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## Lot 609 Yanchep Beach Road, Yanchep

### Carnaby's Black Cockatoo Avoidance and Mitigation Plan

Prepared for  
Peet Limited  
by Strategen

June 2016



# **Lot 609 Yanchep Beach Road, Yanchep**

## **Carnaby's Black Cockatoo Avoidance and Mitigation Plan**

Strategen is a trading name of  
Strategen Environmental Consultants Pty Ltd  
Level 2, 322 Hay Street Subiaco WA  
ACN: 056 190 419

June 2016

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### **Client: Peet Limited**

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# 1. Introduction

Peet Yanchep Land Syndicate (Peet) proposes to develop a housing development on parts of Lot 609 Yanchep Beach Road, located near Yanchep, Western Australia (the Project), approximately 50 km north of Perth and about 2 km east of the Yanchep townsite, WA (Figure 1).

The Project will include approximately 1350 lots within the 118 ha Project site (Figure 2). In addition to the residential lots, the Project will include a school, community centre, roads and active Public Open Space (POS). The Project involves the clearing of approximately 56.6 ha of foraging habitat and 7.4 ha of potential breeding habitat for Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*).

The Project was determined a Controlled Action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 31 March 2014 due to potential for significant impacts on listed threatened species and communities (sections 18 and 18A). The Project was assessed on Referral Information (EPBC 2014/7146).

The Project also includes the retention of 3.60 ha of potential Carnaby's Black-Cockatoo foraging habitat and 1.04 ha of potential breeding habitat in conservation POS shown in Figure 3. In recognising the importance of native vegetation in water efficient design, some potential breeding trees and foraging vegetation will also be retained in landscaping, where possible.

This Carnaby's Black Cockatoo Avoidance and Mitigation Plan (CBCAMP) has been prepared in accordance with approval for EPBC 2014/7146. The purpose of this CBCAMP is to mitigate impacts to the Carnaby's Black-Cockatoo through the avoidance and protection of Carnaby's Black-Cockatoo habitat within the Project site, as well as through incorporating Carnaby's Black-Cockatoo foraging species into the landscaping of the Project.

## 1.1 Objectives

The objectives of the Plan are to:

- provide a map clearly illustrating the area of Carnaby's Black-Cockatoo habitat to be cleared and retained
- provide measures to avoid and mitigate in order to reduce the impact to Carnaby's Black-Cockatoo habitat prior to, during and post construction
- provide timeframes for the implementation and completion of the above objectives
- identify performance indicators
- develop a monitoring and reporting program for Carnaby's Black-Cockatoo habitat
- identify contingency measures
- establish roles and responsibilities.

## 1.2 Land details

The Project is located on Lot 609 Yanchep Beach Road about 2 km east of Yanchep townsite, WA. It is located adjacent to the future Mitchell Freeway extension reserve and future Yanchep Beach Road Railway station.

Table 1 Land identification information

Street address	Suburb	Cadastral information	Title	Zoning	Structure Plan
Lot 609 Yanchep Beach Road	Yanchep	Lot 609 Yanchep Beach Road	Lot 609 on DP 55818	Urban Development Zone	Yanchep City LSP no. 68

## 1.3 Statutory and policy context

### 1.3.1 Metropolitan Regional Scheme Amendment

The planning process for the Project has required a number of stages, each providing a further level of assessment. The first stage of the planning approval process was rezoning the Yanchep/Two Rocks area under the Metropolitan Scheme Amendment from 'Rural' to an 'Urban Development Zone'. This stage comprised Amendment No. 787 of the City of Wanneroo (CoW) Town Planning Scheme No 1 (TPS) and was assessed by the WA Environmental Protection Authority (EPA) under s 48 of the Environmental Protection Act 1986 (EP Act). The assessment identified nine potential environmental factors, including the impact of vegetation loss and habitat loss. The amendment was approved in February 2000 by the WA Minister for the Environment (Statement 538). This assessment was the only environmental approval required at a State level for the Project and was finalised prior to the commencement of the EPBC Act.

The next stage was the development of the Yanchep-Two Rocks District Structure Plan (DSP) (formerly the St Andrews DSP). The DSP was endorsed and adopted in 2009 by the CoW and Western Australian Planning Commission (WAPC). In accordance with the conditions of Statement 538, the DSP Environmental Assessment (ATA Environmental 2007) summarised the baseline environmental investigations undertaken for the entire DSP area. Following the approval of the DSP, the Yanchep City Local Structure Plan no. 68 (Yanchep City LSP) was prepared. The Yanchep City LSP aims to guide the development of a healthy, liveable and integrated city by walking, cycling and public transport, and aims to retain and protect the natural environment and heritage values, through the provision of conservation areas and landscape design that is considerate of the natural environment and form of the landscape (Taylor Burrell Barnett 2009).

### 1.3.2 Western Australian Environmental Protection Act 1986

The Project has been assessed by the EPA as part of the amendment of the TPS. Amendment 787 was formally assessed by the EPA under s 48 of the EP Act. The EPA recommended approval with the preparation of Environmental Management Plans at the Local Structure Plan stage. The amendment was approved by the Minister for the Environment (Statement 538). No further environmental assessments in a WA context are required.

