



**Port Macquarie Base Hospital
Redevelopment MP 11_0012**
Biodiversity Impacts and
Offsets Report

For Health Infrastructure NSW



September 2012

0164322 R01V02

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Port Macquarie Base Hospital Redevelopment MP 11_0012

Biodiversity Impacts and Offsets Report

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Health Infrastructure NSW

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Health Infrastructure NSW

Port Macquarie Base
Hospital Redevelopment
MP 11_0012
*Biodiversity Impacts and
Offsets Report*

September 2012

Reference: 0164322_R01V02

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1 INTRODUCTION

1.1 BACKGROUND

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Health Infrastructure NSW to investigate options for offsetting biodiversity impacts associated with the proposed redevelopment of the Port Macquarie Base Hospital (PMBH). An Environmental Assessment (EA) report outlining the proposal has been submitted to the Department of Planning and Infrastructure (DPI) under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and is awaiting determination.

The proposed redevelopment would require the removal of 89 eucalypt trees (67 planted and 22 remnant) and approximately 0.1ha of planted rainforest species. Many of the eucalypts are listed as Koala feed tree species under *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP 44) and previous assessments (ERM 2010, 2011 & 2012) indicate that the PMBH grounds and surrounding vegetation support a resident population of Koalas with high activity recorded throughout the area, including sighting of an adult and juvenile that would indicate a viable population.

This report presents the results of a BioBanking assessment that was undertaken to inform the biodiversity offsets required for the proposal. The approach outlined in the Biodiversity Banking and Offsets Scheme (BioBanking) administered by the NSW Office of Environment and Heritage (OEH) has been adopted in this report in an effort to quantify and offset the potential biodiversity impacts associated with the proposal.

ERM has also applied the NSW OEH “Interim policy on assessing and offsetting biodiversity impacts on Part #A, State Significant Development (SSD) and State Significant Infrastructure (SSI) Projects (OEH June 2011).

1.1.1 Biodiversity Banking and Offsets Scheme

BioBanking was developed by the NSW Department of Environment and Climate Change (DECC), now OEH, and came into effect in 2008. BioBanking establishes an ‘improve or maintain’ test for biodiversity values through a specifically developed biodiversity assessment methodology and credit calculator which enables users to calculate the offsets required for a development site and the credits available at a BioBank (offset) site.

There are two types of credits associated with BioBanking:

- **ecosystem credits:** can only be used to offset biodiversity impacts in the same ecological community, or in another community of the same formation that has an equal or greater percentage of land cleared and the same predicted threatened species; and

- **species credits:** can only be used to offset biodiversity impacts on the same threatened species (DECC 2009).

1.2 *THE SITE*

PMBH is located on Lot 23 DP 852214 Wrights Road, which is accessed via the Oxley Highway, approximately three kilometres (km) to the south west of the Port Macquarie Central business District (CBD) on the Mid North Coast of NSW (see *Figure 1.1*).

The site occurs within the Port Macquarie-Hastings Council (PMHC) Local Government Area (LGA) and is zoned Special Purpose Infrastructure (SP2) - Health Services Facility under the Port Macquarie-Hastings Local Environmental Plan 2011 (Port Macquarie-Hastings LEP).

PMBH is bordered by the Oxley Highway to the west, residential areas to the north and south and light industrial areas to the east.

