



Appendix G

Working paper: Biodiversity

M5 West Widening – Biodiversity

Biodiversity Working Paper

Prepared for
Roads and Traffic Authority of NSW

September 2010





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Biodiversity Working Paper

PREPARED FOR Roads and Traffic Authority of NSW

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Abbreviations

ABBREVIATION	DESCRIPTION
CMA	Catchment Management Authority
DECCW	Department of Environment, Climate Change and Water
DEWHA	Department of the Environment, Water, Heritage and the Arts
EP&A Act	Environmental Planning and Assessment Act 1979
FM Act	Fisheries Management Act 1994
NPWS	National Parks and Wildlife Service (part of the DECCW)
TSC Act	Threatened Species Conservation Act 1995
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESPA Act	Endangered Species Protection Act 1992

Executive Summary

This Biodiversity Working Paper provides an ecological impact assessment of the proposed M5 West Widening. The proposal includes the widening of the M5 West Motorway to six lanes from King Georges Road, Beverley Hills to Camden Valley Way, Prestons. The proposal is to be generally accommodated within the existing grassed median and paved areas. Associated infrastructure such as sedimentation basins and spoil re-use areas are to be contained within the broader M5 Motorway corridor.

The scope of the study was to identify threatened species, populations or endangered ecological communities of State or Federal conservation significance and assess the likely direct and indirect impacts on them. To supplement previous surveys of the Subject Site, an ecological survey of a section of the M5 West Motorway from Camden Valley Way to the Hume Highway was undertaken on 12 February 2010 and an inspection of five potential construction compounds was undertaken on 10 May 2010. Supplementary surveys to identify *Litoria aurea* (Green and Golden Bell Frog) habitat and Endangered Ecological Communities within the corridor were undertaken on 21 May 2010.

The M5 West Motorway is characterised by the typical 'cut' and 'fill' motorway construction which has completely altered the soil profile with the majority of the vegetation within the M5 Motorway having been planted. The M5 West Motorway is now characterised by landscaped batters and regularly maintained grass medians with occasional shrub and tree planting with locally native species, all of which are of low conservation significance.

The most notable finding of this assessment is the presence of approximately 189 stems of *Acacia pubescens* (Downy Wattle) within the M5 West Motorway Corridor. 76 of the 189 (40%) Downy Wattle individuals are likely to be impacted by the proposed M5 West upgrade which equates to 6% of the regional population. This population of planted Downy Wattle is acknowledged within the recovery plan for this species (albeit as an *in situ* planted population) and was most likely planted as part of a compensatory habitat package from the original M5 West Motorway construction. During the assessment of impact of this species, a number of uncertainties arose in regards to the nature of the compensatory habitat and the source material of the population which could not be determined. As such, a commitment to undertake a propagation and translocation program at four distinct sites within the M5 Motorway corridor has been provided.

The potential impact of the M5 West widening Endangered Ecological Communities including Cumberland Plain Woodland, Cooks River/ Castlereagh Ironbark Forest, River Flat Eucalypt Forest and Swamp Oak Floodplain Forest were assessed under state and federal legislation. While the proposed M5 West widening is likely to impact on these communities to a minor extent, the impacts were determined to be not significant. Considering the scale and magnitude of the proposal, the overall impact of the proposal on biodiversity is considered to be low.

Recommendations to minimise impacts of the proposed development include the mitigation measures for the Downy Wattle (translocation and propagation), targeted survey for the Green and Golden Bell Frog, site-specific environmental inductions, management of erosion and sediment control, weed management and monitoring.

1 Introduction

1.1 PROJECT DESCRIPTION

The Roads and Traffic Authority of NSW (RTA) proposes to widen around 20 kilometres of the M5 South West Motorway between King Georges Road, Beverly Hills and Camden Valley Way, Casula (the project, Figure 1).

The project would include:

- Providing additional lanes on the M5 South West Motorway for the majority of its length by pavement widening, asphalt overlays and new line-marking.
- An operations management control system (OMCS) on and in the vicinity of the M5 South West Motorway including a new control building at Hammondville and variable message signs (VMS) on the motorway and surrounding arterial roads.
- Bridge widening by placing new infill decking in the central median between existing bridges over Queen Street and Nuwarra Road. The underpass structures at De Meyrick Avenue would be upgraded. All other bridges can accommodate the proposed widening works without structural modification.
- Noise attenuation measures at various locations along the M5 South West Motorway between King Georges Road and Camden Valley Way

Associated infrastructure such as sedimentation basins and permanent spoil re-use areas required for the construction and operation of the motorway are to be accommodated within the broader M5 Motorway corridor.