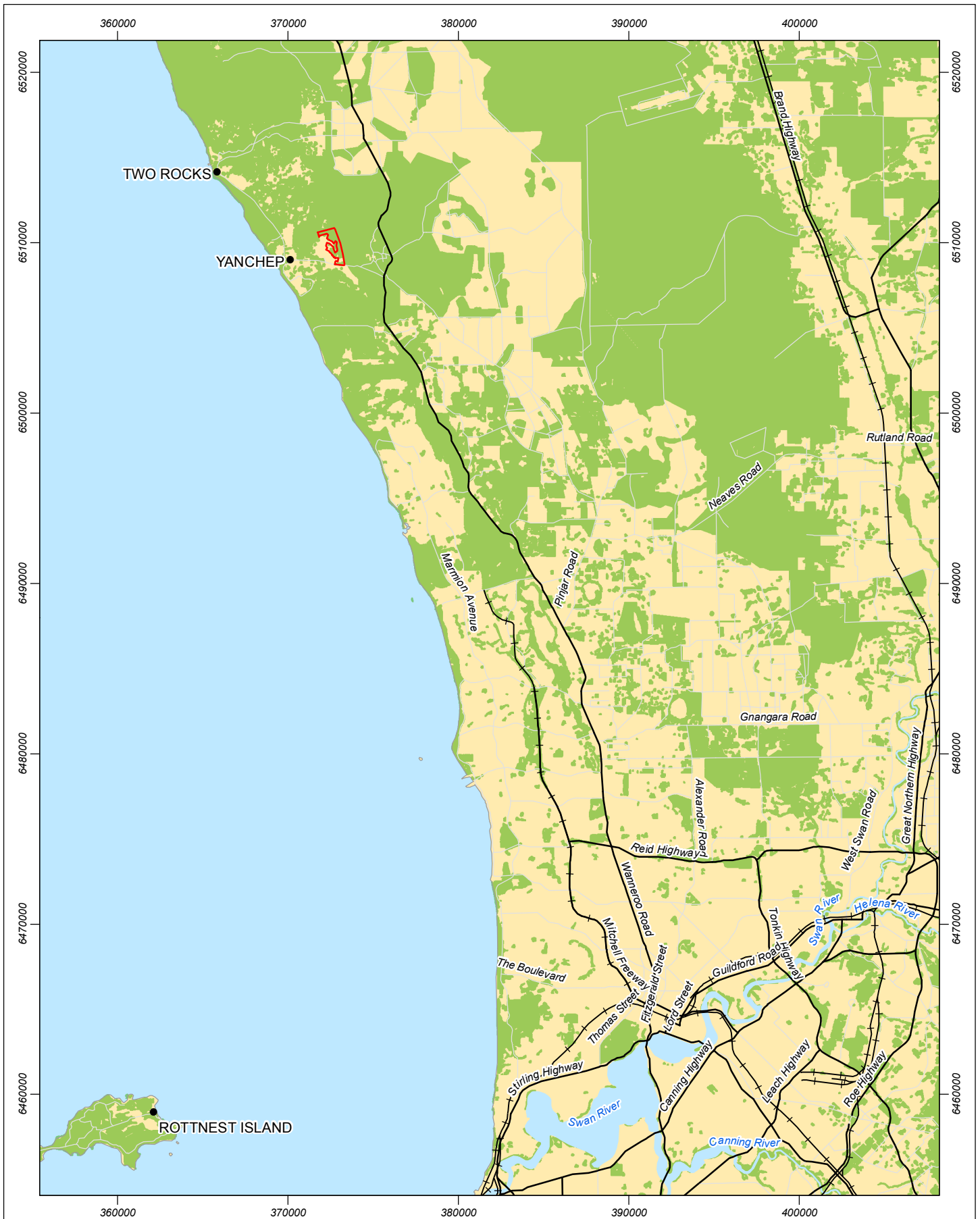


### 1.3.3 Environment Protection and Biodiversity Conservation Act 1999

The Project was referred to the Department of the Environment (DotE) on 28 February 2014 and approved with conditions on 13 June 2014 (EPBC Act approval 2014/7146). This CBCAMP has been prepared in accordance with Condition 3 as indicated in Table 2.

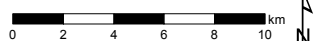
Table 2 Condition 3 and corresponding section of this plan where condition has been addressed

Condition	Relevant section
To mitigate impacts to the Carnaby's Black-Cockatoo, prior to the commencement of the action, the person taking the action must prepare and submit a Carnaby's Black-Cockatoo Avoidance and Mitigation Plan (CBCAMP) for the Ministers approval. The CBCAMP must include, but not be limited to:	N/A
(a) A map clearly illustrating the area of Carnaby's Black-Cockatoo foraging and potential breeding habitat to be cleared and the area of Carnaby's Black-Cockatoo foraging and potential breeding habitat to be retained within the development footprint;	Figure 3
(b) Milestones and objectives of the CBCAMP;	Section 1.1
(c) Avoidance and mitigation measures to reduce impacts to Carnaby's Black-Cockatoo habitat prior to, during and post construction;	Section 3
(d) Timeframes for the implementation and completion of the avoidance and mitigation measures;	Section 3 & 6
(e) Details of monitoring, reporting and contingency measures if performance indicators are not met; and	Section 4, 5 & 6.2
(f) Roles and responsibilities of personnel associated with implementing each of the avoidance and mitigation measures.	Section 6.1
The person taking the action must not undertake any clearing of Carnaby's Black-Cockatoo foraging and potential breeding habitat within the project area unless the CBCAMP has been approved by the Minister. If the Minister approves the CBCAMP, then the approved CBCAMP must be implemented.	N/A



