

Weemala North DA Urban Heat Strategy

Prepared for Green Capital Australia Pty Ltd
October 2023

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Weemala North DA Urban Heat Strategy

Report Number

E220893 RP1

Client

Green Capital Australia Pty Ltd

Date

05 October 2023

Version

V1 Draft

Prepared by

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05-10-2023

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Landscape Architect

05-10-2023

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1 Introduction

EMM Consulting have been engaged by Green Capital Australia Pty Ltd to undertake an urban heat analysis of the proposed 247 lot residential subdivision within the northern portion of the Weemala Development, located within the suburb of Boolaroo. This analysis discusses the heat mitigating effects the proposed landscape will have upon the development.

2 Site

The subject site is situated between Cockle Creek and Munibung Hill, in the northern part of the historic village of Boolaroo. The site forms part of the former Pasminco and Incitec sites, which have been extensively remediated and rezoned for residential development following the closure of industrial operations. The study area located within the northern portion of the Weemala development and is currently vacant and does not contain any built structures.

The site is surrounded by a variety of land uses including residential developments, light industrial uses, commercial areas and nature reserves. The residential development, Boolaroo, exists to the west of the property. The eastern boundary of the site is adjoined by Munibung Hill. Industrial uses are seen to the north of the property.

Existing vegetation on the site generally consists of patchy areas of grassland. Large areas of the site are devoid of vegetation.

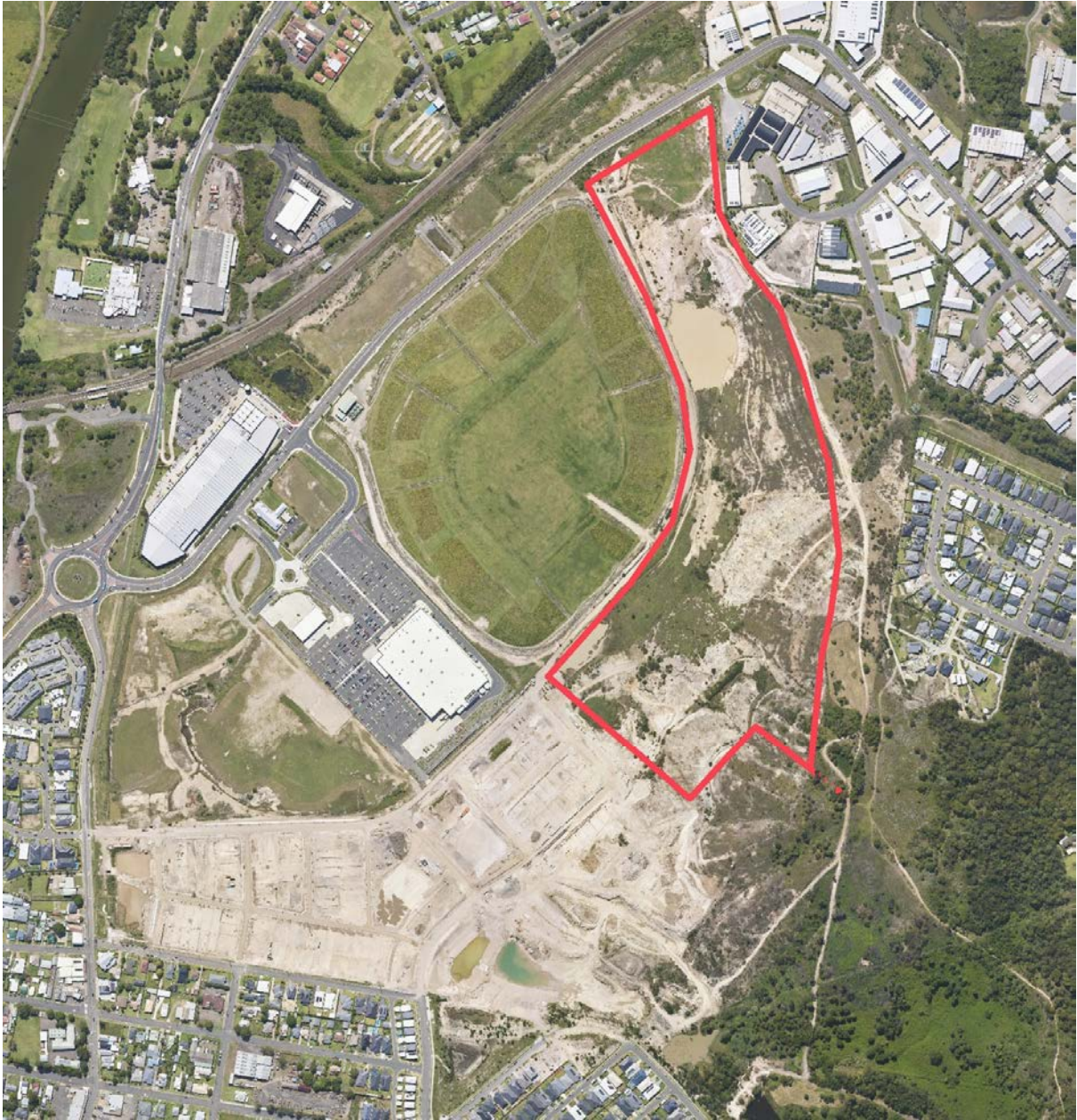


Figure 3.1 Subject area outlined red.

