



**Australian Government**

**Department of Sustainability, Environment, Water, Population and Communities**

## Referral of proposed action

### What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the **Minister's delegate**. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided that sufficient information is provided in the referral.

### Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

### When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
  - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
  - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.
- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.

- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

### **Can I refer part of a larger action?**

In certain circumstances, the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act). If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referral Business Entry Point (1800 803 772).

### **Do I need a permit?**

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

### **Is your action in the Great Barrier Reef Marine Park?**

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from <http://www.gbrmpa.gov.au/> or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379

Townsville QLD 4810

AUSTRALIA

Phone: + 61 7 4750 0700

Fax: + 61 7 4772 6093

[www.gbrmpa.gov.au](http://www.gbrmpa.gov.au)

### **Do I have to pay for my referral or assessment / what are the fees?**

Currently the department does not impose fees for environmental impact assessments referred and assessed under the EPBC Act. However, new fees are proposed as part of cost recovery reforms to the EPBC Act from 1 December 2012. Final cost recovery arrangements will be subject to an amending Bill being passed by Parliament and the making of regulations. Fees for environmental impact assessments are proposed to apply to:

- all proposed actions referred after 8 May 2012 that are still undergoing assessment, decision on approval or that may be subject to post approval management plans after 1 December 2012 (fees will only apply to the work undertaken by the department after 1 December 2012); and
- all referrals on or after 1 December 2012.

For projects that are referred after 8 May 2012, that may be subject to fees, the department will inform proponents of their liability for potential fees prior to the introduction of cost recovery arrangements on 1 December 2012. Further details on the proposed cost recovery arrangements can be found here <http://www.environment.gov.au/epbc/publications/consultation-draft-cost-recovery.html>.

## What information do I need to provide?

**Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal enter N/A.**

You can complete your referral by entering your information into this Word file.

### Instructions

Instructions are provided in green text throughout the form.

### Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

**Please ensure any attachments are below two megabytes (2mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referral Business Entry Point for advice. Attachments larger than two megabytes (2mb) may delay processing of your referral.**

**Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.**

## How do I submit a referral?

Referrals may be submitted by mail, fax or email.

### Mail to:

Referral Business Entry Point  
Environment Assessment Branch  
Department of Sustainability, Environment, Water, Population and Communities  
GPO Box 787  
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are appreciated.

### Fax to: 02 6274 1789

- Faxed documents must be of sufficiently clear quality to be scanned into electronic format.
- Address the fax to the mailing address, and clearly mark it as a 'Referral under the EPBC Act'.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

### Email to: [epbc.referrals@environment.gov.au](mailto:epbc.referrals@environment.gov.au)

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

## What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

**The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval**

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

**The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner**

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

**The proposed action is LIKELY to have a significant impact and does NEED approval**

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

**The proposed action would have UNACCEPTABLE impacts and CANNOT proceed**

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

**Compliance audits**

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park*," p.2, for more details).

**For more information**

- call the Department of Sustainability, Environment, Water, Populations and Communities Community Information Unit on 1800 803 772 or
- visit the web site [www.environment.gov.au/epbc](http://www.environment.gov.au/epbc)

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

# Referral of proposed action

**Project title:** Jindee Innovation Project (known as Jindee)

## 1 Summary of proposed action

### 1.1 Short description

Westminster Estates Pty Ltd has entered into an agreement in 2007 with the Western Australian Planning Commission and the City of Wanneroo (the Jindee Innovation Project Agreement) to undertake an innovative residential development on land owned by Westminster or under **contract to Westminster, on Lot 9036 and Part Lot 3054 Marmion Avenue, Jindee ('Proposal Area')**.

The Proposal involves the clearing of approximately 46 ha of potential Graceful Sun Moth habitat and 35 ha of potential foraging **habitat for Carnaby's Black Cockatoos**. It is noted that there is an overlap in clearing of 2.18 ha between the habitats for these two species. The vegetation across the site is predominantly in good to excellent condition; however, areas are degraded and weeds have been introduced by unauthorised access of off-road vehicles.

The key point of difference between this residential development and surrounding subdivisions is how the development responds to the existing environment. Through maintaining the existing gently undulating topography, the Jindee Residential Development provides for several larger lots and subsequent retention of 15.7% of potential Good – Excellent **Carnaby's** habitat and 16.67% of potential Good – Excellent Graceful Sun Moth habitat on site.

### 1.2 Latitude and longitude

Point Number	Longitude (GDA94)	Latitude (GDA94)
1	115.68964359300	-31.63588080780
2	115.69538768400	-31.64779127890
3	115.69014798800	-31.64697369740
4	115.68284081500	-31.64783458090
5	115.68251889100	-31.64738401700
6	115.68103396700	-31.64491405710
7	115.68092092000	-31.64430963430
8	115.68022181300	-31.64215981230
9	115.67953730100	-31.64155987870
10	115.67938486100	-31.64116306590
11	115.67951146700	-31.64054864910
12	115.68105396700	-31.63857352690
13	115.68648773900	-31.63832931490

---

1.3 **Locality and property description**

The Proposal area comprises of Lot 9036 (approximately 112 ha) and a portion of Lot 3054 (approximately 7 ha) of land within the City of Wanneroo (CoW), approximately 37 km north of the Perth Central Business District and 14 km north-west of Joondalup City Centre (Figure 1).

The Proposal area encompasses Lot 9036 and Lot 3054 Marmion Avenue and has approximately 800 m of frontage to the Indian Ocean. Principal access to the site is via Marmion Avenue, which is currently constructed to Yanchep Beach Road, north of the Proposal area (Figure 1A).

The Proposal area is within close proximity to the proposed Brighton District Centre, the proposed Brighton rail station (expected to be operational in 2014) and the Mitchell Freeway extension.

Fundamental to the Jindee Innovation Project Agreement, are the environmental aspects of the development. Areas of significant biodiversity were identified on the site and agreement was reached to protect these areas in Regional Open Space reserves and in areas set aside for Natural Living. The location of these regional open spaces (a total of 6.1 ha) and connecting natural living area (approximately 12.5 ha) within the Proposal site were developed jointly with the WA Environmental Protection Authority and the WAPC with an objective to maximise the biodiversity protected on site.

This shared vision has resulted in the rationalisation of land through a Metropolitan Scheme Amendment in 2010. An environmental benefit of this amendment was an increase in environmental assemblages than would have been achieved if the land was developed in a conventional subdivision way.

As well as the environmental protection measures contained in the Jindee Innovation Project Agreement, and the Metropolitan Regional Scheme they are also reinforced through the provisions contained in the Town Planning Scheme amendment currently proceeding through the approval process. These statutory protections were considered and approved by the Western Australian Environmental Protection Authority.

These innovations will create a significant point of difference with the surrounding residential subdivisions. Much of the topography will be retained; Regional Open Space areas will protect the natural environment and the natural living areas will retain their natural vegetation and topography. This is in contradiction to the surrounding residential subdivisions which have primarily developed on the principal of cut to fill across sites and the removal of the natural contours.

The criteria used by Westminister and the Department of Environment and Conservation to position the ROS and the natural living areas, was to maximise the retention of biodiversity on site. This was achieved within the context of land in the North West Corridor which has been zoned for urban development for many decades.

---

1.4 **Size of the development footprint or work area (hectares)** The Proposal area covers approximately 119 ha of naturally vegetated land, with localised areas of clearing associated with tracks and off-road vehicle routes. Approximately 46 ha of potential Graceful Sun Moth habitat and 35 ha of potential foraging habitat **for Carnaby's** Black Cockatoos are proposed to be cleared.

1.5 **Street address of the site** Lot 9036 Marmion Avenue, Jindalee, Western Australia

1.6 **Lot description**  
 The Proposal area comprises the following lots:  
 • Lot 9036  
 • Part Lot 3054

1.7 **Local Government Area and Council contact (if known)**  
 The project is located within the City of Wanneroo. The relevant council contact officer is John Corbellini, ph (08) 9405 5544.

1.8 **Time frame**  
 The EPBC approval will be the determining date for commencement of development. The anticipated development timeframe is 8 to 10 years.

1.9 <b>Alternatives to proposed action</b>	X	No
		Yes, you must also complete section 2.2

1.10	<b>Alternative time frames etc</b>	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	<b>State assessment</b>	<input type="checkbox"/>	No
		<input checked="" type="checkbox"/>	Yes, you must also complete Section 2.5
1.12	<b>Component of larger action</b>	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes, you must also complete Section 2.7
1.13	<b>Related actions/proposals</b>	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes, provide details:
1.14	<b>Australian Government funding</b>	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes, provide details:
1.15	<b>Great Barrier Reef Marine Park</b>	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes, you must also complete Section 3.1 (h), 3.2 (e)

## 2 Detailed description of proposed action

### 2.1 Description of proposed action

Jindee is located within the North West Corridor of the Perth Metropolitan Area. The Metropolitan Region Scheme planning for urban development in this corridor which has now progressed in a northerly direction through to Yanchep and Two Rocks.

It is noted that existing residential development within the North West corridor has been of a conventional nature and involved widespread earthworking of the natural topography and clearing of remnant vegetation. The resulting settlement pattern is homogenous and comprises predominantly low density, single residential development (Figure 2).

Jindee is unique to the corridor. It is the only urban development that will be controlled through a Form Based Code. This particular Form Based Code is built on the Smartcode ordinance which creates various Transects. The essence of the Transects lies with the recognition and celebration of the topographical and environmental features of the land. Of particular note are the Regional Open Spaces and the Natural living areas where the natural environment will be maintained. The locations of these areas were planned with the Department of Environment (WA) to maximize biodiversity. The Form Based Code forms part of the statutory controls of the District Planning Scheme, Local Structure Plan and Detailed Area Plans to ensure the vision of Jindee is maintained, including the environmental elements.