**Figure 1 Project location**

Scale 1:300,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 2/06/2016  
 Author: SFinning



**Legend**

- Railways
- Major road
- Pre-European remnant vegetation
- Project site



info@strategen.com.au  
 www.strategen.com.au

Source: Topography: Geoscience Australia 2011; Roads and railways: Landgate 2013; Site boundaries: Client 2013

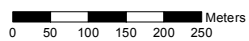
Path: Q:\Consult\2012\PEE\PEE12241\ArcMap\_documents\PEE12241\_02\R003\PEE12241\_02\_R003\_RevA\_F001.mxd





**Figure 2 Project site**

Scale 1:10,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 2/06/2016  
 Author: SFinning

**Legend**

- Conservation POS
- Project site



info@strategen.com.au  
 www.strategen.com.au

Source: Site boundaries: Client 2013

Path: Q:\Consult\2012\PEE\PEE12241\ArcMap\_documents\PEE12241\_02\R003\PEE12241\_02\_R003\_RevA\_F002.mxd



## 2. Carnaby's Black-Cockatoo

### 2.1 Species information

Carnaby's Black-Cockatoos are endemic to the south-west of Western Australia. They mainly occur in uncleared remnant native eucalypt woodlands, especially those that contain salmon gum (*Eucalyptus salmonophloia*), wandoo (*E. wandoo*), and in shrubland or Kwongan heathland dominated by *Hakea*, *Banksia* (including former genus *Dryandra*) and *Grevillea* species (DSEWPaC 2012). Current data on distribution of this species shows that there are numerous records along the Northern Swan Coastal Plain, including records in and around the Project site.

### 2.2 Habitat within the Project site

Western Wildlife (2012) conducted a Black Cockatoo Habitat Assessment of the Project site. The assessment identified the extent of foraging habitat based on habitat mapping as well as identifying potential breeding habitat based on the occurrence of potential breeding trees. The assessment of potential breeding trees was based on an assessment of diameter at breast height (DBH) of representative trees. Trees of known breeding species with a DBH of greater than 50 cm are considered to have a potential to develop hollows and support the breeding of Black Cockatoos in the long term (DSEWPaC 2012a).

Areas of *Banksia* woodland, *Banksia* (formerly *Dryandra*) *sessilis* thickets and planted Tuarts have the potential to support Carnaby's Black-Cockatoo (Western Wildlife 2012). Vegetation types potentially supporting Carnaby's Black-Cockatoo are outlined in Table 3 and shown in Figure 3.

Table 3 Vegetation types that provide foraging habitat for Carnaby's Black-Cockatoo

Vegetation type	Vegetation type	Total area (ha)	Approximate area retained (ha)
Foraging habitat	<ul style="list-style-type: none"> <li>• <i>Banksia</i> woodland</li> <li>• <i>Banksia sessilis</i> heath</li> <li>• <i>Banksia sessilis</i> - <i>Calothamnus quadrifidus</i> heath</li> </ul>	64.00	3.60
Potential Breeding habitat	<ul style="list-style-type: none"> <li>• Planted Tuart (<i>Eucalyptus gomphocephala</i>) woodland</li> </ul>	8.40	1.04

