



Runnymede Rd Sand mine: Black Cockatoo Management Plan

**Prepared for B&J Catalano
Pty Ltd**

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1. Introduction

1.1 Background

B&J Catalano Pty Ltd have applied for an Extractive Industry Licence covering 15.61 ha of Lot 7 Runnymede Road, Wellesley, Western Australia ('Lot 7') to extract sand (Figure 1). Lot 7 is 80.18 ha in size, of which 43.45 ha is uncleared native remnant vegetation. 29.91 ha of the Lot is 'parkland cleared', 2.28 ha is revegetation and 1.81 is firebreaks. The property is currently zoned 'General Farming' under the Shire of Harvey Town Planning Scheme No.1. Approximately 20 ha of this parkland cleared area is currently used for agriculture (grazing). The proposed Extractive Industry Licence area is entirely contained within the parkland cleared area.

It is proposed that sand mining will be undertaken within 15.61ha of the 24.92 hectare project site (Figure 2). The remaining 9.31 hectares have been identified as a buffer area. Vegetation within this buffer will be retained. Of this 9.31 ha, 2.28 ha has been planted to trees, primarily to *Eucalyptus gomphacephala* (tuart) and *Corymbia calophylla* (marri).

The proposed excavation area is to allow for an extension and continuation of mining currently being undertaken on Lot 4. The excavation is proposed to allow for the screening of sand for the local housing industry and concrete batching plants. The proposed quarry will provide a strategic resource of road making and construction materials for the Shire of Harvey and the building industry.

1.2 Assessment and approvals history

B&J Catalano Pty Ltd has been issued a Clearing Permit (CPS 3989/1) by the Department of Environment and Conservation (DEC) under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, pending approval under the Commonwealth EPBC Act.

The clearing permit was advertised in accordance with DEC's regulations. No comments were received.

1.3 Proposed development works

1.3.1 Current proposal

Clearing of 2.61 hectares (based on tree canopy area) of Black Cockatoo foraging and/or roosting habitat and/or potential nesting trees (i.e. those over 500mm diameter ABH) is proposed on Lot 7 in association with the proposed sand mine. These trees occur on the site as predominantly scattered individual or 'paddock' trees in Completely Degraded condition, assessed using the Bushland Condition Scale of Keighery, 1994 (Figure 3) (Ecoedge, 2010).

Based on detailed vegetation assessment undertaken by Ecoedge in 2010, vegetation within the Project Area is known to be non-breeding feeding Black-Cockatoo habitat.

There are five species of foraging and habitat trees included within the 2.61 hectare area. Two of these, *Banksia attenuata* and *B. grandis*, are foraging habitat only. The others, *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah) and *Corymbia haematoxylon* (mountain marri) are known foraging and/or potential nesting habitat.

390 potential nesting trees with a diameter of 500mm ABH or more were identified during 2011 site surveys as follows: 16 *Banksia attenuata*, 1 *Banksia grandis*, 257 *Corymbia calophylla*, 1 *Corymbia haematoxylon* and 115 *Eucalyptus marginata* (Figure 4).

Site preparation activities will include:

- harvesting of seed prior to clearing for the purpose of propagation of seedlings for use in on-site rehabilitation
- clearing of vegetation and mulching for use in landscaping and incorporation into topsoil in onsite rehabilitation
- stripping and storage of topsoil for use in post-mining rehabilitation

1.3.2 Potential future mining expansion

Provision has been made in the strategic plan for this site for 'Future reserves', as indicated on Figure 7. The 15.87 ha Future reserves area, located directly to the east of the current Project Area, will not be required for at least 10 years. Project proponents are aware that any future mining proposals will be subject to application(s) to the relevant local, state and federal government agencies. In addition to environmental considerations, the site falls into the 'Kemerton Buffer Zone', where strict conditions apply to the excavation of natural resources.

1.4 Purpose and scope of plan

This Black-Cockatoo Management Plan has been developed to outline:

- site preparation activities to be undertaken
- proposed rehabilitation to provide for future areas of foraging habitat
- proposed management regimes for these rehabilitation offset areas
- an ongoing monitoring program to determine Black-Cockatoo use of the Project Area

This document is intended to be read in conjunction with the Clearing Permit, Weed Management Plan, Vegetation Assessment report (2010) and the associated EPBC Referral documentation.

2. Black cockatoos

2.1 Regional context

Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*

This subspecies of the Red-tailed Black Cockatoo is restricted to the forests of the south-west. It requires tree hollows to nest and breed and is totally dependent on jarrah-marri forest.

Baudin's Black Cockatoo *Calyptorhynchus baudinii*

Requires heavily forested areas of the south west, where it feeds on the fruit and seeds of Eucalyptus and various Proteaceous species. It is a nomadic species. Breeding on the Swan Coastal Plain mostly occurs in areas south of Mandurah during spring/summer, nesting in tree hollows (primarily marri).

