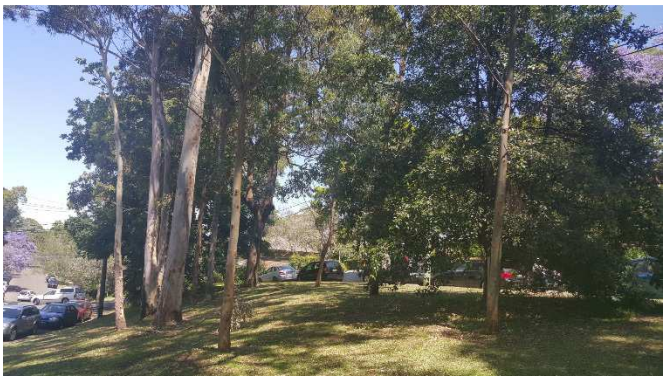
Biodiversity Offset Strategy

LINDFIELD COMMUNITY HUB OFFSET STRATEGY



APRIL 2016

Document Verification

Project Title: Lindfield Community Hub Offset Strategy

Project Number: 6538

Project File Name: Lindfield Community Hub Offset Strategyfinal v1

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Final v1	13/04/16	Matthew Hingee	Brooke Marshall	Brooke Marshall
Final v1	21/4/16	Matthew Hingee (minor changes)	Brooke Marshall	Brooke Marshall

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622) and NGH Environmental (Heritage) Pty Ltd (ACN: 603 938 549. ABN: 62 603 938 549) are part of the NGH Environmental Group of Companies.

www.nghenvironmental.com.au e ngh@nghenvironmental.com.au

Sydney Region
18/21 mary st
surry hills nsw 2010 (t 02 8202 8333)

Canberra - NSW SE & ACT
17/27 yallourn st (po box 62)
fyshwick act 2609 (t 02 6280 5053)

Wagga Wagga - Riverina and Western NSW
suite 1, 39 fitzmaurice st (po box 5464)
wagga wagga nsw 2650 (t 02 6971 9696)

Newcastle - Hunter and North Coast
7/11 union st
newcastle west nsw 2302 (t 02 4929 2301)

Bega - ACT and South East NSW
suite 1, 216 carp st (po box 470)
bega nsw 2550 (t 02 6492 8333)

Bathurst - Central West and Orana
35 morrisset st (po box 434)
bathurst nsw 2795 (t 02 6331 4541)

CONTENTS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

BBAM	BioBanking Assessment Methodology
BAR	Biodiversity Assessment Report
BCC	BioBanking Credit Calculator
BGHF	Blue Gum High Forest
BOS	Biodiversity Offset Strategy
Cwth	Commonwealth
EEC	Endangered Ecological Community
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
ha	hectares
km	kilometres
m	metres
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage (formerly DECCW)
PCTs	Plant Community Types
SEPP	State Environmental Planning Policy (NSW)
STIF	Sydney Turpentine Ironbark Forest
TFD	Total Fund Deposit
TSC Act	*Threatened Species Conservation Act 1995* (NSW)

1 INTRODUCTION

1.1 BACKGROUND

Ku-ring-gai Council is currently planning the development of the Lindfield Community Hub, a new precinct on the western side of Lindfield centre in Woodford Lane, behind the existing Pacific Highway shopping precinct.

The community hub will be developed on land that includes areas of biodiversity significance, as mapped under the Ku-ring-gai Local Environmental Plan (local centres) 2012. The vegetation community on the site conforms to Sydney Turpentine-Ironbark Forest (STIF) Endangered Ecological Community (EEC) under the NSW Threatened Species Conservation Act (TSC Act), but is not considered to meet the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act) listing criteria. The location of the development site is shown on (Figure 1-1).

In order to satisfy council's objective of no net loss of significant vegetation or habitat as per Clause 6.3 part 4 of the Ku-ring-gai Local Environmental Plan (local centres) 2012, impacts to vegetation and habitat on site must be mitigated and/or offset.

This Biodiversity Offset Strategy (BOS) uses the Biobanking Assessment Methodology (BBAM) offsetting tool as a guide to calculate ecosystem credit offset requirements and documents the process of identifying and securing offsets that will be required for the development of the proposed Lindfield Community Hub development (the project).