Specifically, the retention of the two significant dunal systems running east-west across the site (perpendicular to the coast) has allowed for the provision of larger lots and retention of native vegetation where possible (Figure 3). As illustrated in Figure 4, approximately 9.18 ha of good to excellent condition Graceful Sun Moth habitat and approximately 6.28 ha of good to excellent **condition potential foraging habitat for Carnaby's Black Cockatoo will be retained within Public Open Spaces, Civic spaces and large residential lots.**

The west of the Proposal area is also bordered by a Parks and Recreation Reserve (Bush Forever Site 397) which was subject to a Metropolitan Region Scheme (MRS) amendment in 2010, facilitating a land exchange between the landowner and the WAPC of part of the reserve with part of Lot 9036 (RPS 2012, Appendix 1). The Parks and Recreation Reserve contains the highest point within the locality known as Eglinton Hill (Trig Point), as well as the Foreshore Reserve.

On this basis Jindee has been designed to provide a wide diversity of experiences – from the coastal promenade, through dense urban form to the naturalistic environment on the ridges. It seeks to increase the landscape variety of the future urban fabric and preserve an important natural and regional landscape feature that otherwise could not be achieved with a conventional subdivision development.

As part of the land exchange with the WAPC it was also recognised that regional and general beach carparking should not be located within the foreshore reserve as it ordinarily is in conventional coastal subdivisions. This practice of providing large unattractive carparking within the environmentally sensitive foreshore reserve has been avoided at Jindee. Instead, these carparks whilst still being accessible, will be sleeved behind coastal buildings.

### 2.2 Alternatives to taking the proposed action

No alternatives to taking the proposed action have been considered.

### 2.3 Alternative locations, time frames or activities that form part of the referred action

Not applicable.

### 2.4 Context, planning framework and state/local government requirements

The Proposal area has been identified as the most appropriate location for coastal nodal development between Mindarie and Alkimos through previous government reports and workshops (RPS 2012, Appendix 1).

The Proposal area is within close proximity to the proposed Brighton District Centre, the proposed Brighton rail station (expected to be operational 2014) and the Mitchell Freeway extension.

An MRS Amendment was approved in 2010 (1152/41) which rationalised the foreshore reserve and created inland Regional Open Space (ROS) which will facilitate a land exchange of a portion now zoned Urban of Lot 3054 owned by the WAPC and two Parks and Recreation areas of Lot 9036 owned by Westminster Estates Pty Ltd (Figure 5).

Town Planning Scheme Amendment 115 to the City of Wanneroo District Planning Scheme 2 which sets the legislative planning framework for a Form Based Code at Jindee has been initiated and advertised to the public. It is now in its final steps in its assessment to gain approval from the Council and the WAPC.

The proponent has also lodged the Jindee Local Structure Plan with the Council which is the next phase in the statutory planning framework. The LSP contains the next level of detail beyond the Town Planning Scheme covering Form Based aspects of Urban Standards, Thoroughfare Standards, Landscaping Standards, and the Regulating Plan Series.

### 2.5 Environmental impact assessments under Commonwealth, state or territory legislation

#### EPA Assessment

The Department of Environment and Conservation (DEC) and the Environmental Protection Authority (EPA) have worked directly with Westminster from 2002 until now in the planning of Jindee, to ensure that the outcomes wanted by Westminster and the agencies were aligned. This ensured that when Jindee was referred to the EPA, at the time of the MRS amendment, the EPA understood and supported the vision for the development (Appendix 2). It has also ensured that the requirements of the EPA have also been built in to the statutory processes that will control the development of Jindee for example the Town Planning Scheme.

The MRS amendment 1152/41 was referred to the Environmental Protection Authority (EPA) in March 2008 and in May 2008 was classified as 'Scheme Amendment Not Assessed – Advice given' level of assessment under Section 48A of the *Environmental Protection Act 1986*. The full EPA advice can be found in Appendix 3, with a summary detailed below:

- the EPA acknowledged that the rationalisation of P&R boundaries is part of the landowners efforts to develop a coastal node and an innovative coastal community that implements a range of sustainability principles
- the EPA supports the MRS Amendment (1152/41) on the basis that the two areas of Parks and Recreation (P&R) reserve are being provided to offset the area of foreshore P&R reserve (Bush Forever Site no. 397) proposed to be zoned Urban
- the two P&R reserves will be linked with native vegetation retained on private lots
- the vegetated linkage was an important consideration by the EPA in agreeing to the reduced foreshore reserve offset

- the EPA is satisfied that there are no Declared Rare Fauna or Threatened Ecological Communities in the Proposal area.

The EPA did advise that the following environmental issue was not assessed as part of the MRS amendment:

*'regional vegetation values (ecological linkages). The issue of ecological linkage was deferred to ensure that an adequate mechanism is put in place during later stages of planning that will retain and protect the vegetation between the foreshore and inland area of P&R.'*

Town Planning Scheme Amendment 115 to the City of Wanneroo District Planning Scheme 2 – Jindee was referred to the EPA and a decision was made under Section 48A(1)(a) in July 2011 and reiterated in May 2012. The classification by the EPA was Scheme Amendment Not Assessed – Advice Given. Full details can be found in Appendix 4. A summary of the advice follows:

*'The EPA is satisfied that the provisions for ensuring the vegetated linkage is provided on the private residential lots are set out in Clause 4.8 and Schedule 8B of Amendment 115 and on the basis the amendment is consistent with the EPA's requirements.'*

Details of the relevant clauses in the Town Planning Scheme Amendment are part of Appendix 4.

## **2.6 Public consultation (including with Indigenous stakeholders)**

Key stakeholders have been consulted on the referral on several occasions, the most recent being as part of the MRS amendment process in 2008.

## **2.7 A staged development or component of a larger project**

Not applicable.

## 3 Description of environment & likely impacts

### 3.1 Matters of national environmental significance

#### 3.1 (a) World Heritage Properties

##### Description

There are no World Heritage Properties located within the vicinity of the Proposal area (SEWPaC 2012, Appendix 5).

##### Nature and extent of likely impact

Not applicable

---

#### 3.1 (b) National Heritage Places

##### Description

There are no National Heritage Places located within the vicinity of the Proposal area (SEWPaC 2012, Appendix 5).

##### Nature and extent of likely impact

Not applicable

---

#### 3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

##### Description

There are no Wetlands of International Importance within the vicinity of the Proposal area (SEWPaC 2012, Appendix 5).

##### Nature and extent of likely impact

Not applicable

---

#### 3.1 (d) Listed threatened species and ecological communities

**Description****Threatened flora**

The EPBC Act Protected Matters database identifies three species listed as threatened under the EPBC Act as having the potential to occur in the Proposal area (Table 1).

**Table 1 EPBC Act listed flora species potentially occurring in the Proposal area**

Species	Common name	Conservation status
<i>Centrolepis caespitosa</i>	Matted Centrolepis	Endangered
<i>Isopogon uncinatus</i>	Hook-leaf Isopogon	Endangered
<i>Lepidosperma rostratum</i>	Beaked Lepidosperma	Endangered

Source: SEWPaC 2012, Appendix 5

Previous surveys have identified three species listed on the DEC's Rare and Priority Flora Database, two subspecies of *Conostylis pauciflora*; subspecies *euryrhipis* (Priority 3) and subspecies *pauciflora* (Priority 4), and *Conostylis bracteata* (Priority 3) (RPS 2012, Appendix 1).

**Threatened fauna**

The EPBC Act Protected Matters database identifies 21 species listed under the EPBC Act with the potential to occur in the Proposal area. Of these, 11 are marine species and have; therefore, not been considered further in this referral (SEWPaC 2012, Appendix 5). The remaining 10 species are detailed in Table 2.

**Table 2 EPBC Act listed fauna species potentially occurring in the Proposal area**

Species	Common name	Conservation status
<b>Birds</b>		
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	Vulnerable
<i>Calyptorhynchus latirostris</i>	<b>Carnaby's Black</b> -cockatoo, Short-billed black-cockatoo	Endangered
<i>Leipoa ocellata</i>	Malleefowl	Vulnerable
<i>Macronectes giganteus</i>	Southern Giant-Petrel	Vulnerable
<i>Macronectes halli</i>	Northern Giant-Petrel	Vulnerable
<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable
<i>Sternula Nereis Nereis</i>	Fairy Tern (Australian)	Vulnerable
<i>Thalassarche cauta cauta</i>	Shy Albatross, Tasmanian Shy Albatross	Vulnerable
<b>Insects</b>		
<i>Synemon gratiosa</i>	Graceful Sun Moth	Endangered*
<b>Mammals</b>		
<i>Dasyurus geoffroii</i>	Chudditch, Western Quoll	Vulnerable

\*It is noted that the State conservation significance listing for the Graceful Sun Moth has recently been downgraded to the extent that the species is no longer on the State list of threatened species. While the species is still listed under the Commonwealth EPBC Act as endangered, a nomination to delist the graceful sun-moth under the EPBC Act is likely to be sent from the State to SEWPAC seeking a review of the status under the EPBC Act. Refer to the detailed assessment section on the Graceful Sun Moth below for further detail.

**Threatened Ecological Communities**

No Threatened Ecological Communities were identified by an EPBC Act Protected Matters database search of the Proposal area and immediate surrounds (SEWPaC 2012, Appendix 5).

**Nature and extent of likely impact**

**Threatened flora**

An assessment of the likelihood of occurrence of each of the flora species identified by the EPBC Act Protected Matters database search is presented in Table 3. None of these species has been recorded during surveys carried out at the Proposal area (RPS 2012, Appendix 1; RPS 2010, Appendix 6).