1.2 ASSESSMENT OBJECTIVES

This Biodiversity Working Paper details the results of a biodiversity assessment focused on investigation of the potential ecological impacts associated with the proposal in relation to relevant State and Commonwealth environmental and threatened species legislation, namely the *Threatened Species Conservation Act 1995* (TSC Act), *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *National Parks & Wildlife Act 1974* (NPW Act), *Fisheries Management Act 1994* (FM Act) and *Environmental Planning and Assessment Act 1979* (EP&A Act).

For the purposes of this ecological assessment, 'Subject Site' is the area of the motorway corridor directly affected by the proposed M5 West Motorway upgrade (defined as the lands on which the development is proposed). This includes the central median, the outside shoulder of the motorway, sedimentation basins, permanent spoil re-use areas and construction compounds (Figure 1). The term 'Study Area' refers to the Subject Site and its' immediate surrounds which may be indirectly affected by the proposal. This includes the entire motorway corridor (Figure 1).

The information presented is based on a review of available data, previous studies and site investigations. The specific objectives of the biodiversity assessment were to:

- Identify species, populations and ecological communities of regional, state and national conservation significance, and their habitats, which are known or considered likely to occur at the Subject Site;
- Describe the biodiversity values of the Study Area;
- Assess the potential impacts from the proposal on the biodiversity values of the Study Area; and
- Develop specific and cost-effective mitigations measures to ameliorate any potential impacts of the proposal.

