

20 June 2019

Brad Begley  
Property Manager  
Dicker Data Ltd.  
230 Captain Cook Drive  
Kurnell NSW 2231

Dear Brad

**Re: Pre-clearance survey and seed collection for 238 – 258 Captain Cook Drive, Kurnell**  
**Project no. 29969**

Biosis Pty Ltd was commissioned by Dicker Data to undertake a pre-clearance survey to satisfy objectives detailed within the Biodiversity Management Plan (BMP) and Conditions of Approval B30 for SSD-8662 for 238 – 258 Captain Cook Drive, Kurnell (the study area).

The data collection and mapping produced from the pre-clearance survey will be used to ensure future vegetation clearing, earthworks and construction activities are undertaken to best practice standards in accordance with the BMP in regard to biodiversity constraints within the study area.

## Background

The study area is located at 238-258 Captain Cook Drive, Kurnell, NSW within the Sutherland Shire Local Government Area and the Greater Sydney Local Land Services Region. It is located approximately 2 kilometres south-west of the township of Kurnell, and approximately 20 kilometres south of the Sydney CBD (Appendix 1-Figure 1). The pre-clearance survey is required to satisfy specific Conditions of Approvals and related objectives detailed in the BMP (Biosis 2019). The BMP area is located within the study area and is defined as the total area of disturbance, encompassing the development footprint.

The BMP was prepared in accordance with the conditions provided by DPE in the development Consent (SSD 8662).

Condition B30 of the development consent (SSD 8662 [DPE 2019]) dated 12 April 2019 states that:

*The Applicant must prepare a Biodiversity Management Plan (BMP) for the development in consultation with OEH. The BMP must be approved by the Planning Secretary prior to the commencement of clearing for construction and must form part of the CEMP in accordance with condition C2. The BMP must ensure that:*

- any felled native trees which are greater than approximately 25-30 cm in diameter and 3 m in height are salvaged and used to enhance habitat at the site,*
- remnant native vegetation removed from the site, especially juvenile plants are translocated to the proposed landscape areas,*
- the topsoil from the removal of native vegetation is used in site landscaping,*
- seed from the native plants removed from the site is collected and used in site landscaping.*

This pre-clearance survey is an action listed in the BMP that ensures the above conditions of approval are satisfied by identifying salvageable habitat and genetic material within the BMP area which is located within the study area and is defined as the total area of disturbance, encompassing the development footprint.

## Method

### Database and literature review

Prior to completing the field investigation, information provided by Dicker Data as well as other key information was reviewed, including:

- Biodiversity Management Plan for 238 – 258 Captain Cook Drive, Kurnell prepared for Dicker Data (Biosis 2019)
- Biodiversity Development Assessment Report for 238 – 258 Captain Cook Drive, Kurnell prepared for Devkon (Biosis 2018)
- Development Consent. SSD 8662 for 238 – 258 Captain Cook Drive, Kurnell. Dated 12 April 2019.

### Pre-clearance survey

A survey of the study area was undertaken on 6 May 2019 by Paul Price (Consultant Restoration Ecologist) and Tobias Scheid (Restoration Ecologist). Vegetation within the study area was surveyed using the random meander technique (Cropper 1993) over 10 person hours.

The specific objectives of the pre-clearance survey in accordance with the BMP were to:

- Identify hollow bearing trees and large native trees that were greater than approximately 25-30 centimetres in diameter and 3 metres in length that will be salvaged during vegetation clearing and reused within the projects landscape areas.
- Identify individuals and/or areas of target species that occur within the BMP area that are considered suitable for salvage and translocation in accordance with the BMP.
- Identify and collect seed from candidate native species within the BMP area that will be germinated and used in future project landscaping.

Trees suitable for salvage were marked using flagging tape and locations recorded. Mapping was conducted using hand-held (uncorrected) GPS units (GDA94), mobile tablet computers running Collector for ArcGIS and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the GPS units (generally  $\pm 5$  metres) and dependent on the limitations of aerial photo rectification and registration.

Basemap data was obtained from NSW Land and property information 1:25,000 digital topographic databases, with cadastral data obtained from LPI digital cadastral database.

All seed collected and record keeping was done so in accordance with best practice principles and the Florabank Guidelines by experienced and licensed seed ecologists during the pre-clearance survey.

## Results

### Salvage of felled trees

There were no hollow bearing trees identified in the BMP area during the pre-clearance survey, however there were 73 Large trees >25 centimetres DBH recorded. All trees were marked using flagging tape and included on in Appendix 1 Figure 1). These trees will be stockpiled during vegetation removal and then

reused to enhance the natural habitat features of the landscape areas in accordance with the BMP (Biosis 2019).

### Translocation of vegetation

The following target species were identified within the BMP area for translocation:

- *Baumea juncea*
- Blady Grass *Imperata cylindrica*
- Coast Banksia *Banksia integrifolia*
- Spiny-headed Mat-rush *Lomandra longifolia*

These species and their locations within the BMP area were recorded and included in Appendix 1 (Figure 1). This information will assist the bush regeneration contractor in undertaking translocation actions for the project as detailed within the BMP (Biosis 2019).

