

# Appendix D

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Arboricultural Report (including tree pruning  
photomontage

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## Arborist Supplement

*Prepared for*  
Roads and Maritime Services

*For the proposed*  
Great Western Highway –  
Katoomba to Mount Victoria Road Safety Upgrades

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## 1.0 Introduction

The following supplement provides a summary of the proposed road safety work for two sections of the Great Western Highway. The project covered the portion of roadway between Katoomba and Mount Victoria and titled the 'Katoomba to Mount Victoria Road Safety Upgrades,' however, the scope of works covered in this supplement is specifically for the areas titled; Bundarra Street, Blackheath and an area to the north and south of Abbott Street, and fronting the Great Western Highway, Blackheath. This includes a select number of trees located within these areas of the proposed works. The works include the widening and remodeling sections of the highway, and this supplement offers a summary of the data, outcomes, and management proposed for these trees. This project has aimed to retain the amenity value of the area by tree retention, however, allow for the necessary road safety works.

This report is a supplement of the Arboricultural Impact Assessment (AIA)<sup>1</sup> that was undertaken as part of this project and includes photographs of the existing and an artist's impression of the proposed works to visually demonstrate the scope of works involved at the two locations. The AIA report includes a detailed description of each tree, an analysis of the site, proposed works, impact on each tree and design measures, as well as evidence about tree removal and retention, and in relation to the works proposed for each site. An abstract of the tree data from the AIA has been included in Section 5.0, Table 1.

## 2.0 Methodology

Site data was collected from several site visits during early 2017 and culminated with a root mapping exercise. The purpose was to determine the concise impact the roadworks could impose on specific trees and explore the opportunities for retaining these trees. Several meetings with design personal took place over the following months. The intent was to reduce the impact on site trees, however, sustain the mandatory design constraints necessary for safety and long-term road use. This included several stakeholders being RMS staff, geotechnical and traffic engineers, landscape architect, project arborist and managers related to the project.

The assessment distinguished the viability of the trees, and once the design proved viable, specific details relating to tree management could be established. This included the types and grades relating to the new surfaces and structures around the trees to be retained, and the extent of pruning required and the related impact on both vitality and amenity value. An artist's impression of photographs has been included to illustrate the proposed modification to the site in relation to existing.

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<sup>1</sup> Allied Tree Consultancy (October 2017); referenced D2977



### **3.0 Bundarra Street, BLACKHEATH**

#### **Site/Tree Assessment**

The area of assessment comprised a portion of a street tree planting located north from the intersection of Bundarra Street, Blackheath and on the western side of the Great Western Highway. This exotic tree group is opposite the retail outlets that form the central business district of Blackheath, and they present significant amenity value for the streetscape and historically and intrinsic value.

#### **Outcome/Mitigation**

Eight trees have been the subject of the assessment because only these will be potentially impacted by the proposed works. Based on the results of the assessment exercise, a design modification has been adopted for reducing the tree impact. The predominant impact is related to crown pruning from the clear zone and to lesser extent root disturbance. That is, based on the preliminary investigation, all trees included in this assessment can be retained, however until the excavation for the site works is completed, the actual impact and therefore viable retention of all trees cannot be confirmed. Photographs 1 and 3 below illustrate the existing site (before work) from two viewpoints, and these are the Great Western Highway facing north and Govetts Leap Road facing west. Photographs 2 and 4 illustrate an artist's impression of the proposed landscape including the extent of required pruning.

To further reduce the impact on these significant trees, a concise work methodology during construction works and protection measures have been employed. These include, induction of all site stakeholders, staged work methodology, design measures including soil remedial works, specific fill soil, and materials, for example, a porous/flexible footpath surfaces over the root zone. Further protection is extended to a stringent protocol required for pruning, protection of the epiphytic ferns contained on some trees, specialised protection devices (fencing, root and rhizosphere protection) required for each tree and compliance documentation for several milestones before, during and after construction. Plan 1 (Section 4.0) illustrates the numbered tree location and measures of protection. A detailed description, impact assessment, mitigation, and protection is described in the AIA report.



*Photo 1; southern corner of the site proposed for work, Tree no. 1 in foreground, facing north*



*Photo 2; facing north view of the site after completion, facing north*





*Photo 3; southern corner of the site proposed for work, viewed from Govetts Leap Road, facing west*



*Photo 4; view of the site after completion, facing west*

#### 4.0 Plan 1; Tree protection measures during construction



Not to scale

Source: Adapted from *Mott Macdonald P/L*, Roadworks Plan, Sheet 32

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## 5.0 Table 1 – Tree Species Data, extracted from the AIA, (Section 5.8)