1.3 ENVIRONMENTAL SETTING

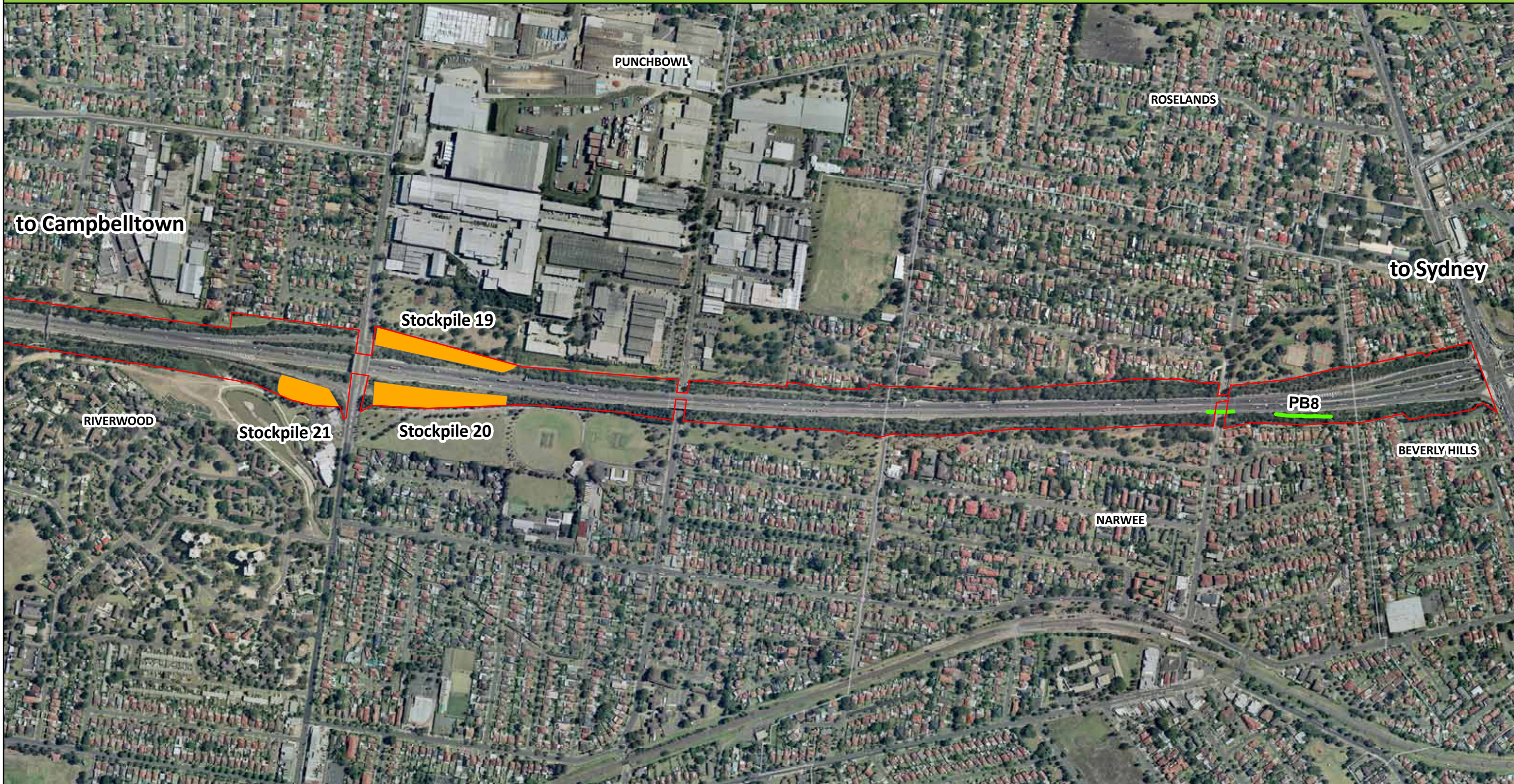
1.3.1 Climate

The nearest meteorological station to the Subject Site is Bankstown Airport AWS (Station No. 066137, elevation 7 m), located approximately 3 km to the north. Climate data for Bankstown Airport AWS is summarised in Table 1 (BOM 2010).

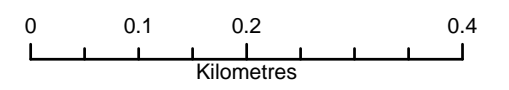
Table 1: Climate data for Bankstown Airport Meteorological Station

Category	Statistics
Annual rainfall	869.7 mm
Lowest / highest monthly rainfall	44.6 mm (July and September) / 108.8 mm (February)
Annual average minimum / maximum temperatures	11.9° C / 22.1° C
Lowest / Highest mean monthly maximum temperature	5.1° C (July) / 28.1° C (January)

Figure 1a. The Subject Site



- Legend**
- M5 Motorway Corridor
 - Subject Site**
 - Median Clearing
 - Sedimentation Basins
 - Permanent Spoil Re-use Area
 - Construction Compounds
 - Proposed Noise Barriers

