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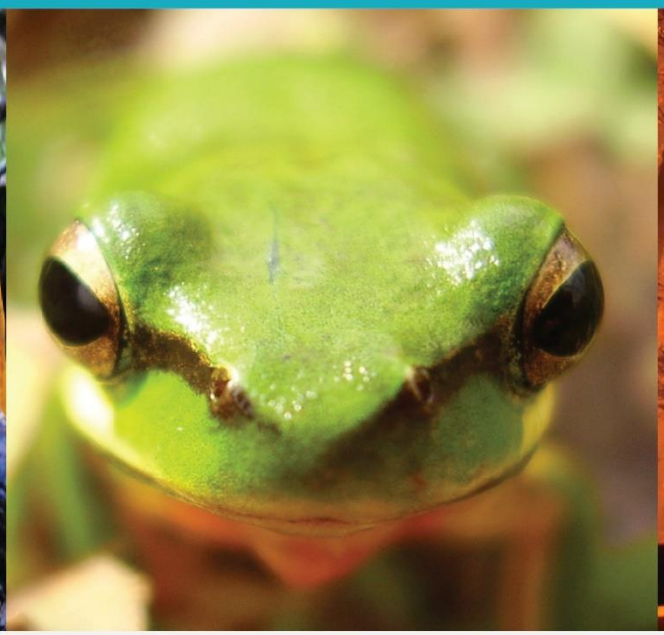

KOALA ASSESSMENT REPORT

Proposed Subdivision

Part Lot 4, DP 1213869

192 Narellan Road

Campbelltown

14 July 2021

(REF: 18IND04K)

KOALA ASSESSMENT REPORT

Proposed Subdivision

Part Lot 4, DP 1213869, 192 Narellan Road, CAMPBELLTOWN

Report author:	Corey Mead B. App. Sc. – Senior Fauna Ecologist
Field survey:	Corey Mead B. App. Sc. – Senior Fauna Ecologist
Plans prepared:	Bronte Talbot B. Env. Sc. Mgmt.
Approved by:	Michael Sheather-Reid (Accredited Assessor no. BAAS17085)
Date:	14/07/21
File:	18IND04K

As per App. C of the Guideline, the experience and qualifications of the author / surveyor Corey Mead is documented in Appendix 1.

Disclaimer:

This report has been prepared to provide advice to the client on matters pertaining to the particular and specific development proposal as advised by the client and / or their authorised representatives. This report can be used by the client only for its intended purpose and for that purpose only. Should any other use of the advice be made by any person, including the client, then this firm advises that the advice should not be relied upon. The report and its attachments should be read as a whole and no individual part of the report or its attachments should be interpreted without reference to the entire report.

The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

LIST OF ABBREVIATIONS

APZ	asset protection zone
BAM	Biodiversity Assessment Method
BAR	Biodiversity Assessment Report
BC Act	*Biodiversity Conservation Act (2016)*
BC Reg	*Biodiversity Conservation Regulation (2017)*
BOS	Biodiversity Offset Scheme
Core koala habitat	core koala habitat means— (a) an area of land where koalas are present, or (b) an area of land— (i) which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat, and (ii) where koalas have been recorded as being present in the previous 18 years.
DA	Development application.
DAWE	Department of Agriculture, Water and the Environment.
DPIE	NSW Department of Planning, Industry and Environment
EES Division	Environment, Energy and Science Division of DPIE (formerly Office of Environment and Heritage).
EP&A Act	*Environmental Planning and Assessment Act (1979)*
EPBC Act	*Environment Protection and Biodiversity Conservation Act (1999)*
KMA	Koala Management Area. These are the regions listed in the Schedules of the SEPP and were derived from the Koala Tree Species Index as part of the Koala Habitat Information Base. Sometimes also referred to as Koala Modelling Region (KMR).
Koala Development Application Map	The Koala Development Application Map in the SEPP.
KPoM	Koala Plan of Management.
LGA	Local Government Area
LLS Act	*Local Land Services Act (2013*)
NES	national environmental significance
SEPP	State Environmental Planning Policy
Site area	Includes both a development footprint and the broader area of land on which the development is proposed (i.e. the subject lot). The controls within the SEPP apply to both direct and indirect impacts and all potential habitat on the site area therefore needs to be considered even if no vegetation is to be cleared.
Site Investigation Area for Koala Plans for Management Map	The Site Investigation Area for Koala Plans of Management Map in the SEPP.
Development footprint	The area directly affected by the proposal and includes full extent of APZ.
Study area	The portion of land that encompasses all surveys undertaken and is usually all land contained within the designated property boundary. The study area extends as far as is necessary to assess relevant habitat values known and likely to occur and includes the development footprint and any additional areas which are likely to be affected by the proposal, either directly or indirectly.
Suitably qualified and experienced person	Suitably qualified and experienced person means a person who has— (a) a tertiary qualification in ecology, environmental management, forestry or other equivalent qualifications, and (b) experience in flora and fauna identification, survey and management, including experience in conducting koala surveys in accordance with the techniques specified in the Guideline.