1.2 PURPOSE AND SCOPE OF THIS REPORT

This report documents how Ku-ring-gai Council will meet its objective of no net loss of significant vegetation or habitat, as per Clause 6.3 part 4 of the Ku-ring-gai Local Environmental Plan (local centres) 2012. Specifically this report provides:

- An overview of the development site and the ecosystem credits that require offsetting.
- Overview of the investigation of suitable offsets.
- Details of the method that would be undertaken to secure the offsets.

1.3 OBJECTIVES AND OUTCOMES

The overarching objectives of this strategy and the biodiversity outcomes to be achieved are to:

- Achieve no net loss of significant vegetation or habitat as per Clause 6.3 part 4 of the Ku-ring-gai Local Environmental Plan (local centres) 2012.
- Provide a 'like for like' offset with regard to vegetation types and threatened species habitats impacted by the development, within the same IBRA subregion and preferably within the same LGA.
- Ensure that credit offsets are consistent with the OEH BBAM tool.

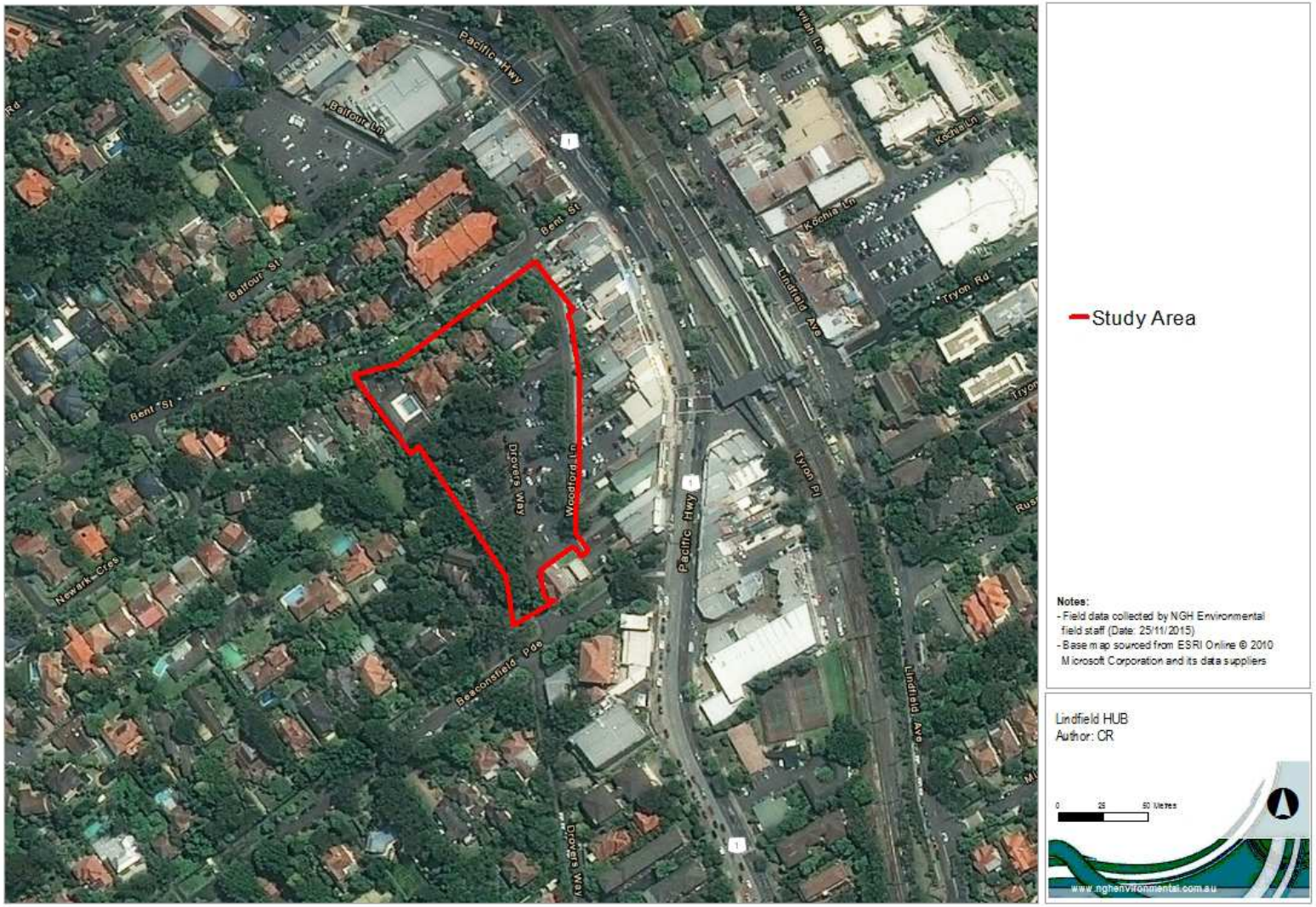


Figure 1-1 Location of the proposed development site

2 DEVELOPMENT SITE

2.1 ASSESSMENT METHODOLOGY

The NSW Biobanking Assessment Methodology (BBAM) tool has been used to calculate the ecosystem credit offset requirements for the project (205/2016/2395D proposal version 1), via the online BioBanking calculator.

The STIF EEC that is to be impacted by the project was entered into the calculator to generate the number of ecosystem credits that require offsetting by the project. Impacts to threatened species have been assessed separately under Section 91 permit (NGH 2016).

The BBAM assessment was completed by accredited assessor Matthew Hingee. Key decision points in the application of the BBAM for generating ecosystem credits requirements for this project are documented below.

2.1.1 Application of the site based methodology

Landscape assessment

The 'site based' development methodology has been used to conduct the landscape assessment as the project conforms to the definition of a *site based development* according to the BBAM; *a development other than a linear shaped development, or a multiple fragmentation impact development*

The following steps were completed in accordance with Appendix 4 of the BBAM.

Assessing percent current extent of native vegetation cover

