



Offset Delivery Plan

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Abbreviations

ABBREVIATION	DESCRIPTION
BWA	Bulk Water Alliance
CEMP	Construction Environmental Management Plan
DoP	NSW Department of Planning
DPI	NSW Department of Primary Industries
EMSP	Environmental Management Sub-Plan
EPA	Environment Protection Authority
EPBC Act	Environment Protection Biodiversity Conservation Act 1999 (Commonwealth)
LMA	Land Management Agreement
LRMP	Landscape Rehabilitation Management Plan
M2G	Murrumbidgee to Googong Water Transfer Project
ODP	Offset Delivery Plan
OEMP	Operation Environmental Management Plan
ORMP	Offset Rehabilitation Management Plan
TEMP	Terrestrial Environment Management Plan

Executive Summary

The M2G project falls under the jurisdiction of the Commonwealth (Department of Sustainability, Environment, Water, Population and Communities), NSW (Department of Planning), and ACT (ACT Planning and Land Authority) Governments and has been subject to assessment and environmental approval processes in all three jurisdictions. A number of approval conditions and commitments, which are mandatory actions to be undertaken by ACTEW, have been applied with the environmental approvals. Under the approval conditions, ACTEW is required to provide compensatory habitat as an offset (offset site) to compensate for vegetation and habitat losses arising from the construction activities associated with the M2G pipeline.

This document, known as the Offset Delivery Plan (ODP) forms part of the Compensatory Habitat Offset Plan (refer to Section 1.3.3 of the Operations Environmental Management Plan) and provides an explanation of the actions required to deliver the offset in Williamsdale. The purpose of this report is to:

- Document the establishment and implementation process of the offset site.
- Describe the designation of Management Units (MU's) by dividing the offset site into smaller areas based on required similar management actions.
- Provide baseline monitoring methodology and findings of previous vegetation monitoring (vegetation plots).
- Serve as a high level document to inform (via a framework) various theme based management sub-plans (Appendices A - G).

Management Units Within Offset Site

The offset site comprises two non-contiguous land parcels, referred to as the northern offset and southern offset. Each of the two offset sites have been divided into Management Units (MU's) to provide a logical approach to the management of the site and to clearly describe required on-ground actions for a number of management sub-plans. MU's are assigned according to the vegetation community present and subsequently require similar management actions. The MU's will be used to monitor and evaluate the success of a range of management actions and to monitor the condition of the vegetation within the offset site.

Monitoring

Monitoring of the offset site will be undertaken through vegetation condition surveys using eight permanent monitoring plots. Two of these monitoring plots were positioned in areas of good quality EPBC listed Box-Gum Woodland to serve as control plots in order to observe natural changes in species composition of this endangered ecological community and the offset site as a whole. No management actions will occur within these two control plots over the duration of the monitoring period. The remaining six monitoring plots were located in areas where management actions were predicted to occur as outlined in the management sub-plans, in order to observe the impact and success of management actions. The eight plots will be monitored annually in spring by qualified ecologists using a NSW Biobanking methodology. A description of each of the monitoring plots is provided in this document along with a species list included in Appendix I.

Reporting

An Annual Management Action and Monitoring Report will be prepared summarising the outcomes of the monitoring and management actions described in the sub-plans of this document (ODP). The annual report will identify any management actions or interventions that have been required throughout the year, or that are recommended for the subsequent year, including those implemented through the OEMP or through the various sub-plans. The annual report will be delivered shortly after the completion of the years monitoring surveys with submission to NSW DPI following consultation with the M2G Environment Reference Group.

Management Sub-Plans

The following management sub-plans have been provided as appendices to the ODP. The management sub-plans have been developed in conjunction with the ODP, but have also been developed as standalone documents. The management sub-plans include:

- Appendix A - Weed Management Sub-Plan.
- Appendix B - Rehabilitation Management Sub-Plan.
- Appendix C - Erosion Management Sub-Plan.
- Appendix D - Bushfire Management Action Plan
- Appendix E - Feral Animal Management Sub-Plan.
- Appendix F - Fencing Management Sub-Plan.
- Appendix G - Grazing Management Sub-Plan.

1 Introduction

1.1 BACKGROUND

Eco Logical Australia (ELA) was commissioned by ACTEW Corporation (ACTEW) to deliver terrestrial ecology services as required by the environmental approval process for the Murrumbidgee to Goongong Water Transfer Project (M2G).