3 Proposed Development

The proposed development involves the subdivision of the site to create 247 residential lots . Due to the slopes on the site, the subdivision design is based on a terraced development concept to create an urban fabric that complements the sloping terrain. The site will be graded to create terraced residential lots. Retaining walls will be constructed to retain the re-graded land form at regular intervals.

Proposed landscaping includes street trees to the front of lots, street trees along Fotheringham Road and a vegetated buffer that includes trees, small shrubs, groundcovers and grasses. Ther vegetated buffer varies in width and extends along the entire eastern side of the site. A proposed vegetated detention basin is located within the far northern portion of the site. This will include planting of native grasses to the basin and perimeter planting of trees, shrubs, grasses and groundcovers.

4 Heat Analysis

The site located on the lower western slope of Munibung Hill will be subject to hot westerly afternoon sun during the warmer months of the year. Currently the site is devoid of any canopy planting and minimal vegetation cover increasing the heating effects of the site compared to that of a well vegetated site. Proposed development of the site consisting of residential buildings and bitumen roads will likely increase the potential for urban heat in the short term until proposed plantings mature. The subject site is noted as a moderate to high risk area within figure 8 of Lake Macquarie City Council's Draft Urban Heat Strategy.

5 Mitigation Measures

The proposed landscaping includes 392 street trees, 12,284m² of vegetated buffer and a vegetated detention basin of 6500m². An approximation of 20m² for each street tree canopy will provide 7,840m² of canopy cover. It is felt that once the proposed landscaping matures it will offer significant reductions in heat compared to the sites current state. Additional plantings within residential lots will also be beneficial and should be encouraged possibly through plant give aways, flyers and other information sources.

6 Bibliography

Lake Macquarie City Council

NSW Government Office of Environment
and Heritage

Draft Urban Heat Strategy (March 2022)

Urban Green Cover in NSW Technical Guidelines (2015)

Appendix A Landscape Plan



Street Trees

BP	<i>Brachychiton populneus</i>	Kurrajong	75 L	As Shown
CV	<i>Callistemon viminalis</i>	Bottlebrush	75 L	As Shown
CS	<i>Corymbia 'Scentuous'</i>	Dwarf Lemon Scented Gum	75 L	As Shown
EE	<i>Elaeocarpus eumundi</i>	Quondong	75 L	As Shown
ER	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	75 L	As Shown
GF	<i>Glochidion ferdinandi</i>	Cheese Tree	75 L	As Shown
TL	<i>Tristaniopsis 'Luscious'</i>	Watergum	75 L	As Shown

Perimeter Trees

AC	<i>Angophora costata</i>	Smooth Barked Apple	25 L	As Shown
AF	<i>Acacia falcata</i>	Sickle Wattle	5 L	As Shown
AT	<i>Allocasuarina torulosa</i>	Forest She-Oak	5 L	As Shown
CM	<i>Callistemon viminalis</i>	Bottlebrush	5 L	As Shown
EP	<i>Eucalyptus punctata</i>	Spotted Gum	25 L	As Shown
		Grey Gum	25 L	As Shown

Perimeter Understorey

<i>Banksia spinulosa</i>	Hairpin Banksia	2.5 L	1/m ²
<i>Carex appressa</i>	Tall Sedge	50mm Tube	4/m ²
<i>Dianella caerulea</i>	Flax Lilly	50mm Tube	4/m ²
<i>Doryanthes excelsa</i>	Gynea Lilly	5 L	1/m ²
<i>Hardenbergia violacea</i>	False Sarsparilla	50mm Tube	2/m ²
<i>Lomandra longifolia</i>	Mat Rush	50mm Tube	4/m ²
<i>Themeda australis</i>	Kangaroo Grass	50mm Tube	4/m ²

Detention Basin Planting

<i>Allocasuarina torulosa</i>	Forest She-Oak	25 L	As Shown
<i>Corymbia gummifera</i>	Red Bloodwood	25 L	As Shown
<i>Corymbia maculata</i>	Spotted Gum	25 L	As Shown
<i>Glochidion ferdinandi</i>	Cheese Tree	25 L	As Shown
<i>Melaleuca styphelioides</i>	Prickly Leaved Paperbark	25 L	As Shown
<i>Carex appressa</i>	Tussock Sedge	Tubestock	4/m ²
<i>Carex fascicularis</i>	Sedge	Tubestock	4/m ²
<i>Cyperus exultatus</i>	Umbrella Sedge	Tubestock	4/m ²
<i>Dianella caerulea</i>	Flax Lilly	Tubestock	4/m ²
<i>Lomandra longifolia</i>	Mat Rush	Tubestock	4/m ²

Turf

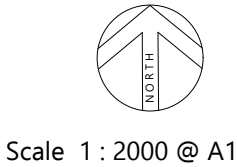
<i>Cynodon dactylon</i>	Couch	Rolls
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Perimeter Planting

- Random groupings of locally occurring trees with low grasses and groundcovers under.
- Refer to section on sheet L09.