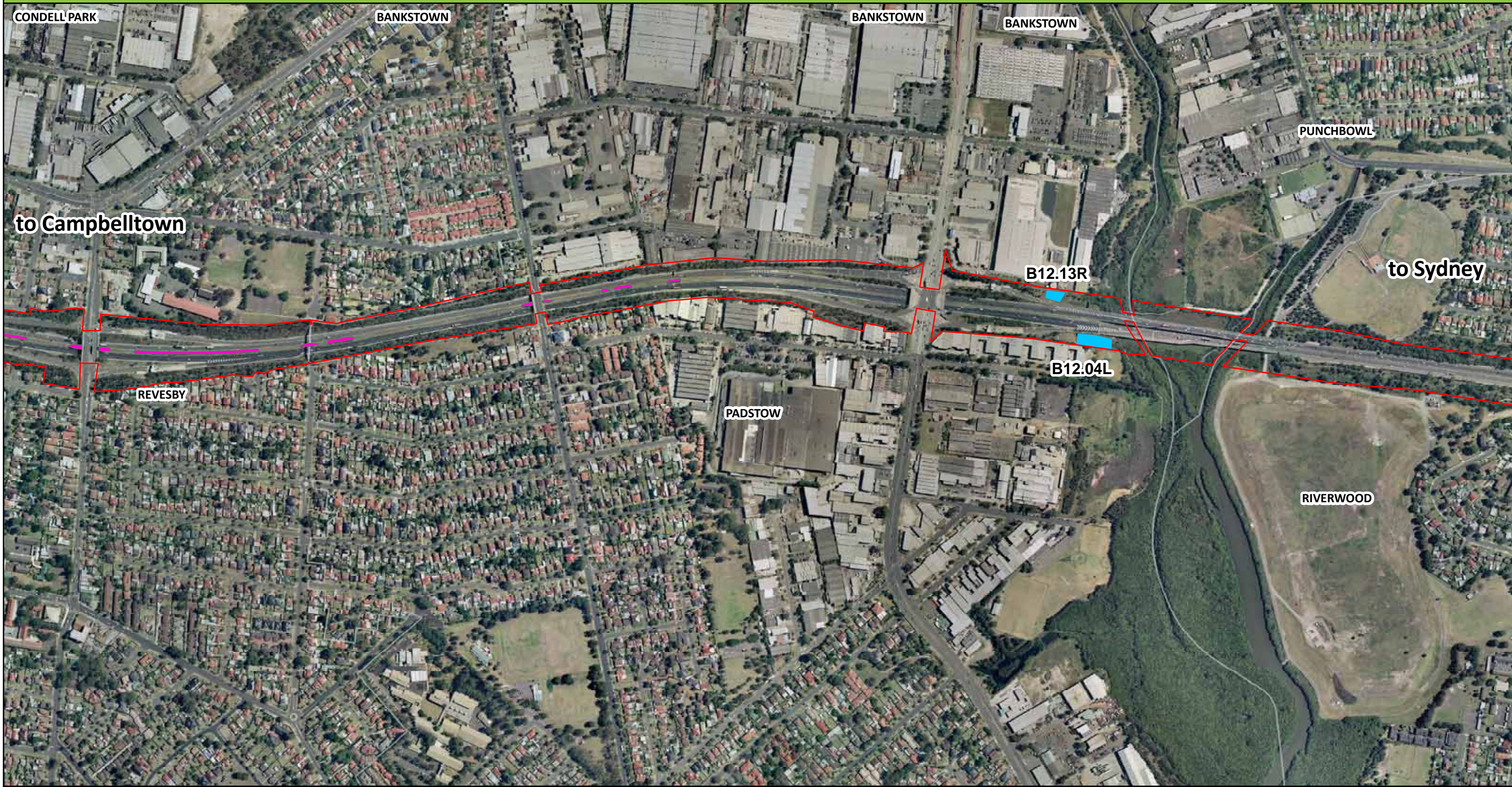


Datum/Projection:
GDA 1994 MGA Zone 56

Data Sources:
Imagery - 0.10 m pixels (c) SKM Pty Ltd 2007
ELA (2010)