The M2G projects falls under the jurisdiction of the Commonwealth (Department of Sustainability, Environment, Water, Population and Communities), NSW (Department of Planning), and ACT (ACT Planning and Land Authority) Governments and has been subject to assessment and environmental approval processes in all three jurisdictions. Project approval has been attained from all three governments, with a considerable number of approval conditions and commitments applied. The approval conditions are mandatory actions to be undertaken by ACTEW and provide a framework for the terrestrial ecological services to be delivered by ELA.

The terrestrial ecological services to be delivered by ELA include:

1. management and establishment of the compensatory habitat offset at Williamsdale, ACT;
2. management and implementation of the terrestrial ecology components of the project;
3. monitoring of the Landscape Rehabilitation Management Plan;
4. representation on ACTEW's Environment Reference Group; and,
5. project management and reporting of terrestrial ecology services.

1.2 COMPENSATORY HABITAT OFFSET

Under the environmental approvals process, ACTEW is required to provide compensatory habitat as an offset (offset site) to compensate for vegetation and habitat losses arising from the construction activities associated with the M2G pipeline. The offset needs to be delivered to meet the requirements in relation to the:

- Environmental Impact Statement / Preferred Project Report (ACT/NSW).
- Public Environment Report (Commonwealth).
- Statutory Conditions of Approval from the Commonwealth, ACT and NSW governments.
- Biodiversity Management and Offset Plan (approved by Commonwealth in December 2010).
- Compensatory Habitat Offset Management Plan (approved by ACT in November 2010).
- Land Management Agreement with ACT Government.

The conditions of approval relating to the offset for each of the three jurisdictions are provided in the Text Box below.

Text Box: Conditions of Approval ACT and Commonwealth

ACT Planning and Land Authority:

Condition B12 - A plan to implement the biodiversity offsets provisions of the EIS, developed in consultation with and endorsed by PCL TAMS is submitted to the Authority prior to the commencement of works on site.

Commonwealth Department of Sustainability, Environment, Water, Population and Communities:

Condition 3 - The person taking the action must submit a Biodiversity Management and Offset Plan to address impacts on listed threatened species and ecological communities to the Minister for approval prior to commencing construction. The Biodiversity and Offset Plan must include the following:

- *3.a - a description of the survey effort already undertaken for listed threatened species and ecological communities, and any extra surveys that may be required post-construction as described in condition 3.b);*
- *3.b - an outline of the methodology of additional flora surveys, by a botanist with expertise in surveying for the Small Purple-pea (Swainsona recta), Hoary Sunray (Leucochrysum albicans var. tricolour) and Button Wrinklewort (Rutidosia leptorrhynchoidea). The surveys must be conducted at the correct time of year, and specifically target parts of the project area that are most likely to provide habitat for the species, particularly in areas that were not surveyed for the species previously;*
- *3.c - precise mapping showing the location of all known Small Purple-pea, Hoary Sunray and Button Wrinklewort plants in the project area, the location of the areas of greatest potential for having additional plants of these species in the project area and the precise location of the pipeline easement. These maps must be provided to the Department but must not be published at a scale that indicates individual plants;*
- *3.d - demonstrate how construction of the pipeline and associated activities will avoid removing any individuals of the Small Purple-pea, or, if removal is necessary, provide details of a Small Purple-pea land offset, management and planting programs to ensure no net loss to the population;*
- *3.e - describe how the alignment of the pipeline easement minimises impacts on the Small Purple-pea, Hoary Sunray, Button Wrinklewort and Pink-tailed Worm Lizard (Aprasia parapulchella);*
- *3.f - explain how the extent and condition of EPBC listed threatened ecological communities (TEC's) was determined;*
- *3.g - detailed mapping of TEC's, including habitat condition, including the project area and other areas proposed to be used as offsets;*
- *3.h - a description of how the Small Purple-pea, Hoary Sunray, Button Wrinklewort and Pink-tailed Worm Lizard will be managed during construction of the pipeline;*
- *3.i - a description of how native vegetation (including TEC's) will be rehabilitated after the construction of the pipeline;*
- *3.j - a description of how any threatened plants will be propagated and re-established;*
- *3.k - a description of how weed management and rehabilitation of native vegetation and threatened species habitat will be undertaken and funded in the long-term; and*
- *3.l - commitments to managing and protecting in perpetuity any parcel of land set aside as an offset.*