Carnaby's Black Cockatoo *Calyptorhynchus latirostris*

This species moves around in seasonal flocks to feeding areas in Proteaceous scrubs and heaths and Eucalypt woodlands as well as pine plantations. Breeding occurs in winter/spring, mainly in eastern forests and the wheatbelt, where they can find mature hollow-bearing trees to nest in, although it appears that this species is currently expanding its breeding range westwards and south into the jarrah-marri forests of the Darling Scarp and into the Tuart forests of the Swan Coastal Plain including the region between Mandurah and Bunbury (Harewood, 2010).

2.2 Site survey results

390 potential nesting trees with a diameter of 500mm ABH or more were identified during 2011 site surveys as follows: 16 *Banksia attenuata*, 1 *Banksia grandis*, 257 *Corymbia calophylla*, 1 *Corymbia haematoxylon* and 115 *Eucalyptus marginata* (Figure 4).

Calyptorhynchus latirostris (Carnaby's Black Cockatoo, status: endangered) and *Calyptorhynchus baudinii* (Baudin's Black Cockatoo, status: endangered) have both been recorded from within 10 km of the proposed mine area (DEC, 2010). *Calyptorhynchus banksii naso* (Forest Red-tail Black Cockatoo) was observed foraging in mature marri trees near the boundary between the proposed mine area and the intact remnant vegetation directly to the east during field assessments (Ecoedge 2010).

2.3 Importance of habitat in Project Area to species

Based on field survey results and the occurrence of suitable feeding species on the site, it is likely that Black Cockatoos utilise the site occasionally for foraging.

3. Potential impacts

The proposed mine area is within the Kemerton Industrial Buffer Zone which contains significant areas of remnant native vegetation. Within a 5 km buffer of the proposed mine area,

approximately 3000 ha of alternate habitat exists (Figure 5). This includes approximately 43.45 ha of habitat directly to the east of the project area remains intact. An additional 109 ha of intact habitat remains on the Lot immediately to the south (Lot 4), also owned by the proponents. In addition, 2.23 ha of revegetation of Tuart and Marri has been undertaken in order to contribute to habitat requirements.

2.61 ha of habitat only will be impacted by the proposal. The proposed mine site is a maximum of 350 metres long and 453 metres wide. The gap in habitat that would result from the clearing of these trees is substantially less than the maximum 4 km distance that is considered a significant impact threshold under the EPBC Act (1999).

Approximately 152 ha of habitat remain either on the property or on the neighbouring property (also owned by the proponent). In addition to the above, revegetation undertaken will contribute to habitat requirements in time.

4. Management

Onsite management will consist of the establishment and maintenance of two offset areas – one revegetation area and one buffer area. The primary aim of the rehabilitation project is to restore and provide suitable foraging habitat for the Black-Cockatoo. As such, all rehabilitation areas will be rehabilitated using two primary Black Cockatoo habitat species: marri (*Corymbia calophylla*) and tuart (*Eucalyptus gomphocephala*).

Post-mining rehabilitation will also include revegetation of a 2.61 ha area utilising tree seedlings grown from seeds collected onsite prior to and/or during felling. Proposed species to be used are marri (*Corymbia calophylla*), tuart (*Eucalyptus gomphocephala*) and jarrah (*Eucalyptus marginata*). Tree seedling density is proposed at 1100 stems per hectare.

Seed onsite will be collected by volunteers from the Leschenault Community Nursery before, during and/or just after felling and used in local provenance revegetation projects, including the proposed post-mining revegetation of a portion of the Project Area.

5. On-site management program

5.1 Objectives

- Maximise the potential for the Project Area to continue to be utilised by Black Cockatoos during and following development
- Maximise the ability of rehabilitated areas to provide future foraging and nesting habitat through the implementation of the Weed Management Plan and actions specified in this Black Cockatoo Management Plan

5.2 Proposed offset areas

Three offset areas are proposed under this project: a 2.28 ha 'buffer' area, a 6.93 ha revegetation area and a 2.61 ha post-mining rehabilitation area (Figure 6).

5.3 Offset area management

The proposed 'buffer area' and 'revegetation area' (excluding the additional post-mining rehabilitation area) (Figure 6) will be fenced to create two discrete areas. These areas will be managed as one unit. Management will be in accordance with the following guidelines:

1. The site will be managed for weeds according to the attached Weed Management Plan. This will include regular assessment of exotic species present onsite and the management response(s) required to control and/or eradicate them from the site. A schedule is included in the plan
2. Revegetation will be undertaken over a 3-year period, commencing in June 2011. Planting of the 'buffer area' and 'revegetation area' will be completed by the end of the 2013 winter season. A 3-year rehabilitation plan will minimise and manage potential risks posed by poor rainfall seasons and species availability issues.
3. The 'buffer area' and 'revegetation area' will remain as grazing land however, grazing will be restricted to crash-grazing for weed management as necessary (2 – 3 months per year at most) by a maximum of 30-40 wethers. No grazing will take place for the first three years after planting or until such time as seedlings have grown higher than grazing height in order to protect tree seedlings.