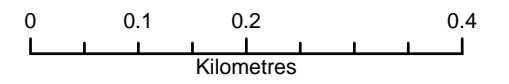


Figure 1b. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers

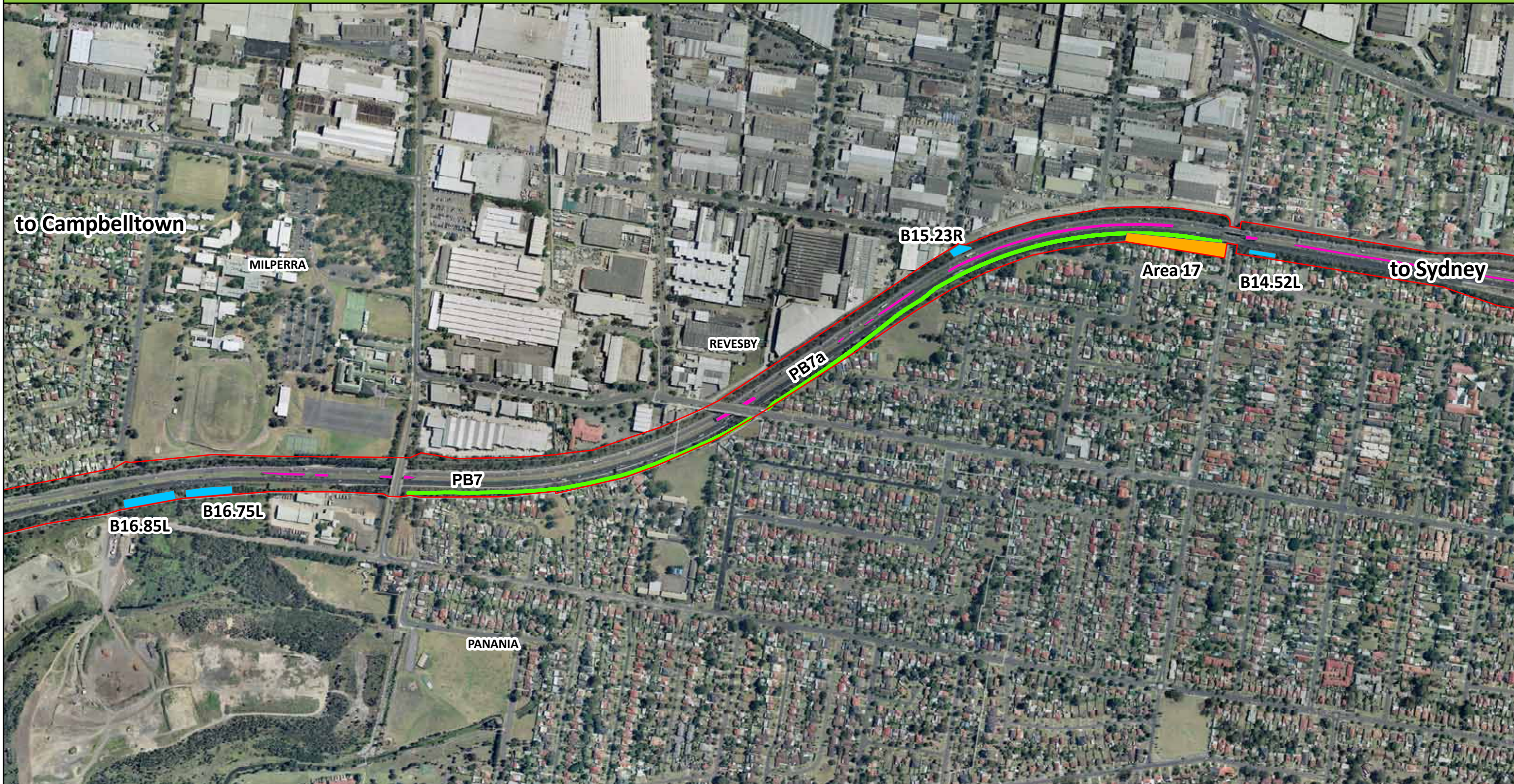


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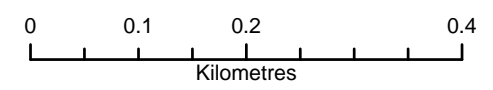