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1. INTRODUCTION

Travers bushfire & ecology has been engaged to prepare a Koala assessment report (KAR) for the proposed residential subdivision at 192 Narellan Road, Campbelltown. The entire area bounded by Lot 4, DP 1213869 has been subject to detailed survey effort and will hereafter be referred to as the 'study area'. The extent of the development footprint includes the subdivision area as well as the external APZ (Figure 1 – Study area (red), subdivision area (pink) & development footprint (incl APZ in black dash)Figure 1).

The area of direct impact from the development will hereafter be referred to as the 'development footprint'.

Figure 1 – Study area (red), subdivision area (pink) & development footprint (incl APZ in black dash)

1.1 Background

SEPP (Koala Habitat Protection) 2019 was implemented in March 2020 and later revised in October 2020. The NSW Government then announced the implementation of SEPP (Koala Habitat Protection) 2020 in November 2020. This was fundamentally a reinstatement of the old SEPP 44 - Koala Habitat protection (SEPP 44), which was in force from 1995 through to 2019. SEPP (Koala Habitat Protection) 2021 then came into effect in March 2021 reinstating the policy framework of the 2019 Koala SEPP only for non-rural zones in the interest of farmers, with the exception of some LGAs.

Under Part 2 Clause 10 of Koala SEPP 2021, council's determination of the development assessment process is to be consistent where an approved Koala Plan of Management applies. An approved Comprehensive Koala Plan of Management (CKPoM) for Campbelltown was prepared by Dr Stephen Phillips (Biolink) in 2018.

1.2 Site description

Table 1 provides an overview the details of the subject lot and study area relevant to Koala.

Table 1 – Site features

Location	Lot 4, DP 1213869, 192 Narellan Road, Campbelltown
Location description	The site is located approximately 2 km north-west of Campbelltown train station. The site is surrounded on the western and southern sides by rural residential properties, on the eastern side by urban residential development and by the Hume Motorway to the north.
Area	7.78 ha
Local government area	City of Campbelltown
Zoning	R3 – Medium Density Residential
Grid reference MGA-56	296355E 6229029N
Elevation	Approximately 89-111 m AHD
Topography	The study area has a central road running from north-west to south-east. This road is runs along the highest portion of the site, with a gentle slope running either side of this road.
Catchment and drainage	The site drains via overland flow towards the east to Biriwiri Creek. There are no riparian areas within the subject land. A tributary of Bow Bowing Creek occurs near the western boundary of the study area however due to the topography, the drainage is more likely to head towards Biriwiri Creek than the Bow Bowing tributary.
Existing land use	Vacant paddocks
Connectivity features	There is existing residential development to the east, while the Hume Motorway is to the north. Lands to the south and west of the study area, as well as lands north of the Hume Motorway are large areas of cleared grassy pasture with sparsely scattered trees.
Geology and soils	Geology; Wianamatta Group (Bringelly Shale). Soils; Luddenham Soil Landscape (erosional) – on slopes and rolling hills with shallow soils on crests to moderately deep on upper and lower slopes and in riparian areas.

