



# ARBORICULTURAL IMPACT ASSESSMENT REPORT STAFF CARPARK; CAMPERDOWN

FOR



PREPARED BY

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6<sup>th</sup> April 2016 PROJECT: 1609

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# 1.0 INTRODUCTION

Sturt Noble Arboricultural Consulting was engaged by NSW Health Infrastructure to assess the trees on the site of a new carpark construction on the Royal Prince Alfred (RPA) Hospital campus at Lucas Street Camperdown, and provide an Arboricultural Impact Assessment Report, to assist NSW Health Infrastructure in preparing a Development Application to the City of Sydney Council.

The Development Application seeks consent to demolish all existing structures, consolidate the site and construct a new multistorey carpark. This development will require removal of all twelve (12) No. existing trees on site.

Arborist Guy Sturt inspected the trees on 31st March 2016 and trees were assessed by the Visual Tree Assessment (VTA) method. (Mattheck & Breloer, 1994).

All of the trees were assessed by viewing from the ground. No aerial inspection or diagnostic testing was undertaken as part of this assessment.

Consulting Arborist Guy Sturt assessed the trees and in this report considers the likely impacts of works proposed and makes recommendations for tree removal, retention and protection.

The aims of this report are:

- To assess the condition of existing trees located within the vicinity of a new multistorey carpark construction in order to assess each individual tree's suitability to be retained as a sustainable part of the landscape in the long term.
- To satisfy the requirements of the consent authority by providing information about the trees their overall health and suitability for removal or retention based on plans supplied.

# 2.0 METHODOLOGY

### 2.1 Tree Assessment

Consulting Arborist Guy Sturt visited the site on 31st March 2016 to assess the trees and consider the likely impacts of works proposed. This assessment is summarised in Appendix 1.

The trees were assessed from the ground by the Visual Tree Assessment (VTA) method as described in Mattheck & Breloer (1994), using non-invasive tools such as binoculars and acoustic mallet. No digging or exposing of the root zones occurred in this inspection and no aerial inspection by climbing was performed.Direct access was available to all trees

The following data was collected for each tree:

- Botanical and common name.
- Tree dimensions.
- Canopy density.
- Overall health and vitality, including epicormic growth, deadwood and predation by pests and diseases.
- Structural condition was assessed including evident faults such as *Bark Inclusions* or poor branch attachments, decay, cavities and mechanical or biological damage.
- Stability of the tree including excessive trunk lean, stability of the soil, soil cracking, soil heaving, exposed roots and root damage.
- Health and condition was rated as *Good, Fair* or *Poor,* based on overall tree *vigour* and *structure* at the time of inspection.
- Tree retention values were assessed by assessing each tree according to the Sustainable Retention Index Value Matrix (SRIV)
- The Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) were calculated.

We note that we were engaged after the concept design process had been completed and we had no involvement or knowledge of any alternative designs generated to achieve retention of any trees.

### 2.2 Tree Protection Zones (TPZ) and Structural Root Zones (SRZ)

The Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) have been arrived at using methods as detailed in Australian Standard AS 4970–2009.

The intention of the TPZ is to ensure protection of the root system and canopy from the potential damage from construction works and ensure the long-term health and stability of each tree to be retained.

The Structural Root Zone (SRZ) is located within the TPZ and provides the bulk of mechanical support and anchorage for a tree.

#### 2.3 Incursions to the Tree Protection Zone

Under AS 4970:2009 Protection of trees on development sites, an incursion of up to 10% of the area of the TPZ is considered acceptable, provided that there is no encroachment to the SRZ. Major (> 10%) incursions to the TPZ may require more detailed investigations, such as exploratory excavations and root investigation to enable an informed evaluation of the potential impact of the proposed works.

Incursions areas into the TPZ were not measured as it is evident by the overlay of the proposed development footprint that 100% incursion will occur.