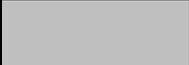
5.4 Monitoring

- Twice-yearly monitoring of seedling survival will be undertaken in all revegetated areas. Complementary planting will be undertaken where seedlings have been lost in order to ensure the proposed area of revegetation/number of seedlings is maintained.
- A survey for Black Cockatoos utilising the rehabilitated areas will be undertaken upon approval in order to gather baseline data, then 5 years after planting and every 3 years beyond this time, until such time as the post-mining rehabilitation activities have been completed.

6. Rehabilitation

6.1 Rehabilitation program outline - schedule of works for rehabilitation of 'buffer' and 'revegetation' areas

Activity	Spring 2011	Summer 2012	Autumn 2012	Winter 2012	Spring 2012	Summer 2013	Autumn 2013	Winter 2013
Weed control								
Planting								
Grazing								

 = activity occurring during this season.

Note: Fencing of the 'buffer' and 'revegetation' areas was undertaken during 2011 in preparation for management of the areas as offsets. Planting also commenced during the 2011 winter season, in preparation.

7. References

Cale B. (2003) *Carnaby's Black Cockatoo Recovery Plan*, Department of Environment and Conservation.

Harewood, G. (2010) *Fauna Assessment Survey (Level 1) Lot 5 Garvey Road Dardanup West*. Unpublished report for Ecoedge Environmental Pty Ltd.

Sanders D.A (1980) *Food and movements of the short-billed form of the White-tailed Black Cockatoo*, Australian Wildlife Research 7, 257-269.

Shah, B. (2006) *Conservation of Carnaby's Black Cockatoo on the Swan Coastal Plain, Western Australia*. Birds Australia, Perth.