**Table 3 Likelihood of EPBC Act listed flora species occurring within the Proposal area**

Species	Likelihood of occurrence in Proposal area	Reason	Comments
<i>Centrolepis caespitosa</i>	Unlikely	No known populations in immediate vicinity of Proposal area.	Known only from eight populations over a large geographical range from the South Coast near Denmark, north to the Swan Coastal Plain and east to Meckering. Generally occurs on swampy loam in low-lying winter depressions that are occasionally inundated with fresh (not saline) water and are dominated by low shrubs and sedges.
<i>Isopogon uncinatus</i>	Unlikely	No known populations in vicinity of Proposal area.	Known from nine populations confined to the Albany area of Western Australia.
<i>Lepidosperma rostratum</i>	Unlikely	No known populations in immediate vicinity of the Proposal area.	Known from four populations in the east of the metropolitan area of Perth. It is likely to have disappeared from most of this urbanised area but may occur in other remnant bushland habitats elsewhere on the Swan Coastal Plain. Beaked <i>Lepidosperma</i> is associated with Marsh Banksia ( <i>Banksia telmatiaea</i> ) and Hairy Clawflower ( <i>Calothamnus hirsutus</i> ), and grows in sandy soil among

Source: RPS 2012; SEWPac 2012

**Threatened fauna**

An assessment of the likelihood of occurrence of each of the fauna species identified by the EPBC Act Protected Matters database search is presented in Table 4, based on fauna surveys undertaken within the Proposal area (RPS 2012, Appendix 1).

**Table 4 Likelihood of EPBC Act listed fauna species occurring in the Proposal area**

Species	Likelihood of occurrence in Proposal area	Reason	Comments
Forest Red-tailed Black-Cockatoo	Unlikely	Preferred habitat absent in Proposal area.	Preferred habitat includes <i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> , <i>E. diversicolor</i> woodland and forest.
Carnaby's Black-cockatoo, Short-billed black-cockatoo	Likely	Potential foraging habitat within Proposal area; signs of feeding	Remnant native eucalypt woodlands and in shrubland or kwongan heathland dominated

		observed during the fauna survey of the Proposal and including the adjoining land.	by <i>Hakea</i> , <i>Banksia</i> and <i>Grevillea</i> species.
Malleefowl	Unlikely	No recorded sightings in the vicinity of the Proposal area.	Shrublands or low mallee-dominated woodlands in semi-arid and arid zones of temperate Australia.
Southern Giant-Petrel	Unlikely	No recorded sightings in immediate vicinity of the Proposal area.	Seabird that is not expected to rely on the Proposal area for foraging or breeding.
Northern Giant-Petrel	Unlikely	No recorded sightings in immediate vicinity of the Proposal area.	Seabird that is not expected to rely on the Proposal area for foraging or breeding.
Australian Painted Snipe	Unlikely	Preferred habitat absent in Proposal area.	Shallow freshwater terrestrial wetlands including waterlogged grasslands and man-made water bodies.
Fairy Tern (Australian)	Unlikely	No recorded sightings in immediate vicinity of the Proposal area.	Sheltered sandy beaches, spits and banks, and offshore, estuarine or lacustrine islands, wetlands and mainland coastline.
Shy Albatross, Tasmanian Shy Albatross	Unlikely	No recorded sightings in immediate vicinity of the Proposal area.	Seabird that is not expected to rely on the Proposal area for foraging or breeding.
Graceful Sun Moth	Likely	Individuals recorded within the Proposal area.	Preferred habitat in Banksia woodland is <i>Lomandra hermaphrodita</i> in Banksia woodland on Spearwood and Bassendean dunes.
Chudditch, Western Quoll	Unlikely	Preferred habitat absent in Proposal area.	Preferred habitat is jarrah forest, mixed karri/marri/jarrah forest of south-west WA, also occurs in very low numbers in the Midwest, Wheatbelt and South Coast Regions.

Source: Bamford 2006

### **Assessment of impact on Carnaby's Black Cockatoo**

An impact assessment of the proposed action on the **Carnaby's Black Cockatoo** is detailed in Table 5, with reference to the Significant Impact Guidelines.

**Table 5 Assessment of potential impacts to Carnaby's Black Cockatoo against significant impact criteria**

<b>Significant Impact Criterion</b>	<b>Comment</b>
<b>Will the action lead to a long-term decrease in the size of a population?</b>	<p>The proposed action will result in the removal of approximately 35 ha of potential <b>Carnaby's Black Cockatoo</b> foraging habitat (Figure 6). <b>Carnaby's Black Cockatoo</b> is known to frequent urban areas where native plants are present. As such, vegetation in the proposed clearing area represents potential <b>Carnaby's Black Cockatoo</b> foraging habitat.</p> <p>The proposed clearing will not lead to a long-term</p>

	<p>decrease in the size of <b>Carnaby's Black Cockatoo</b> population due to:</p> <ul style="list-style-type: none"> <li>• the residual presence of large areas of vegetation within the locality and region of the Proposal area</li> <li>• the nature of <b>Carnaby's Black Cockatoo</b> populations, which are highly mobile with extensive ranges</li> <li>• there are no known or potential breeding areas within the Proposal area.</li> </ul> <p>Approximately 6.28 ha of potential foraging habitat will be retained within the Proposal area.</p>
<p><b>Will the action reduce the area of occupancy of the species?</b></p>	<p>The proposed action will not significantly reduce the area of occupancy of <b>Carnaby's Black Cockatoo</b>. There is approximately 17,000 ha of <b>Carnaby's Black Cockatoo</b> foraging habitat recorded within the City of Wanneroo and high quality foraging habitat within Yanchep National Park. Clearing of 35 ha of potential foraging vegetation (less than 1% of City of Wanneroo occupancy) will; therefore, not significantly reduce the overall percentage of foraging habitat within the region.</p>
<p><b>Will the action fragment an existing population into two or more populations?</b></p>	<p>The proposed action involves clearing approximately 35 ha of potential <b>Carnaby's habitat</b> in an urban area bounded by roads and residential developments. The <b>Carnaby's Black Cockatoo</b> is a highly mobile species and the small size of the proposed clearing will not present a barrier to movement across the region.</p>
<p><b>Will the action adversely affect habitat critical to the survival of a species?</b></p>	<p>The proposed clearing area contains potential foraging habitat for <b>Carnaby's Black Cockatoo</b>. However, it comprises a small portion of the overall habitat available to the species on the Swan Coastal Plain, including other areas of tuart woodland, Banksia woodland and pine plantations. There are no known or potential breeding sites within the Proposal area.</p>
<p><b>Will the action disrupt the breeding cycle of a population?</b></p>	<p>The proposed action is highly unlikely to disrupt the breeding cycle of a population of <b>Carnaby's Black Cockatoos</b> due to the small size of the proposed clearing and the proximity of areas containing high quality alternate foraging vegetation. The Proposal area does not contain trees suitable for breeding purposes as they are too small for hollows.</p>
<p><b>Will the action result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat?</b></p>	<p>The proposed action will not result in the establishment of invasive species that are harmful to the <b>Carnaby's Black Cockatoo</b> or its habitat.</p>
<p><b>Will the action introduce disease that may cause the species to decline?</b></p>	<p>The proposed action will not involve any actions that may cause the introduction of new diseases to <b>Carnaby's Black Cockatoos</b>.</p>
<p><b>Will the action modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to</b></p>	<p>The proposed action is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to</p>

<p><b>decline?</b></p>	<p>decline.</p> <p>The loss of habitat as a result of the proposed action represents only a small portion of the potential habitat available in the vicinity of the proposed clearing. The proposed action involves clearing approximately 35 ha of potential <b>Carnaby's</b> habitat, which will not result in any further fragmentation of potential habitat in the area, as it is currently bounded by existing roads and residential development. As the <b>Carnaby's Black Cockatoo</b> is a highly mobile species, the small size of the proposed action will not present a barrier to movement across the region.</p>
<p><b>Will the action interfere with the recovery of the species?</b></p>	<p>The proposed action is unlikely to interfere with the recovery of the <b>Carnaby's Black Cockatoo</b> as extensive areas of foraging, nesting and roosting habitat are retained close to the Proposal area with Yanchep National Park.</p> <p>Vegetation to be cleared within the Proposal area is not listed in the <b>Carnaby's Black Cockatoo</b> (<i>Calyptorhynchus latirostris</i>) Recovery Plan as critical habitat for the recovery of <b>Carnaby's Black Cockatoo</b> populations.</p>

**Assessment of impact on Graceful Sun Moth**

An impact assessment of the proposed action on the Graceful Sun Moth is detailed in Table 6, with reference to the Significant Impact Guidelines.

It is noted that the Graceful Sun Moth has recently been removed from the Western Australian threatened fauna list following extensive survey that has led to the discovery of new populations and confirmation of extensive habitat to the north of Perth, including habitat containing a different host plant, *Lomandra maritima*, to the previously known host, *L. hermaphrodita*. In 2011 this species was down-listed in Western Australia to the rank of vulnerable following the identification of new populations, but at that time the potential habitat north of Perth had not been fully evaluated. Further evaluation of potential habitat was undertaken in 2012, and the species is now considered to be not at risk of extinction under IUCN criteria.

The Graceful Sun Moth can still be considered to meet the IUCN category of Near Threatened. The species is predominantly restricted geographically to a specific series of coastal Holocene dune systems which make it susceptible to future threats. The Graceful Sun Moth could again meet criteria for listing as Vulnerable in the event that if there is a change in the location and/or rates of urban, industrial and rural development such that large areas of coastal habitat to the north of the Perth metropolitan area are proposed to be cleared for development; or if changes to sea level gives rise to significant and widespread erosion or loss of coastal Holocene dunes.

**For this reason the Graceful Sun Moth will be retained on the State's 'Priority Fauna List' as Priority 4 fauna so that it will continue to be monitored to ensure that it remains in a non-threatened state.**

The Graceful Sun Moth is still listed under the Commonwealth EPBC Act as endangered. A nomination to delist the Graceful Sun Moth under the EPBC Act is likely to be sent from the State to SEWPAC seeking a review of the status under the EPBC Act.