1.3 Proposed development

The proposed development is for a 20-lot residential subdivision with roads, kerbs and services such as NBN, power, water and sewage. The area will include a proposed park as well as an on-site stormwater detention basin (OSD). Figure 2 shows the subdivision layout.

Asset protection zones (APZs) will apply to the subdivision. A 30 m APZ will apply to land to the north-west and north-east, and a 50 m APZ will apply to the south-west (as shown on Figure 1).

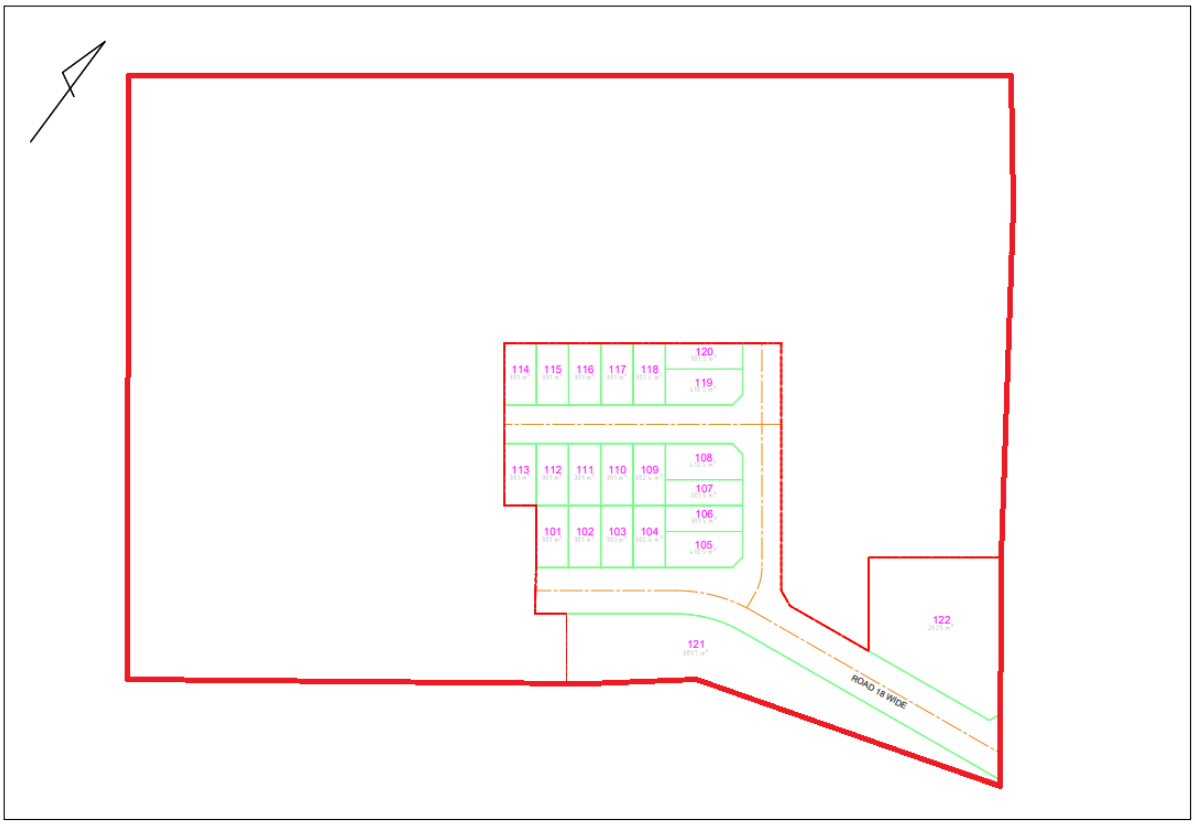

Figure 2 – Proposed development layout

1.4 Presurvey information collation & resources

Technical resources utilised and relevant to Koala:

Legislation

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
- Biodiversity Conservation Act 2016 (BC Act)
- Biodiversity Conservation Regulation 2017 (BC Reg.)