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Figures

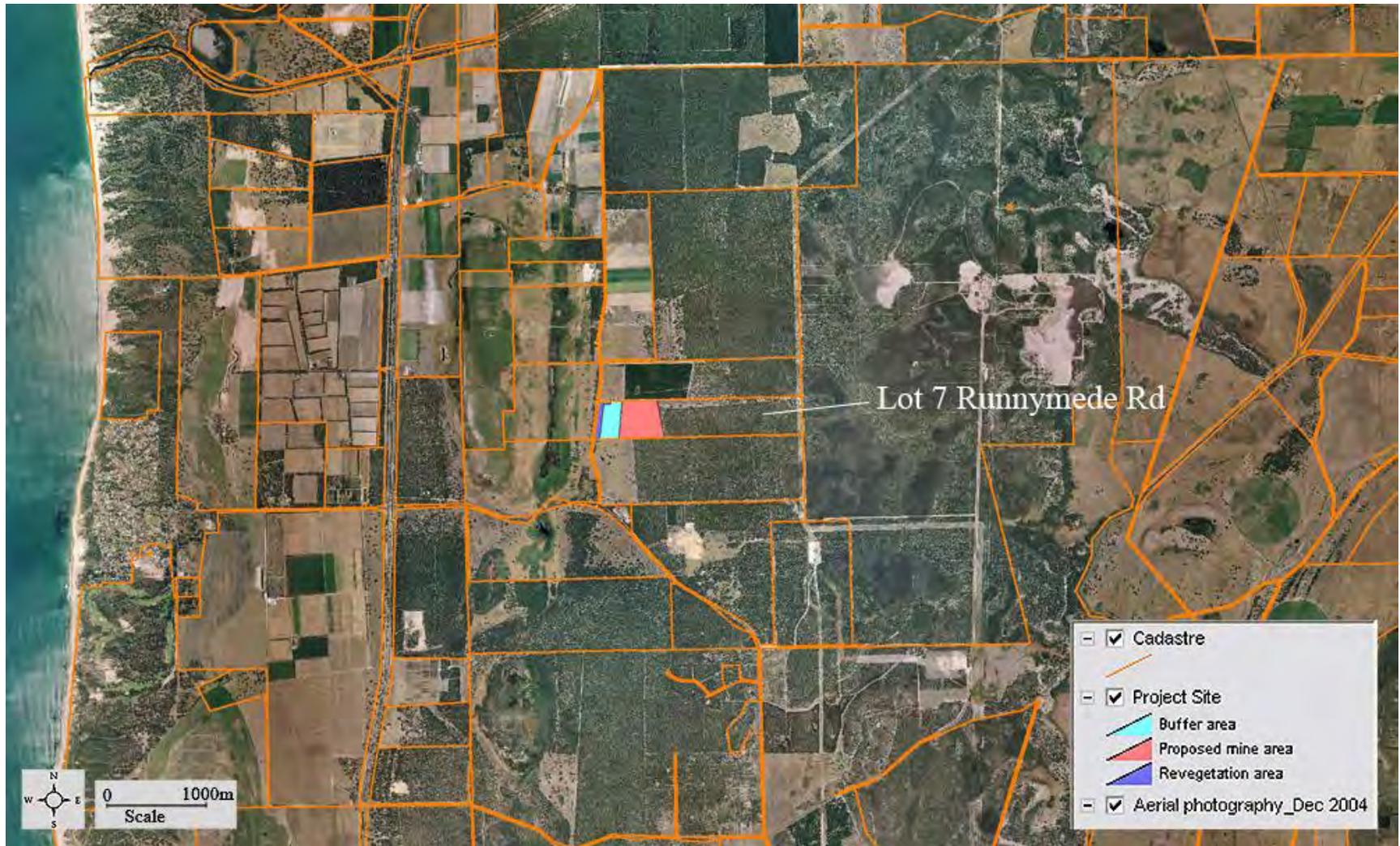


Figure 1. Aerial context of Project Area

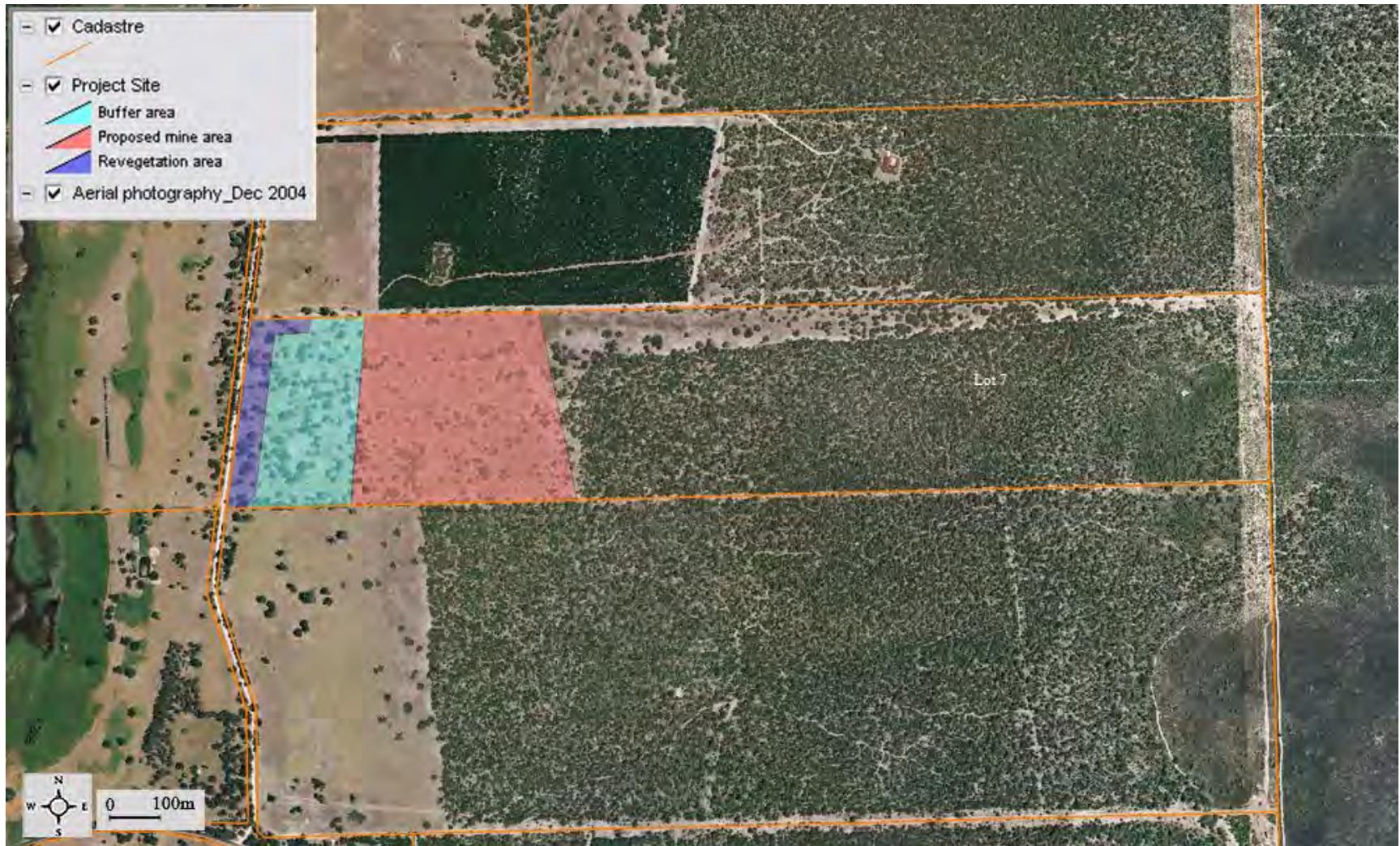


Figure 2. Project Area showing 'buffer area', 'revegetation area' and proposed mine area