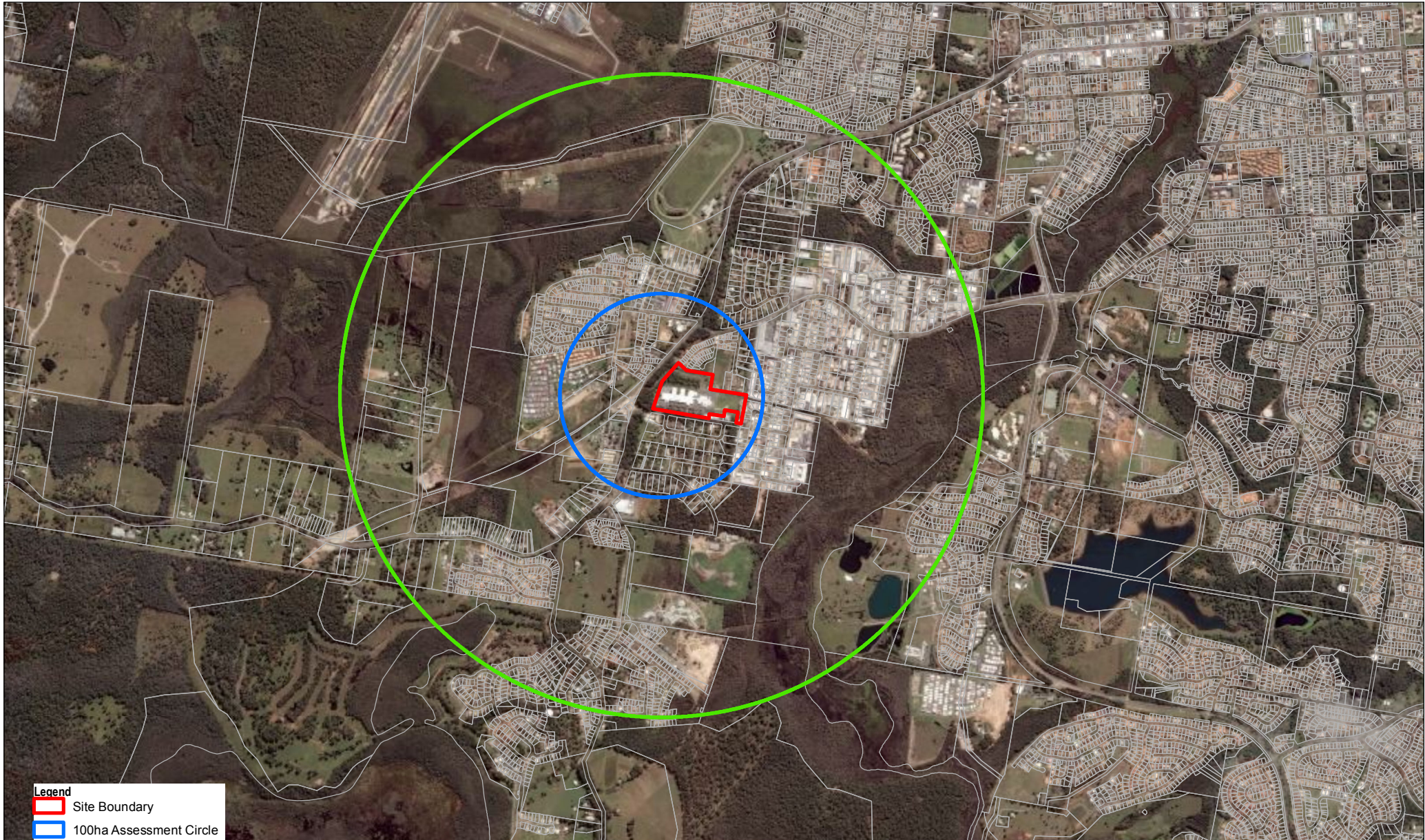
1.3 *LIAISON WITH REGULATORY AUTHORITIES*




Initial liaison has been undertaken separately with Ms Megan Fu of DPI, Mr Thor Asso of PMHC and Mr Steve Lewer Assessment Officer at OEH regarding the offset requirements of the proposed PMBH expansion. The discussions indicated that DPI is being guided by PMHC on this issue and they have indicated that 2:1 would be a satisfactory size for compensatory plantings. Council has indicated that it will be difficult for the proponent to secure land for compensatory plantings as there is presently a lack of available land for such uses.

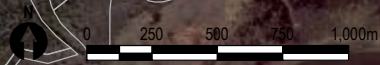
OEH have not provided a submission to the Part 3A at this stage. It is anticipated that if input is provided by OEH, they will request that the client undertakes a BioBanking assessment for the site to determine the size and type of credits required for the development. As such, this report is expected to be in accordance with any OEH submissions on the Project.

1.4 *PURPOSE*

The purpose of this report is to use the BioBanking assessment provision of the EP&A Act to provide a clear indication of the biodiversity offset requirements associated with the removal of vegetation as part of the proposed redevelopment of the PMBH.



Legend	
	Site Boundary
	100ha Assessment Circle
	1000ha Assessment Circle



Rev. N.	Date	Revision	Drawn by	Rev. by	Client:	Health Infrastructure NSW
0	04/06/12	Initial Issue	AR	MB	Drawing No:	0164666pm_BIO_GIS01_R0.mxd
					Date:	05/06/2012
					Drawing Size:	A4
					Drawn By:	AA
					Reviewed By:	MB
<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>						

Figure No. 1.1 - Locality Plan
 Port Macquarie Base Hospital Redevelopment
 Environmental Resources Management ANP
 Adelaide, Auckland, Brisbane, Canberra, Christchurch,
 Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney



2 *METHODS*

2.1 *DESKTOP REVIEW*

An initial desktop review was undertaken to obtain the following information:

- the vegetation types that occur within the site;
- the placement of 1000 hectare (ha) and 100ha assessment circles;
- the number of plots/transects likely to be required; and
- threatened species that may occur within the site.