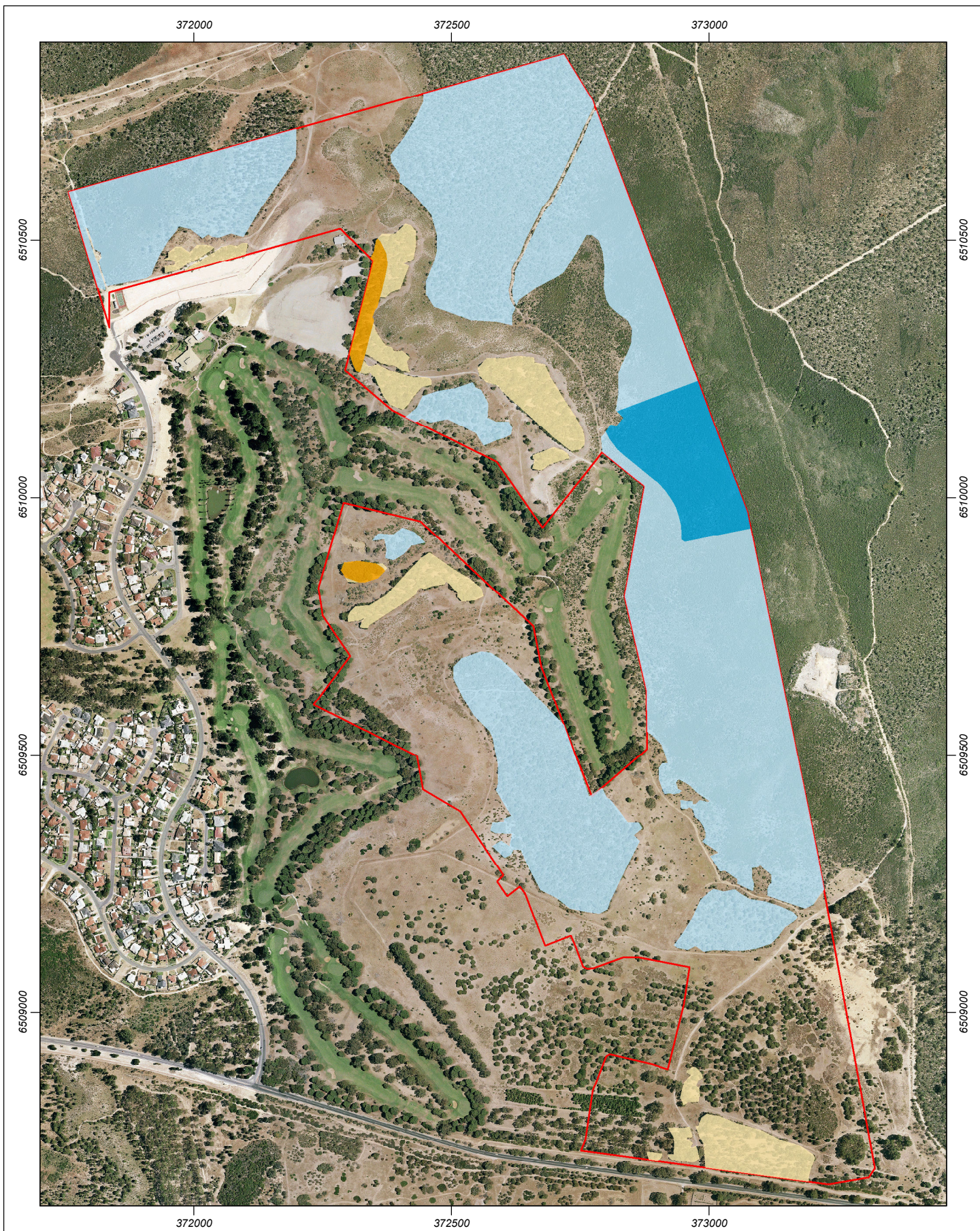
Note: Foraging species list from ATA Environmental (2007), listing species known to provide foraging habitat for Carnaby's Black-Cockatoo as listed by Groom (2011).

Western Wildlife concluded that "the current potential of the study area to support breeding is very low - negligible, as there are only a few large Tuarts present." Planted Tuart trees are the only habitat in the Project site that have the potential to provide breeding habitat for black cockatoos. The majority of the planted Tuart trees within the Project site had a DBH greater than 50 cm (thus potential indicating breeding habitat according to the *EPBC Act referral guidelines for three threatened black cockatoo species* [DSEWPaC 2011]). However, Western Wildlife (2012) identify that it is likely to be many decades before their potential as breeding habitat is realised due to the young age of the trees (approximately 15 -25 years old). On this basis the presence of planted Tuart trees has been identified only providing potential breeding habitat.

Western Wildlife (2012) observed Carnaby's Black-Cockatoos in the study area on four separate occasions. This included individuals flying overhead, perching in Tuart trees and one instance of foraging on an introduced conifer. Evidence of foraging was also recorded in the form of chewed fruit of *Banksia attenuata*.

The vegetation condition varies from 'Completely Degraded' to 'Very Good' condition as a result of historic and current land uses. The vegetation recorded within the Project site is consistent with that found commonly on the Swan Coastal Plain.





**Figure 3 Habitat value for Black Cockatoos**

<p>Scale 1:10,000 at A4</p> <p>0 50 100 150 200 250 Meters</p> <p>Coordinate System: GDA 1994 MGA Zone 50          Note that positional errors may occur in some areas          Date: 2/06/2016          Author: SFinning</p> <p>Source: Site boundaries: Client 2013</p>	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Project site</li> <li><span style="background-color: lightblue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Foraging habitat to be cleared (56.6 ha)</li> <li><span style="background-color: blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Foraging habitat to be retained (3.6 ha)</li> <li><span style="background-color: yellow; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Potential breeding habitat to be cleared (7.4 ha)</li> <li><span style="background-color: orange; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Potential breeding habitat to be retained (1.04 ha)</li> </ul>	<p>info@strategen.com.au          www.strategen.com.au</p>
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### 3. Avoidance and mitigation measures

The Project will result in the removal of approximately 56.60 ha of potential Carnaby's Black-Cockatoo foraging and 7.40 ha of potential breeding habitat. Approximately 3.60 ha of potential Carnaby's Black-Cockatoo foraging habitat and 1.04 ha of potential breeding habitat will be retained in conservation POS (Figure 3). The design of the Project will also retain some foraging vegetation and potential breeding trees in landscaping, where possible.

The purpose of this CBCAMP is to demonstrate how the impact to Carnaby's Cockatoo's will be reduced through avoidance and mitigation measures within the Project site. Carnaby's Black-Cockatoo habitat to be retained in conservation POS and landscaping will be managed by Peet for the developer maintenance period prior to handover to the CoW.