**Table 6 Assessment of potential impacts to Graceful Sun Moth against significant impact criteria**

Significant Impact Criterion	Comment
<p><b>Will the action lead to a long-term decrease in the size of a population?</b></p>	<p>The proposed action will clear approximately 46 ha of Graceful Sun Moth habitat (Figure 7). The Proposal area contains <i>Lomandra maritima</i> coastal heathland on Quindalup dunes, one of only two known habitats for the species (DEC 2010, Appendix 7; DEC 2011, Appendix 8).</p> <p>RPS (2010) recorded 35 individuals at various locations within the Proposal area. Although the proposed action will clear approximately 46 ha of suitable habitat, approximately 9.2 ha of habitat will be retained on site.</p>
<p><b>Will the action reduce the area of occupancy of the species?</b></p>	<p>The distribution of the Graceful Sun Moth ranges from Dandaragan in the north, to Mandurah in the south with an estimated area of occupancy of 42.6 km<sup>2</sup> (DEC 2010, Appendix 7). It is anticipated that a further 76.4 km<sup>2</sup> of coastal heathland habitat may potentially be occupied by the Graceful Sun Moth; however, this requires further analysis to confirm (DEC 2010, Appendix 7).</p> <p>The proposed clearing of 46 ha of Graceful Sun Moth habitat (1% of estimated occupancy) will not significantly reduce the occupancy of the species.</p>
<p><b>Will the action fragment an existing population into two or more populations?</b></p>	<p>RPS (2010) recorded 35 individuals distributed across the Proposal area as detailed in Figure 8. Approximately 9.2 ha of Graceful Sun Moth habitat will potentially be conserved to ensure fragmentation of the existing population is minimised.</p>
<p><b>Will the action adversely affect habitat critical to the survival of a species?</b></p>	<p>Two host plants have been identified for the Graceful Sun Moths; <i>Lomandra maritima</i> and <i>Lomandra hermaphrodita</i>. The Proposal area contains approximately 55.08 ha of <i>Lomandra maritima</i>, of which approximately 46 ha is proposed to be cleared.</p> <p>The habitat found within the Proposal area is not critical to the survival of the species. There is approximately 446 ha of protected Graceful Sun Moth habitat within a 15 km radius of the Proposal area supporting approximately 145 individuals (DEC 2011, Appendix 8). The current extent of occurrence of the Graceful Sun Moth is 2,015 km<sup>2</sup> and the area of occupancy is 42.6 km<sup>2</sup>, although the area of occupancy may be as high as 112 km<sup>2</sup> (DEC 2010, Appendix 7).</p>
<p><b>Will the action disrupt the breeding cycle of a population?</b></p>	<p>The proposed clearing of 46 ha of Graceful Sun Moth habitat is not likely to disrupt the breeding cycle of the population as 9.2 ha of GSM habitat is to be retained.</p>

<b>Will the action result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat?</b>	It is not expected that the proposed clearing and subsequent development of the Proposal area will result in establishment of invasive species harmful to the Graceful Sun Moth or its habitat.
<b>Will the action introduce disease that may cause the species to decline?</b>	It is not expected that the proposed action will introduce disease that may cause the species to decline.
<b>Will the action modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?</b>	The proposed clearing of 46 ha of Graceful Sun Moth habitat will cause a small decline in the population found within the Proposal area, but will not significantly decrease the total Graceful Sun Moth population.
<b>Will the action interfere with the recovery of the species?</b>	The Proposal area does not form part of a recovery plan for the species. It is noted that the level of threat to GSM has decreased in recent years as knowledge of this species has improved.

### 3.1 (e) Listed migratory species

#### **Description**

A search of the EPBC Act Protected Matters database identified 25 species listed as migratory under the EPBC Act with the potential to occur in the Proposal area. Of these, 13 are marine species and have therefore not been considered further in this referral (SEWPaC 2012, Appendix 5). The remaining 12 species are detailed in Table 7.

**Table 7 EPBC Act listed migratory species potentially occurring in Proposal area**

<b>Species</b>	<b>Common name</b>	<b>Conservation status</b>
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory
<i>Ardea alba</i>	Great Egret, White Egret	Migratory
<i>Ardea ibis</i>	Cattle Egret	Migratory
<i>Diomedea gibsoni</i>	<b>Gibson's</b> Albatross	Vulnerable
<i>Macronectes giganteus</i>	Southern Giant-Petrel	Endangered
<i>Macronectes halli</i>	Northern Giant-Petrel	Vulnerable
<i>Sterna caspia</i>	Caspian Tern	Migratory
<i>Thalassarche cauta (sensu stricto)</i>	Shy Albatross, Tasmanian Shy Albatross	Vulnerable
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Migratory
<i>Leipoa ocellata</i>	Malleefowl	Vulnerable
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory
<i>Rostratula benghalensis (sensu lato)</i>	Painted Snipe	Vulnerable

#### **Nature and extent of likely impact**

Due to their transient nature, migratory birds are not expected to be impacted by the proposed residential development.

No migratory species have been recorded in the Proposal area, although four species were considered to potentially occur within the Proposal area given the habitat available (RPS 2012, Appendix 1). The fork-tailed swift is largely aerial, and has been observed flying over and feeding in a range of habitats.

The species is highly unlikely to visit the Proposal area except to fly over it; therefore, the proposed clearing is not expected to have a significant impact on the fork-tailed swift.

The Caspian tern is generally restricted to coastal habitats, although numbers are low along the northern beaches of Perth (RPS 2012, Appendix 1). White-bellied sea eagles tend to forage over open waters; however they may also use terrestrial areas as foraging habitat. The species is known to nest in Tuart trees but there are no suitable trees within the Proposal area and given the highly mobile nature of the white-bellied sea eagle, it is not expected that the proposed clearing will have a significant impact on the species. The Rainbow Bee-eater occurs in a large range of habitats and has been recorded in urban habitats. The species will often nest on sparsely vegetated slopes even in disturbed areas and have been known to nest on slopes around construction sites. The proposed 35 ha of vegetation to be cleared is not critical nesting habitat and; therefore, is not expected to have a significant impact on the species (RPS 2012, Appendix 1).

It is not expected that the proposed clearing will represent a significant loss of habitat for any of the migratory species listed in Table 7 because of their ability to forage over a wide range of habitats and the infrequency of visits to the Proposal area.

---

### **3.1 (f) Commonwealth marine area**

#### **Description**

There are no Commonwealth marine areas within the vicinity of the Proposal area.

#### **Nature and extent of likely impact**

Not applicable.

---

### **3.1 (g) Commonwealth land**

#### **Description**

The Proposal is not on Commonwealth land.

#### **Nature and extent of likely impact**

Not applicable.

---

### **3.1 (h) The Great Barrier Reef Marine Park**

#### **Description**

The Proposal is not within the vicinity of the Great Barrier reef Marine Park.

#### **Nature and extent of likely impact**

Not applicable.

---

### 3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)
<b>If yes, nature &amp; extent of likely impact on the whole environment</b>			
3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)
<b>If yes, nature &amp; extent of likely impact on the whole environment</b>			
3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)
<b>If yes, nature &amp; extent of likely impact on the whole environment (in addition to 3.1(f))</b>			
3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)
<b>If yes, nature &amp; extent of likely impact on the whole environment (in addition to 3.1(g))</b>			
3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	X	No
			Yes (provide details below)
<b>If yes, nature &amp; extent of likely impact on the whole environment (in addition to 3.1(h))</b>			

### 3.3 Other important features of the environment

#### 3.3 (a) Flora and fauna

##### **Flora**

The following species of declared rare flora (DRF) and priority (P) flora were identified as having the potential to occur within the Proposal area (RPS 2012):

- *Astroloma microcalyx* (Priority 3)
- *Comesperma acerosum* (Priority 3)
- *Conostylis pauciflora* subs. *Euryrhipis* (Priority 3)
- *Eucalyptus argutifolia* (DRF)
- *Jacksonia sericea* (Priority 4)
- *Stylidium maritimum* (Priority 3).

A flora survey of the Proposal area did not identify any species of DRF; however the following Priority Flora were recorded (RPS 2012):

- *Conostylis pauciflora* (Priority 4)
- *Conostylis bracteata* (Priority 3).

A total of 83 taxa were recorded during the survey including 22 introduced (weed) species (RPS 2012).

## **Fauna**

A total of 169 species of fauna have been identified as having the potential to occur within the Proposal area as a result of desktop assessments (RPS 2012, Appendix 1). However, surveys from 2006 and 2010 recorded a total of only 65 fauna species within the Proposal area (RPS 2012, Appendix 1). This total included 22 reptiles, 35 birds, seven mammals (four of which were introduced species) and one invertebrate.

### **3.3 (b) Hydrology, including water flows**

The Proposal area contains no naturally occurring surface watercourses or water bodies. The water table lies at approximately 1.5 mAHD along the eastern boundary and at 0.5 mAHD at the western boundary. The direction of groundwater flow indicated by the contours is west-south-westerly, towards the coast (RPS 2012, Appendix 1).

### **3.3 (c) Soil and Vegetation characteristics**

A variety of coastal landforms associated with the Quindalup and Spearwood landform units are found within the Proposal area. Typically, the Spearwood unit is a low hilly landscape with shallow sand over limestone. The Quindalup unit contains dunes and beach ridges composed of calcareous sand (RPS 2012, Appendix 1). Soils on the site range from white sands to dark grey-brown sands and shallow sand over limestone (RPS 2012, Appendix 1).

The vegetation within the Proposal area is varied, reflecting the topography and soils found on site (Figure 9). Vegetation types mapped during a field survey of the Proposal area and adjoining Regional Open Space are described in Table 8 below.