Terminology/references provided in Appendix A, AIA

| Tree No. | Botanical Name<br>Common Name                  | Height (m) | DBH (m)           | Crown Spread (m) | SULE Rating     | STARS Rating | TPZ (m) | SRZ (m) |
|----------|--|------------|-------------------|------------------|-----------------|--------------|---------|---------|
| 1        | <i>Platanus Xhybrida</i><br>Plane Tree         | 9          | 0.81              | 11 x 13          | A2              | HIGH         | 9.7     | 3.1     |
| 2        | <i>Quercus virginiana</i><br>Southern Live Oak | 7          | 0.58              | 10 x 10          | A2 <sup>B</sup> | HIGH         | 7.0     | 2.8     |
| 3        | <i>Platanus Xhybrida</i><br>Plane Tree         | 7          | 0.47              | 5 x 7            | A3 <sup>C</sup> | MEDIUM       | 5.6     | 2.6     |
| 4        | <i>Quercus virginiana</i><br>Southern Live Oak | 7          | 0.54 <sup>A</sup> | 8 x 9            | A2 <sup>B</sup> | HIGH         | 6.5     | 2.6     |
| 5        | <i>Cupressus torulosa</i><br>Bhutan Cypress    | 9          | 0.67 <sup>A</sup> | 7 x 6            | D3              | LOW          | 8.0     | 2.9     |
| 6        | <i>Quercus robur</i><br>English Oak            | 5          | 0.46              | 6 x 5            | A3/4            | LOW          | 5.5     | 2.5     |
| 7        | <i>Quercus virginiana</i><br>Southern Live Oak | 8          | 0.53              | 10 x 10          | A2 <sup>B</sup> | HIGH         | 6.4     | 2.6     |
| 8        | <i>Platanus Xhybrida</i><br>Plane Tree         | 6          | 0.33              | 6 x 6            | A2              | MEDIUM       | 4.0     | 2.2     |

A. Diameter taken below 1.4m due to low stem bifurcation

B. Estimate due to overgrown area and/or limited access

C. Level 3 assessment required to determine accurate rating

### Height

Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

### DBH

Diameter at Breast Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.

### Crown Spread

A two-dimension linear measurement (in metres) of the crown plan. The first figure is the north-south span, the second being the east-west measurement.

### SULE

Safe Useful Life Expectancy, Barrell. J. 1995, SULE: the cutting edge in Pre-development tree assessment methodology, Proceedings of an International Conference on Trees on Building Sites in Chicago, USA

### STARS

Significance of a Tree Assessment Rating System, See IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, [www.iaca.org.au](http://www.iaca.org.au)

### TPZ; Tree Protection Zone

Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a radius from the centre of the tree. See *Australian Standard, 4970; 2009 – Protection of Trees on Development Sites*

### SRZ; Structural Root Zone

Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a radius from the centre of the tree. See *Australian Standard, 4970; 2009 – Protection of Trees on Development Sites*.

## 6.0 Abbott Street, Blackheath

### Site/Tree Assessment

The area of assessment comprises two areas separated by Abbott Street located on the Great Western Highway. These include the north side of Abbott Street, being an island planting located between a service road extending parallel with the highway and serviced by Abbott Street, see Plan 2, Section 6.1 and the street trees located on the verge of the Great Western Highway south and adjacent to the corner with Abbott Street. The island is predominantly lawn covered and contains shrub and a linear tree planting. Eight trees are located on this island, and all are mature, though one tree is dead. The species is dominated by Plane Trees (*Platanus Xhybrida*), though additional species include a Silky Oak (*Grevillea robusta*) occur. The street trees located to the south of Abbott Street includes three trees being the Northern Red Oak (*Quercus rubra*). The north side of Abbott Street has not been subject to a thorough assessment, and none of the trees have been individually assessed.

### Proposed works

The proposed development consists of regrading, including construction of kerb and guttering for the highway and side road. Eleven trees contained in both areas have been proposed for removal as part of these works, and the island reduced to approximately 3000mm width, from a width of 5000mm. Thirteen replacement plantings have been proposed for this area. The species choice, based on feedback from the Blue Mountains City Council (BMCC) and the local community group supports the preference for use of *Acer rubrum* 'Bowhall' (Bowhall Red Maple). A detailed description, impact assessment, mitigation, and protection is described in the Arboricultural Impact Assessment, Section 9.0.

### Compensatory planting

The species selection was limited, and due to constraints related to the soil volume contained by the width of the proposed island, and overhead power lines and related clearance required. Allowing for the tree size and tolerance, these issues are addressed along with the tree stock requirements and post-planting maintenance. The photograph (5) contained below illustrates the existing site to the north of Abbott Street (before work) and an artist impression illustrated in Photo 6 indicates the proposed landscape, based on the use of Bowhall Red Maple during Autumn.