The care, control and management of the habitat retained within POS will eventually be transferred to the CoW and protected through the Local Planning Scheme provisions. This is to be achieved through a condition at subdivision requiring the POS to be ceded to the Crown free of cost and consequently vested in the CoW for the purposes of local conservation.

Street verges containing habitat trees will be designed in accordance with CoW standard operating procedures to ensure the adequate protection of these trees.

#### 3.1 Construction avoidance and mitigation measures for conservation POS

Carnaby's Black-Cockatoo foraging habitat will be retained in conservation POS and some potential breeding trees will be retained in street tree landscaping. Where it is not possible to retain native vegetation (i.e. due to level differences or construction requirements) the street and POS planting will incorporate Carnaby's Black-Cockatoo foraging species, as described in Appendix 1 or other foraging tree species for Carnaby's Black-Cockatoo utilising information from *Plants used by Carnaby's Black-Cockatoo* (Groom 2011), *Plants for Carnaby's Search Tool* (DEC 2012), resources from Birdlife Australia (Birdlife Australia 2012); in addition to non-Carnaby's Black-Cockatoo species approved by the CoW. Weed inspection will also be undertaken within conservation POS and within vegetation adjacent to the Project site boundary to a distance of 100 m to protect existing native vegetation as detailed in Table 4.

Table 4 specifies appropriate avoidance and mitigation measures to be implemented prior to, during and after construction works to minimise the impact through clearing and to retained Carnaby's Black-Cockatoo habitat.

Table 4 Construction avoidance and mitigation measures associated with Carnaby's Black-Cockatoo habitat and potential breeding trees to be retained

Action	Timing	Responsibility
<b>Site preparation activities</b>		
Clearly mark Carnaby's Black-Cockatoo habitat proposed to be retained (as indicated on Figure 3) on construction drawings and delineated by star pickets and coloured tape within the Project site.	Pre- & during clearing	Civil engineer
Clearly mark trees proposed to be retained on construction drawings and by coloured tape within the Project site.	Pre- & during clearing	Civil engineer
Provide GPS co-ordinates of areas approved to be cleared and those required to be retained to the contractor to ensure no unapproved clearing is undertaken.	Pre & during clearing	Civil engineer
Vehicles will be prohibited from accessing any vegetation areas clearly marked and signed for retention.	Pre- & during clearing	Civil engineer
Install temporary signage in accordance CoW standard signage policy to restrict construction workers from entering Carnaby's Black-Cockatoo habitat being retained in conservation POS.	Pre & during clearing	Civil engineer

Action	Timing	Responsibility
Ensure no domestic animals, traps or firearms permitted onsite	Pre & during clearing	All parties
If clearing during Carnaby's Black-Cockatoo breeding season, conduct habitat tree assessments to check for nesting hollows.	Pre-clearing	Environmental consultant
If active Carnaby's Black-Cockatoo nests are located in the site, do not clear until fledglings have left the nest.	Pre-clearing	Environmental consultant
<b>Erosion and dust control measures during construction</b>		
Ensure cleared and any dry, dust-prone areas adjacent to conservation POS or stockpiles are stabilised to prevent dust generation. Stabilisation methods will include one or more of the following sealing methods: wetting (through use of water trucks), application of hydromulch, use of chemical polymers (if required) or other sealing material.	During construction	Civil engineer
Restrict vehicle speeds to 40 km/hr to minimise dust generation on designated roads, access tracks and within construction areas adjacent to conservation POS.	During construction	Civil engineer
<b>Pathogen and weed management</b>		
Induct all construction personnel in relation to dieback and weeds risk, potential impacts and management.	During construction	Environmental consultant
Make sure all vehicles, machinery and equipment are clean prior to entering site.	During construction	All parties
Restrict access of vehicles to areas of construction to minimise the spread or introduction of weeds or pathogens. Access restrictions will be communicated through inductions, signage and fencing where appropriate.	Pre- & During construction	All parties
Undertake initial weed inspection in intact remnant vegetation to a distance of 100 m from the boundary of each development stage, to determine weed density and species present.	Pre-clearing of each development stage	Environmental consultant
Undertake inspection of weeds in areas of retained intact remnant vegetation and remnant vegetation within 100 m of each development stage boundary	In the April or October of the year after clearing of a stage is completed, whichever comes first.	Environmental consultant
Undertake manual and chemical removal of weeds if required based on the weed inspection in conservation POS with intact remnant vegetation and remnant vegetation within 100 m of each development stage boundary.	During construction	Environmental consultant
Ensure any fill/soil brought onto site is disease free.	During construction	Civil engineer
<b>Feral animal control</b>		
The works area to be maintained in a clean and tidy manner to ensure that feral and other species are not attracted to site.	Pre- & during construction	All parties

### 3.2 Street tree landscaping and POS areas avoidance and mitigation measures

To mitigate impacts to Carnaby's Black-Cockatoo, plant species used for foraging by Carnaby's Black-Cockatoo will be planted in landscaped POS and streetscapes within the Project site. A list of street tree species, which includes Carnaby's Black-Cockatoo foraging plants, proposed to be planted in streetscaping is provided in Appendix 1 and the management actions are as detailed in Table 5. Additional species suitable for Carnaby's Black-Cockatoo in addition to non-Carnaby's Black-Cockatoo species approved by the CoW may also be planted in these areas (Table 5).