The desktop review included analysis of topography maps, aerial photography and Geographic Information Systems (GIS) interpretations. The followed existing reports were also reviewed during this process:

- Port Macquarie Base Hospital: Koala Activity Assessment (ERM 2010);
- Port Macquarie Base Hospital Redevelopment: Enabling Works – Ecological Assessment (ERM 2011);
- Port Macquarie Base Hospital Redevelopment MP 11_0012: Ecological Assessment (ERM 2012); and
- Draft Port Macquarie Base Hospital: Arboricultural Impact Appraisal and Method Statement (Naturally Trees 2011).

The information gathered from the desktop review was used to inform the field survey.

2.2 *FIELD SURVEY*

The field survey was undertaken in accordance with Appendix 2 of the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECC 2009).

This included undertaking a 20 x 50 metre (m) and 20 x 20m survey plot in which the following attributes were recorded:

- GPS coordinates;
- native plant species richness (the number of native species that occur in a 20m x 20m plot);
- native over-storey cover (percent cover over a 50m transect);
- native mid-storey cover (percent cover over a 50m transect);

- native groundcover (grasses) (percent cover over a 50m transect);
- native groundcover (shrubs) (percent cover over a 50m transect);
- native groundcover (other) (percent cover over a 50m transect);
- exotic plant cover (percent cover over a 50m transect);
- number of trees with hollows (total number within a 50m x 20m plot);
- over-storey regeneration (the proportion of over-storey species that are regenerating across the entire vegetation zone; and
- total length of fallen logs (within a 50m x 20m plot).

The number of plots/transects was determined by the area of each vegetation zone, as outlined in *Table 2.1*

Table 2.1 *Minimum number of transects/plots required per zone area*

Vegetation Zone Area (ha)	Minimum number of transects/plots
0 – 4	1 transect/plot per 2ha (or part thereof), or 1 transect/plot if vegetation is on low condition
>4 – 20	3 transects/plots or 2 transects/plots if vegetation is in low condition
>20 – 50	4 transects/plots or 3 transects/plots if vegetation is in low condition
>50 – 100	5 transects/plots or 3 transects/plots if vegetation is in low condition
>100 – 250	6 transects/plots or 4 transects/plots if vegetation is in low condition
>250 – 1000	7 transects/plots or 5 transects/plots if vegetation is in low condition
>1000	8 transects/plots or 5 transects/plots if vegetation is in low condition or in a homogenous landscape in the Western Division. More transects/plots may be needed if the condition of the vegetation is variable across the zone.