Figure 1c. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers

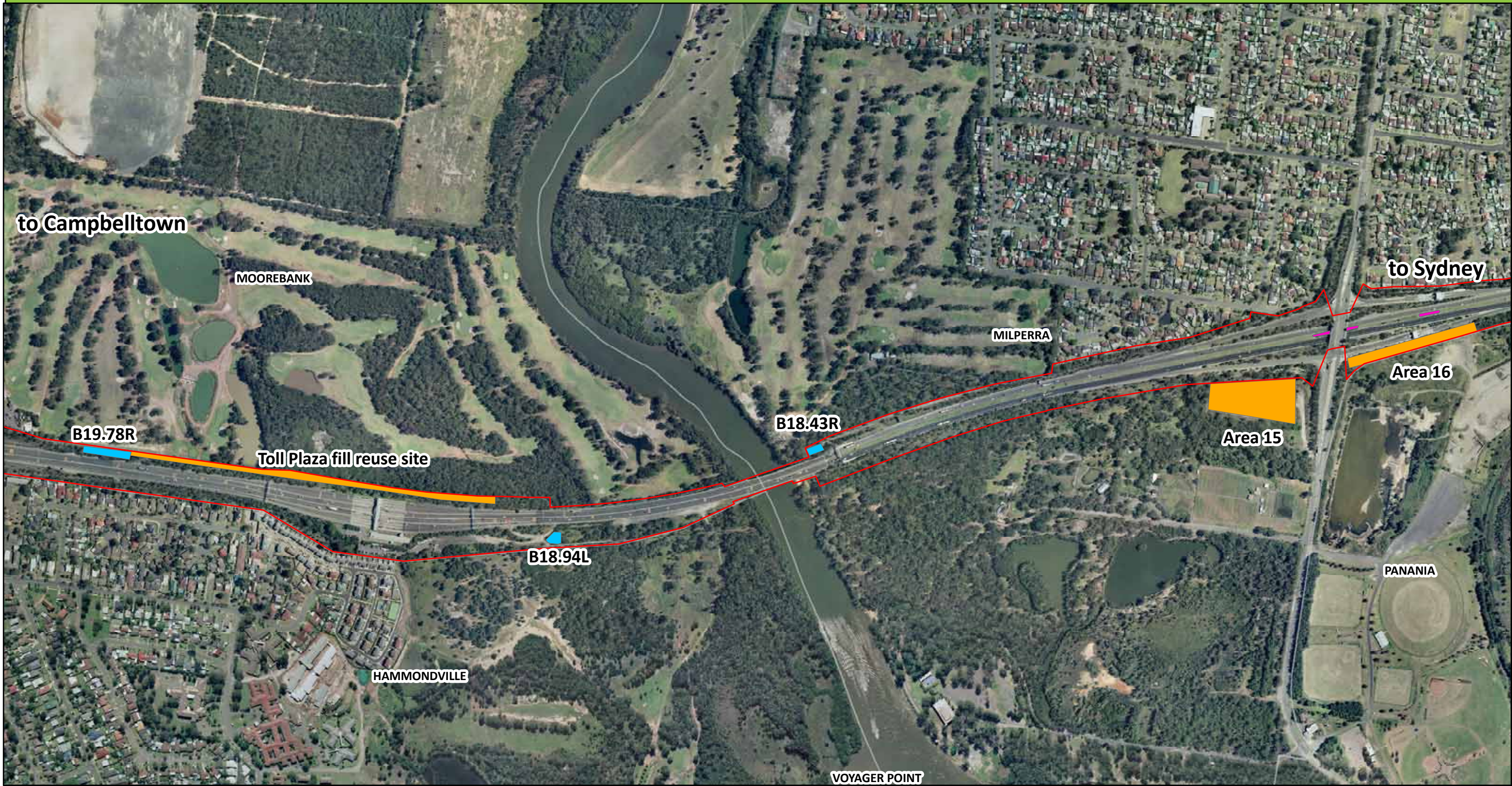


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Data Sources:
Imagery - 0.10 m pixels (c) SKM Pty Ltd 2007
ELA (2010)

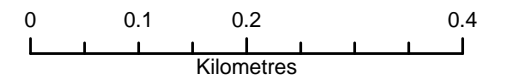


Figure 1d. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers



Datum/Projection:
GDA 1994 MGA Zone 56

Data Sources:
Imagery - 0.10 m pixels (c) SKM Pty Ltd 2007
ELA (2010)