*Photo 5; corner (Abbott Street) of the site proposed for work, facing north*

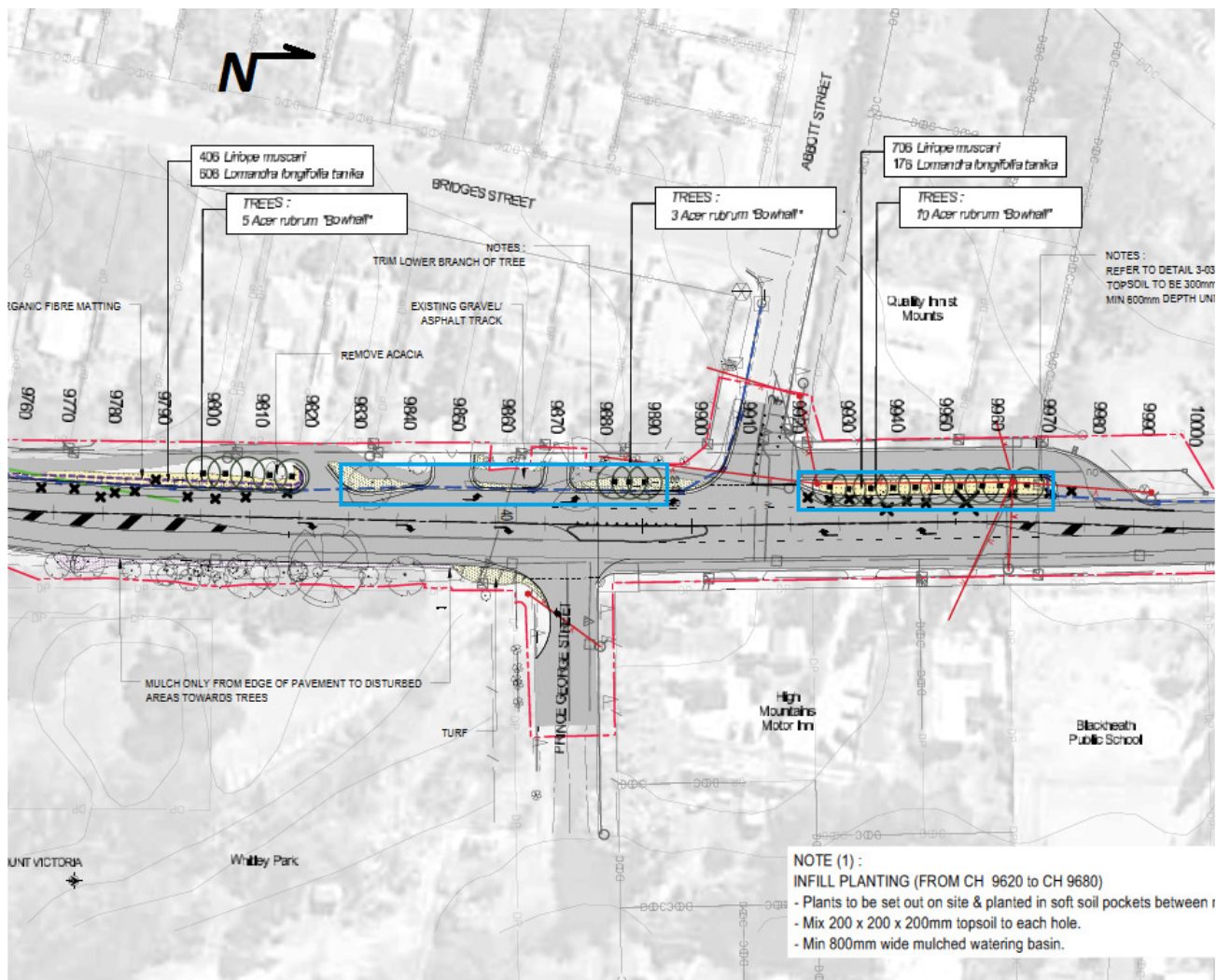


*Photo 6; view of the site after completion, facing north*

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## Section 6.1, Plan 2, Area of assessment



Area to the north and south of Abbott Street outlined in blue

Not to scale

Source: Adapted from *Ki Studio P/L*, Sheet 13 of 16; No. LA-0113



## 7.0 Conclusion

The scope of works covered in this supplement is specifically for the areas titled; Bundarra Street, Blackheath and area to the south and north of Abbott Street, and fronting the Great Western Highway, Blackheath. The works include the widening and remodeling sections of the highway, and this supplement has provided a summary of the data, outcomes, and management proposed for these trees. This project has aimed to retain the amenity value of the area, however, allow for the necessary road safety works.

The tree planting located on the northern side of Bundarra Street, Blackheath comprising eight trees present significant amenity value for the streetscape and the local community. These trees are potentially impacted by the proposed works. The design modification has been based on a detailed tree assessment, and this has reduced the impact, and the predominant impact appears reserved to crown pruning for the clear zone. Therefore, based on the available information and design strategy, the trees included in this assessment can be retained. However, until excavation for the site works is completed, and a final assessment is conducted by the project arborist, the actual impact and therefore viable retention of all trees cannot be confirmed. The protection of these trees has extended to a concise work methodology during construction, and this includes protection measures.

The areas to the south and north of Abbott Street contains shrub and street tree plantings of eleven trees. These trees have been proposed for removal due to the impact of the proposed works. Compensatory planting has been included where the species choice has been based on feedback from the Blue Mountains Council and community group. This includes thirteen trees of the species *Acer rubrum* 'Bowhall' ('Bowhall' Red Maple). Limitations related to site constraints and the mature growth have been addressed along with the tree stock requirements and post-planting maintenance