Using GIS, an inner and outer assessment circle with the ratio of 1:10 (1,000 ha outer and 100 ha inner assessment circle) was established over the proposal site and centred over the area of native vegetation that is impacted most by the project.

- Current native vegetation cover within the inner assessment circle is 31.89%
- Current native vegetation cover within the outer assessment circle is 39.98%
- Therefore, the percent current extent of native vegetation cover in the:
    - Inner assessment circle was determined to be 5.1
    - Outer assessment circle was determined to be 9.4

Assessing percent future extent of native vegetation cover

Using the same assessment circlers above, the impact area was considered.

- Future native vegetation cover in the inner assessment circle is 31.38%
- Future native vegetation cover in the outer assessment circle is 39.93%
- Therefore, the percent current extent of native vegetation cover in the:
    - Inner assessment circle was determined to be 5.1
    - Outer assessment circle was determined to be 9.4.

Connectivity value

The proposal does not impact on a state or regionally significant biodiversity link, whilst the change in the linkage width and the linkage condition are within the same class. Therefore, the score for the connectivity value is 0.

Patch size

Mitchell landscape:

Pennant Hills Ridges 88% cleared

Largest patch size: ≤ 10ha

BBAM Table 18 score: 1

The final patch size score, is 1.

2.1.2 Vegetation zones

Only one vegetation zone would be impacted by the project. Its condition class, number of biometric plots required and current site value score, as determined by the BCC, are provided in Table 2-1. The plot data collected onsite and entered against this zone are provided, showing the comparison against benchmark data for this vegetation type, in Table 4-2.

Table 2-1 Vegetation zones

Zone ID	Vegetation zones	Condition class	Area (ha) within proposed site boundary	Survey effort (number of plots)	Site value score (current)
1	**PCT #1281** **BVT #ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion**	Moderate to good	0.22	1	35.94

Notes:

- Management zones were entered equivalent to the vegetation zones. No additional polygons were mapped.
- The site value of this vegetation zone would be reduced to zero once the project is developed. This is due to the need to completely remove 0.22 ha of BVT #ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion for the project.