**Table 8 Vegetation types mapped in the Proposal area**

<b>Vegetation type</b>	<b>Description</b>
MhSp	<i>Melaleuca huegellii</i> , <i>Spyridium globulosum</i> closed heath on shallow limestone.
McSp	<i>Melaleuca cardiophylla</i> , <i>Acacia rostellifera</i> , <i>Spyridium globulosum</i> , <i>Olearia axillaris</i> , <i>Acacia saligna</i> closed tall scrub/closed heath in swales and lower slopes.
AsLSg	<i>Acacia saligna</i> , <i>Spyridium globulosum</i> , <i>Olearia axillaris</i> shrubland/open shrubland over <i>Pelargonium capitatum</i> , <i>Melaleuca systema</i> open low heath over <i>Lomandra maritima</i> sedgeland.
Ef	<i>Eucalyptus foecunda</i> closed shrub mallee over, <i>Acacia saligna</i> shrubland over, <i>Scaevola globulifera</i> low shrubland over, <i>Anagallis arvensis</i> herbland.
XpAs	<i>Xanthorrhoea preissii</i> , <i>Spyridium globulosum</i> , <i>Acacia saligna</i> tall open scrub/open heath over, <i>Leucopogon propinquus</i> , <i>Melaleuca systema</i> , open shrubland over, <i>Lomandra maritima</i> , <i>Lepidosperma squamatum</i> open sedgeland.
AsMsSc	<i>Acacia saligna</i> shrubland over <i>Melaleuca systema</i> , <i>Alyogyne huegellii</i> , <i>Scaevola globulifera</i> low open heath/open heath over, <i>Conostylis pauciflora</i> very open herbland.
B	<i>Banksia attenuata</i> , <i>B. Menziesii</i> low woodland over <i>Dryandra sessilis</i> , <i>Macrozamia riedlei</i> scattered shrubs over, <i>Rhagodia baccata</i> , <i>Hibbertia hypericoides</i> , <i>Leucopogon polymorphus</i> low open shrubland.
B1	<i>Banksia attenuata</i> , <i>Banksia menziesii</i> low woodland over <i>Trachyandra divaricata</i> closed herbland.
D	<i>Dryandra sessilis</i> closed tall scrub over <i>Macrozamia riedlei</i> scattered shrubs over <i>Hibbertia hypericoides</i> , <i>Jacksonia calcicola</i> low shrubland.

DsSg	<i>Dryandra sessilis</i> shrubland to tall closed scrub over <i>Xanthorrhoea preissii</i> scattered shrubs over <i>Jacksonia calcicola</i> , <i>Hibbertia hypericoides</i> , <i>Pelargonium capitatum</i> low open shrubland over <i>Trachymene pilosa</i> , <i>Anagallis arvensis</i> , <i>Arctotheca calendula</i> herbland.
Mixed	<i>Acacia truncata</i> , <i>A. Cochlearis</i> , <i>Spyridium globulosum</i> , <i>Olearia axillaris</i> closed shrubland over <i>Lepidosperma gladiatum</i> sedgeland/open sedgeland with lianes of <i>Hardenbergia comptoniana</i> . Contains a variety of shrubs and herbaceous plants.
P	Pyrosere communities, consisting largely of <i>Dryandra sessilis</i> , <i>Acacia pulchella</i> , <i>Hibbertia hypericoides</i> closed heath/closed low heath.
Sg	<i>Spyridium globulosum</i> closed/open heath over <i>Trachyandra divaricata</i> , <i>Trachymene pilosa</i> , <i>Conostylis pauciflora</i> herbland.

Source: RPS 2006

### 3.3 (d) Outstanding natural features

Two significant dunal systems run east-west across the Proposal area (perpendicular to the coast). The highest point in the locality known as Eglinton Hill (Trig Point) is located within a Parks and Recreation Reserve to the west of the Proposal area.

The southern portion of the development with coastal frontage is comprised of limestone cliffs, while the northern portion fronts a sandy beach which has been designated as a regional swimming beach.

### 3.3 (e) Remnant native vegetation

Large scale repeating patterns in native vegetation for the entire Darling System of the south-west of Western Australia were identified and mapped by Heddle et al. in 1980. The vegetation was grouped into 'Complexes' which shows the Proposal area supporting remnants belonging to the Cottesloe Complex – Central and South and Quindalup Complex.

The Cottesloe Complex – Central and South is characterised by closed heath on limestone areas with shrubs such as *Melaleuca huegelii*, *Acacia* species, *Grevillea thelemanniana* and *Trymalium ledifolium*. Tuart, Jarrah and Marri supported by deeper sands and *Banksia* species are also common (RPS 2012, Appendix 1).

In comparison the Quindalup Complex is a coastal dune complex consisting mainly of the strand and fore-dune alliance, and the mobile and stable dune alliance. Local variations include low closed forest of *Melaleuca lanceolata* – *Callitris preissii* and the closed scrub of *Acacia rostellifera*.

### 3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

As outlined in 3.3(d), the site is characterised by two east-west oriented dune escarpments and rises from an elevation of 16 mAHD in a depression in the west of the site to 56 mAHD in the south east of the site.

### 3.3 (g) Current state of the environment

Vegetation condition is predominately good to excellent with areas of localised degradation, attributable to off road vehicles and tracks (Figure 9). A total of 22 introduced flora species have been recorded within the Proposal area (RPS 2012, Appendix 1).

### 3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

No heritage places are found within the Proposal area.

**3.3 (i) Indigenous heritage values**

As part of the District Planning Scheme Amendment, an indigenous heritage survey and consultation with local Aboriginal representative was undertaken by Ethnoscience in 2008 (RPS 2012, Appendix 1) to identify or confirm the presence of Aboriginal heritage sites. Aboriginal heritage sites identified in the Proposal area have been incorporated and protected in Public Open Space.

**3.3 (j) Other important or unique values of the environment**

No other important or unique environmental values have been identified.

**3.3 (k) Tenure of the action area (e.g. freehold, leasehold)**

Lot 9036 is freehold land owned by Westminster Estates Pty Ltd. Lot 3054 is a freehold property under contract to Westminster Estates Pty Ltd from the Western Australian Planning Commission.

**3.3 (l) Existing land/marine uses of area**

The Proposal area is densely vegetated and surrounded by existing and planned urban development to the south, east and north. There is no marine use of the Proposal area.

**3.3 (m) Any proposed land/marine uses of area**

Beyond the proposed action described in this referral, there are no other known proposed land uses within the Proposal area.

## 4 Measures to avoid or reduce impacts

Management measures to avoid or reduce impacts to Matters of National Environmental Significance are primarily focussed on the subdivision design, management, preservation and re-establishment of habitat for the following species identified in the impact assessment as having potential to be affected by the proposed action:

- Carnaby's Black Cockatoo has been identified as utilising the Proposal area and part of the vegetation on the site represents potential foraging habitat for the species.
- Graceful Sun Moths have also been identified as utilising the Proposal area. A *Lomandra Maritima* Density Survey has been undertaken (RPS 2012, Appendix 1) which recorded the flora species as being present within 55% of the quadrats surveyed. *Lomandra maritima* is a known flora species to be important breeding habitat for the Graceful Sun Moth.

### Environmentally sensitive nature of the development

As previously highlighted, Jindee is unique to the north-west corridor, in that the subdivision has been sensitively designed to reflect landform and topographic features. Jindee seeks to encourage a diversity of lot sizes within the estate which respond to the natural topographic contours of the site. For example, the retention of the two significant dunal systems running east-west across the site (perpendicular to the coast) has allowed for the provision of larger lots and retention of native vegetation on private lots.

The T2 – Natural Living lots, which link the two Parks and Recreation Reserves, have specific Town Planning Scheme provisions which will control the amount of clearing on private residential lots. In doing so, the protection of vegetation on these future residential lots will remain in perpetuity and will be governed by the Council who will be able to exercise its powers of compliance through the Planning and Development Act should it need to. In addition, it is likely that land titles will have covenants to further enhance the protection of the linkage.

Figures 10 and 11 provide further illustration of the concept design for the Jindee residential development, following along a transect line entitled the 'landscape journey south'.



**Figure 10 Concept sketch, 'Landscape journey south' towards the coast**

Following the transect line towards the coast, Figure 10 shows the P&R reserve in the foreground with interspersed larger lots in the centre utilising the dunal system running east-west across the site.



**Figure 11 Concept sketch, 'Landscape journey south' towards Marmion Avenue**

As demonstrated, Jindee is considered to be consistent with the principals of avoidance and mitigation of impacts on protected matters through comprehensive planning and suitable site design. The design of the development has clearly sought to directly reduce the scale and intensity of the potential impacts of the proposed action. Approximately 6.28 ha of potential **Carnaby's Black** Cockatoo habitat will be retained equating to 15.17% of Good to Excellent habitat area (Figure 6). Approximately 9.18 ha of potential Graceful Sun Moth habitat will be retained equating to 16.67% of Good to Excellent habitat area (Figure 7).

#### **Additional management measures**

The recently released *EPBC Environmental Offsets Policy* (October 2012) encourages the delivery of an 'overall conservation outcome that improves or maintains the viability of the aspect of the environmental that is protected by national environmental law and affected by the proposed action'. While the design of Jindee has minimised the scale and intensity of potential impacts to **Carnaby's** Black Cockatoo and Graceful Sun Moth, some residential adverse impacts of the proposed action may still occur. On this basis the following proposed additional management measures are proposed to enhance the overall conservation outcome for the estate:

- The provision of funds to the Department of Environment and Conservation for the purchase of a 1200 ha property near Lancelin, containing quality Carnaby's black Cockatoo foraging and

potential breeding habitat which the DEC wishes to acquire and convert into nature reserve (Table 9). It is intended that part of this property, sufficient to meet the requirements of the October 2012 Policy will be attributed to the Jindee project.

**Table 9 Lancelin property details**

<b>Factor</b>	<b>Comment</b>
Area	Approximately 1200 ha of uncleared remnant vegetation in a reasonable shape to limit edge effects and threatening processes.
Existing vegetation condition	Varies from good along the external firebreak with some agricultural weeds present, to excellent and pristine throughout the majority of the remaining vegetation.
Soils	Deep white sand with an undulating topography, generally with a north-south orientation. Drainage varies from areas of seasonal inundation with some semi-permanent wetlands in low lying areas to well drained sands over the majority of the Lot.
Habitats	The diverse range of vegetative types noted throughout the Lot includes dense thickets through to open Banksia woodlands and offers a variety of potential habitats. The mature Melaleuca & Eucalypt stands in particular contain large individual habitat trees which potentially offer nesting hollows <b>for Carnaby's.</b>
Weeds	Agricultural weeds are evident along the northern boundary, especially around the seasonally inundated areas.
Nature conservation value	Excellent

In terms of offsets for residual impacts on habitat for the Graceful Sun Moth, it is proposed that this take the form of direct offsets associated with habitat protection and enhancement within the foreshore reserve immediately adjacent to the development, along with the provision of a one off payment to the DEC to expand and improve the management of known Graceful Sun Moth habitat in the nearby conservation estate in particular, the Wilbinga Nature Reserve.