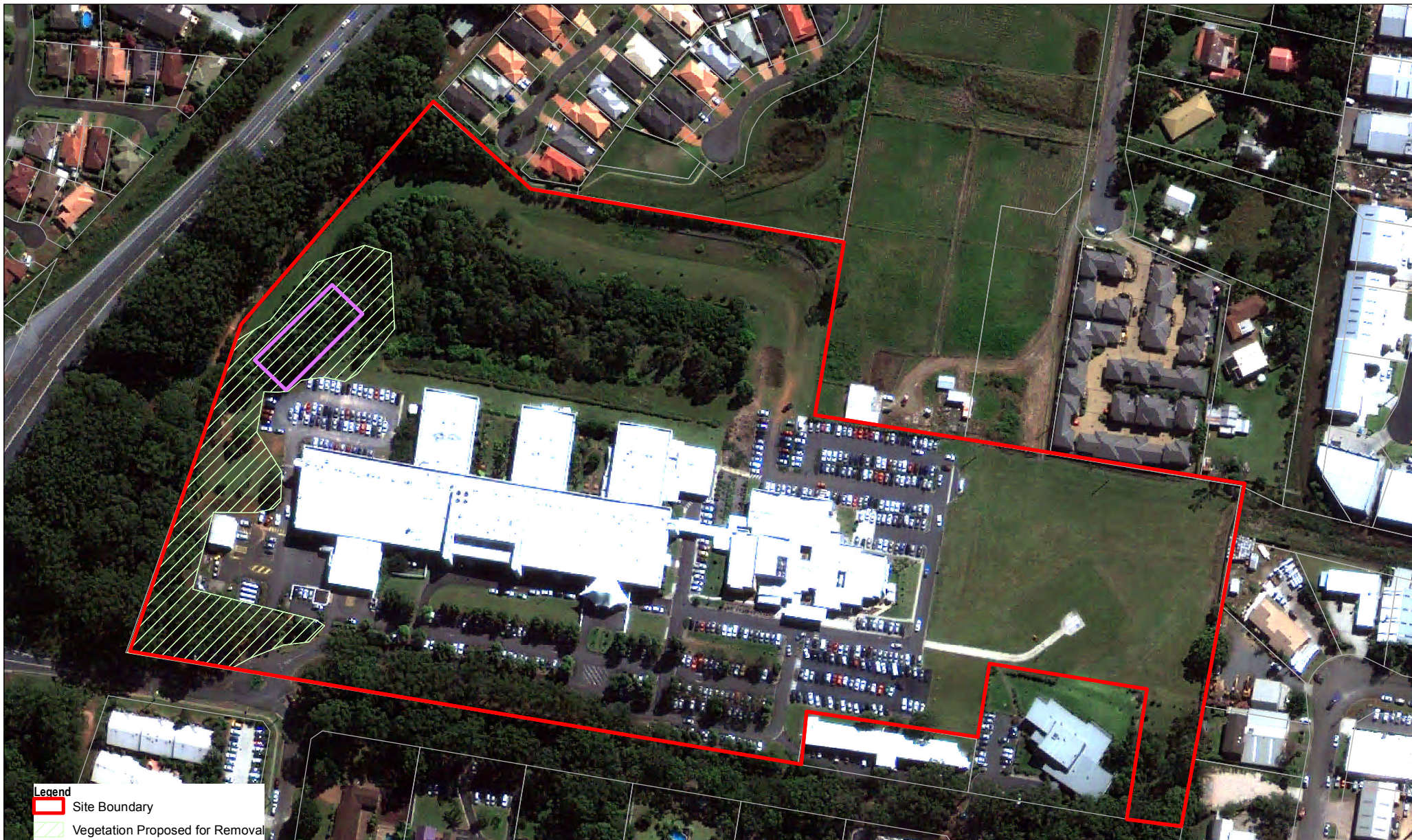
Source: page 26 of BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECC, 2009)




The field survey was undertaken on 21 May 2012. Given that the area to be impacted is approximately 1ha, only one survey plot was required as shown in *Figure 2.1*. Targeted surveys for threatened species were not undertaken during the survey, however, threatened species records from the previous reports were included in the BioBanking assessment.

2.3 CREDIT CALCULATOR

The BioBanking Credit Calculator Version 2.0 was used to calculate the credits required in accordance with the *Draft Operational Manual for Using the BioBanking Credit Calculator v2.0*, the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECC 2009).

Details of data sources and assumptions are provided throughout the results chapters.

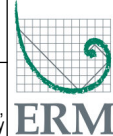


Legend	
	Site Boundary
	Vegetation Proposed for Removal
	Survey Quadrat



Rev. N.	Date	Revision	Drawn by	Rev. by	Client:	Health Infrastructure NSW
0	29/05/12	Initial Issue	AR	MB	Drawing No:	0164666pm_BIO_GIS02_R0.mxd
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					Reviewed By:	MB
					This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	

Figure No. 2.1 - PMBH Biobanking Assessment
 Port Macquarie Base Hospital Redevelopment
 Environmental Resources Management ANP
 Adelaide, Auckland, Brisbane, Canberra, Christchurch,
 Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney



3 CONTEXTUAL INFORMATION

3.1 BIOBANKING ASSESSMENT DETAILS

Table 3.1 provides contextual information relevant to the BioBanking assessment.

Table 3.1 *BioBanking Assessment Details*

Component	Data
Proposal ID	0089/2012/0243D
Assessor Name/Accreditation Number	Evelyn Craigie/0089
Assessment Type	Development
Catchment	Northern Rivers
Sub-catchment	Macleay - Hastings Northern Rivers
Mitchell Landscape	Manning - Macleay Coastal Alluvial Plain

3.2 BIOMETRIC VEGETATION TYPES

The BioBanking methodology uses specific vegetation types that were developed for each Catchment Management Authority (CMA) area. These biometric vegetation types are stored in the NSW Vegetation Types Database (DECC 2009).