Table 2-2 Plot data

PCT #1281 BVT #ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion – Moderate to Good condition

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
1	39	25	0	0	0	0	96	1	0.33	2	330323	6261197	56

Table 2-3 Bench mark plot data

PCT #1281 BVT #ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion – Moderate to Good condition

Benchmarks

	Native plant species	Native over-storey cover	Native mid-storey cover	Native ground cover (grass)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Over-storey regen	Total length of fallen logs	Remove Multipliers	
	>=35	19.0 to 51.0	3.0 to 43.0	18.0 to 67.0	4.0 to 30.0	14.0 to 50.0	See Manual	>=2	1.00	>=50	☐	Edit

2.1.3 Ecosystem credit species

The BCC returned a list of geographic/habitat features that must be assessed for the development site. Only the following habitat feature occurs within the development site 'Land contains bark or leaf litter accumulation' and is entered in to the Geographic / habitat feature tab of the BCC.

Table 2-4 Geographic / habitat features

Impact?	Common name	Scientific name	Feature
Yes	Cumberland Plain Land Snail	*Meridolum corneovirens*	Land contains bark or leaf litter accumulation

The following ten species are assumed by the BCC to occur, based on the data entered for the landscape assessment and the geographic and habitat features in the assessment. These constitute all species which will generate ecosystem credits in the credit calculations.

Table 2-5 Species predicted to occur.

Common name	Scientific name	TS offset multiplier
Eastern Freetail-bat	*Mormopterus norfolkensis*	2.2
Gang-gang Cockato	*Callocephalon fimbriatum*	2.0
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	1.8
Greater Broad-nosed Bat	*Scoteanax rueppellii*	2.2
Little Eagle	*Hieraaetus morphnoides*	1.4
Little Lorikeet	*Glossopsitta pusilla*	1.8
New Holland Mouse	*Pseudomys novaehollandiae*	2.6
Painted Honeyeater	*Grantiella picta*	1.3
Swift Parrot	*Lathamus discolor*	1.3
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	2.2

2.1.4 Threatened species credit species

The following species were returned by the BCC as requiring survey. Under the BBAM, they should be assumed to occur and be impacted unless survey or expert report justifies they do not occur onsite.

However, impacts to threatened species have been assessed separately under Section 91 permit (NGH 2016). All of these species were considered by the assessment. The conclusion of the assessment was that none of these species are likely to occur onsite or be impacted by the development of the site. Therefore, no impact has been selected in the BCC for each of these species and as such, no species credits are generated under the BBAM tool.

Table 2-6 Threatened species returned by the BCC.

Common name	Scientific name
Acacia prominens (Gosford wattle) population, Hurstville and Kogarah local government areas	*Acacia prominens* - endangered population
Cumberland Plain Land Snail	*Meridolum corneovirens*
Downy Wattle	*Acacia pubescens*
Eastern Pygmy-possum	*Cercartetus nanus*
Epacris purpurascens subsp. purpurascens	*Epacris purpurascens subsp. purpurascens*
Gang-gang Cockatoo population, Hornsby and Ku-ring-gai Local Government Areas	*Callocephalon fimbriatum* population in the Hornsby and Ku-ring-gai Local Government Areas
Gyrostemon thesioides	*Gyrostemon thesioides*
Hibbertia puberula	*Hibbertia puberula*
Hygrocybe rubronivea	*Hygrocybe rubronivea*
Koala	*Phascolarctos cinereus*
Magenta Lilly Pilly	*Syzygium paniculatum*
Pimelea curviflora subsp. curviflora	*Pimelea curviflora subsp. curviflora*
Plum-leaf Pomaderris population, Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	*Pomaderris prunifolia* - endangered population
Regent Honeyeater	*Anthochaera phrygia*
Squirrel Glider	*Petaurus norfolcensis*
Tetratheca glandulosa	*Tetratheca glandulosa*
Thick Lip Spider Orchid	*Caladenia tessellata*

2.2 ASSESSMENT RESULTS SUMMARY

The following ecosystem credits have been returned by the assessment.

Ecosystem credits

- A total of 6 ecosystem credits are required to offset ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion.

3 OFFSET CREDIT IDENTIFICATION

3.1 OFFSET REQUIREMENT

The offset requirement for the project reflects direct impacts on one EEC (STIF) (Appendix A):

Table 3-1 Offset requirements for the project

Community/threatened species requiring offsets	Number of ecosystem credits required
ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	6

3.2 OFFSET PATHWAY

The ecosystem credits required to offset the project would need to meet the following conditions as per Ku-ring-gai Council's objectives:

1. be within the same LGA. If this condition cannot be met, then the vegetation community must
2. be within the same IBRA subregion

As a first option, Council would create a Biobanking site within the Ku-ring-gai LGA. Ecosystem credits created at the Biobanking site would be 'like for like' and would match the ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion that would be impacted by the project. To meet the above conditions set by Ku-ring-gai Council, Council is currently investigating options for creating Biobanking sites within council managed lands as well as on private property.

