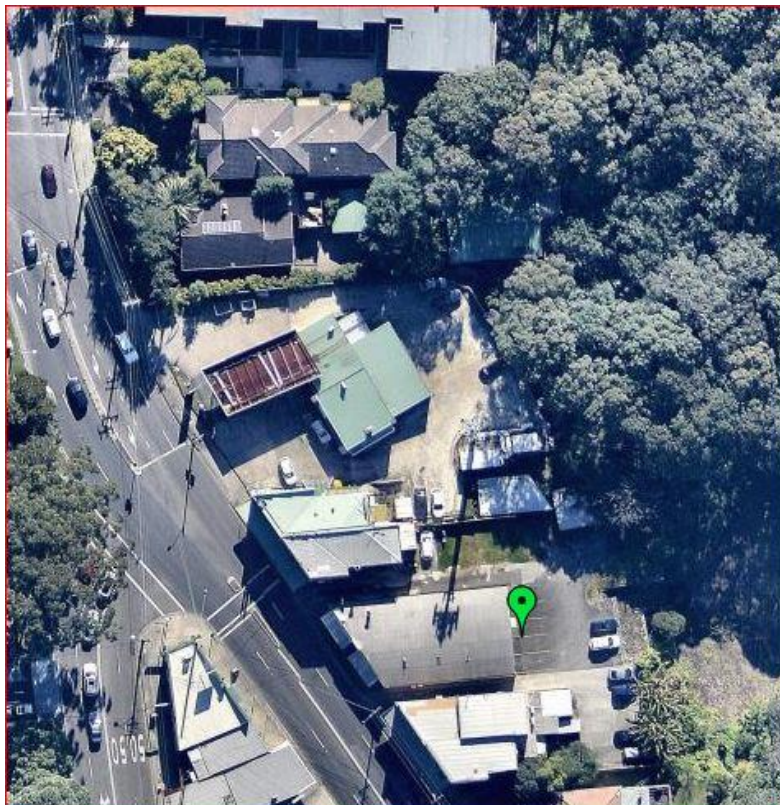
Information contained in this Tree Report only covers existing trees growing on the subject site and trees on the adjoining properties to the north and east as shown on the Tree Location Plan.

Plans referred to in the preparation of this tree report include:

- Site Survey – untitled
- Basement Floor Plan SK 100 prepared by Morrison Design Architects
- Ground Floor Plan SK 102 prepared by Morrison Design Architects

This report is prepared in accordance with the Regulatory controls in the Lane Cove Local Government Area with respect to the Preservation of Trees and Vegetation

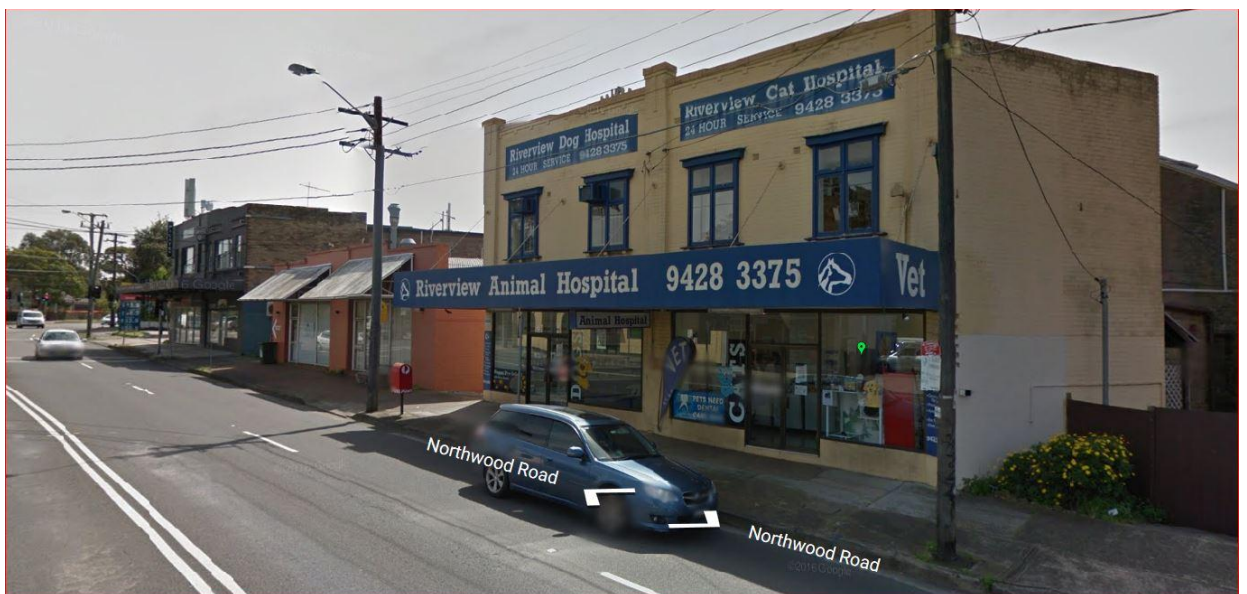
Stuart Pittendrigh and his field assistant conducted the site assessment on 15 July 2016