Vegetation within the proposed development footprint consists predominantly of planted Eucalyptus species and a small area containing planted rainforest species. A small number of remnant eucalypts are also included within the footprint. Given that vegetation within the development footprint is not a naturally occurring community, the listed biometric vegetation type that most closely matches vegetation on-site is "Tallowwood Open Forest of the Coastal Ranges of the North Coast". The location of vegetation proposed for removal is shown in *Figure 2.1*.

4 RESULTS

4.1 ASSESSMENT CIRCLES

An assessment circle with a radius of 1784m (1000ha) is used to assess the impact of the proposal on the percent native vegetation cover and as a filter to identify threatened species that may occur on the site. A 100ha circle (564m radius) is used to assess the impact of the proposal on the surrounding vegetation cover at a more local scale (DECC 2009).

Assessment circles are indicated on *Figure 1.1*. Details of the data entered into the credit calculator for assessment circles are provided in *Annex A*.

4.1.1 Vegetation Zones

Vegetation zones are relatively homogenous areas of the same vegetation type and similar condition. Each vegetation zone should be a distinct vegetation type (according to the Vegetation Types Database) and similar broad condition state, i.e. moderate / good or low (DECC 2009). The entire site falls within one vegetation zone (VZ1).

4.1.2 Threatened Species Subzones

Threatened species sub-zones are derived from the vegetation zones for applying the initial five filters to predict which threatened species require assessment (DECC 2009). The filters are:

- CMA subregion area in which the Study Area occurs;
- vegetation type and vegetation condition;
- percent native vegetation cover in a 1000-ha assessment circle;
- adjacent remnant area (the area of moderate to good condition native vegetation of which the Study Area is a part, which is linked to the next area of native vegetation);
- patch size including low-condition (the area of native vegetation of which the Study Area is a part, which is linked to the next area of native vegetation).

The entire site has been placed into one threatened species subzone. The area of the threatened species sub-zone is the same as the vegetation zone.

4.1.3 *Geographic and Habitat Features*

Geographic and habitat features that are present at the site can be selected from a list provided by the credit calculator. The selected features determine the threatened species that are likely to occur and therefore, require further assessment.

The following geographic and habitat features occur at the site:

- land south of Kempsey in Macleay Hastings CMA sub-region;
- subtropical or warm temperate rainforest or open eucalypt forest or ecotones between rainforest and eucalypt forest;
- grassy open forest; and
- rainforest, eucalypt forest, heathland, marshland, grassland or rocky areas.

4.1.4 *Identified Populations*

There are currently no identified populations associated with the BioBanking methodology (OEH 2012). Therefore, information was not entered at this section of the calculator.

4.1.5 *Site Survey*

Species Predicted to Occur

Species that have a high likelihood of occurrence at a development or BioBank site are assessed in conjunction with general biodiversity values, based on the vegetation type present. These species are included in the ecosystem credits generated by the calculator. The likely impacts on these species are measured by the predicted change in site attributes that result from these actions and by the area of land that is impacted. Because these species have a high likelihood of occurrence based on the attributes assigned to a threatened species subzone, threatened species surveys are not required (DECC, 2008). ERM undertook flora and fauna field surveys in December 2010 and October and November 2011. Eight threatened species were recorded during these surveys, as indicated in *Table 4.1*.

The threatened species that are predicted to occur at the site are shown in *Table 4.1*.

Table 4.1 *Species Predicted to Occur in the Study Area*

Scientific Name	Common Name	Species Observed (Y/N)
<i>Amaurornis olivaceus</i>	Bush-hen	N
<i>Burhinus grallarius</i>	Bush Stone-curlew	N
<i>Calyptorhynchus lathami</i>	Glossy Black-cockatoo	N
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	N
<i>Chalinolobus nigrogriseus</i>	Hoary Wattled Bat	Y
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	N
<i>Coracina lineata</i>	Barred Cuckoo-shrike	N
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	N
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	N
<i>Glossopsitta pusilla</i>	Little Lorikeet	N
<i>Hoplocephalus stephensii</i>	Stephens' Banded Snake	N
<i>Miniopterus australis</i>	Little Bentwing-bat	Y
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	Y
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	Y
<i>Myotis macropus</i> (formerly <i>Myotis adversus</i>)	Large-footed Myotis	N
<i>Ninox connivens</i>	Barking Owl	N
<i>Petaurus australis</i>	Yellow-bellied Glider	
<i>Petaurus norfolcensis</i>	Squirrel Glider	N
<i>Phascolarctos cinereus</i>	Koala	Y
<i>Potorous tridactylus</i>	Long-nosed Potoroo	N
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Y
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	N
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Y
<i>Tyto novaehollandiae</i>	Masked Owl	Y
<i>Xanthomyza phrygia</i>	Regent Honeyeater	N

Source: Biobanking calculator and ERM 2012

Species Requiring Targeted Survey

Species credits apply to threatened species that cannot be reliably predicted to occur in a vegetation type. Species credits can also apply to species that require protection of particular habitat elements, such as breeding habitat for a cave roosting bat.