If Ku-ring-gai Council is unable to create a suitable Biobanking site within a reasonable time frame (likely to be a two year period, offset credits would be purchased directly from the public Biobanking register to meet the offset requirements for the project. The offset ecosystem credits sourced via the public Biobanking register would be 'like for like' with respect to the same vegetation community that is being impacted on by the project.

A search on the public Biobanking register (accessed 29/03/2016) revealed a total of 186 ecosystem credits for ME041 Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion are available for purchase in the Cumberland – Sydney Metro catchment management area and within the Hills Shire Council LGA (Appendix B). Hence, this is considered a feasible back up option. Further, the costs of this option have been investigated in Section 4, to inform this process going forward.

4 COST OF OFFSET CREDITS

Ku-ring-gai council aims to meet the offset requirements for the project by:

1) Creating a biobanking site with the Ku-ring-gai Council LGA.

Or if a suitable Biobanking site has not been secured within a two year period;

2) Purchase the required credits on the Biobanking public register.

The following section investigates the credit price for offsetting the project.

4.1 OFFSET CREDIT PRICE CALCULATION

It is noted that the price per credit is not stable, being driven by biobanking management requirements, market demand and the profit that sellers choose to build into their sale price. Two different options were investigated to estimate the per credit price of Turpentine – Grey Ironbark open Forest in the Sydney Basin Bioregion.

Option 1 Derive price from existing Biobanking credit sales

The price to offset six credits under option 1 for ME041 was based on past Biobanking credit sales, as per the Biobanking credit transaction and sales register (Appendix C). Price per credit as per the Biobanking credit transaction and sales register is shown in Table 4-1:

Price for 6 credits* $17, 000 = $105,000 (ex-GST)

(Price used in this calculation is derived from the highest credit cost)

Table 4-1 Previous Biobanking credit sales for ME041 Turpentine – Grey Ironbark open Forest in the Sydney Basin Bioregion as per the Biobanking credit transaction and sales register.

Transaction date	CMA subregion	Surrounding vegetation	Patch size	Number of credits	Price per credit (ex-GST)
17/6/2014	Pittwater (Part B)	30-70%	>100 ha	7	$2,646.91
26/6/2015	Cumberland – Sydney Metro	11-30%	<5 ha	4	$12,552.00
24/11/2015	Cumberland – Sydney Metro	11-30%	>25-100 ha	90	$17,500.00
24/11/2015	Cumberland – Sydney Metro	11-30%	>25-100 ha	50	$17,500.00

Option 2 Calculating credit cost from the Sheldon, Rofe and Commenara Ku-ring-gai Biobanking sites

The price to offset six credits under option 2 for ME041 was based on past credit transaction from the Sheldon, Rofe and Commenara Ku-ring-gai Biobanking Site (Biobanking Agreement ID: 132) as an example of credit value (calculations provided by Ku-ring-gai council) and is shown in (TFD/total number of credits) + profit+ cost to enter into a Biobanking agreement per credit

= ($1,656,305/39) + 0 + $30000/39) = **$43,239 (ex GST)**

Table 4-2.

Notes:

- There is no credit transaction price per credit as sales did not go to market.
- Total fund deposit (TFD) = $2,070,382 (ex GST).

Credit price (assuming all vegetation types are worth the same base value) =
(TFD/total number of credits) + profit + cost to enter into a Biobanking agreement per credit

= ($2,070,382/605)+ 0 + $30000/605) = **$3,472 (ex GST)**

Considering 80% of credits need to be retired before a Biobanking site can start, which is driven by STIF and BGHF due to high sale demand. Revised credit price calculation is as follows:

80% of TFD = $1,656,305 for 39 credits (BGHF + STIF) =
(TFD/total number of credits) + profit+ cost to enter into a Biobanking agreement per credit