The Site 16 Northwood Road, Northwood NSW



View of site looking east from Northwood Road



View of site looking north from Northwood Road

The subject development sites comprising a number of residential dwellings, a service station and three commercial buildings.

Existing natural vegetation throughout the locality comprises Sydney Blue Gum (*Euc saligna*) Smooth Bark Apple (*Angophora costata*) Turpentin(*Syncarpia glomulifera*), Grey Iron Bark (*Eucalyptus paniculata*) and Native Daphne (*Pittosporum undulatum*).

The locality supports a diversified range of introduced cultural plantings comprising ornamental trees, conifers, deciduous trees and tall evergreen hedges and screen plantings.

Aims

The aims of this report are to:

- Address the Regulatory controls in the Lane Cove Local Government Area with respect to the Preservation of Trees and Vegetation
- Identify the subject trees shown on survey plans
- Appraise and assess the trees' condition, health, structure physical dimensions and form at the time of inspection
- Determine the Safe Useful Life Expectancy (SULE) of the tree (s)
- The landscape amenity provided by each individual tree
- Identify trees to be retained and
- Identify trees to be removed due to failing health, condition and perceived adverse impacts from the proposed civil works.

Methodology

The comments and recommendations in this report are based on observations and findings from the site inspection.

The trees were assessed from ground observation using standard methods of visual assessment criteria. No probing or coring, testing of woody tissue. No non invasive root investigations were carried out

Tree health was determined by:

Canopy density, extension growth, foliage size applicable to the species, and colour.

Presence of pest and disease

Termite activity

The amount of deadwood and dieback throughout the crown

Small branch and twig dieback and

Presence of epicormics

Tree structure was assessed by

Visual evidence of structural faults and potential points of failure

Evidence of past poor pruning practices

Physical and or storm damage

The heights of the trees were measured with a Nikon Forestry Pro hypsometer; the crown spread and trunk diameters were measured at breast height (DBH). The stem diameters above the root buttress (DRB) were determined using a diameter measuring tape in accordance with **AS 4970 –2009 Protection of trees on development sites.**

The nominated Tree Protection Zones and Structural Root Zones were determined by applying the methodology detailed in **Section 3 of AS 4070-2009 Protection of trees on development sites.** Refer to **Appendix A - Terms used in tree report.**

Tree Assessment.

Refer to **Appendix B - Tree Survey Assessment Sheets**

Impact on Trees and Recommendations

Refer to attached table **Appendix C**

Summary and Recommendations

Trees to be removed / retained

- A total of 40 trees were assessed. 17 on the development site and 23 trees assessed are located on adjoin properties
- 4 Trees on the development site are recommended for removal to accommodate the proposed development and 3 clusters of palms are recommend for transplanting elsewhere on site
- Trees to be retained and managed throughout the development shall be fenced off from the proposed development or in some situations depending on site access may require trunk protection as detailed in **Section 4 -Tree Protection Measures of AS4970 - 2009 The Protection of Trees on Development Sites** or in some situation the existing boundary fence shall be retained throughout proposed development so as to provide tree protection barrier
- Demolition works within the TPZ of trees to be preserved shall be carried out so as to avoid damage to the tree's roots. In sensitive areas manual excavation may be necessary Manual excavation shall be by hand under the direction of the project arborist.
- Where the project arborist identifies roots to be pruned within or at the outer edge of the TPZ, they should be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints. It is totally unacceptable acceptable for roots within the TPZ to be 'pruned' with machinery such as backhoes or excavators.
- Where roots within the TPZ are exposed by excavation, temporary root protection should be installed to prevent them drying out This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full depth of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed
- All areas enclosed by protective fencing must have the entire ground surface mulched to a depth of 100 mm with composted Eucalyptus leaf and woodchip to help retain soil moisture and reduce erosion.
- Any site activity close to or beneath the drip line of Trees 15-17 inclusive shall have elevated protection installed clear of the ground to avoid compaction and damage to roots. Protection may comprise timber planks or metal decking supported on scaffolding or the like.