In combination, these actions would lead to the improvement of the protection and quality of more than 100 ha of known Graceful Sun Moth habitat.

## 5 Conclusion on the likelihood of significant impacts

### 5.1 Do you THINK your proposed action is a controlled action?

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input checked="" type="checkbox"/> | No, complete section 5.2  |
| <input type="checkbox"/>            | Yes, complete section 5.3 |

### 5.2 Proposed action IS NOT a controlled action.

The proposed action is not considered to be a controlled action as it is unlikely to have an adverse impact on the **Carnaby's Black** Cockatoo and the Graceful Sun Moth.

This is based on:

- the scale of the clearing in relation to the overall distribution and availability of similar habitat within close proximity
- the design of the development to avoid and mitigate the potential adverse impacts to the species through retention of key habitat and landform within both Public Open Spaces and private lots.
- Where residual impacts may occur, the purchase of a significantly larger site close to Lancelin for protection as a nature reserve will ensure that considerable high quality habitat (well beyond what is being cleared) will be protected long-term by State authorities.

### 5.3 Proposed action IS a controlled action

#### Matters likely to be impacted

- |                          |  |
|--------------------------|--|
| <input type="checkbox"/> | World Heritage values (sections 12 and 15A)  |
| <input type="checkbox"/> | National Heritage places (sections 15B and 15C)  |
| <input type="checkbox"/> | Wetlands of international importance (sections 16 and 17B)                                   |
| <input type="checkbox"/> | Listed threatened species and communities (sections 18 and 18A)                              |
| <input type="checkbox"/> | Listed migratory species (sections 20 and 20A)   |
| <input type="checkbox"/> | Protection of the environment from nuclear actions (sections 21 and 22A)                     |
| <input type="checkbox"/> | Commonwealth marine environment (sections 23 and 24A)  |
| <input type="checkbox"/> | Great Barrier Reef Marine Park (sections 24B and 24C)  |
| <input type="checkbox"/> | Protection of the environment from actions involving Commonwealth land (sections 26 and 27A) |
| <input type="checkbox"/> | Protection of the environment from Commonwealth actions (section 28)                         |
| <input type="checkbox"/> | Commonwealth Heritage places overseas (sections 27B and 27C)                                 |

## 6 Environmental record of the responsible party

		Yes	No
<b>6.1</b>	<p><b>Does the party taking the action have a satisfactory record of responsible environmental management?</b></p> <p><b>Provide details</b></p> <p>Residential development of Lots 3, 6, 8, 9 and 105 Gum Nut Avenue, Dawesville South, Mandurah, Western Australia (EPBC 2006/3063).</p>	✓	
<b>6.2</b>	<p><b>Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</b></p> <p><b>If yes, provide details</b></p>		✓
<b>6.3</b>	<p><b>If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</b></p> <p><b>If yes, provide details of environmental policy and planning framework</b></p>		✓
<b>6.4</b>	<p><b>Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</b></p> <p><b>Provide name of proposal and EPBC reference number (if known)</b></p> <p>Residential development of Lots 3, 6, 8, 9 and 105 Gum Nut Avenue, Dawesville South, Mandurah, Western Australia (EPBC 2006/3063).</p>	✓	

## 7 Information sources and attachments

(For the information provided above)

### 7.1 References

Department of Environment and Conservation (DEC) 2010, *Conservation of the Graceful Sun-moth (Synemon gratiosa) – Findings from the 2010 Graceful Sun-moth surveys and habitat assessments across the Swan, South West and southern Midwest Regions – Interim Report*. Department of Environment and Conservation Science Division and Swan Region, Perth.

Department of Environment and Conservation (DEC) 2011, *Conservation Advice for Synemon gratiosa (graceful sun-moth)*. Department of Environment and Conservation, Perth.

Department of Indigenous Affairs (DIA) 2012, Aboriginal Heritage Inquiry System, Aboriginal Sites Database [Online], Government of Western Australia, available from: <http://www.dia.wa.gov.au> [12 September 2012].

Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) 2012, *Environment Protection and Biodiversity Conservation Act Protected Matters Search Tool*, [Online], Australian Government, Available from: <http://www.environment.gov.au> [27 August 2012].

Hedde EM, Longeragan OW & Havel JJ 1980, "Vegetation complexes of the Darling System, Western Australia", in *Department of Conservation and Environment Atlas of Natural Resources: Darling System*, eds Department of Conservation and Environment, University of Western Australia Press, Perth.

RPS Environment and Planning Pty Ltd (RPS) 2012, *Environmental Assessment Report, District Planning Scheme Amendment Lot 9036 and Part Lot 3054 Marmion Avenue, Jindalee*, report prepared for Estates Development Company, Nedlands.

RPS 2010, *Graceful Sun Moth Survey Report 2010*, report prepared for Estates Development Company, Nedlands.

### 7.2 Reliability and date of information

Information regarding the presence of MNES was obtained through EPBC Act Protected Matters Interactive Search Tool with a radius of 2 km and from the SEWPaC website (accessed 27 August 2012). This information was supported by results of the vegetation and flora surveys by RPS (2006), fauna survey by Bamford (2006), Graceful Sun Moth survey by RPS (2010) and Environmental Assessment Report by RPS (2012).

### 7.3 Attachments

		✓ attached	Title of attachment(s)
<b>You must attach</b>	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figure 1 Site Location Figure 2 Surrounding development Figure 3 Surface contours Figure 4 Structure Plan Figure 5 Metropolitan Region Scheme Figure 9 Vegetation types and condition
Con	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	<b>Figure 6 Extent of potential Carnaby's black cockatoo foraging habitat</b> Figure 7 Extent of <i>Lomandra maritima</i> Figure 8 Graceful Sun-moth locations
<b>If relevant, attach</b>	copies of any state or local government approvals and consent conditions (section 2.5)	✓	Appendix 2 MRS Amendment Report Appendix 3 MRS Amendment 1152/41 - EPA Advice Appendix 4 Town Planning Scheme Amendment 115
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		N/A
	copies of any flora and fauna investigations and surveys (section 3)	✓	Appendix 1 Environmental Assessment Report Appendix 5 Protected Matters Report Appendix 6 Graceful Sun Moth Survey Appendix 7 Conservation of the Graceful Sun Moth Appendix 8 Conservation Advice for the Graceful Sun Moth
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		N/A covered through the MRA Amendment

## 8 Contacts, signatures and declarations

### Project title:

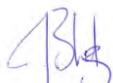
---

#### 8.1 Person proposing to take action

Name James Blitz  
Title Project Manager  
Organisation Westminster Estates Pty Ltd  
ACN / ABN (if applicable) ACN: 008 675 081, ABN: 48 008 675 081  
Postal address PO Box 329  
Nedlands WA 6909  
Telephone (08) 9389 4300  
Email [james.blitz@estates.com.au](mailto:james.blitz@estates.com.au)

Declaration I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.  
I understand that giving false or misleading information is a serious offence.  
I agree to be the proponent for this action.  
I acknowledge that I may be liable for fees related to my proposed action following the introduction of cost recovery under the EPBC Act.

Signature



Date 12 November 2012

---

#### 8.2 Person preparing the referral information (if different from 8.1)

Name Darren Walsh  
Title Chief Executive Officer  
Organisation Strategen Environmental Consultants Ltd Pty  
ACN / ABN (if applicable) 32 056 190 419  
Postal address PO Box 243, Subiaco WA 6904  
Telephone 08 9380 3100  
Email [d.walsh@strategen.com.au](mailto:d.walsh@strategen.com.au)

Declaration I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.  
I understand that giving false or misleading information is a serious offence.