Survey Guidelines

- Survey guidelines for Australia's threatened mammals (DEWHA 2011)
- Matters of National Environmental Significance (Commonwealth of Australia 2013)
- Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities 2004 (working draft), Department of Environment and Conservation (DEC)

Mapping Resources

- Aerial photographs (Google Earth Pro / Spatial Information Exchange / NearMap)
- Topographical maps (scale 1:25,000)
- LiDAR data for contours (Land and Property Information, est. 2015 estimated)
- ESpade – DPIE tool for checking soil types

Threatened species records

- BioNet database which holds data from a number of custodians (10/06/21 to 10 km) Figure 3 shows *Bionet* records out of 5km.
- EPBC Protected Matters Search Tool - DAWE (2021 to 10 km)

Vegetation mapping/resources:

- BioNet Vegetation Classification System
- Native Vegetation of the Sydney Metropolitan Area (Version 3.0, 2016)

1.5 Survey

The following survey relevant to Koala was undertaken within the study area as well as extending out into adjacent habitat to the north and west during survey by *Travers bushfire & ecology* on the 9th March 2021:

- Visual inspection of all trees within the study area as part of hollows survey;
- An inspection of all smooth-barked trees, specifically the following individuals for presence of any characteristic Koala 'pock' marks:
    - 3x Forest Red Gum (*Eucalyptus tereticornis*)
    - 5x planted Lemon-scented Gum (*Eucalyptus citriodora*)
    - 1x planted Spotted Gum (*Corymbia maculata*)
- One (1) Rapid-SAT (Spot Assessment Technique) Koala survey point;
- Spotlighting throughout the study area and including woodland habitat to the west;
- Koala nocturnal call-playback

Rapid-SAT is a survey technique outlined but not published by Koala expert Stephen Phillips and staff at *Biolink*. It is an occupancy-focused assessment tool informed by the presence/absence of diagnostic Koala faecal pellets around the bases of Preferred Koala Food Tree (PKFT) species. The Rapid-SAT approach is predicated by knowledge that in areas being utilised by koalas, there is an ~ 50% probability of faecal pellets occurring within 1 m of the base of any PKFT species ≥ 300 mm diameter at breast height (DBH) (*Phillips & Wallis* 2016).

In applying the technique, assessment at a given point ceases upon one or more koala faecal pellets being detected within the prescribed search area (1 m) around the base of each PKFT that is searched. Conversely, if no pellets are detected, sampling ceases once a minimum of five to (ideally) a maximum of seven PKFTs ≥ 300 mm DBH have been assessed, these numbers affording a high level of statistical confidence (95% or 99% respectively) that koalas are not using habitat in the immediate vicinity (*Phillips & Wallis* 2016).

The rapid-SAT included a collective analysis of seven of the largest Forest Red Gum trees present within the study area and immediately adjacent, with representative trees located in the south-west, central and north-west fringes of the site.

Survey effort accounting for dates, weather conditions, techniques deployed relevant to Koala and duration are outlined in Table 2.

Table 2 – Survey effort

Date	Weather conditions	Survey technique(s)	Time effort (24hr)
9/3/21	6/8 cloud, light SE wind, no rain, temp 29-24°C	Diurnal tree searches	5hrs 15min 1200 - 1715
		Rapid SAT x1	1hrs 20min 1815 - 1935
	8/8 cloud, no wind, no rain, temp 21°C	Spotlighting	1hrs 45min 1935 - 2120
		Call playback	Commenced @ 2030

No Koalas, or Koala activity indicated by presence of scratches or scats, were recorded during survey.