Trees that provide habitat will be used where possible, although the planning also needs to take into consideration road safety and efficient solar design principles (e.g. use of deciduous trees on east- west roads). Based on current planning the actual makeup is likely to focus on Peppermint (*Agonis Flexuosa*) on north - south streets, Weeping Bottlebrush (*Callistemon Viminalis*) on east - west streets, and Spotted Gum (*Corymbia Maculata*) and Tuart (*Eucalyptus gomphocephala*) on neighbourhood connectors.

In addition it is estimated that 50% of the total tree species planted within street scaping and POS areas will provide habitat for Carnaby's Black-Cockatoo.

Table 5 Street tree landscaping avoidance and mitigation measures within the Project site

Actions	Timing	Responsibility
Undertake street tree landscaping using known Carnaby's Black-Cockatoo foraging sources such that: <ul style="list-style-type: none"> <li>street tree landscaping within the Project site will be planted with trees from Appendix 1, other species suitable for Carnaby's Black-Cockatoo.</li> </ul>	During construction	Landscape architect
Determine the quantity of plants required for particular flora species for the site, ensuring that 50% of the trees proposed to be used in streetscaping and POS areas are Carnaby's Black-Cockatoo habitat species, and: <ul style="list-style-type: none"> <li>arrange nursery contracts for plants and/or seedling propagation if required</li> <li>ensure the quantities of plants are available for pick-up or delivered to the contractor.</li> </ul>	During construction	Landscape architect
Assess potential for rabbits grazing on seedlings based on site location and local records. In the event of rabbit occurrence, undertake rabbit control and/or implement suitable deterrents.	During construction	Landscape architect

#### 4. Performance indicators and monitoring

Table 6 lists a number of environmental targets and performance indicators that have been developed for the management of Carnaby's Black-Cockatoo habitat being cleared and retained, as per Condition 3 of the approval for EPBC 2014/7146.

Table 6 Performance targets and indicators

Target	Key Performance Indicator
Approximately 3.60 ha of Carnaby's Black-Cockatoo foraging habitat and 1.04 ha of potential breeding habitat within the Project site is to be retained.	Areas of habitat retained on final construction drawings versus recent aerial photography of clearing boundaries to ensure no clearing outside of approved areas.
Street tree landscaping within the Project site will contain tree species from Appendix 1, (or other foraging plants for Carnaby's Cockatoo).	Landscaping planting lists or orders include foraging species identified in Appendix 1 and/or in <i>Plants used by Carnaby's Black-Cockatoo</i> (Groom 2011), <i>Plants for Carnaby's Search Tool</i> (DEC 2012), resources from Birdlife Australia (Birdlife Australia 2012)
By completion of the project, 50% of the total trees planted within streetscaping and POS will be CBC foraging and potential breeding species.	Landscaping planting lists or orders include foraging species identified in Appendix 1 and/or in <i>Plants used by Carnaby's Black-Cockatoo</i> (Groom 2011), <i>Plants for Carnaby's Search Tool</i> (DEC 2012) or resources from Birdlife Australia (Birdlife Australia 2012).

Table 7 details the monitoring program for the CBCAMP to achieve the performance targets mentioned above. The monitoring program has been developed focusing on monitoring of clearing and retained Carnaby's Black-Cockatoo habitat within the Project site.

Weed monitoring will be undertaken within conservation POS and within vegetation adjacent to the Project site boundary to a distance of 100 m to protect existing native vegetation as detailed in Table 7 below.



The specific months chosen for weed monitoring relate to the seasons in which the months fall, and were chosen to provide a reasonable guide on weed response to disturbance (i.e. due to any potential effect of the construction staging) and as close to the time of disturbance as possible, to provide a more immediate gauge of whether construction disturbance may be the cause of any detected increase in weediness. Bushland weeds common to the South-West can be categorised roughly into 'summer' and 'winter' growing seasons. Autumn (April) is a suitable time to assess the level of 'summer' weed response which can occur as a result of disturbance, especially if exacerbated by summer rains.

Similarly Spring (October) is a suitable time to assess the level of 'winter' weed response, which can occur as a result of disturbance. Winter weed growth is generally more robust and diverse than summer weeds due to the South-West's wet winters favouring growth over the region's normally dry summers, but invasive summer weeds can nonetheless also establish, particularly in disturbed conditions. Treatment timeframes (and techniques) are species dependent, but action to manage weeds is guided by the measures indicated in Table 7 and Table 8, which aim to ensure any change in weed measurements relative to existing conditions remain within acceptable limits (i.e. to minimise adverse changes to habitat)..