Signature

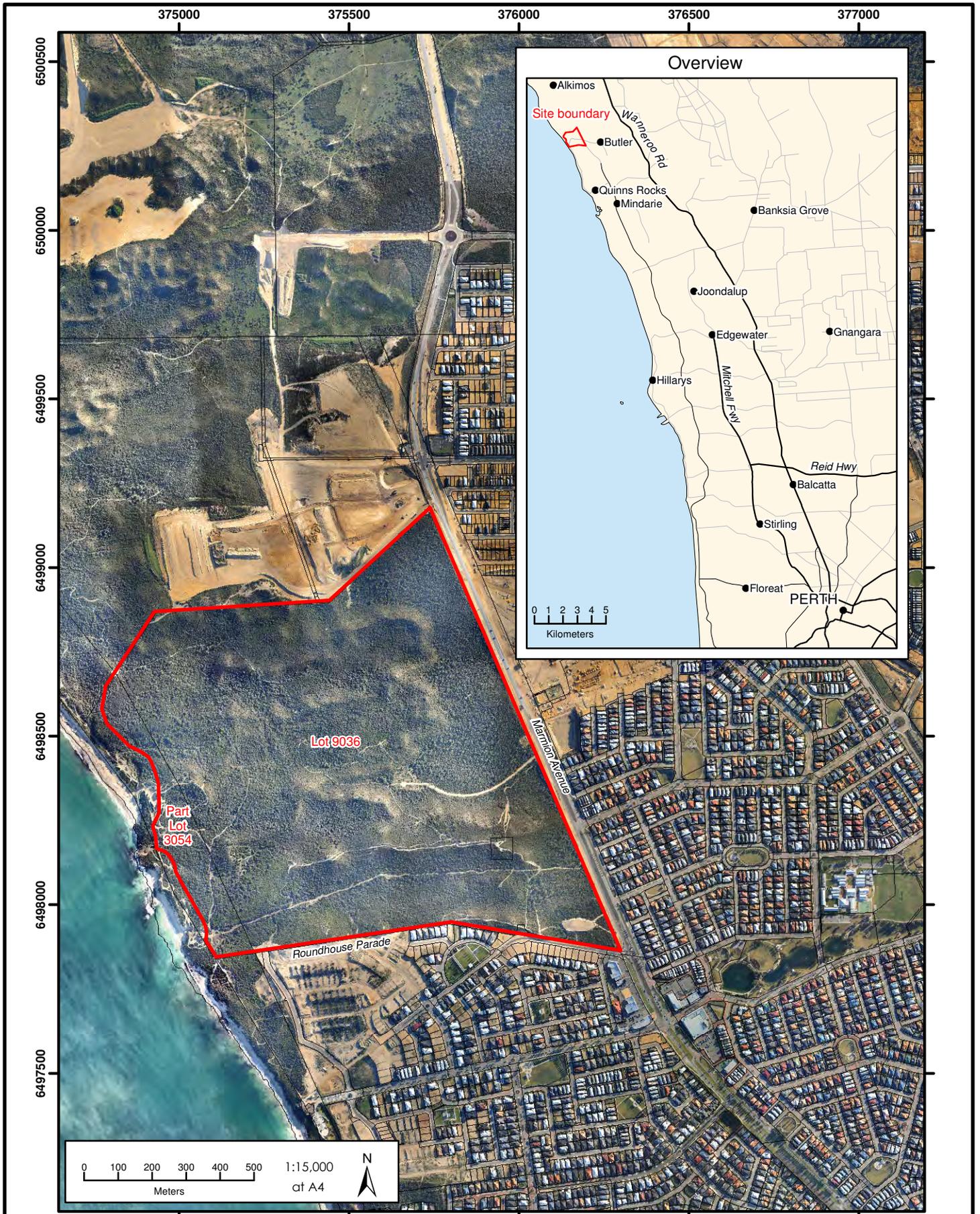


Date 12 November 2012

---



## FIGURES



**Figure 1 Site location**

**Legend**

- Site boundary
- Cadastral boundaries



Coordinate System: GDA 1994 MGA Zone 50  
 Date: 19/10/2012  
 Author: JCrute

Source: Topography: Geoscience Australia 2006. Aerial image: Nearmap 06/2012. Cadastre: Online SLIP Database, Landgate 09/2012. Note that positional errors may occur in some areas



STRATEGEN

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

Figure 2 Surrounding development

Date: 19/10/2012

Author: jcrute

Source: Power Point Presentation "Jindee Innovation Project", Estates Development Company, March 2008.

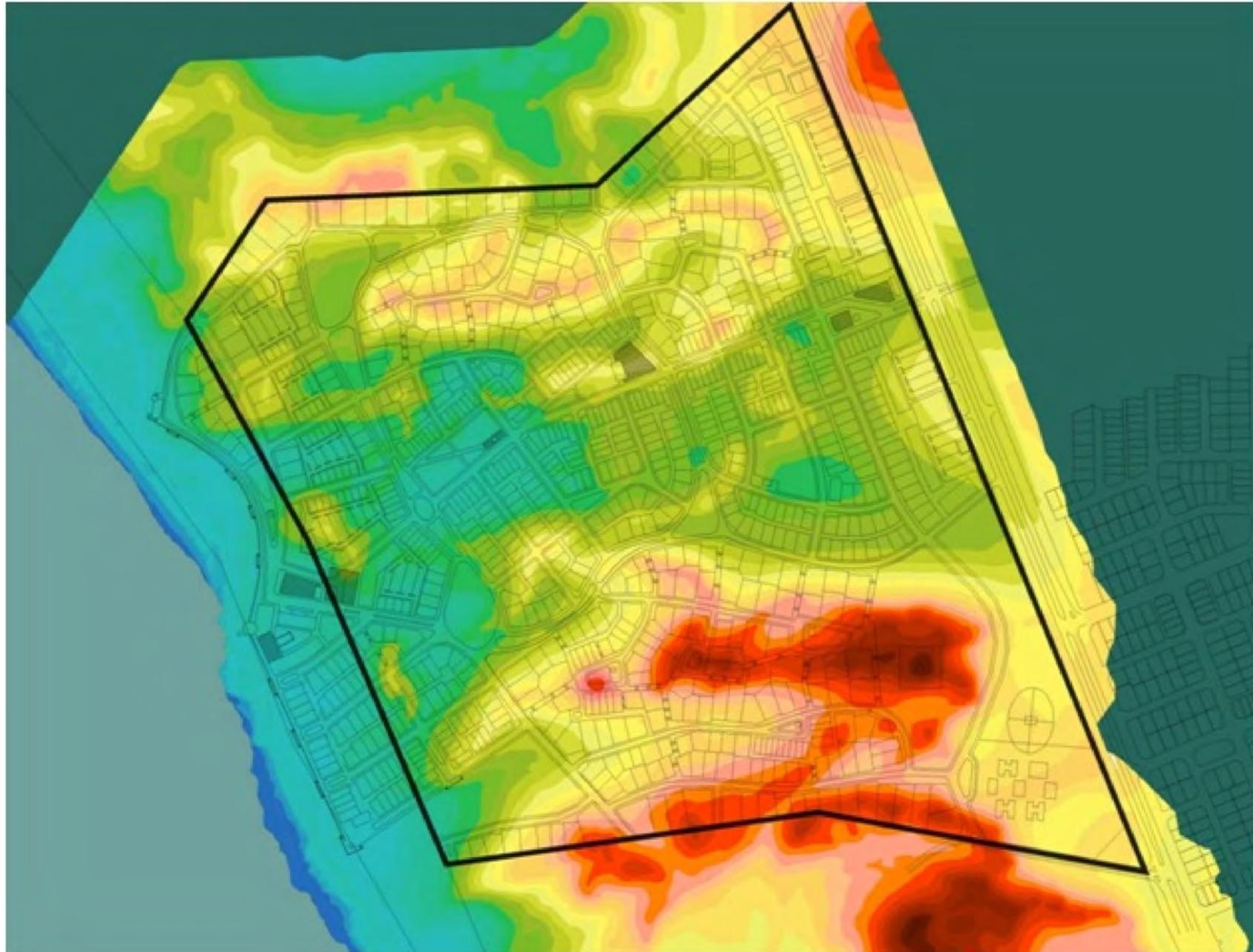


Figure 3 Surface contours



STRATEGEN

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

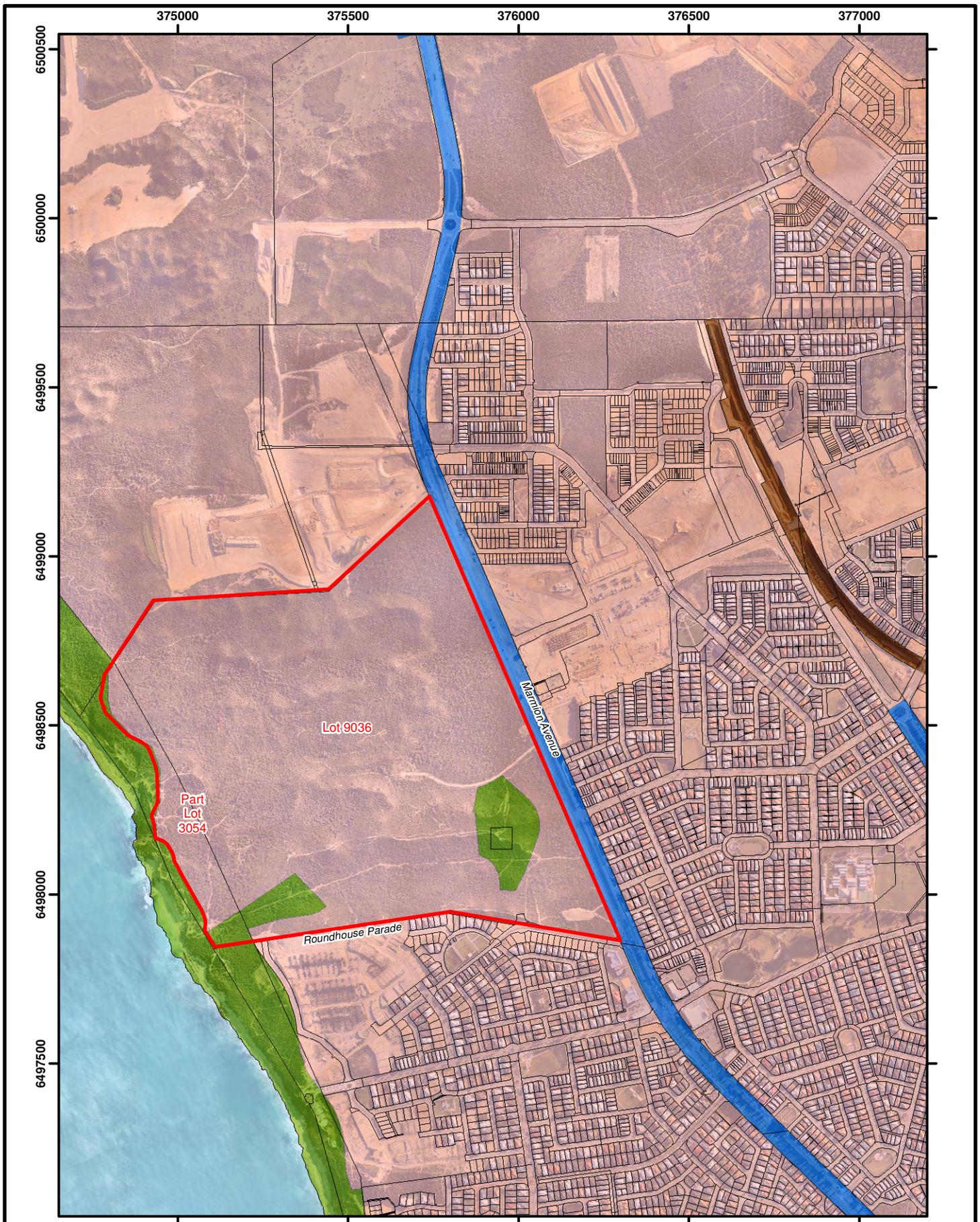
Date: 19/10/2012

Author: jcrute

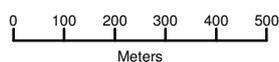
Source: Power Point Presentation "Jindee Innovation Project", Estates Development Company, March 2008.