The list of threatened species requiring targeted surveys is shown in Table 4.2. ERM undertook flora and fauna field surveys in December 2010 and October and November 2011. The timing of these surveys was appropriate for detection of all the species (in accordance with the survey time matrix provided by the BioBanking calculator).

Table 4.2 Species Requiring Targeted Survey

Scientific Name	Common Name	Species Observed (Y/N)
<i>Aepyprymnus rufescens</i>	Rufous Bettong	N
<i>Banksia conferta</i> subsp. <i>conferta</i>		N
<i>Diuris disposita</i>		N
<i>Hieraaetus morphnoides</i>	Little Eagle	N
<i>Lophoictinia isura</i>	Square-tailed Kite	N
<i>Marsdenia longiloba</i>	Clear Milkvine	N
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	N
<i>Melaleuca groveana</i>		N
<i>Niemeyera whitei</i>	Rusty Plum	N
<i>Oberonia titania</i>	Soldier's Crest Orchid	N
<i>Parsonia dorrigoensis</i>	Milky Silkpod	N
<i>Planigale maculata</i>	Common Planigale	N
<i>Pomaderris queenslandica</i>	Scant Pomaderris	N
<i>Pseudomys gracilicaudatus</i>	Eastern Chestnut Mouse	N

Source: BioBanking calculator and ERM 2012

4.1.6 Site Values

The credit calculator generates a decrease in site value score, based on the field data and type of development that is proposed. If the extent of development impact varies over a vegetation zone, this can be reflected by dividing the vegetation zone into different management zones. This has not been done for this BioBanking assessment as the proposal will result in the same outcome across the site, ie complete clearing of vegetation. Therefore, the site value score for each site attribute has been reduced to zero.

The decrease in site value is the basis for determining the number of biodiversity credits that are required for a development site. The decrease in site value score is 26.56.

4.1.7 Threatened Species Survey Results

Threatened species for which species credits are required were not recorded during surveys undertaken by ERM in December 2010, October 2011 and November 2011 (ERM, 2012).

4.1.8 Credit Requirements

The BioBanking credit calculator provides a credit report showing the ecosystem and species credits required to offset the development. The proposal requires 57 ecosystem credits. Species credits are not required for the proposal.

The credit calculator provides a list of vegetation types and CMA subregions into which offsets can be established. This list is provided in *Table 4.3*.

Table 4.3 **Offset Options**

Vegetation Types	CMA Sub-regions
Tallowwood open forest of the coastal ranges of the North Coast (NR268)	Macleay Hastings - Northern Rivers Clarence Lowlands
Blackbutt - Tallowwood dry grassy open forest of the central parts North Coast (NR119)	Coffs Coast and Escarpment
Blackbutt - Turpentine open forest of the foothills of the North Coast (NR124)	
Blackbutt grassy open forest of the lower Clarence Valley of the North Coast (NR125)	
Red Mahogany open forest of the coastal lowlands of the North Coast (NR222)	
Tallowwood - Small-fruited Grey Gum dry grassy open forest of the foothills of North Coast (NR263)	

APPLICATION OF THE INTERIM OEH BIODIVERSITY OFFSETS POLICY

An assessment has been completed using the BioBanking Assessment Methodology for PMBH as outlined in Sections 2-4 of this report.

ERM have undertaken an investigation of the availability of biodiversity credits on the BioBanking Public Register and have not identified potential candidate offset sites to purchase and retire credits to satisfy the offset required within the Northern Rivers CMA.

ERM propose to apply the interim biodiversity offsets policy to this development (OEH, July 2011). ERM has reviewed the requirements to seek an offset for the site and intend to apply the “Tier 3 Mitigated Net loss” standard. This is because suitable biodiversity credits are not available within the CMA area to purchase on the biodiversity credit market (as allowed by Variation Criteria “A”). All other components of the requirements for offset can be achieved and ERM do not intend to seek a reduction in the requirements for offsets as outlined in the Variation criteria “B” to “F” of the policy. Application of Variation Criteria “A” is outlined in *Table 5.1*.