Table 7 Monitoring actions

Parameter	Frequency	Location	Purpose	Responsibility
<b>Delineation of habitat to be retained</b>				
Condition of infrastructure delineating Carnaby's Black-Cockatoo habitat (fencing, gates, pathways, signage etc)	Fortnightly during construction	Retained habitat near clearing boundaries	To ensure infrastructure is in good condition and that there has been no unauthorised clearing beyond the barrier.	Civil engineer
Markings of retained trees	Prior to clearing and during construction	Within Project site	To ensure all trees that are to be retained are clearly marked.	Civil engineer
<b>Erosion and dust control</b>				
Visual observations of erosion	Opportunistically during construction	Drainage areas or bare slopes	To minimise erosion from construction on retained habitat.	Civil engineer
Visual observations of dust generation	Opportunistically during construction	Unsealed surfaces prone to dust generation (e.g. roads, stockpiles)	To minimise dust impacts from construction on retained habitat.	Civil engineer
Dust suppression equipment / actions	Opportunistically during construction	Where potential dust generation is taking place		Civil engineer
Visual observation of vegetation health	Monthly during construction	Retained Carnaby's Black-Cockatoo habitat beyond clearing boundaries		Civil engineer/ Environmental Consultant
<b>Weed and pathogen management</b>				
Inspection of distribution, abundance and density/cover of weed species	April or October post clearing until handover	Within intact remnant vegetation retained within conservation POS and intact remnant vegetation adjacent to each development stage boundary to a distance of 100 m	To ensure no more than a 10% statistical increase in weed species density/cover/distribution, no new weed species and/or no Weeds of National significance (WONs) compared to the results of weed survey taken pre-clearing.	Environmental consultant
<b>Street tree landscaping and POS areas within the Project area</b>				

Parameter	Frequency	Location	Purpose	Responsibility
Number and species of trees planted in streetscapes and POS	Annually until performance targets in Table 6 are met	Within landscaped areas.	To monitor the number and species of trees planted suitable for future use for Carnaby's Black-Cockatoo for food.	Environmental consultant

## 5. Contingency measures

Contingency measures are to be initiated in the event that the objectives for the protection and management of the retained habitat areas are not, or will not be met (Table 8).

Table 8 Performance indicators and corrective actions

Parameter	Trigger	Action	Responsibility
Access / delineation of areas that will be retained	Unrestricted or unauthorised access	<ol style="list-style-type: none"> <li>Determine how access was gained and, if possible, the likely time of access.</li> <li>Implement remedy, which could include: <ul style="list-style-type: none"> <li>repair fence/s</li> <li>erect signs to highlight prohibited access.</li> </ul> </li> <li>Monitor success of control.</li> </ol>	Civil engineer
Erosion and dust	Excessive dust levels are observed	<ol style="list-style-type: none"> <li>Investigate cause.</li> <li>Increase the frequency of dust suppression actions and/or implement additional dust control measures as appropriate.</li> <li>Continue monitoring (visual observations) to determine success of implemented management actions.</li> </ol>	Civil engineer
Weed and pathogens within conservation POS and within vegetation adjacent to the Project site boundary to a distance of 100 m	Introduction of a new weed species within the areas of intact remnant vegetation retained within conservation POS or intact remnant vegetation adjacent to each development stage boundary to a distance of 100 m	<ol style="list-style-type: none"> <li>Map the distribution of the newly introduced weed species.</li> <li>Identify activities that may have potentially introduced the weed species.</li> <li>Plan and implement a weed control program (may involve seeking advice from relevant authorities).</li> <li>Apply hygiene control and education measures.</li> </ol>	Environmental Consultant
	A 10% statistical increase in weed species density/ cover/distribution compared to the results of initial weed survey, presences of a new weeds species and/or presences of WONS within the areas of intact remnant vegetation retained within conservation POS or intact remnant vegetation adjacent to each development stage boundary to a distance of 100 metres (as observed in opportunistic inspections)	<ol style="list-style-type: none"> <li>Map the revised extent of the specific weed species within the Project site.</li> <li>Identify activities that may have potentially increased the abundance, distribution or density/cover of weed species.</li> <li>Plan and implement a weed control program (may involve seeking advice from relevant authorities).</li> <li>Apply hygiene control and education measures.</li> </ol>	Environmental Consultant
	Incorrect hygiene procedures being undertaken by work machinery at authorised access points into conservation POS	<ol style="list-style-type: none"> <li>Determine why appropriate hygiene procedures were not followed.</li> <li>Implement remedy, which could include: <ul style="list-style-type: none"> <li>review of hygiene procedures</li> <li>educating employees on appropriate hygiene measures</li> <li>erect signs to highlight prohibited access.</li> </ul> </li> <li>Monitor success of control.</li> </ol>	Environmental Consultant
Street tree landscaping and POS areas	Less than 50% of tree species used in street tree landscaping and/or POS areas are not foraging species for Carnaby's Black-Cockatoo as per Table 6	<ol style="list-style-type: none"> <li>Identify cause.</li> <li>Remove species and/or infill plant with Carnaby's Black-Cockatoo foraging species in discussion with the CoW.</li> <li>Ensure inappropriate species are not used in future.</li> </ol>	Environmental Consultant

## 6. Plan implementation and reporting

In accordance with Condition 3 of the approval for EPBC 2014/7146 this CBCAMP will be implemented by Peet until the handover of the POS to the CoW. The CoW Local Planning Policy requires Conservation Management Plans to be prepared for each of the local POS areas that include designated local conservation areas.