2. CAMPBELLTOWN COMPREHENSIVE KPoM

The Comprehensive Koala Plan of Management (CKPoM) was prepared by Dr Steve Phillips of *Biolink* for Campbelltown City Council. The CKPoM was adopted by resolution of Council at its Ordinary Meeting held on 13 December 2016, and approved by the Secretary of the DPIE on 30 July 2020. The CKPoM provides a strategic approach to the protection, management and restoration of koala habitat for the entire LGA. Part 5 of the CKPoM provides the Koala management framework and Part 6 outlines the development assessment and control. When submitting a DA, the information needed to provide to Council is outlined through Figure 6.1 of the plan. This is shown below on Figure 3.

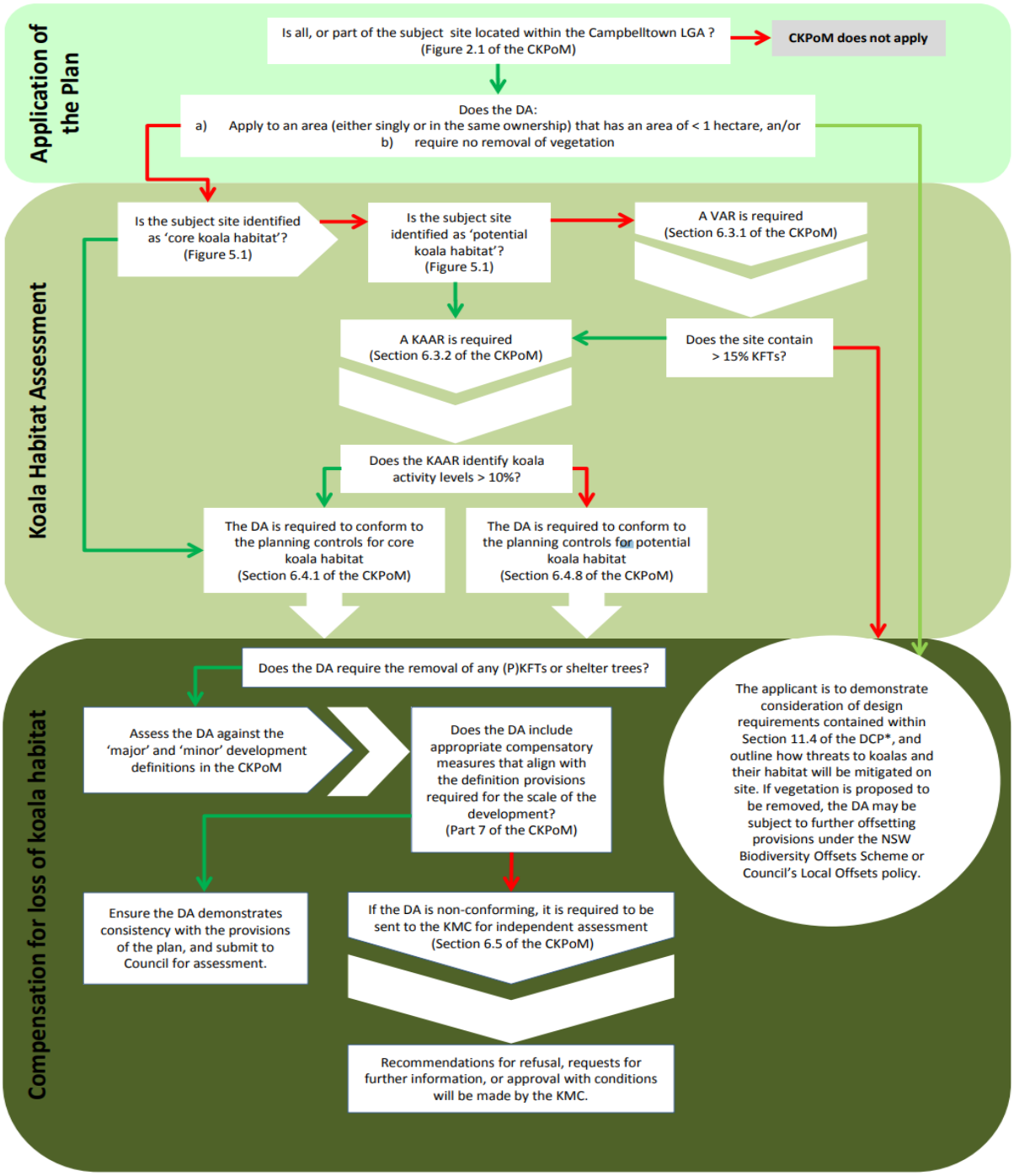

Figure 3 - Development assessment framework flowchart (Figure 6.1 of the CKPoM)

With consideration to the application of the plan (Figure 6.1 of the CKPoM) the following process has been considered:

- The development is located within the Campbelltown LGA;
- The DA has an area of > 1hectare and requires vegetation removal;
- The subject site is not identified as 'Core Koala Habitat' on Figure 5.1 of the CKPoM;
- The subject site is not identified as 'Potential Koala Habitat' on Figure 5.1 of the CKPoM;
- A Vegetation Assessment Report (VAR) is required.

2.1 Vegetation Assessment

A description of the tallest stratum cover as well as details of the species composition of each vegetation community is provided in Section 3.1.4 of the Ecological Impact Assessment report prepared by *Travers bushfire & ecology* (2021). Fifty-four (54) trees with a DBH >15cm were surveyed present within the varying quality Plant Community Type (PCT) 850 located within the development footprint. In summary, these trees include:

- 8x planted Brush Box (*Lophostemon confertus*)
- 3x dead trees
- 1x Forest Red Gum (*Eucalyptus tereticornis*)
- 4x Grey Box (*Eucalyptus moluccana*)
- 5x planted Lemon-scented Gum (*Corymbia citriodora*)
- 30x Narrow-leaved Ironbark (*Eucalyptus crebra*)
