

Natural Area Holdings Pty Ltd
Whadjuk Country
57 Boulder Road
Malaga WA 6090

15 December 2022

Dear Hugh Wong

RE: BALDIVIS ROAD TO FURIOSO GREEN, ROAD UPGRADE

Please find below a summary of the information collected during surveys to provide further information to support environmental approvals. An initial flora and vegetation survey and black cockatoo habitat assessment was conducted on the 9th of September 2022 by Natural Area Consulting Management Services (Natural Area) within the eastern portion of the road reserve along Baldivis Road between Palomino Parade and Furioso Green. Figure 1 shows the original survey boundary in red and the proposed construction footprint in blue. Since the September survey was conducted, the footprint of the road construction activities has been finalised, with outcomes of this brief report detailing the potential impacts from the revised boundary.

Flora and Vegetation

The initial survey of the entire site recorded a total of 111 flora species (taxa) from 34 families, which included 41 introduced (weeds), three planted (dubious) and 67 native species. One Weed of National Significance (WoNS) was identified within the survey area; Bridal Creeper (**Asparagus asparagoides*). Due to the revision of the construction footprint, the number of flora species within the revised area is considered to have reduced in comparison to that observed during the initial survey. Two vegetation types are present within the site, *Eucalyptus gomphocephala* (Tuart) Woodland and Marri and *Banksia* spp. Open Woodland (Natural Area, 2022). Both vegetation types provide foraging flora species for Black Cockatoos which are detailed in the initial survey report (Natural Area, 2022).

Vegetation condition for the proposed construction footprint is detailed in Table 1 and shown in Figure 2. The majority of the proposed construction footprint is in Completely Degraded condition with many areas lacking native vegetation and consisting of the existing road batter. Areas in better condition, Good and Very Good, contain numerous native species with a reduced weed presence.

Table 1: Vegetation condition within the construction footprint

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0.018	0.112	0.117	0.214	0.461
Area (%)	0	0	3.9	24.3	25.4	46.4	100

Black Cockatoo Habitat

Along with the initial flora and vegetation assessment, a Black Cockatoo assessment was undertaken recording potential habitat trees with a diameter at breast height (DBH) of ≥ 500 mm. One potential habitat tree containing hollows which may be suitable for use by Black Cockatoos was observed during the initial survey. This tree, a dead Eucalypt, occurs outside of the revised construction footprint (Figure 3). Within the revised construction footprint, the City of Rockingham has identified four trees which will be impacted by construction activities, trees number one to four in Table 2. A further four trees (numbered five to eight) are also present within the proposed construction footprint. Locations of these habitat trees are shown in Figure 3.

Tree retention and structural integrity of a tree will need to take into consideration the width or diameter of the root system required for tree stability. This is measured as the radius of the structural root zone (SRZ radius) as described in Section 3 of AS 4970 - 2009 *Protection of trees on development sites using tree stem diameter of each tree*, namely: $SRZ \text{ radius} = (\text{diameter} \times 50)^{0.42} \times 0.64$. The Structural Root Zone (SRZ) is the area required for tree stability; however a larger area is required to maintain the trees' viability (AS 4970-2009). The Tree Protection Zone (TPZ) is a specified area required for protection of a tree's roots and crown to ensure its viability.

SRZ has been provided for each tree within the proposed construction footprint in Table 2. It is noted that some trees recorded in the September survey (Natural Area, 2022) are in close proximity to the construction footprint boundary and that any root disturbance activities should take into account the root zone viability of these trees. For all tree locations refer to *Detailed Flora and Vegetation Survey, Baldivis Road* (Natural Area, 2022).

Table 2: Potential cockatoo habitat trees within the construction footprint

Tree #	Species	DBH	SRZ radius (m)	Hollows	Latitude	Longitude
1	<i>Allocasuarina fraseriana</i>	670	2.79	No	-32.3494	115.8291
2	<i>Corymbia calophylla</i>	620	2.71	No	-32.3491	115.829
5	<i>Corymbia calophylla</i>	550	2.57	No	-32.3475	115.8282
3	<i>Eucalyptus gomphocephala</i>	715	2.87	No	-32.3477	115.8282
4	<i>Eucalyptus gomphocephala</i>	1350	3.75	No	-32.3463	115.8267
6	<i>Eucalyptus gomphocephala</i>	875	3.12	No	-32.3464	115.8269
7	<i>Eucalyptus gomphocephala</i>	700	2.85	No	-32.3473	115.828
8	<i>Eucalyptus marginata</i>	500	2.47	No	-32.3473	115.828

Recommendations

The one potential habitat tree containing hollows which may be suitable for use by Black Cockatoos, which occurs outside of the proposed construction footprint, is recommended to be protected during construction activities and to ensure that works do not occur within the SRZ of the tree.

In relation to the habitat trees present within the construction footprint, it is recommended that, where possible, the project boundary be altered to minimise the impacts to the habitat trees and retain as many trees as possible within the site. Habitat trees which occur outside of the construction footprint will need to be ensured that activities do not impact on the SRZ and TPZ of these trees.

As the presence of Bridal Creeper (**Asparagus asparagoides*; WoNS) was recorded throughout the initial survey area, it is recommended weed management and hygiene practices be implemented to ensure that vegetative material including seeds and rhizomes of this weed are not spread to other areas. Dieback (*Phytophthora* sp.) may be present within the site, and it is recommended that soil management hygiene practices are implemented during clearing and construction activities, including ensuring equipment is free of soil when moving between sites.

Regards



Kylie Sadgrove
Environmental Consultant





Legend

-  Completely Degraded
-  Degraded
-  Good
-  Very Good
-  Baldvis Rd Road Upgrade
-  Site Boundary



Figure 2:
Vegetation Condition
Baldvis Road

0 50 100 m



Client: City of Rockingham
Date: December 2022
Created by: K. Sadgrove
Image Source: Nearmap 2022
Datum: GDA 94



Legend

Habitat Trees DBH >500mm

▲ Eucalyptus sp. (dead) - potential suitable hollows

Trees Within Construction Footprint

- Allocastraria fraseriana
- Corymbia calophylla
- Eucalyptus gomphocephala
- Eucalyptus marginata
- Baldvis Rd Road Upgrade
- Site boundary buffered



Figure 3:

Potential Cockatoo Habitat Trees
Baldvis Road

0 25 50 m



Client: City of Rockingham
Date: December 2022
Created by: K. Sadgrove
Image Source: Nearmap 2022
Datum: GDA 94



Legend

Habitat Trees DBH >500mm

▲ Eucalyptus sp. (dead) - potential suitable hollows

Trees Within Construction Footprint

- Allocastraria fraseriana
- Corymbia calophylla
- Eucalyptus gomphocephala
- Eucalyptus marginata
- Baldvis Rd Road Upgrade
- Site Boundary



Figure 3:

Potential Cockatoo Habitat Trees
Baldvis Road

0 25 50 m



Client: City of Rockingham
Date: December 2022
Created by: K. Sadgrove
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Datum: GDA 94



References

AS 4970-2009 (Incorporating Amendment No. 1) *Protection of trees on development sites*. Standards Australia. NSW.

Natural Area Consulting Management Services (Natural Area), 2022. *Detailed Flora and Vegetation Survey, Baldivis Road*. Unpublish report prepared for the City of Rockingham.