= ($1,656,305/39) + 0 + $30000/39) = **$43,239 (ex GST)**

Table 4-2 Credit transactions for Sheldon, Rolfe and Commenara Biobanking sites

Vegetation zone	Biometric vegetation type	Area (ha)	Vegetation community name	Total number of credits
VZ1 North	ME001	5.042550919	Blue Gum High Forest (BGHF) EEC	32
VZ9 South VZ5 North	ME012	43.26058494 9.628856507	Sydney Peppermint - Smooth-barked Apple - Red Bloodwood shrubby open forest on slopes of moist sandstone gullies, eastern Sydney Basin	270
VZ8 South VZ4 North	ME029	13.05016888 19.05658465	Smooth-barked Apple - Red Bloodwood - Sydney Peppermint heathy open forest on slopes of dry sandstone gullies of western and southern Sydney, Sydney Basin Bioregion	213
VZ7 South VZ3 North	ME032	1.634539502 10.43651958	Turpentine - Smooth-barked Apple moist shrubby forest of the lower Blue Mountains, Sydney Basin	64
VZ10 South VZ6 North	ME035	3.766655023 2.206282398	Red Bloodwood - scribbly gum heathy woodland on sandstone plateaux, Sydney Basin	19
VZ2 North	ME041	1.313752433	Sydney Turpentine Ironbark Forest (STIF) EEC	7
			Total credits	**605**

4.2 PRICE PER CREDIT SUMMARY

Option 1

The offset value for option 1, which has been conservatively derived from past Biobanking credit sales as per the Biobanking credit transaction and sales register, is:

- Price for 6 STIF ecosystems credits = 6 * $17, 500 = $105, 000 (ex GST)

Option 2

The offset value for option 2, which has been based on past credit transactions from the Sheldon, Rofe and Commenara Ku-ring-gai Biobanking site is:

1. $3,472 per credit
   Price for 6 credits = 6 * $3,472 = $20,830 (ex GST)

2. $43,239 per credit (BGHF + STIF)
   Price for 6 credits = 6 *$43,239 = **$259,434** (ex GST)

4.3 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Prior to undertaking clearing works addressed within the S91 application, it is Council's intention to collect seed from Grey Ironbark (*Eucalyptus paniculata*) onsite. This seed will be used in future local provenance plantings within the area.

Wood from felled trees will be inspected and where appropriate used for the creation of natural hollows (for placement within the LGA) or for the creation of landscaping furniture for use in Council open spaces.

4.4 CONCLUSION

The project has generated six ecosystem credits that require offsetting. The offset requirements will be met in accordance with the BBAM and the Council's own offsetting objectives.

Ku-ring-gai council have proposed to meet the offset requirements of the project by:

1) Creating a biobanking site with the Ku-ring-gai Council LGA.

Or if a suitable Biobanking site has not been secured within a two year period;

2) Purchase the required credits on the Biobanking public register.

The ecosystem credits currently available via the Biobanking public register provide a 'like for like' offset with respect to the vegetation type that is to be impacted by the project. All (100%) of the required six ecosystem credits necessary to offset ME041 Turpentine – Grey Ironbark open Forest in the Sydney Basin Bioregion are available for purchase on the public Biobanking register.

Ku-ring-gai Council have allocated the $259,434 (ex GST) necessary to purchase the required six ecosystem credits. These funds will be held in a dedicated council managed fund, which will be used for the creation and/or purchase of offset credits for ME041 Turpentine – Grey Ironbark open Forest in the Sydney Basin, which would be within the same IBRA subregion and preferably within the same LGA.

Subject to application approvals and conditions, the $259,434 (ex GST) would be transferred into Council's dedicated management fund prior to commencement of on ground works.

In order to support offsetting within the LGA, Council will commit up to $30,000 (ex GST) in funds or in-kind work for the creation of a Biobanking site within the Ku-ring-gai LGA. The Biobanking site would be secured and managed to ensure that biodiversity values are protected and managed in perpetuity.

A biannual reporting process is proposed. Council will provide OEH detail as to the status of the trust fund and biobank site creation within the LGA. This reporting process will continue until such a time as the funds are fully spent (this is likely to be a maximum of two years).

5 REFERENCES

Department of Environment and Climate Change NSW (DECC) (2002). Descriptions for NSW (Mitchell) Landscapes, Version 2.