- 1x Netted Bottlebrush (*Melaleuca linariifolia*)
- 1x Spotted Gum (*Corymbia maculata*)
- 1x Thin-leaved Stringybark (*Eucalyptus eugenioides*)

2.2 Koala Habitat Assessment

For purposes of the CKPoM the term 'potential koala habitat' means any area of native vegetation where the trees of the types listed in Schedule 2 of SEPP 44 (being KFTs) constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.

We note that the current Koala SEPP 2021 has a new list of Koala Use Trees. However, the CKPoM relies on the list of Koala Foraging Tree Species as listed in the old SEPP 44. Therefore, the CKPoM only requires the assessor to address the SEPP 44 list.

The development footprint contains less than 2% KFTs represented by one (1) Forest Red Gum tree. Therefore, the development footprint contains less than 15% KFTs.

As a result of the Koala Habitat Assessment determined by the CKPoM, compensation for loss of Koala habitat is to demonstrate consideration of design requirements contained within Section 11.4 of the DCP. The design requirements outlined by the DCP are not considered appropriate for the proposed development for the following reasons:

- Only one KFT will be removed by the proposal. This tree did not show any historical use indicated by scratches on the smooth bark.
- Transient Koalas are unlikely to occupy the subject site area given that it is highly fragmented from connective vegetated habitat.

HUME MOTORWAY

St Stephen Rd

Marylands Drive

Koala records

Koala Records**

**NSW Office of Environment and Heritage's Atlas of NSW Wildlife, which holds data from a number of custodians
Data obtained 29.01.2021

19/10/2011

07/08/2018

08/11/2018

07/11/2018

13/05/2020

Aerial source: Nearmap

Legend

- Site boundary (source:CAD)
- Contour 1m (source:LiDAR)
- Development footprint (3.15ha)
- Subdivision boundary
- Asset Protection Zone (APZ)

Fauna Survey Effort

- Call-playback

Preferred Koala food trees

- Primary - Forest Red Gum
- Secondary - Grey box

Plant Community Types (PCTs)