### Seed collection

During the pre-clearance survey the entire BMP area and surrounding vegetation was inspected for viable seed. At the time of seed collection five species presented viable seed and harvested in accordance with the BMP (Biosis 2019). Seed was also collected directly adjacent to the BMP area, in order to maintain native seedbanks and local provenance of species indigenous to the area and their genetic diversity, in accordance with the BMP and Florabank guidelines (Florabank 1999). Seed collection details are provided in Table 1 below. Seed collection locations have been provided in Figure 1 - Appendix 1.

**Table 1 Seed Collection details**

Family	Scientific Name	Common Name	No. plants collected from
Cyperaceae	<i>Baumea juncea</i>	-	>200
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	7
Cyperaceae	<i>Ficinia nodosa</i>	Knobby Club-rush	>50
Myrtaceae	<i>Melaleuca ericifolia</i>	Swamp Paperbark	3
Myrtaceae	<i>Melaleuca nodosa</i>	Prickly-leaved Paperbark	4

All collected seed will be stored, cleaned and prepared after ripening by appropriately licensed Biosis Ecologists and will be handed over to the bush regeneration contractor for germination, supply and reuse within the landscape areas. Weights of seed collected will be determined after seed has ripened and cleaned, prior to supplying to the bush regeneration contractor for germination.

### Recommendations

Biosis recommend that Appendix 1-Figure 1) be incorporated into induction material for future vegetation clearing, earthworks and construction activities required for the project. Additionally all translocation areas marked in Appendix 1-Figure 1) are to be maintained as no-go-zones until translocation of target species has been undertaken by the bush regeneration contractor to the satisfaction of Biosis.

I trust that this advice is of assistance to you, however please contact me if you would like to discuss any elements of this ecological advice further.

Yours sincerely

**Tobias Scheid**

**Restoration Ecologist**

A handwritten signature in black ink, appearing to read "T. Scheid", written in a cursive style.

## References

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Biosis 2018. 238-258 Captain Cook Drive Kurnell BDAR. Report for Devkon. Authors: R Dwyer, C Wharfe, R Baker, P Price, Biosis Pty Ltd, Sydney. Project no.24932

Biosis 2019. Captain Cook Drive Biodiversity Management Plan. Report for Dicker Data Authors: Scheid T, Biosis Pty Ltd, Sydney. 29894

Cropper S 1993. *Management of Endangered Plants*, CSIRO Publications Victoria.

DPE 2019. Development Consent SSD 8662 for 238 - 258 Captain Cook Drive, Kurnell.

Florabank 1999. *Guidelines (6) - Native Seed Collection Methods*. Written by the Australian tree Seed Centre and Warren Mortlock. Yarralumla, ACT.

Ralph M 1993. *Seed Collection of Australian Native Plants – For Revegetation, Tree Planting and Direct Seeding*, Bushland Horticulture, Fitzroy.

## Appendices

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## Appendix 1 Figure 1

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**Legend**

- Study area
- BMP area
- Construction footprint

**Salvage trees >25 DBH**

- Allocasuarina* spp.
- Angophora* spp.
- Coast Banksia - *Banksia integrifolia*
- Swamp Oak - *Casuarina glauca*
- Narrow-leaved Ironbark - *Eucalyptus crebra*
- Scribbly Gum - *Eucalyptus signata*
- Broad-leaved Paperbark - *Melaleuca quinquenervia*

Any felled salvage trees are to be stockpiled and used to enhance habitat on site.

**Translocation areas**

- Baumea juncea*
- Blady Grass - *Imperata cylindrica*
- Blady Grass - *Imperata cylindrica*
- Spiny-headed Mat-rush - *Lomandra longifolia*

All translation areas are no go areas and to be avoided during vegetation removal/earthworks until plants have been removed for translocation.

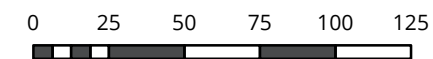
- Landscape areas - translocation to be incorporated into landscape areas

**Seed collection points**

- Baumea juncea*
- Knobby Club-rush - *Ficinia nodosa*
- Spiny-headed Mat-rush - *Lomandra longifolia*
- Swamp Paperbark - *Melaleuca ericifolia*
- Pickly-leaved Paperbark - *Melaleuca nodosa*

Translocation and pre clearance survey undertaken 6 May 2019.

**Figure 1 Pre-clearance survey (BMP)**



Metres  
Scale: 1:2,500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Biosis Pty Ltd  
Albury, Ballarat, Melbourne,  
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 29969  
Date: 20 June 2019  
Checked by: TPS, Drawn by: AEDM, Last edited by: amurray  
Location: P:\29900s\29969\Mapping\29969\_F1\_Preclearance