Text Box: Conditions of Approval NSW**NSW Department of Planning:**

Condition 2.9 - Areas specified in Table 1 [of the approval package] that are expected to be cleared shall be offset utilizing the compensatory habitat offset package described in documentation represented by Condition 1.1 c). The package located on the Williamsdale Property in the Australian Capital Territory shall be implemented prior to commissioning of the project. The package shall offset in perpetuity the value of habitat lost as a result of the project. A final review of the compensatory habitat offset package shall be provided to the Director-General in the Operation Environment Management Plan. This version shall:

- *2.9a - demonstrate the implementation of the offset;*
- *2.9b - describe how the offset shall be guaranteed and monitored in perpetuity; and*
- *2.9c - demonstrate a post construction review has been undertaken that confirms the extent of clearing was not greater than predicted. If clearing was greater, then the package shall demonstrate how the offset was modified and increased to the value of the actual habitat lost.*

1.3 PURPOSE OF DOCUMENT

This document, the Offset Delivery Plan (ODP) forms part of the Compensatory Habitat Offset Plan (refer Operations Environmental Management Plan - Section 1.3.3) and provides an explanation of the actions required to deliver the offset package in Williamsdale. The purpose of this report is to:

- Document the establishment and implementation process of the offset site.
- Describe the designation of Management Units (MU's) by dividing the offset site into smaller areas based on required similar management actions.
- Provide baseline monitoring methodology and findings of previous vegetation monitoring (vegetation plots).
- Serve as a high level document to inform (via a framework and principles) various theme based management sub-plans (Appendices A - G) including:
 - Weed Management Sub-Plan.
 - Rehabilitation Management Sub-Plan.
 - Erosion Management Sub-Plan.
 - Bushfire Management Action Plan
 - Feral Animal Management Sub-Plan.
 - Fencing Management Sub-Plan.
 - Grazing Management Sub-Plan.

Following implementation of the offset site in late 2011¹, this document provides the framework to deliver the compensatory habitat offset to fulfil the requirements described in the text boxes above and to satisfy the NSW Department of Planning conditions of approval in relation to offset for the project.

1.4 STUDY AREA

ACTEW own a land parcel in the southern ACT (Block 1675), known here as the Williamsdale property (or 'the property'). The property is located just south of Williamsdale and is bounded by the Monaro Highway to the east; the NSW border to the south; Angle Crossing Road to the north; and the Murrumbidgee River corridor to the west (**Figure 1**). The property has historically been used for moderate to light stock grazing. The property currently supports conservation areas set aside for offset habitat and a number of essential utility infrastructure facilities, including power transmission lines (ActewAGL); a portion of the M2G pipeline; and a power sub-station (Transgrid).

The study area contains the M2G compensatory offset habitat (offset site) of approximately 110 hectares, which is wholly contained within the Williamsdale property. The offset site has been set aside for conservation due to its high biodiversity value; including EPBC Act listed Box-Gum Woodland, threatened flora and fauna species and/or threatened species habitat (**Figure 2**). The majority of the offset site is dominated by a rich diversity of native understorey species with an overstorey mixture of old growth and rejuvenating Eucalyptus species. Rocky outcrops are widespread throughout the study area and contain habitat for the *Aprasia parapulchella* (Pink-tailed Worm Lizard).

¹ Letter from Sam Patmore (Eco Logical Australia) to Simon Webber 24 January 2012. Provided in Appendix J