- PCT 850 moderate_good - Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland (0.4ha)(impacted 0.12ha)
- PCT 850 no_canopy - Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain (0.18ha)(impacted 0.04ha)
- PCT 850 planted_native_vegetation - Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain (0.12ha)(impacted 0.04ha)

0 50 100 m

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
192 Narellan Rd, Campbelltown 18IND04_K001	12/07/2021 Issue 1 BT	1:2,000 @A3 GDA 1994 MGA Zone 56

TITLE

Koala survey, site context and records

Document Path: N:\GIS STORAGE\N Drive\18IND04_NarellanRd_Campbelltown\MXDs\18IND04_K001.mxd

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Figure 4 – Koala survey, site context & records

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APPENDICES 1. **EXPERIENCE/QUALIFICATIONS**

COREY MEAD

SENIOR FAUNA ECOLOGIST

Address: 3 Rysdyk Pde
Wamberal NSW 2260

Phone: (02) 4384 1232
0401 557 882

RELEVANT EDUCATION / QUALIFICATIONS

- Southern Cross University – B App. Sc (1994)
- BAM Accredited Assessor (BAAS.19050)
- Accredited Biobanking Assessor (No.231)
- Scientific License (SL102477)
- Animal Ethics Permit (TRIM V20/32969)
- Licence to Harm Protected Animals (MWL000103525)
- Catch & Release Licence (MWL000103525)
- Bionet Sensitive Species Data License (No. 1589)

RELEVANT SKILLS / EXPERIENCE

- Remote and independent terrestrial vertebrate surveys (16 years).
- Koala Spot Assessment Technique (random /grid based/rapid)
- Koala surveys under guidance from Dr Steve Phillips (*Biolink*).
- Koala survey techniques - spotlighting, call-playback, scat /scratch searches, song-meter.
- Kaleidoscope Pro clustering & classifier analysis, preparation of Koala call recognisers.
- Site work at Port Macquarie Koala Hospital.

KOALA (RECORDED) SURVEYS

- 2007/8 – Hallidays Point - Koala activity surveys, habitat mapping and KPoM criteria.
- 2008/9 – Red Head - Koala activity and habitat use for rezoning & subdivision.
- 2010 – Glenning Valley - Koala surveys with Dr Stephen Phillips applying SATs.
- 2010 – Sallys Flat 1500 ha. Target Koala surveys and habitat constraints assessment.
- 2013 – Appin - Target Koala surveys rezoning and offset site presence/activity levels.
- 2014 – Airds - Rezoning. Presence/activity surveys and assessment.
- 2017 – Minto - Rezoning. Presence/activity surveys and assessment.
- 2018 – Appin - Target Koala grid surveys to determine activity areas and use trees.
- 2018 – Gilead - Koala presence/activity surveys and habitat use mapping.
- 2019 – Port Stephens - Middle Rock camping area Koala presence survey.
- 2020 – Port Macquarie Hospital - Target Koala survey & analysis of habitat use for advice.
- 2021 – Port Macquarie Koala Hospital - Target survey and associations with wild Koalas.

(RELEVANT) EMPLOYMENT HISTORY

- Nov 2020 – Current – Contract Fauna Ecologist – TreeHouse Fauna Services
- May 2011 – Nov 2020 – Senior Fauna Ecologist – Travers Bushfire & Ecology
- Oct 2007 – May 2011 – Fauna Ecologist – Travers Bushfire & Ecology
- Jan 2006 – Oct 2007 – Field Tech / Ecologist – Conacher Travers
- Feb 2003 – Jan 2006 – Head Reptile Keeper – Australian Reptile Park
- Jan 2003 – Sep 2005 – Visitor Services Officer – National Parks & Wildlife Service
- Dec 2002 – Jan 2003 – Marine Turtle Project Officer – National Park & Wildlife Service
- Aug 2000 – Feb 2003 – Venom Room Attendant – Australian Reptile Park
- Apr 1997 – Sep 2000 – Environmental Education Officer – Australian Reptile Park