



20 December 2012

Our Ref: J114227

Department of Mines and Petroleum  
Native Vegetation Conservation Branch  
Locked Bag 104, Bentley Delivery Centre  
BENTLEY WA 6983

Dear Native Vegetation Assessment Officer

**EDITH COWAN UNIVERSITY BUNBURY PROPOSED SOLAR FARM – APPLICATION FOR  
A NATIVE VEGETATION CLEARING PERMIT (AREA PERMIT)**

ENV. Australia Pty Ltd (ENV) was commissioned by Edith Cowan University (ECU) to provide supporting documentation for an application to clear native vegetation (NVCP) on the ECU Bunbury Campus in the South West Region of Western Australia (the study area).

The study area is approximately 0.8 ha, part of the area has been previously cleared. A series of studies have been conducted over a broader area of 47 ha within which the area pertaining to this NVCP application. The outcomes of these surveys and subsequent reports are used as part of this application for a Native Vegetation Clearing Permit. These include:

- *ECU Bunbury Campus –Western Ringtail Possum Survey.* ENV Australia (2012) Unpublished consultants report prepared for Edith Cowan University, Perth.
- *Flora and Vegetation Assessment of Edith Cowan University, Bunbury.* ENV Australia (2012) Unpublished consultants report prepared for Edith Cowan University, Perth.

The ECU Master Plan, which provides long-term planning to develop the Bunbury Campus, proposes the clearing of some existing vegetation on sections of the campus, potentially for the installation of an array of solar panels. The proposed system capacity will be a 400 kW system with proposed clearing of 0.8 hectares (Figure 1.).

As part of this documentation, please find attached (documents provided on the enclosed CD) the following documents:

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PO Box 7480, Cloisters Square PERTH WA 6850

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- Application for a clearing permit (area permit) Form C1
- Credit card payment Form C3
- Clearing Principals addressed
- ECU Solar Farm Site Plan figure and Vegetation Mapping figure
- Shape file

## **ASSESSMENT OF FINDINGS AGAINST THE CLEARING PRINCIPLES**

Any clearing of native vegetation requires a permit under Part V Division 2 of the *EP Act*, except where an exemption applies under Schedule 6 of the *EP Act*, or where the clearing is prescribed by regulations in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Exemptions do not apply in an ESA.

Each of the ten clearing principles, as outlined in the *EP Act 1986*, are individually assessed below, within the scope and knowledge of previous flora, vegetation and fauna assessments.

### **PRINCIPLE A - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT COMPRISES A HIGH LEVEL OF BIOLOGICAL DIVERSITY**

The vascular flora richness (number of taxa) recorded within the study area represents flora from one flora sampling quadrat with 27 taxa sampled. The site has been mapped as Floristic Community Type SCP25 'Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands', which is listed as a PEC (Figure 2). This community is documented as having a species richness of 52.8 species (Gibson et al. 1994). The species diversity is considerably lower due to the small size of the study area and the below average rainfall received in the area before Spring 2012. The area is also in 'Good' to 'Degraded' condition (Keighery 1994) with the vegetation having been partially cleared and altered by obvious signs of disturbances such as weeds. In addition, part of the proposed clearing area is completely cleared for a gravel road.

A total of 15 Priority Flora are listed as likely to occur in the broader study area. Due to the small size of the study area, it was thoroughly surveyed for any additional flora species, none were located at the time of the field survey.

A total of 197 fauna species (11 amphibians, 33 reptiles, 143 birds and 10 mammal species) have been previously recorded within the vicinity of the study area. These records are from surveys surrounding the study area (ENV 2012a), therefore, covering a broader range of habitats than the study area, and included records from DEC threatened fauna database searches (DEC 2012a), *NatureMap* (DEC 2012b), and DSEWPaC Protected Matters Search Tool (DSEWPaC 2012).

A total of 21 conservation significant fauna species have previously been recorded near the study area and could potentially occur in the study area. Given the size of the area and the ground studies conducted this year, it is considered unlikely that any of these species occur in the 0.8 ha to be cleared.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

**PRINCIPLE B - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT COMPRISES THE WHOLE OR A PART OF, OR IS NECESSARY FOR THE MAINTENANCE OF, A SIGNIFICANT HABITAT FOR FAUNA INDIGENOUS TO WESTERN AUSTRALIA**

A total of 21 conservation significant species (three reptile species, 16 bird species, two mammals) have previously been recorded within the vicinity of the study area and could potentially occur in the study area.