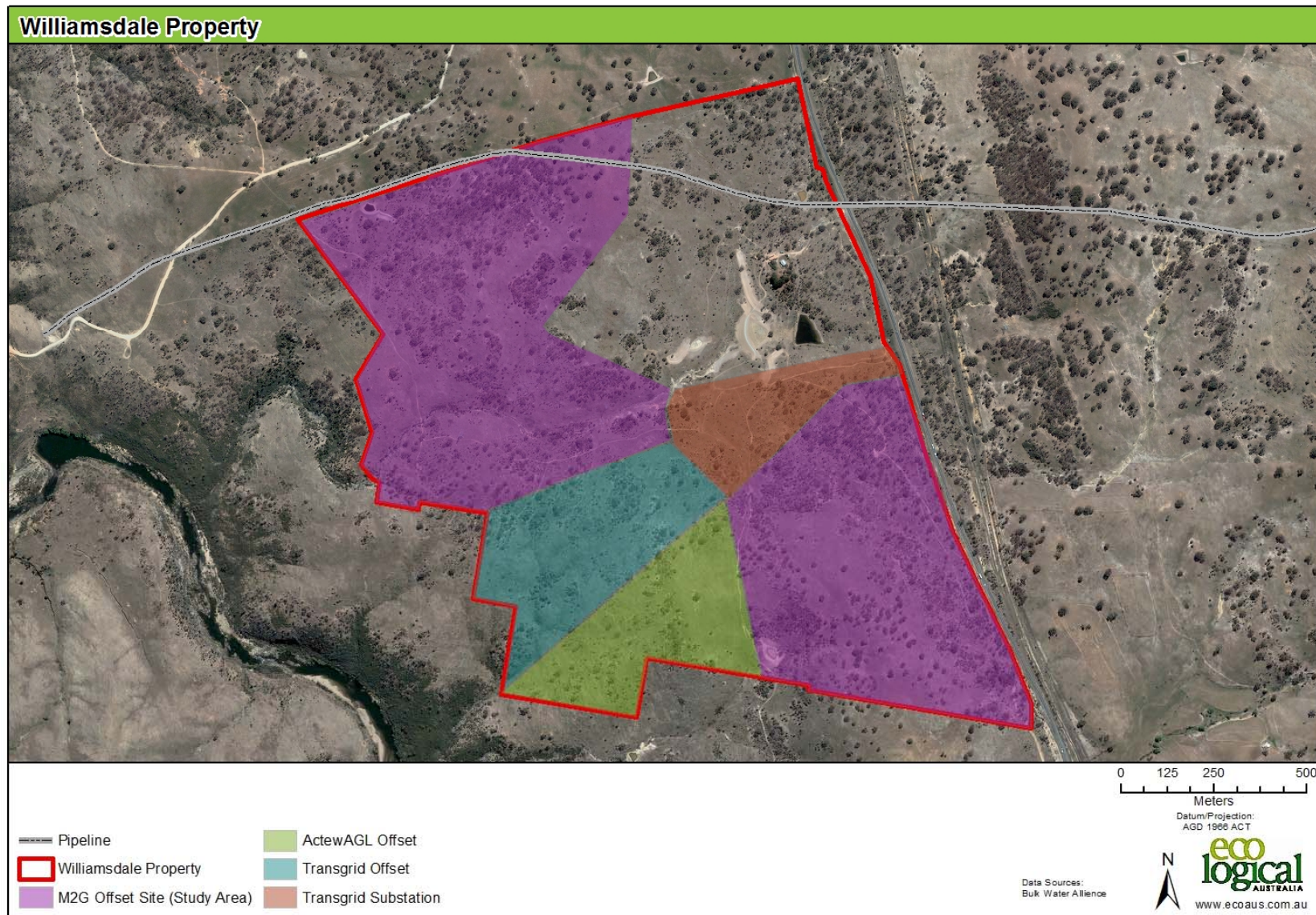


Figure 1: Study area

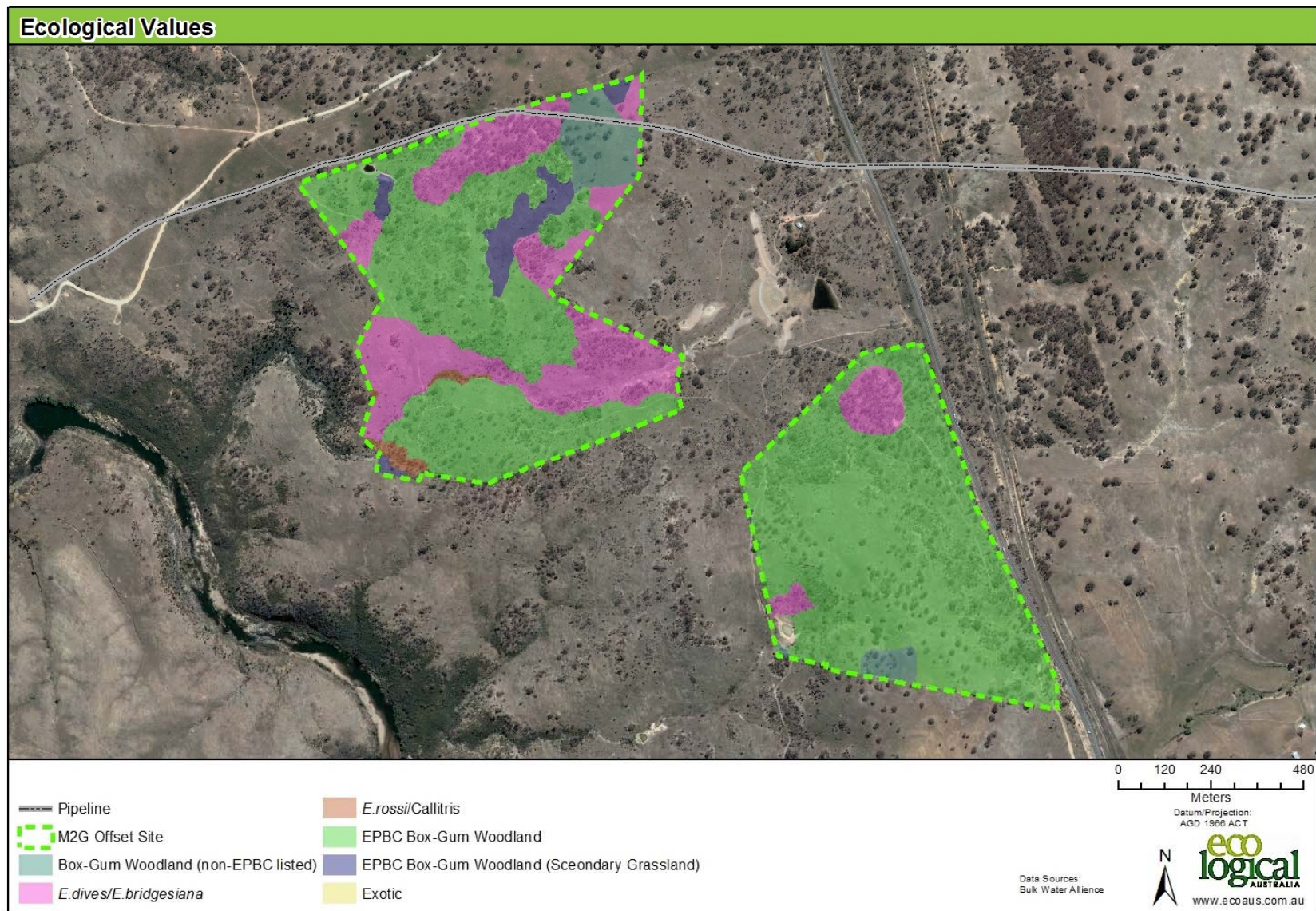


Figure 2: Ecological values within offset site

2 Management Units

2.1 MANAGEMENT UNIT DESIGNATION

The offset site comprises two non-contiguous land parcels, referred to as the northern offset and southern offset. Each of the two offset sites have been divided into Management Units (MU's) to provide a logical approach to the management of the site and to clearly describe required on-ground actions for the Weed Management Sub-Plan and the Rehabilitation Management Sub-Plan (**Figure 3** and **Table 1**). MU's are assigned according to the vegetation community present and subsequently require similar management actions. The MU's will be used to monitor and evaluate the success of a range of management actions and to monitor the condition of the vegetation within the offset site.

2.2 DESCRIPTION OF MANAGEMENT UNITS

This section provides a brief description of the environment within each of the MU's. Further detail can be found in the Baseline Monitoring Results (Section 4).

2.2.1 Management Unit 1

Management Unit 1 (MU1) consists of *Eucalyptus melliodora* (Yellow Box) - *Eucalyptus blakelyi* (Blakely's Red Gum) Woodland (Box-Gum Woodland) in low² condition. In its current state, MU1 does not meet the criteria for listing as the Commonwealth Endangered Ecological Community (EEC), *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. MU1 is divided into two subsections (MU1A & MU1B), and is located along the southern and western boundary of the southern offset site. MU1 contains a high level of annual weeds particularly *Carthamus lanatus* (Saffron Thistle), which covers large portions of the site. In addition, a number of other key weed species such as *Nassella trichotoma* (Serrated Tussock), *Rosa rubiginosa* (Sweet Briar), *Hypericum perforatum* (St John's Wort) and *Eragrostis curvula* (African Lovegrass) occur on site. MU1 contains a lower diversity of herbs and forbs than other areas within the offset site.