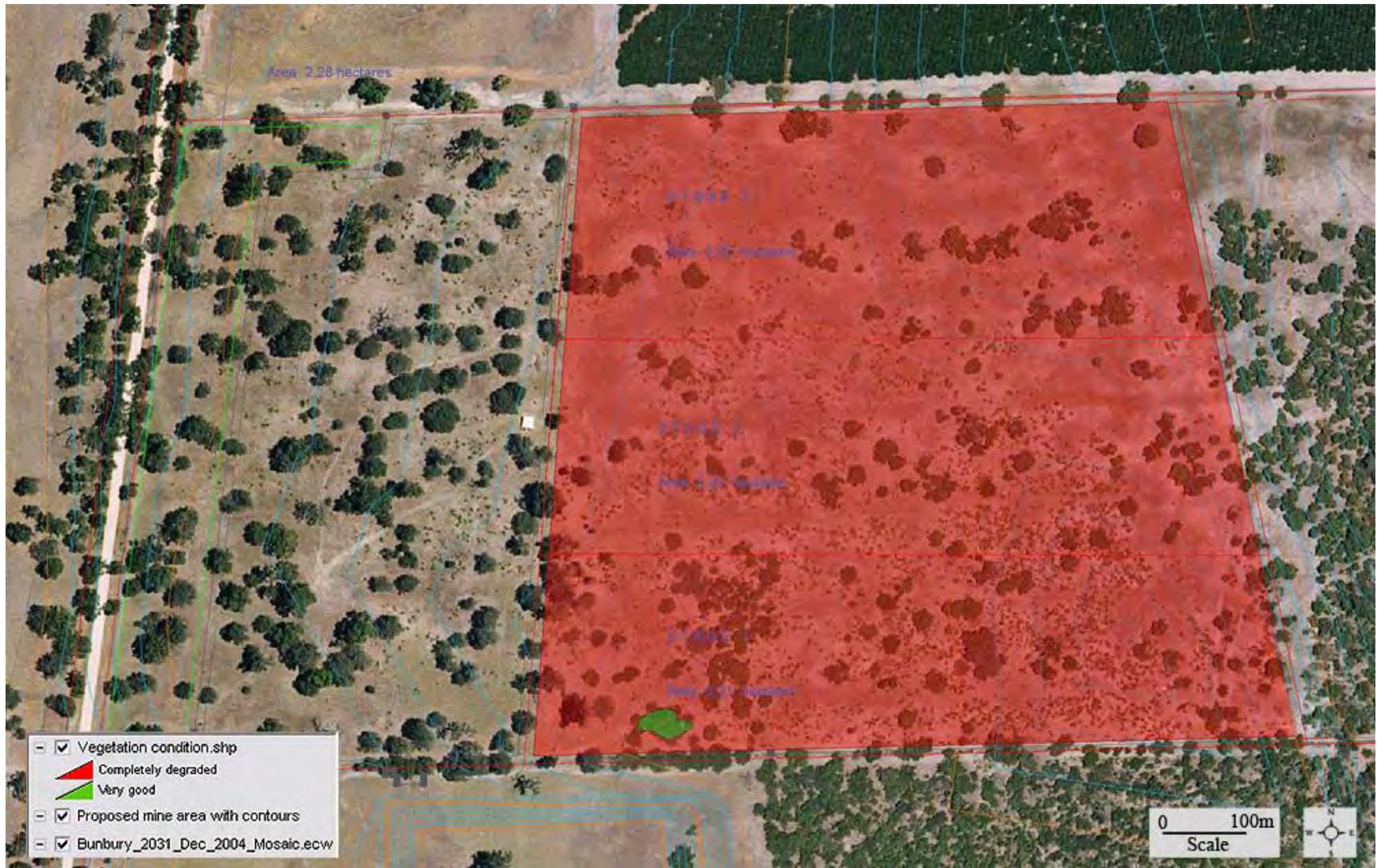
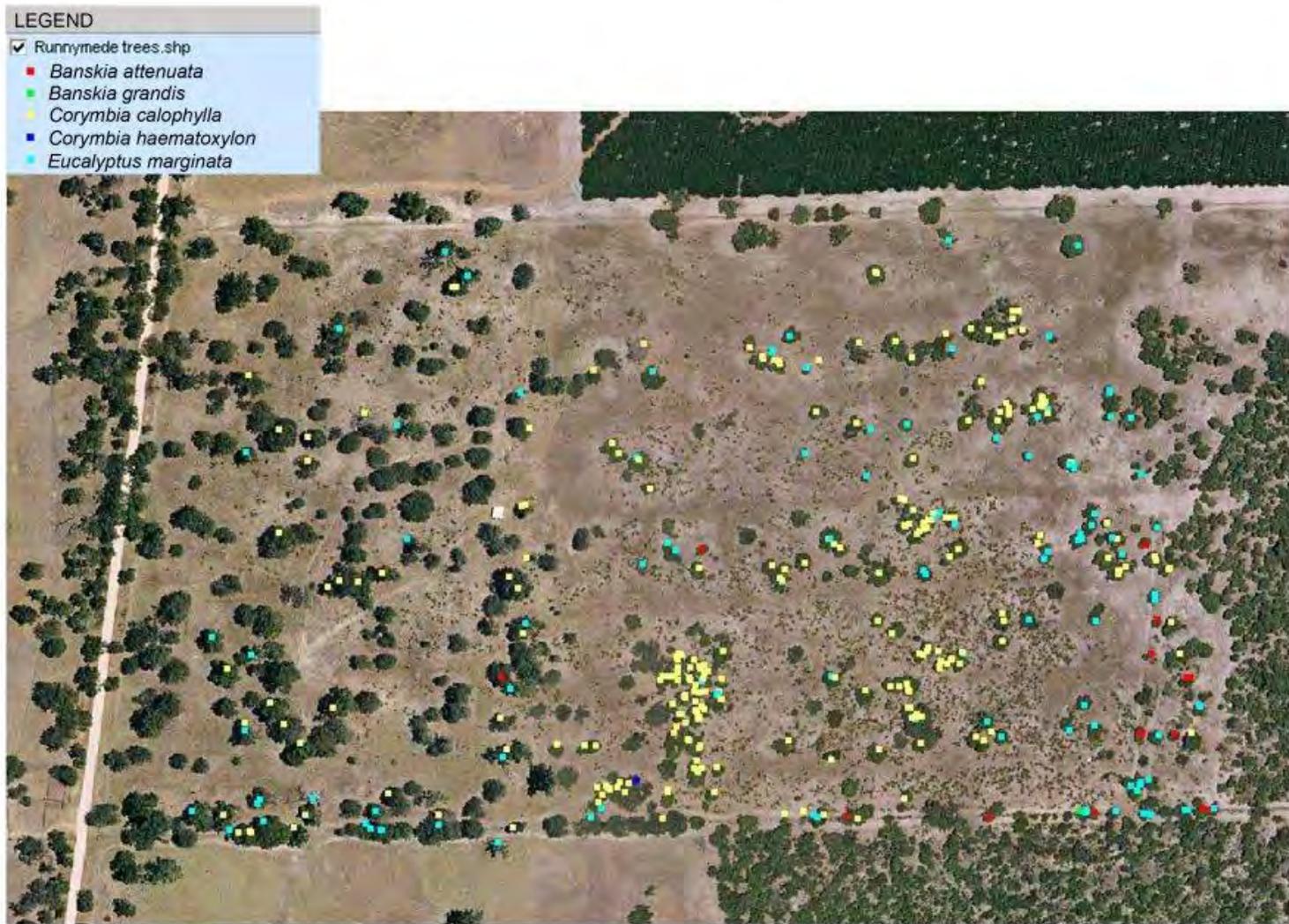