NGH Environmental (2016). Ku-ring-gai Council Section 91 Licence

NSW OEH's BioBanking credit calculator
(http://www.environment.nsw.gov.au/bbccapp/ui/mynews.aspx)

NSW OEH's BioBanking public registers

(http://www.environment.nsw.gov.au/bimsprapp/BiobankingPR.aspx)

NSW OEH's threatened species database
http://www.threatenedspecies.environment.nsw.gov.au/index.aspx

Office of Environment and Heritage (OEH) (2007). Mitchell Landscapes with per cent cleared estimates.

Office of Environment and Heritage (OEH) (2014). Framework for Biodiversity Assessment: NSW Biodiversity Offsets Policy for Major Projects. Published by Office of Environment and Heritage for the NSW Government.

Office of Environment and Heritage (2014) Threatened Species Profiles.
http://www.environment.nsw.gov.au/AtlasApp/Default.aspx

APPENDIX A CREDIT REPORT

BioBanking credit report

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

Date of report: 8/02/2016 Time: 11:38:28AM Calculator version: v4.0

Development details

Proposal ID:	205/2016/2395D
Proposal name:	Ku-ring-gai Council S91 permit
Proposal address:	Woodford Lane Lindfield NSW 2070
Proponent name:	Ku-ring-gai Council
Proponent address:	818 Pacific Highway Gordon NSW 2072
Proponent phone:	02 9424 0866
Assessor name:	Matthew Hingee
Assessor address:	18/21 MARY ST Surrey Hills NSW 2010
Assessor phone:	(02) 8202 8333
Assessor accreditation:	205

Improving or maintaining biodiversity

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

Red flag	Reason
Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;

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...
- ☐ Request for additional gain in site value
- ☐ Predicted threatened species not on site
- ☐ Change threatened species response to gain (Tg value)

Ecosystem credits summary

Plant Community type	Area (ha)	Credits required	Red flag
Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	0.22	6.21	Yes
Total	0.22	6	

Credit profiles

1. Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion, (ME041)

Number of ecosystem credits created	6
IBRA sub-region	Cumberland - Sydney Metro

Offset options - vegetation types	Offset options - CMA sub-regions
Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion, (ME041) Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion, (ME002)	Cumberland - Sydney Metro and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

Species credits summary

APPENDIX B ECOSYSTEM CREDITS ISSUED

Search results for ecosystem credits

Plant community type - ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion

Credit status - Issued/Pending

matched 4 records

Credit owner(s)	Email	Agreement ID	Plant Community Code	IBRA sub-region	Vegetation Formation	Credit Status	Credits
Transport for NSW	Biobanking@environment.nsw.gov.au	148	ME041	Cumberland - Sydney Metro	DSG	Issued	90
Transport for NSW	Biobanking@environment.nsw.gov.au	148	ME041	Cumberland - Sydney Metro	DSG	Issued	50
Baulkham Hills Shire Council	LDOOREY@thehills.nsw.gov.au	148	ME041	Cumberland - Sydney Metro	DSG	Issued	30
Baulkham Hills Shire Council	LDOOREY@thehills.nsw.gov.au	148	ME041	Cumberland - Sydney Metro	DSG	Issued	16

- End -

N/A - Credits with the status of pending are attached to a draft biobanking agreement. A biobanking agreement is only available on the BioBanking public register once it has been finalised and reached agreement issued status.

Vegetation

APPENDIX C PREVIOUS CREDIT TRANSACTIONS

Ecosystem credit transaction report

Transaction type - Credits Transferred

Plant community type - ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion

Transaction date	Transaction type	Plant community type	CMA subregion	Surrounding vegetation	Patch size	Number of credits	Price per credit (ex-GST)
17-Jun-2014	Credits Transferred	ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Pittwater (Part B)	31-70%	>100 ha	7	$2,646.91
26-Jun-2015	Credits Transferred	ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Cumberland - Sydney Metro	11-30%	<5 ha	4	$12,552.00
24-Nov-2015	Credits Transferred	ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Cumberland - Sydney Metro	11-30%	>25-100 ha	90	$17,500.00
		ME041/Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion	Cumberland - Sydney Metro	11-30%	>25-100 ha	50	$17,500.00

- End -