A Western Ringtail Possum survey was undertaken in March 2012 to assess the occurrence of the possum at the ECU Bunbury Campus site. Five dreys (nest and roost structures constructed of leaves and twigs) and three possums recorded during nocturnal surveys (ENV 2012a). None of these individuals or dreys were located in the proposed solar farm area. However, suitable habitat of Peppermint trees (*Agonis flexuosa*), are present at the proposed site.

Due to the small footprint of the proposed development, local populations of fauna are unlikely to be impacted.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

**PRINCIPLE C - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT INCLUDES, OR IS NECESSARY FOR THE CONTINUED EXISTENCE OF, RARE FLORA**

No DRF or Priority Flora were recorded in the proposed ECU solar farm survey area. A total of 15 Priority species could potentially occur in the broader ECU study area. The proposed ECU solar farm study area was thoroughly searched for rare flora and none were recorded.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

**PRINCIPLE D - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT COMPRISES THE WHOLE OR PART OF, OR IS NECESSARY FOR THE MAINTENANCE OF, A THREATENED ECOLOGICAL COMMUNITY**

The vegetation association identified in the study area does not represent any TECs as listed under the *EPBC Act* or ESAs declared under the *EP Act*.

One Priority 3 PEC as listed by DEC occurs in the study area - SCP25 'Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands.' There are 32 occurrences of this vegetation community recorded on the TEC database extending across the Swan Coastal Plain north near Yanchep south to near Minninup (Jill Pryde, DEC pers. comm. 2012). Most occurrences are subject to threats across its range associated with clearing, weed invasion, inappropriate fire regimes (too frequent), impacts of recreational users (eg equestrian users and unauthorised 4 wheel drive access), grazing by cattle, unauthorised track formation (in nature reserve), current and planned groundwater abstraction that impact the tuart overstorey and other groundwater dependent species, tuart decline, and impacts of climate change such as groundwater decline.

Any disturbances associated with the project may be at variance with this principle. However, given the small area and degraded nature of the area proposed to be cleared, it is considered that clearing of the PEC will not impact on the maintenance of ecological function of this occurrence of the PEC.

**PRINCIPLE E - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT IS SIGNIFICANT AS A REMNANT OF NATIVE VEGETATION IN AN AREA THAT HAS BEEN EXTENSIVELY CLEARED**

Vegetation associations described in the study area were correlated with the Shepherd et al., (2001) broad vegetation types. The vegetation EgAfXoHhDp, mapped for the study area, is correlated with Vegetation Type 6 (Figure 2). This vegetation is considered to be at "threshold level" as less than 30% of the pre-European amount of this vegetation type remains (EPA 2000; Government of Western Australia 2011).

The EPA recognises vegetation complexes which have 10-30% remaining and occur outside the Bush forever study area, may be considered regionally significant. Given that the broad vegetation complexes are poorly represented in formal reserves and the Karrakatta complex is considered at "threshold level", proposals that would result in direct losses of this natural area will have significant impacts. The EPA advises that direct loss or significant impact on natural areas is avoided (EPA 2006).

The area proposed to be cleared is 0.8 ha. The vegetation in this area is in 'Good' condition and is not considered to be a high quality example of this vegetation. The patch is bordering on a gravel road and car parking and is surrounded by minor tracks. The majority of this vegetation that occurs surrounding the ECU campus is in 'Very Good' condition. These areas are considered of greater conservation significance than those in 'Good' condition.

It is considered that disturbances associated with the project are not likely to be at variance with this principle.

**PRINCIPLE F - NATIVE VEGETATION SHOULD NOT BE CLEARED IF IT IS GROWING IN, OR IN ASSOCIATION WITH, AN ENVIRONMENT ASSOCIATED WITH A WATERCOURSE OR WETLAND**

There are no watercourses within the study area. No wetlands occurs in the study area. A Geomorphic wetland (DEC 2010) occurs approximately one kilometre to the west from the proposed solar farm site.

Due to the absence of vegetation in association with a watercourse or wetland, this proposal is not at variance with this principle.

**PRINCIPLE G - NATIVE VEGETATION SHOULD NOT BE CLEARED IF THE CLEARING OF THE VEGETATION IS LIKELY TO CAUSE APPRECIABLE LAND DEGRADATION**

Land degradation in terms of soil erosion, salinity, nutrient export, acidification or flooding are largely beyond the background and scope of this flora, vegetation and fauna assessment.