Figure 3. Vegetation condition map (2010)



B&J Catalano's Proposed Runnymede Road pit expansion Black Cockatoo habitat and feeding tree survey _ Preliminary map
 Survey undertaken December 22, 2010 by Melanie Strang
 Datum: GDA 1994 _ Aerial photograph: 2004, DOL

Figure 4. Black Cockatoo habitat and feeding tree survey (2010)

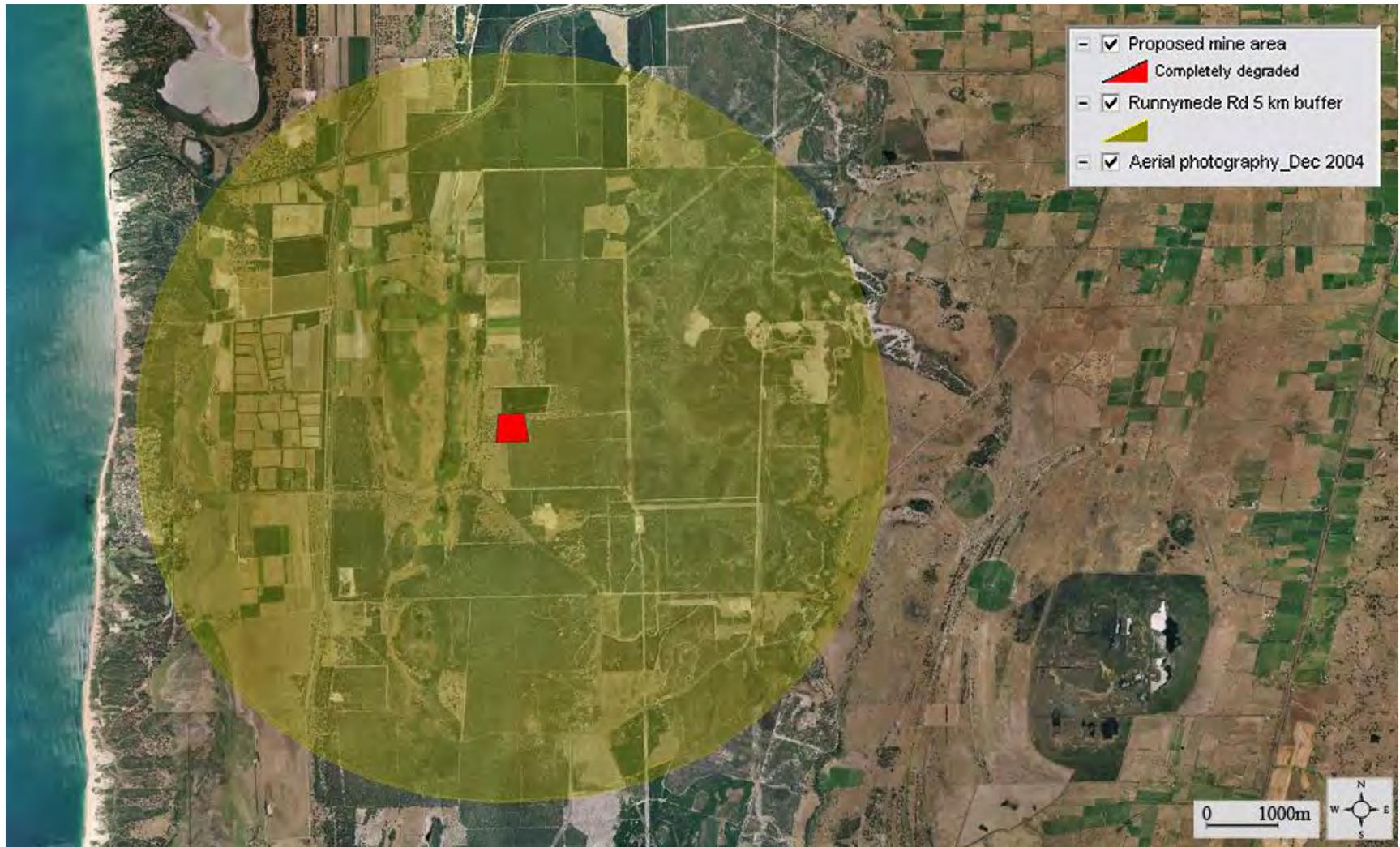


Figure 5. 5km buffer around the Project Area (as shown in yellow), indicating the extent of surrounding Black Cockatoo habitat