Table 5.1 *Application of Tier 3 Mitigated Net Lost Criteria A*

Criteria	Proposal
<p>Variation Criteria <i>a) Convert ecosystem credits for one vegetation type to any vegetation type within the same vegetation formation in the same IBRA bioregion</i></p>	<p>ERM has identified that similar vegetation types in the Port Stephens Shire Council Area (Hunter Central Rivers CMA) will soon have biodiversity credits created and available for sale.</p> <p>ERM have reviewed the ecosystem credits available and have identified that vegetation types in the same vegetation formation are available. These credits are located within the same IBRA region as those areas impacted (North Coast IBRA Region)</p>
<p>When is this option appropriate? <i>When no matching ecosystem credits are available</i></p>	<p>ERM has reviewed the Expression of Interest Register and the Biobanking Credits Register for credits available on the Biodiversity credit market. No sites currently have credits available for sale of the required type within the Northern Rivers CMA area.</p>
<p>How? <i>Review to biometric vegetation database to identify vegetation types in the same formation in the same IBRA bioregion.</i> <i>Number of credits should be the same.</i></p>	<p>ERM have identified that the following ecosystem credit types will shortly be available for sale:</p> <ul style="list-style-type: none"> • 57 ecosystem credits of <i>Tallowwood - Small-fruited Grey Gum dry grassy open forest of the foothills of the North Coast (HU644)</i> from the proposed Tarean Road Biobank site; or • 57 ecosystem credits of <i>Tallowwood - Brush Box - Sydney Blue Gym moist shrubby forest on the coastal foothills of the southern North Coast (HU642)</i> from the proposed Branch Lane Biobank site. <p>Both of these credits types are within the same formation and IBRA region as required.</p>

OFFSET OPTIONS

ERM propose that a variation to the offsetting rules is allowed for the proposed PMBH development. This would be in accordance with the provisions of the interim OEH Offsetting Policy (OEH July 2011).

Our proposal would purchase and retire:

- 57 ecosystem credits of Tallowwood - Small-fruited Grey Gum dry grassy open forest of the foothills of the North Coast (HU644) from the proposed Tarean Road Biobank site; or
- 57 ecosystem credits of Tallowwood - Brush Box - Sydney Blue Gym moist shrubby forest on the coastal foothills of the southern North Coast (HU642) from the proposed Branch Lane Biobank site.

It is proposed that Health Infrastructure NSW seek options with the landowner of the potential biobank sites to purchase the required quantum of biodiversity credits. Once these credits are purchased, it is intended that they would be retired to satisfy the offset outcome of the redevelopment of Port Macquarie Hospital.

REFERENCES

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OEH (2012a) **Biodiversity Certification: credit converter**, available online: <http://www.environment.nsw.gov.au/biocertification/index.htm> Accessed March 2012.

Annex A

Assessment Circle Data

Step	Data	Data Source	Assumptions/Notes
1000ha Assessment Circle (before development)	31 - 40%	Google Earth Pro (Dec 16, 2008)	N/A
1000ha Assessment Circle (after development)	31 - 40%	Google Earth Pro (Dec 16, 2008)	N/A
100ha Assessment Circle (before development)	11 - 20%	Google Earth Pro (Dec 16, 2008)	N/A
100ha Assessment Circle (after development)	11 - 20%	Google Earth Pro (Dec 16, 2008)	N/A
Connectivity Value: Width (before development)	>5m - 30m	Google Earth Pro (Dec 16, 2008)	Primary Link is at UTM 488379 E, 65205035 S, zone 56.
Connectivity Value: Width (after development)	>5m - 30m	Google Earth Pro (Dec 16, 2008)	Primary link is outside of the development area and its width will not change.
Connectivity Value: Over-storey Condition (before development)	PFC < 25% of lower benchmark	Google Earth Pro (Dec 16, 2008) and field observations	Over-storey PFC is below benchmark as it comprises a very narrow strip of vegetation.
Connectivity Value: Over-storey Condition (after development)	PFC < 25% of lower benchmark	Google Earth Pro (Dec 16, 2008) and field observations	Primary link is outside of the development area and its condition will not change.
Connectivity Value: Mid-storey Condition (before development)	PFC < 25% of lower benchmark	Google Earth Pro (Dec 16, 2008) and field observations	Mid-storey PFC is below benchmark as it comprises a very narrow strip of vegetation with clearing undertaken in the mid and understorey.
Connectivity Value: Mid-storey Condition (after development)	PFC < 25% of lower benchmark	Google Earth Pro (Dec 16, 2008) and field observations	Primary link is outside of the development area and its condition will not change.
Landscape Value Score	6	BioBanking Credit Calculator	N/A

PFC = Percent foliage cover

Annex B

Biobanking Reports

BioBanking credit report

This report identifies the number and type of credits required at a DEVELOPMENT SITE.