Land degradation includes clearing of vegetation, decline in vegetation condition due to weeds and changes in natural fire regimes, and a decline in soil condition caused by erosion. The study area supports a range of weeds such as *\*Briza maxima* and *\*Ursinia anthemoides* at low densities. Any disturbance activity such as land clearing, increases the chance of the establishment of introduced species. To prevent the spread of weeds into weed-free areas an effective weed hygiene and management plan should be implemented.

This proposal is unlikely to be at variance with this principle.

**PRINCIPLE H - NATIVE VEGETATION SHOULD NOT BE CLEARED IF THE CLEARING OF THE VEGETATION IS LIKELY TO HAVE AN IMPACT ON THE ENVIRONMENTAL VALUES OF ANY ADJACENT OR NEARBY CONSERVATION AREAS**

There are no National Parks, nature reserves or other protected areas within the vicinity of the study area.

The proposal is unlikely to be at variance with this principle.

**PRINCIPLE I - NATIVE VEGETATION SHOULD NOT BE CLEARED IF THE CLEARING OF THE VEGETATION IS LIKELY TO CAUSE DETERIORATION IN THE QUALITY OF SURFACE OR UNDERGROUND WATER**

The area proposed to be cleared is a relatively small area of 0.8 ha. Any runoff from rainfall events will likely run into nearby culverts and depressions. The nature of the proposal will not affect the quality and levels of groundwater. Surface water quality may be affected if measures to reduce soil erosion are not implemented.

Provided effective measures to minimise soil erosion are implemented, the proposal is unlikely to be at variance with this principle.

**PRINCIPLE J - NATIVE VEGETATION SHOULD NOT BE CLEARED IF THE CLEARING OF THE VEGETATION IS LIKELY TO CAUSE, OR EXACERBATE, THE INCIDENCE OR INTENSITY OF FLOODING**

Intense rainfall can lead to surface runoff during winter. The scale of the proposal is small and is not likely to cause or exacerbate flooding.

Therefore, disturbances associated with the project are not likely to be at variance with this principle.

Yours sincerely  
ENV AUSTRALIA PTY LTD



BRITTA MATHEWS  
Senior Botanist

## REFERENCES

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## **STATEMENT OF LIMITATIONS**

### **Scope of Services**

This environmental site assessment report ("the report") has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and ENV.Australia Pty Ltd ("ENV"). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

### **Reliance on Data**

In preparing the report, ENV has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise stated in the report, ENV has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. ENV will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to ENV.

### **Environmental Conclusions**

In accordance with the scope of services, ENV has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered.

The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions. Also it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

**Report for Benefit of Client**

The report has been prepared for the benefit of the Client and no other party. ENV assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of ENV or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

**Other Limitations**

ENV will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.