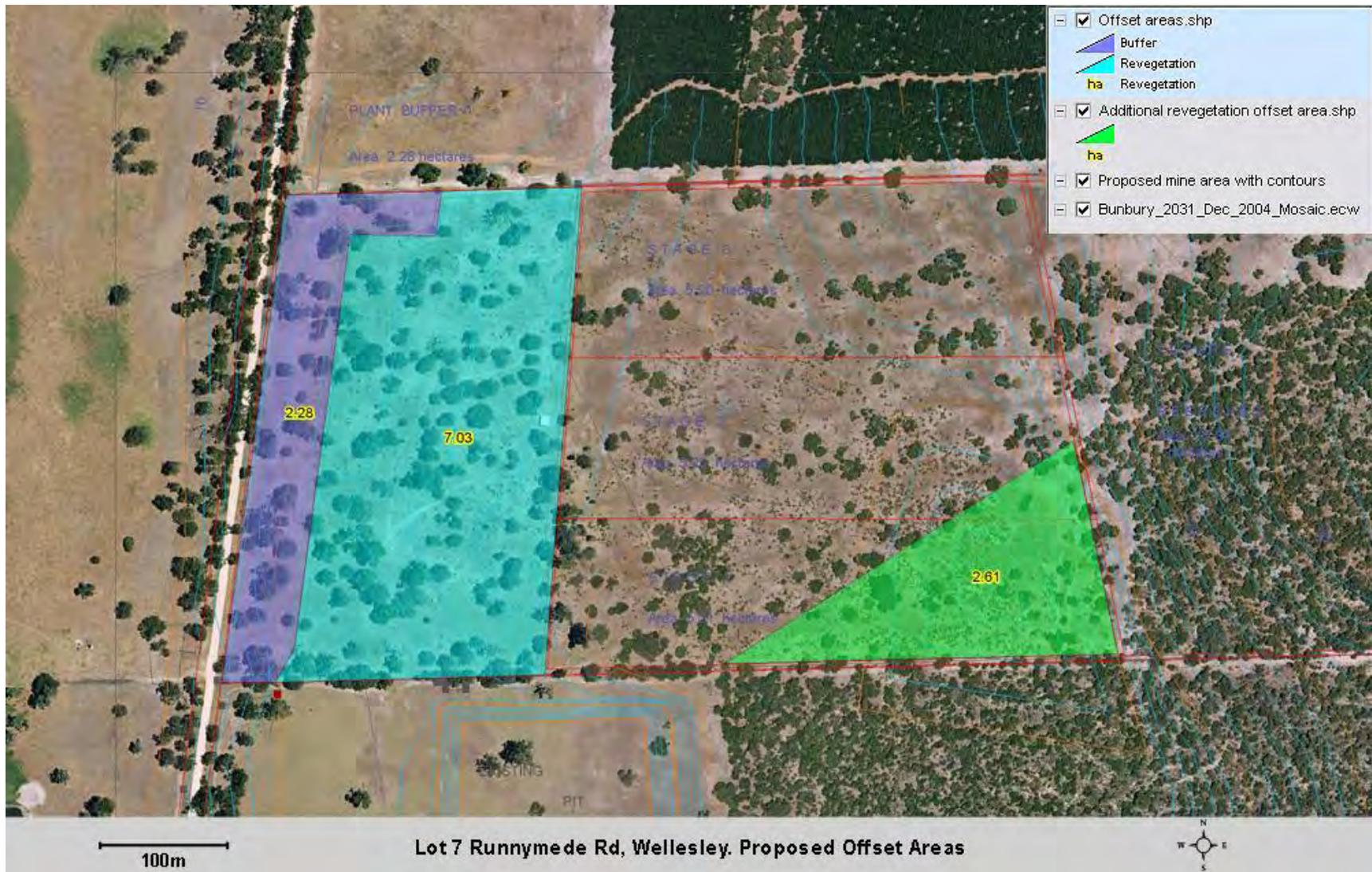


Figure 6. Proposed offset areas, including the additional 'post mining' rehabilitation area, as marked in green