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Revisions

Issue	Details	Date
A	DA Issue	18.09.20
B	Revised DA Issue	20.11.20
C	Revised DA Issue	27.11.20
D	Revised DA Issue	04.10.23

Revisions

Issue	Details	Date

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Weemala at the Lake - North

Client:
Green Capital Australia Pty Ltd

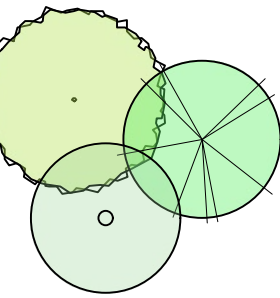
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Plant Schedule

Site: Main Road, Boolaroo
Date: 04 October 2023
Job No: E220893
Revision: Sheet:




Matchline: see Sheet 04 for continuation


PLANTING LEGEND
Refer to Planting Schedule, Sheet L02



Proposed trees



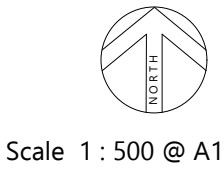
Native Grasses and Groundcovers



Turf - Couch



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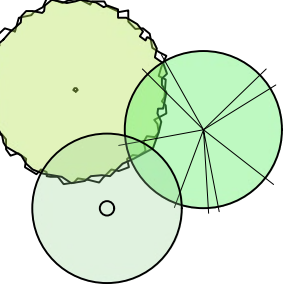
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Title:
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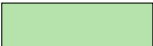
Refer to Planting Schedule, Sheet L02



Proposed trees



Native Grasses and Groundcovers



Turf - Couch

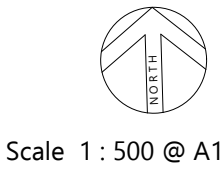
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Matchline: see Sheet 05 for continuation



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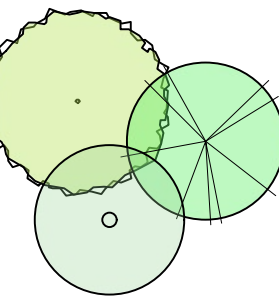
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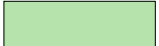
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Proposed trees



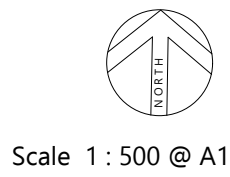
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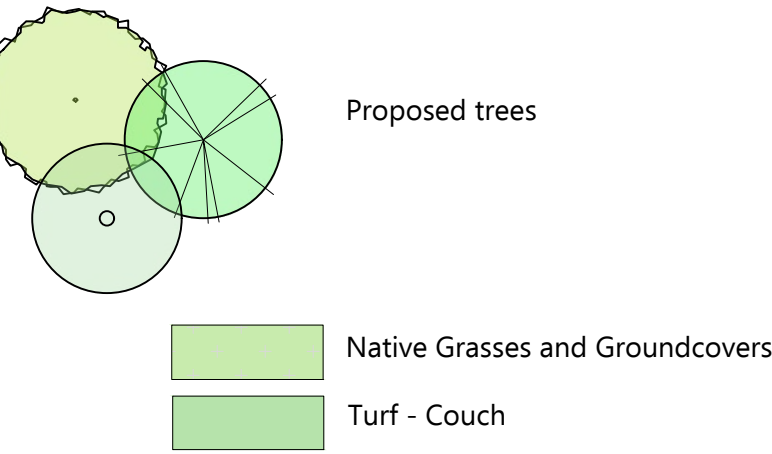
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PLANTING LEGEND
Refer to Planting Schedule, Sheet L02



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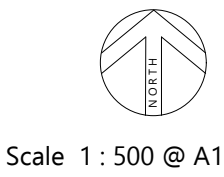


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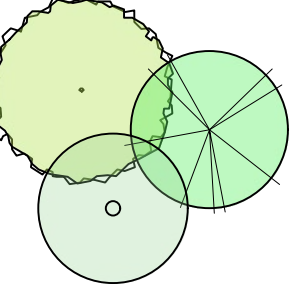
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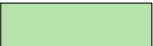
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Proposed trees



Native Grasses and Groundcovers




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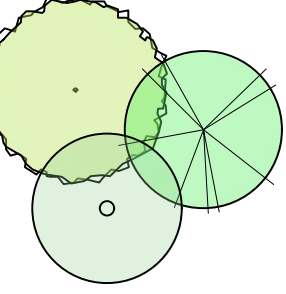
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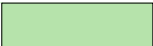
PLANTING LEGEND
Refer to Planting Schedule, Sheet L02



Proposed trees



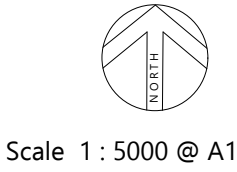
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