Figure 4 Jindee Structure Plan



**Figure 5 Metropolitan Region Scheme**



1:15,000  
 at A4

Coordinate System: GDA 1994 MGA Zone 50  
 Date: 19/10/2012  
 Author: JCrute

Source: Topography: Geoscience Australia 2006. MRS: DPL 2012.  
 Cadastre: Online SLIP Database, Landgate 09/2012.  
 Note that positional errors may occur in some areas

**Legend**

-  Site boundary
-  Metropolitan Region Scheme Urban
-  Other Regional Roads
-  Parks and Recreation
-  Railways
-  Waterways
-  Cadastral boundaries



**LOCATION OF VEGETATION MAPPING UNITS WHICH ARE POTENTIAL FORAGING HABITAT FOR CARNABY'S BLACK COCKATOO**

CLIENT  
ESTATES DEVELOPMENT COMPANY  
PROJECT  
JINDEE  
REFERENCE NUMBER  
EDC JIN  
DRAWING NUMBER  
RD1 007  
ISSUE  
A

**LEGEND**

- SITE BOUNDARY
- CADASTRE
- POTENTIAL FORAGING HABITAT FOR CARNABY'S BLACK COCKATOO
- POTENTIAL HABITAT RETENTION AREAS
- BANKSIA SESSLIS DENSITY (HIGH)
- BANKSIA SESSLIS DENSITY (MEDIUM)
- BANKSIA SESSLIS DENSITY (LOW)
- BANKSIA ATTENUATA/ MENZIESII DENSITY (HIGH)
- BANKSIA ATTENUATA/ MENZIESII DENSITY (MED)
- BANKSIA ATTENUATA/ MENZIESII DENSITY (LOW)

**Potential Foraging Habitat for Carnaby's Cockatoo**

Total Project Site Area (ha)	119.42
Total Potential Foraging Habitat Area (ha)	42.96

**Habitat Condition Assessment**

Habitat assessment as Good to Excellent	41.39
Habitat assessment as Degraded	0.17

**Habitat Conservation Potential\***

Habitat located within Civic Spaces (ha) **	2.77
Habitat located within Regional Open Space Area (ha)***	1.99
Habitat within T2 lots (ha) ****	1.58
<b>Total</b>	<b>6.29</b>
Percentage of Good to Excellent Habitat Area	15.17%

**Notes**

- \* Applies to Habitat Areas assessed as 'Good/Excellent'
- \*\* Assumes a minimum of 0% and a maximum of 80% of vegetation can be retained in 'natural condition' within the Civic Spaces depending on size and function of individual spaces.
- \*\*\* Residential work to occur within ROS areas to increase species representation.
- \*\*\*\* Assume 45% of T2 residential lots to be cleared to accommodate firebreaks, services, access and dwellings.



DISCLAIMER: ISSUED FOR DESIGN INTENT ONLY. ALL AREAS AND DIMENSIONS ARE SUBJECT TO DETAILED DESIGN AND SURVEY

Level 1 | 150 Regent Street, East Perth Western Australia 6008  
T 08 9391 8200 | F 08 9391 8701  
www.robertsday.com.au



**Figure 6 Extent of potential Carnaby's black cockatoo foraging habitat**

Date: 19/10/2012  
Author: jcrute

Info@strategen.com.au www.strategen.com.au

Source: RPS, Lot 10 Jindee Vegetation and Flora Survey, January 2006.



**EXTENT OF LOMANDRA MARITIMA**

CLIENT  
ESTATES DEVELOPMENT COMPANY  
PROJECT  
JINDEE

REFERENCE NUMBER DRAWING NUMBER ISSUE  
EDC JIN RD1 008 A

**LEGEND**

- SITE BOUNDARY
- CADASTRE
- EXTENT OF LOMANDRA MARITIMA
- POTENTIAL HABITAT RETENTION AREAS
- LOMANDRA MARITIMA DENSITY (HIGH)
- LOMANDRA MARITIMA DENSITY (MEDIUM)
- LOMANDRA MARITIMA DENSITY (LOW)

GSM Habitat Retention Areas	
Total Project Site Area (ha)	119.42
Total GSM Habitat Area (ha)	55.08
Habitat Condition Assessment	
Habitat assessment as Good to Excellent (ha)	55.08
Habitat assessment as Degraded (ha)	0
Habitat Conservation Potential*	
Habitat located within Civic Spaces (ha)**	1.44
Habitat located within Regional Open Space Area (ha)***	3.1
Habitat within T2 lots (ha)****	4.64
<b>Total</b>	<b>9.18</b>
Percentage of Good to Excellent Habitat Area	16.67%

- Notes
- \* Applies to Habitat Areas assessed as "Good-Excellent".
  - \*\* Assumes a minimum of 0% and a maximum of 80% of vegetation can be retained in "natural condition" within the Civic Spaces depending on size and function of individual spaces.
  - \*\*\* Remedial work to occur within RGS areas to increase species representation.
  - \*\*\*\* Assumes 45% of T2 residential lots to be cleared to accommodate firebreaks, services, access and dwellings.



**RPS**  
robertsday

path | hydro | mobicon

Level 1 | 120 Regal Street East Perth  
Western Australia 6005 AUSTRALIA  
T: 08 9238 4100 | F: 08 9238 4891  
www.robertsday.com.au

DISCLAIMER: ISSUED FOR DESIGN PURPOSE ONLY. ALL AREAS AND DIMENSIONS ARE SUBJECT TO DETAIL DESIGN AND SURVEY.

Figure 7 Extent of Lomandra maritima (EDC JIN RD1008A)



Date: 19/10/2012  
Author: jcrute  
Source: RPS.



Figure 8 Graceful Sun Moth locations

Date: 19/10/2012  
Author: jcrute

Source: RPS, Graceful Sun Moth Survey Report 2010, Lot 10 Marmion Avenue, Jindalee. Draft A, May 2010.

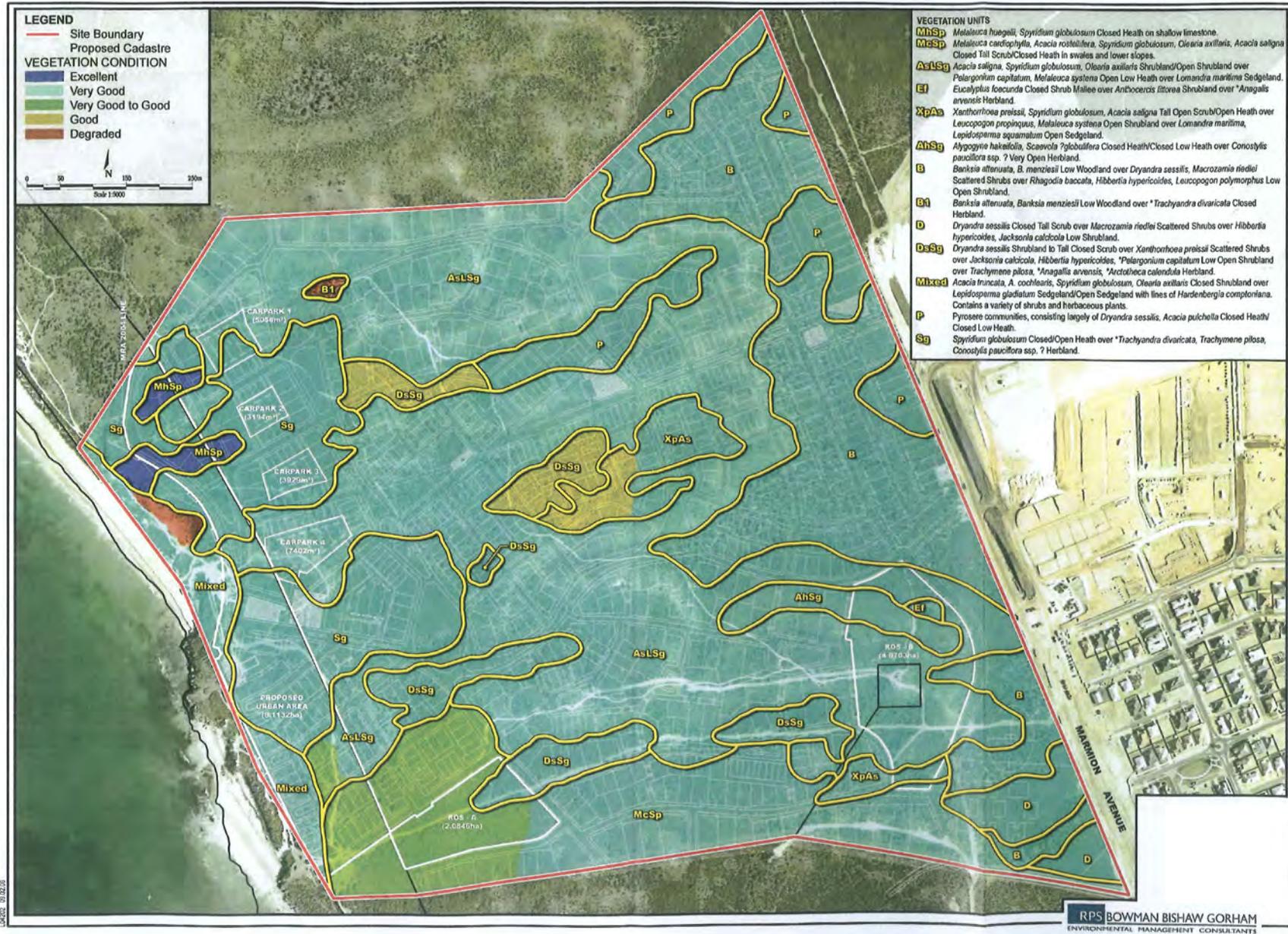


Figure 9 Vegetation types and condition

Date: 19/10/2012  
Author: jcrute

Source: RPS, Lot 10 Jindee Vegetation and Flora Survey, January 2006.



STRATEGEN

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

# APPENDICES