### 6.1 Roles and responsibilities

#### *Peet*

The primary responsibilities of Peet include:

- act as primary liaison between the civil engineer, landscape architect, environmental consultant, DotE and the CoW
- ensure all construction contracts contain relevant environmental management provisions
- report to DotE in accordance with the conditions of approval for EPBC 2014/7146
- review quarterly reports provided by the civil engineer.

#### *Civil engineer*

The primary responsibilities of the civil engineer include:

- overall accountability to ensure construction activities do not adversely impact Carnaby's Black-Cockatoo habitat or potential breeding trees being retained
- ensure all site personnel are aware of the requirements of the CBCAMP and related management plans
- provide support to the Peet and DPaW as required during the construction phase.

#### *Landscape architect*

The primary responsibilities of the landscape architect include:

- overall accountability to ensure landscaping activities meet performance targets
- ensure all site personnel are aware of the requirements of the CBCAMP and related management plans
- provide support to the Peet and DPaW as required during the landscaping phase.

#### *Environmental consultant*

The primary responsibilities of the environmental consultant include:

- liaison between the civil engineer, landscape architect, revegetation consultants to ensure environmental performance targets are met
- ensure all site personnel are aware of the requirements of the CBCAMP and related management plans
- provide support to the Peet and CoW as required during the landscaping phase.

#### *City of Wanneroo*

The primary responsibilities of the CoW include:

- provide for the long term management and protection of retained habitat within the Project site
- support the use of Carnaby's Black Cockatoo foraging habitat species within streetscapes and POS.

## 6.2 Reporting

In accordance with Condition 3 of the approval for EPBC 2014/7146 Peet will publish an Annual Compliance Report (ACR) on their website addressing the compliance of the implementation of this plan. To ensure that planting of black cockatoo species is occurring on an ongoing basis and is on track to achieve the final 50% target, Peet will report on planting progress in the ACR. The report will be published within three months of every 12 month anniversary of the commencement of the action and any non on compliance will be reported to DotE.

## 7. References

- ATA Environmental (ATA) 2007, *Yanchep Sun City – Flora and Vegetation Assessment, St. Andrews Local Structure Plan*, unpublished report prepared for Yanchep Sun City, October 2007.
- Birdlife Australia 2012, *Plants for Carnabys*, [Online], Birdlife Australia, Available from: <http://birdlife.org.au/projects/carnabys-black-cockatoo-recovery/plants-for-carnabys>, [1 November 2013].
- Department of Environment and Conservation (DEC) 2012, *Plants for Carnaby's Search Tool*, [Online], Department of Environment and Conservation, Government of Western Australia, Available from: <http://www.dec.wa.gov.au/apps/plantsforcarnabys/index.php>, [31 October 2013].
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2011) *Environment Protection and Biodiversity Conservation Act 1999 Referral Guidelines For Three Threatened Black-Cockatoo Species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*; Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*; Forest red-tailed Black-Cockatoo (vulnerable) *Calyptorhynchus banksii naso** Commonwealth of Australia Publically Available.
- Department of Sustainability, Environment, Water, Population & Communities (DSEWPaC) 2012, *Calyptorhynchus latirostris–Carnaby's Black-Cockatoo, short billed black-cockatoo*, (SPRAT), [Online], Available at [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=59523](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59523) [6 August 2013].
- Groom C 2011, *Plants used by Carnaby's Black Cockatoo*, [Online], Department of Environment and Conservation, Government of Western Australia, Available from: <http://www.dec.wa.gov.au/management-and-protection/threatened-species/5983-plants-for-carnabys-search-tool.html>, [31 October 2013].
- Taylor Burrell Barnett, 2009, *Yanchep City Local Structure Plan 2009*, Taylor Burrell Barnett, Subiaco.
- Western Wildlife 2012, *Yanchep Golf Estate: Habitat Assessment*, unpublished report prepared for the Department of Sustainability, Environment, Population and Communities (DSEWPaC), October 2012.

**Appendix 1**  
**Street tree planting list**





## Street tree planting list

- *Agonis flexuosa* **Peppermint** \*('low' planting priority)
- *Angophora costata* **Smooth-barked Apple**
- *Brachychiton populneus* **Kurrajong**
- *Callistemon viminalis* **Weeping Bottlebrush** \*('medium' planting priority)
- *Celtis australis* **Nettle Tree**
- *Corymbia eximia* **Yellow Bloodwood**
- *Corymbia maculata* **Spotted Gum** \*('high' planting priority)
- *Eucalyptus gomphocephala* **Tuart** \*('high' planting priority)
- *Eucalyptus leucoxylon* **Red Flowering Gum**
- *Eucalyptus sideroxylon* **Red Flower Ironbark**
- *Eucalyptus spathulata* **Swamp Gum**
- *Gleditsia triacanthos* **'Shademaster'**
- *Jacaranda mimosifolia* **Jacaranda** \*('low' planting priority)
- *Melaleuca lanceolata* **Rottnest Tea Tree**
- *Platanus orientalis* **'Autumn Glory'**
- *Sapium sebiferum* **Chinese Tallow**
- *Ulmus parvifolia* **Chinese Elm**

\* known Carnaby's Black-Cockatoo foraging species (Groom 2011).

Note: planting priority follows Groom (2011).