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ECU Bunbury

**AUTHOR**  
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**SCALE**  
1:2,000 @ A4

**DRAWN**  
T. Ellis

**PROJECTION**  
GDA94 MGA50

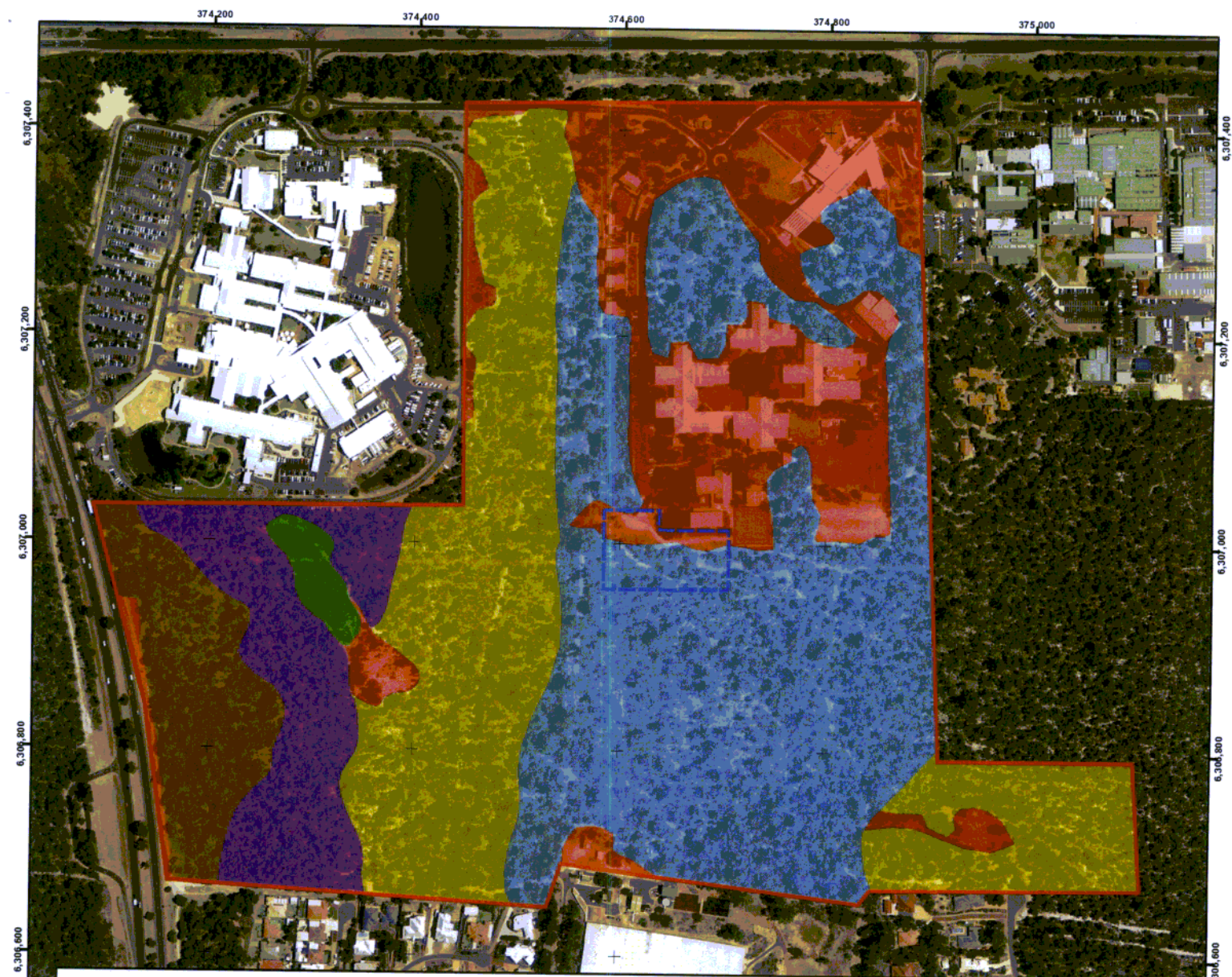
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J109019

**DATE**  
19-12-12

## Location of Study Area

Flora and Vegetation Assessment  
of ECU, Bunbury

FIGURE 1



**Legend**

- Site Boundary
- Solar Farm Footprint

**Vegetation Association**

- BgApHaSe - *Banksia grandis* low open woodland over *Acacia pulchella* var. *glaberrima*, *Stirlingia latifolia* open shrubland over *Hypocalymma angustifolium*, *Melaleuca thymoides*, *Adenanthos meisneri*, *Daviesia physodes*, *Leucopogon propinquus* low shrubland over *Schoenus efoliatus* very open sedgeland.
- CcMpXbBj - *Corymbia calophylla* open forest over *Melaleuca preissiana*, *Banksia littoralis*, *Banksia grandis* low woodland over *Xanthorrhoea brunonis* low open shrubland over *Baumea juncea* sedgeland.
- EgAfXoHhDp - *Eucalyptus gomphocephala* woodland over *Agonis flexuosa*, *Banksia attenuata* low open forest over *Xylomelum occidentale* scattered tall shrubs over *Hibbertia hypericoides*, *Macrozamia reidlei* low shrubland over *Dichopogon preissii*, *Trifolium campestre* very open herbland.
- EmBaXoHhDp - *Eucalyptus marginata* subsp. *marginata*, *Corymbia calophylla* open forest over *Banksia attenuata* low woodland over *Xylomelum occidentale* scattered tall shrubs over *Macrozamia riedlei* scattered shrubs over *Hibbertia hypericoides*, *Melaleuca thymoides* low shrubland over *Briza maxima* scattered tussock grasses over *Dichopogon preissii* very open herbland.
- MpXbLb - *Melaleuca preissiana*, *Corymbia calophylla*, *Agonis flexuosa*, *Banksia littoralis* low open forest over *Xanthorrhoea brunonis* low open shrubland over *Lyginia barbata* very open herbland over *Lepidopserma pubisquameum*, *Baumea juncea* very open sedgeland.
- Cleared



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AUTHOR	B. Mathews	DRAWN	T Ellis
SCALE	1:4,000 @ A3	DATE	18-12-12
		PROJECTION	GDA 94 MGA 50

**Vegetation Associations**  
Flora and Vegetation Assessment  
of ECU, Bunbury