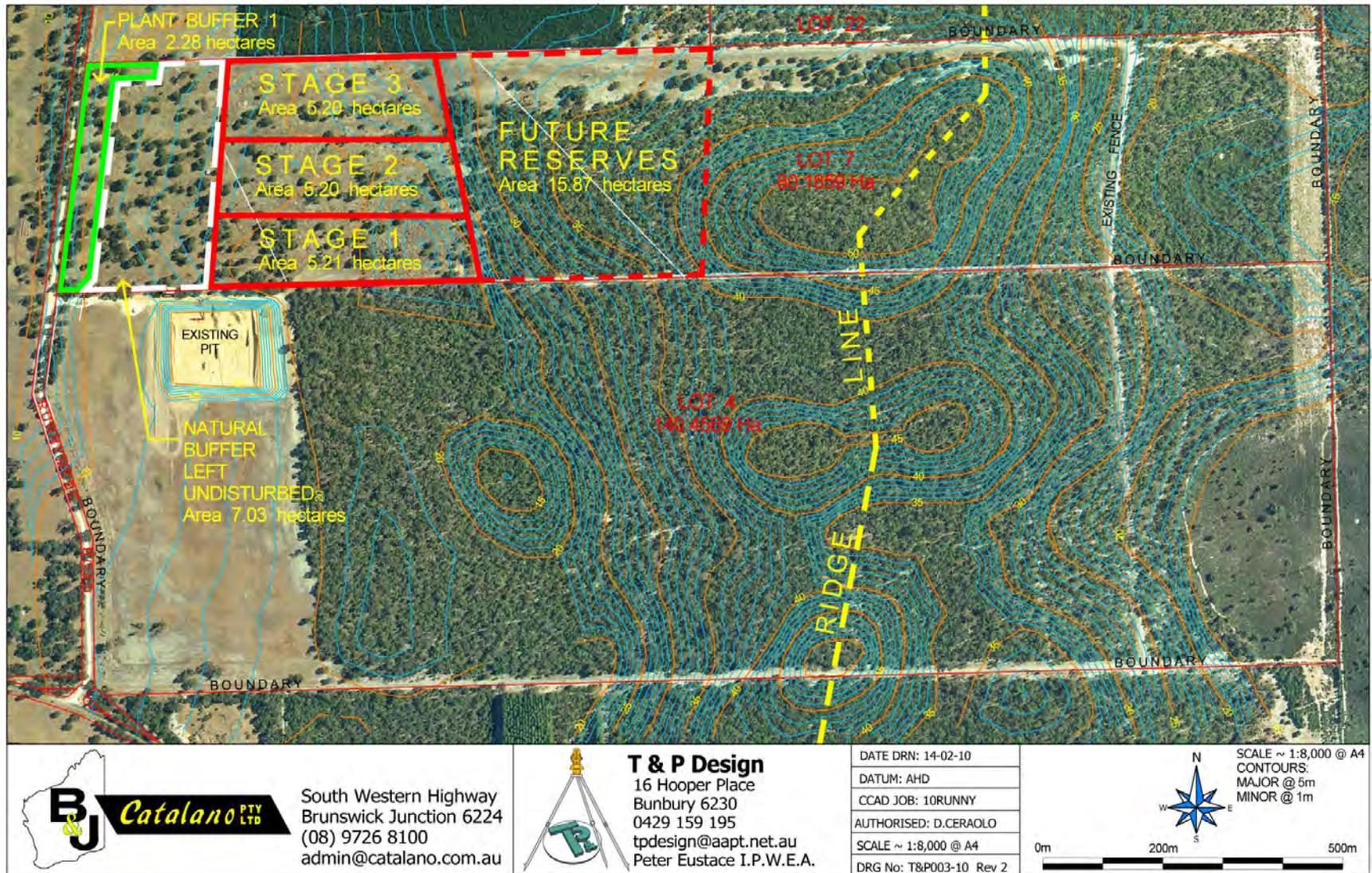


Figure 7. Proposed new mine area map, also showing 'Future Reserves' area