#### 2.4 Incursions into the Structural Root Zone

Incursions into the SRZ are not likely to be supported unless the Project Arborist has undertaken exploratory investigation and can demonstrate that there will be minimal impact to the tree. Incursions areas into the SRZ were not measured as it is evident by the overlay of the proposed development footprint that 100% incursion will occur and require tree removal.

# 3.0 OBSERVATIONS

### 3.1 The Site

The site is a rectangular shaped lot of land at Lucas Street located at the corner of Church Street, Camperdown. It has a total area of approximately 4,834m2 and is a flat site with most trees located within established raised garden beds delineating the level carpark. Tree specimens are planted in rows and receive full sun exposure.

Figure 1: Location Plan



### 3.1.1 Zoning & Landuse

The site is zoned SP2 – Infrastructure (Health Services Facilities) under the Sydney LEP 2012. The site contains at an existing vacant property with a 2 story School of Nursing Building 51 with an overgrown grass courtyard, a tenanted Childcare Centre and level carpark in addition to a small vacant single story brick Building 31.

However the site will be assessed under the NSW Government SEAR's legislation (Secretary's Environmental Assessment Requirements) as Section 78A(8A) of the Environmental Planning and Assessment Act Schedule 2 of the Environmental Planning and Assessment Regulation 2000 Application.

#### 3.2 Tree Health and Condition

A complete tree assessment schedule for the existing trees was prepared and is included in Appendix 1. This includes the following: a tree number, botanical name, common name, height, canopy spread, canopy density, defects, pests & diseases and a SRIV rating (IACA 2010).

12 trees were identified on the site - 2 exotic species and 10 Australian native species. Figure 2 indicates the tree locations.

Both exotic species (*Liquidambar styraciflua & Celtis sinensis*) are allowed to be removed under exemption on the City of Sydney Tree Management Policy if the tree is less than 10m tall.

One of the exotic species- *Celtis sinensis* is classified by the Department of Primary Industry classes Chinese Hackberry (*Celtis sinensis*) as a Class 4 Weed. (DPI,2013)

However, the City of Sydney Website (City of Sydney, 2013) under "weed trees: Celtis" states:

"All trees over 10m high are protected by the City of Sydney and approval is required to prune or remove any tree.

Given both trees are over 10m in height consent will be required.

None of the trees identified on the development site are listed as significant trees under the City of Sydney Register of Significant trees, Threatened or Vulnerable species or form part of an Endangered Ecological Community.

All trees have been planted as ornamentals recently within approximately the last 30 years and do not form part of any heritage listing. The *Celtis sinensis* is highly likely to be self seeded.

All twelve (12) trees have been identified as requiring removal to enable the construction of the development.

#### 3.3 Construction Methodology

The plans provided by Cardno with details of the proposed new multistorey carpark indicates foundations for the concrete structure will be excavated over the majority of the site, with the exception being the new access road Brodie Street.

#### 3.4 Construction Impacts

Forseeable impacts to note from the proposed construction type and anticipated methodology include:

- Excavations for carpark building and road.
- Excavations for landscape paved areas and retaining walls
- Excavations and trenching for underground services.
- Laying impermeable paving to paths and slabs.
- Movement and storage of plant, equipment & vehicles;
- Erection of site sheds;
- · Storage of building materials, waste and waste receptacles;



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## 4.0 **DISCUSSION**

### 4.1 Tree Removal

The Retention Values for all trees on site was prepared and is included in Appendix 1. These have been determined on the basis of the estimated longevity of the trees and their landscape significance rating.

However the impacts of construction of new multistorey carpark are critical with regard to the twelve (12) trees which will all require removal.

Any tree, whether it's native or an exotic species, is covered under the City of Sydney Tree Management Policy, if it is listed in the Register of Significant Trees, or has:

- a height of 5m or more
- a canopy spread of over 5m
- a trunk diameter of more than 300mm, at ground level.