- Hydraulic plans have not been provided by the applicant. Where stormwater and sewer lines need to be installed within the TPZ of trees nominated for preservation. Trenching for stormwater / sewer installation within the TPZ and SRZ shall be avoided. Adopt directional drilling / approved under boring techniques as per **Section 4 of AS4970 CL.4.4.5** to avoid adverse impacts on tree roots.
- The directional drilling bore should be at least 600 mm deep. The project arborist shall assess the likely impacts of boring and bore pits on retained trees. Bore pits within the TPZ shall be hand dug under the direction of an Arborist. No excavation shall occur within the Structural Root Zones of trees nominated for preservation.
- The crowns of all significant trees nominated for preservation are clear of the proposed development.

Stuart Pittendrigh

Consultant Arborist M. Arb. Aust. (#2003)

Registered Landscape Architect / Registered Horticulturist

References

Fakes, J. (2004)

Introduction to Arboriculture RYDE TAFE

Hewett, P. in National Arborists Association of Australia (1997)

Assessing Hazardous Trees and their Safe Useful Life Expectancy, NAAA Workshop, June 1997

Jeremy Barrel SULE- Data collection & SULE 11 Presentation of Data in association with the National Arborists Association of Australia (2001)

Management of Mature Trees Seminar & Workshops 2001

Richard W. Harris

Arboriculture – Integrated Management of Landscape Trees

Standards Australia **AS 4970 Protection of trees on development sites.**

Appendix A

Terms used in Tree Report

Age Class

(Y)-Young refers to a well established but juvenile tree.

(SM)-Semi-mature refers to a tree at growth stages between immaturity and full size. A tree that has reached First Adult Form i.e. displays adult characteristics.

(M)-Mature refers to a full size tree with some capacity for further growth.

(OM)-Over-mature refers to a tree approaching decline or already declining.

Health refers to the trees vigour, growth rate, disease and/or insects.

Condition summarises observations about the health and structure of the tree on a scale of 1-5

(G) Good, (F) Fair, (A) Average, (P) Poor and (VP) Very Poor

SRZ) Height expressed in metres refers to estimated overall height of tree

Spread expressed in meters refers to estimated spread of crown at the drip line.

Diameter at Breast Height (DBH) expressed in millimetres refers to the trunk diameter at 1.4 meters above ground level.

(DRB) Diameter above Root Buttress (DRB) expressed in millimetres refers to the trunk diameter measured immediately above root buttress.

Tree Protection Zone (TPZ) refers to a specific radial offset expressed in metres to provide a specified area above and below the ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

The TPZ shall be calculated as a radial measurement based on twelve times the Diameter at Breast Height (DBH). A TPZ shall not be less than 2m.radius nor greater than a 15m radius as measured from the centre of the stem at ground level.

If an encroachment is less than 10% of the area of the TPZ and is outside the Structural Root Zone (SRZ) detailed root investigation should not be required. However if the proposed encroachment is greater than 10% or inside the SRZ root investigation by non- destructive methods may be required.

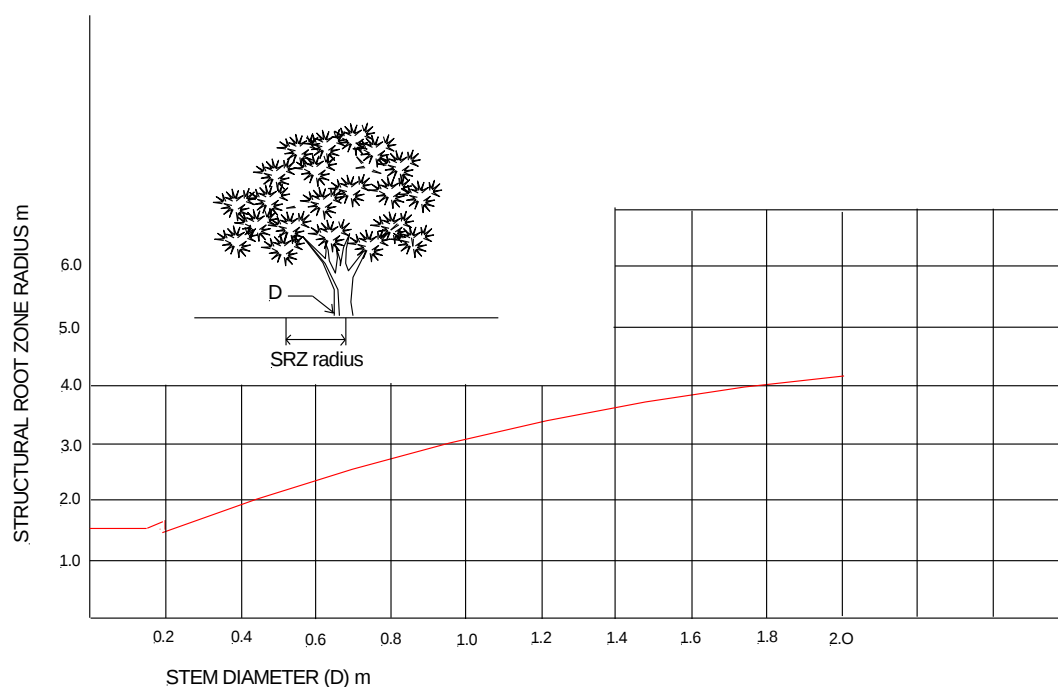
Non-destructive investigation methods may include pneumatic, hydraulic or penetrating radar.