Date of report: 12/06/2012

Time: 12:46:28PM

Tool version: 2.0

Development details

Proposal ID: 0089/2012/0243D
Proposal name: Port Macquarie Base Hospital Expansion
Proposal address: Wrights Road Port Macquarie NSW

Proponent name: Health Infrastructure
Proponent address: PO Box 1060 North Sydney NSW 2060
Proponent phone: 02 9978 5402

Assessor name: Evelyn Craigie
Assessor address: Buidling C, 33 Saunders Street PYRMONT NSW 2009
Assessor phone: 8586 8719
Assessor accreditation: 0089

Improving or maintaining biodiversity

An application for a red flag determination is required for the following red flag areas

Red flag	Reason
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The application for a red flag determination should address the criteria set out in the BioBanking Assessment Methodology. Please note that a biobanking statement cannot be issued unless the determination is approved.

Additional information required for approval:

- Change to percent cleared for a vegetation type/s
- Use of local benchmark
- Change negligible loss
- Expert report
- Predicted threatened species not on site
- Change threatened species response to gain (Tg value)

Ecosystem credits summary

Vegetation type	Area (ha)	Credits required	Red flag
Tallowwood open forest of the coastal ranges of the North Coast	1.00	57	No
Total	1.00	57	

Credit profiles

1. Tallowwood open forest of the coastal ranges of the North Coast, (NR268)

Number of ecosystem credits required	57
CMA sub-region	Macleay Hastings - Northern Rivers
Minimum percent native vegetation cover class	31-70%
Minimum adjacent remnant area class	25-100 ha

Offset options - vegetation types	Offset options - CMA sub-regions
Tallowwood open forest of the coastal ranges of the North Coast, (NR268)	Macleay Hastings - Northern Rivers
Blackbutt - Tallowwood dry grassy open forest of the central parts North Coast, (NR119)	Clarence Lowlands
Blackbutt - Turpentine open forest of the foothills of the North Coast, (NR124)	Coffs Coast & Escarpment
Blackbutt grassy open forest of the lower Clarence Valley of the North Coast, (NR125)	
Red Mahogany open forest of the coastal lowlands of the North Coast, (NR222)	
Tallowwood - Small-fruited Grey Gum dry grassy open forest of the foothills of North Coast, (NR263)	

Species credits

BioBanking Credit Calculator



Ecosystem credits

Proposal ID : 0089/2012/0243D
 Proposal name : Port Macquarie Base Hospital Expansion
 Assessor name : Evelyn Craigie
 Assessor accreditation number : 0089
 Tool version : 1.1
 Report created : 12/06/2012 12:38

Assessment circle name	Landsc ape score	Vegetation zone name	Vegetation type name	Condition	Red flag status	Management zone name	Management zone area	Current site value	Future site value	Loss in site value	Credit required for bio diversity	Credit required for TS	TS with highest credit requirement	Average species loss	Species TG Value	Final credit requirement for management zone
AC1	6.00	NR268_Mo derate/Goo d	Tallowwood open forest of the coastal ranges of the North Coast	Moderate/Good	No	1	1.00	26.56	0.00	26.56	8	57	Stephens Banded Snake	66.67	0.30	57

BioBanking Credit Calculator

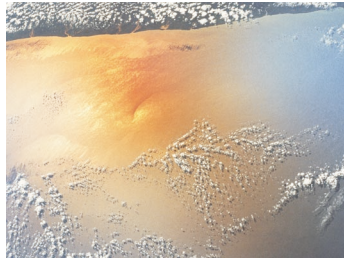


Species credits

Proposal ID :
Proposal name :
Assessor name :
Assessor accreditation number :
Tool version : 1.1
Report created : 12/06/2012 12:38

Scientific name	Common name	Species TG value	Identified population?	Can Id. popn. be offset?	Area / number of loss	Negligible loss	Red flag status	Number of credits
								No

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