The City of Sydney Tree Management Policy requires an owner to submit a report for approval to carry out Tree Works (pruning or removing a tree or altering soil levels within the Tree Protection Zone of a tree) within the City of Sydney LGA.

This tree removal/ management application will be made as part of the Development Application for the Development and as such will not require a separate Tree Permit Application. This report will support the Application.

## 5.0 CONCLUSIONS

12 trees have been considered on the site and are discussed with regard to their retention and management in relation to the future works proposed.

None of the trees identified on the development site are listed as significant trees under the City of Sydney Register of Significant trees, Threatened or Vulnerable species or form part of an Endangered Ecological Community.

All trees have been planted as ornamentals recently within approximately the last 30 years and do not form part of any heritage listing. The *Celtis sinensis* is highly likely to be self seeded.

All twelve (12) trees have been identified as requiring removal to enable the construction of the development.

## 6.0 **DISCLAIMER**

The author and Sturt Noble Arboricultural Consulting take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations.

This is not a hazard assessment report and it should be noted that trees are always inherently dangerous. This assessment was carried out from the ground, and covers what was reasonably able to be assessed and available to the assessor at the time of inspection. No aerial or subterranean inspections were carried out and structural weakness may exist within roots, trunk or branches.

#### Limitations on the use of this report:

Trees are dynamic living structures, growing and adapting to conditions around them. Tree condition will change and vary over time depending on weather, environmental factors and mechanical or human interaction.

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, and directly attached to that submission, report or presentation.

#### Assumptions

Care has been taken to obtain information from reliable resources. All data have been verified insofar as possible; however, Sturt Noble Arboricultural Consulting can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

Information contained in this report covers only the trees that were examined and reflects the condition of the trees at the time of inspection.

Assessment is limited to the conditions at the time of the inspection and only trees discussed in the report have been assessed.

Where access to the base of the tree is limited, such as difficult site access due to site conditions, only general comments can be made. Assessment of tree health and structure is limited to that visible from the site of proposed works and may not reflect the true condition of the tree. Assessment of tree health and structure is limited to that visible from the site of proposed works and may not reflect the true condition of proposed works and may not reflect the true condition of the tree.

Plans used to assess likely impact are those appended/ referenced.

Ongoing monitoring of all trees is advised and where significant changes are observed, further advice should be requested.

Unusual developments or sudden changes in a tree's condition should be addressed immediately.

# 7.0 REFERENCES

City of Sydney's Website Viewed 5<sup>th</sup> April 2016 www.cityofsydney.nsw.gov.au/trees/pruning&removing trees/weed trees: Celtis

Department of Primary Industrys; NSW Weedwise site Viewed 5<sup>th</sup> April 2016 http://weeds.dpi.nsw.gov.au/Weeds/Details/37

City of Sydney's; Tree Management Policy; February, 2013 Page 1. Viewed 5<sup>th</sup> April 2016 <u>http://www.cityofsydney.nsw.gov.au/\_\_\_data/assets/pdf\_file/0020/132248/Tree-Management-</u> Policy.pdf

Chapman, G. A & Murphy, C. L, 1989 Soil landscapes of the Sydney 1:100,000 sheet (9130) Pub. NSW Govt.

Draper, D.B and Richards, P.A (2009) Dictionary for managing Trees in Urban Environments, (IACA) Institute of Australian Consulting Arboriculturists ©. Pub. CSIRO Publishing, Melbourne.

IACA, 2010, Sustainable Retention Index Value Matrix (SRIV) Version 4, A visual method of objectively rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria, Institute of Australian Consulting Arborculturists, Australia.

Googlemaps ©. Viewed 5<sup>th</sup> April 2016

Standards Australia (2009) Australian Standard AS4970-2009 *Protection of Trees on Development Sites*, Pub. Standards Australia, Sydney.

# 8.0 APPENDICES

## 8.1 Appendix 1 Tree Assessment Schedule