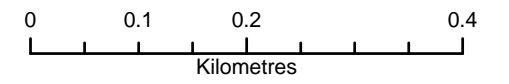


Figure 1e. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers

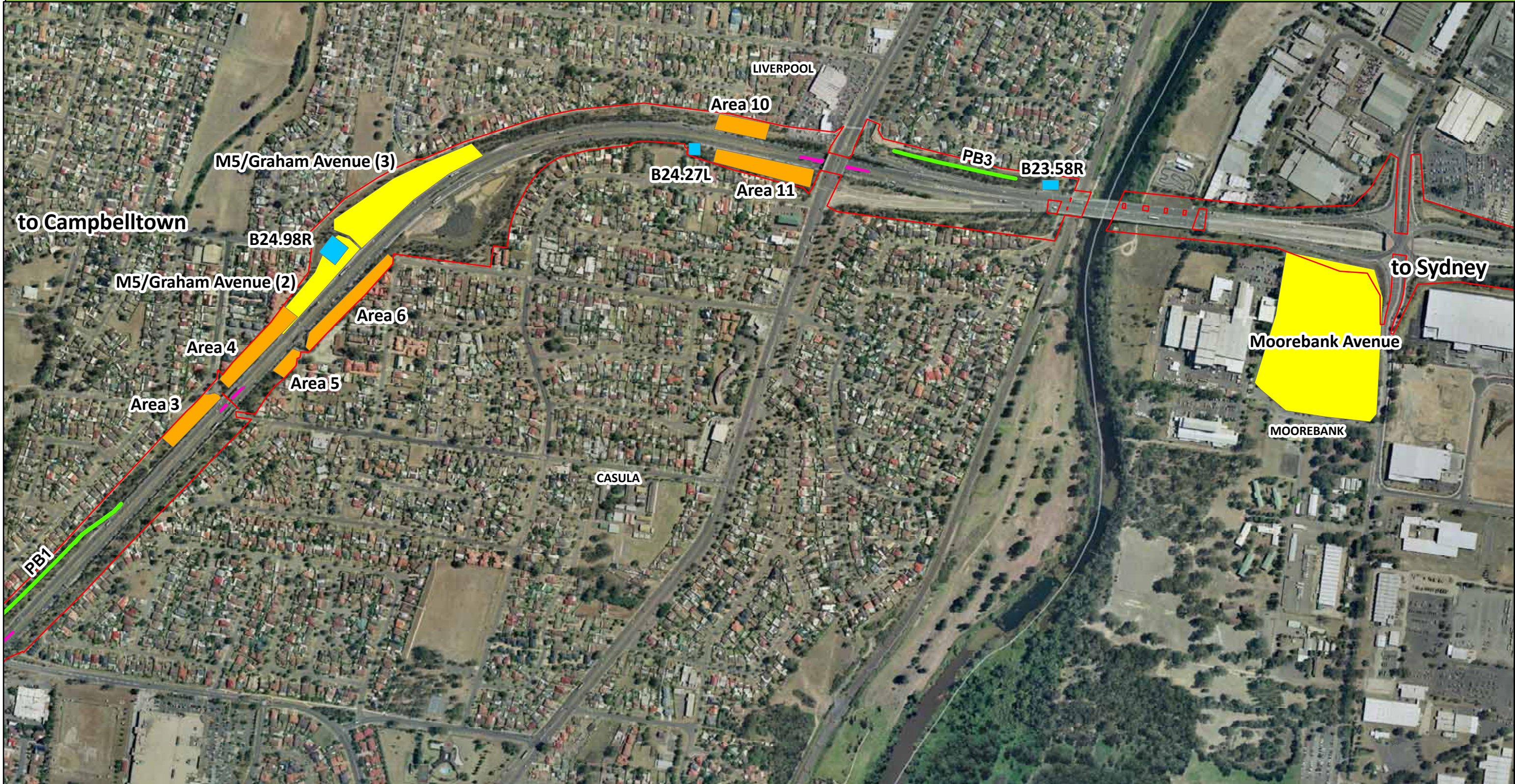


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Data Sources:
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ELA (2010)

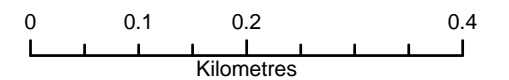


Figure 1f. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers



Datum/Projection:
GDA 1994 MGA Zone 56

Data Sources:
Imagery - 0.10 m pixels (c) SKM Pty Ltd 2007
ELA (2010)

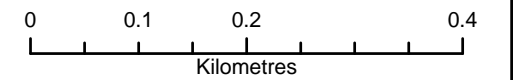


Figure 1g. The Subject Site



Legend

- M5 Motorway Corridor
- Subject Site**
- Median Clearing
- Sedimentation Basins
- Permanent Spoil Re-use Area
- Construction Compounds
- Proposed Noise Barriers



Datum/Projection:
GDA 1994 MGA Zone 56

Data Sources:
Imagery - 0.10 m pixels (c) SKM Pty Ltd 2007
ELA (2010)



2 Preliminary review

2.1 LANDSCAPE ASSESSMENT

2.1.1 The native vegetation of the Cumberland Plain

The NSW National Parks and Wildlife Service (NPWS) conducted a vegetation mapping project for the Cumberland Plain in western Sydney from 1997 – 2002 (NPWS 2002a).

NPWS mapped fourteen vegetation communities close to the Subject Site (Figure 2). While some small areas of these vegetation communities have been mapped within the boundaries of the Subject Site, only limited areas of natural vegetation remains due to the complete re-profiling of the soil and subsoil during the construction of the M5 West Motorway. These communities and their status are presented in Table 2.

Table 2: Vegetation communities (NPWS 2002)

NPWS (2002) vegetation community	Map Unit	Corresponding EEC	TSC Act	EPBC Act
Shale Sandstone Transition Forest (Low Sandstone Influence)	1	Shale Sandstone Transition Forest	E	E
Shale Sandstone Transition Forest (High Sandstone Influence)	2	Shale Sandstone Transition Forest	E	E
Cooks River Castlereagh Ironbark Forest	3	Cooks River Castlereagh Ironbark Forest	E	Not Listed
Castlereagh Swamp Woodland	4	Castlereagh Swamp Woodland	E	Not Listed
Castlereagh Scribbly Gum Woodland	6	Not Listed	Not Listed	Not Listed
Shale Hills Woodland	9	Cumberland Plain Woodland (TSC Act) / Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (EPBC Act)	CE	CE
Shale Plains Woodland	10	Cumberland Plain Woodland (TSC Act) / Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (EPBC Act)	CE	CE
Alluvial Woodland	11	Swamp Oak Floodplain Forest or River-flat Eucalypt Forest	E	Not listed
Riparian Forest	12	Swamp Oak Floodplain Forest or River-flat Eucalypt Forest	E	Not listed
Turpentine-Ironbark	15	Sydney Turpentine Ironbark Forest (TSC)	E	CE