Any encroachment should be compensated for elsewhere and be contiguous with the TPZ.

Structural Root Zone (SRZ) *The area around the base of a tree required for the tree's stability in the ground that is necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.*

*This zone considers a tree's structural stability only, **not** the root zone required for a tree's vigour and long term viability, which will usually be a much larger area.*

The SRZ only needs to be calculated when major encroachment into a TPZ is likely to occur



The curve can be expressed by the following formula

$$R_{SRZ} = (D \times 50)^{0.42 \times 0.64}$$

NOTES

- 1 R_{SRZ} is the structural root zone radius
- 2 D is the stem diameter measured immediately above to root buttress
- 3 The SRZ for trees less than 0.15 m diameter is 1.5m
- 4 The SRZ formula and graph do not apply to palms, other monocots, cycads & tree ferns
- 5 This does not apply to trees with an asymmetrical root plate

STRUCTURAL ROOT ZONE

S.U.L.E. *Safe useful Life Expectancy* Refer to attachment

Landscape Amenity Rating Scale

The landscape amenity value provided by trees indicates:

- How highly the tree is regarded as part of the local landscape
- How the tree provides and enhances the visual quality of the site

The importance of the tree's historical and cultural significance

- The provision of habitat and vegetation linkages within development sites, streetscapes, recreation areas or open space.

The protection, preservation and enhancement of the landscape amenity, particularly community and residential amenity are a core objective of site design, land use and planning.

The following rating scale is designed to assist in the site planning process for the proposed site works/development. Each tree in Schedule B is rated accordingly.

No 1 Rating

- *Recognised landmark*
- *Contributes to high visual amenity*
- *Major contribution to the sites landscape amenity*
- *Excellent condition, health, structure and form*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Significant introduced native species that has successfully adapted to the site conditions and environment.*
- *Significant introduced evergreen or deciduous species that has successfully adapted to the site conditions and environment*
- *Indigenous to the locality*
- *Significant remnant species indigenous to site and locality*
- *Historic importance*
- *Cultural importance*
- *Recorded on significant tree register*
- *Listed as a threatened species*
- *Identified habitat tree*
- *Contributes to the bio-diversity of native vegetation within the locality*

No 2 Rating

Contributes to good visual amenity

- *Makes substantial contribution to the sites landscape amenity*
- *Good/Fair condition, health, structure and form*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Indigenous to the locality*
- *Remnant species indigenous to site and locality*
- *Introduced native species that has adapted to the site conditions and environment.*
- *Introduced evergreen or deciduous species that has adapted to the site conditions and environment*
- *Listed as a threatened species*
- *Possible habitat tree*
- *Contributes to the bio-diversity of native vegetation within the locality*

No 3 Rating

- *Minor contribution to the sites landscape amenity*
- *Fair/Average condition, health, structure and form*
- *Average/poor visual amenity*
- *Indigenous to the locality*
- *Introduced species*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Growth and development suppressed*
- *Wounds, structural fault extensive storm damage*
- *Observance of Pests and disease impacting on health and condition.*
- *Hazardous trees*

No 4 Rating

- *Little or no contribution to the sites landscape amenity*
- *Poor/very poor visual amenity*
- *Growth and development over-mature / suppressed*
- *Major structural faults that cannot be mitigated*
- *Recognised invasive or weed species*
- *Dangerous tree*
- *Species unsuitable for site conditions and environment*
- *Species exempt LGA Tree Protection Order/Management Plan*