2.2.2 Management Unit 2

Management Unit 2 (MU2) consists of Box-Gum Woodland in moderate to good condition that meets the criteria for listing as the Commonwealth Box-Gum Woodland EEC. MU2 is subdivided into two sections (MU2A and MU2B), and is located in the central section of the southern offset site. MU2 is composed of an open woodland matrix and has a moderate to high diversity of herbs and forbs in the ground layer. MU2 has a number of weed species which will require control, including *R. rubiginosa* and *H. perforatum*. MU2 has a number of rocky outcrops that provide habitat for the Pink-Tailed Worm Lizard, which is listed under Commonwealth, NSW and ACT legislation.

² 'Low condition' vegetation has the same meaning as under the Native Vegetation Act 2003. It essentially means vegetation with both a highly cleared or completely cleared overstorey and a mostly weedy or largely cleared understorey. If native vegetation is not in 'low condition', it is defined as being in 'moderate to good condition'

2.2.3 Management Unit 3

Management Unit 3 (MU3) is predominantly composed of EPBC listed Box-Gum Woodland, however, small patches of *Eucalyptus dives* (Broad-leaved Peppermint) - *Eucalyptus bridgesiana* (Apple Box) Dry Sclerophyll Forest exist within the Box-Gum Woodland matrix. MU3 is located within the southern offset site and composes large portions of the offset perimeter. The Box-Gum Woodland present within MU3 is denser in form than the adjacent MU2, and has a high diversity of herbs and forbs. There are a number of areas of woody weed invasion along the eastern side of the MU along the Monaro Highway, predominantly *R. rubiginosa*, but also an area of *Crataegus monogyna* (Hawthorn). The level of annual weed invasion also increases with proximity to the highway.

2.2.4 Management Unit 4

Management Unit 4 (MU4) is composed of a mix of EPBC listed Box-Gum Woodland and Derived Grassland, as well as patches of Peppermint-Apple Box Dry Sclerophyll Forest. MU4 is located within the northern offset site. It contains a dam and associated drainage lines. The dam area has a high level of woody weed invasion including *R. rubiginosa* and *R. fruticosus* (Blackberry). The dam area also had a number of other weed species including *H. perforatum*.

2.2.5 Management Unit 5

Management Unit 5 (MU5) is composed of EPBC listed Box-Gum Woodland and a small patch of *Eucalyptus rossii* (Scribbly Gum) – *Callitris* sp. (Native Cypress) dry forest. MU5 is located at the southern end of the northern offset site and continues to the southern edge of the large ephemeral drainage line that runs from east to west through the offset site. MU5 has a high level of Eucalypt regeneration and a diverse understory containing grasses, herbs and forbs.

2.2.6 Management Unit 6

Management Unit 6 (MU6) is comprised of EPBC listed Box-Gum Woodland, and Peppermint-Apple Box Dry Sclerophyll Forest. MU6 is located in the central section of the northern offset site and includes the major drainage lines within the offset site. The MU is dominated by a number of smaller drainage lines that run into the large (main) ephemeral drainage line running east to west through the offset site. The main drainage line drains into the Murrumbidgee River. The drainage lines within MU6 have a moderate level of woody weed invasion, predominantly *R. rubiginosa* and *R. fruticosus*.

2.2.7 Management Unit 7

Management Unit 7 (MU7) is predominantly comprised of a mixture non-EPBC listed Box-Gum Woodland and EPBC Act Listed Box-Gum Woodland and Derived Native Grassland. MU7 is located at the north-eastern extent of the northern offset site. MU 7 has a low level of natural over-storey regeneration. The M2G pipeline runs through the middle of the MU, as does an overhead electricity power line. The understorey is comprised of a mixture of native and exotic grasses, which is a residual impact of past grazing practices and works to install the overhead powerlines. The area has a moderate level of woody weed invasion, primarily *R. rubiginosa*.

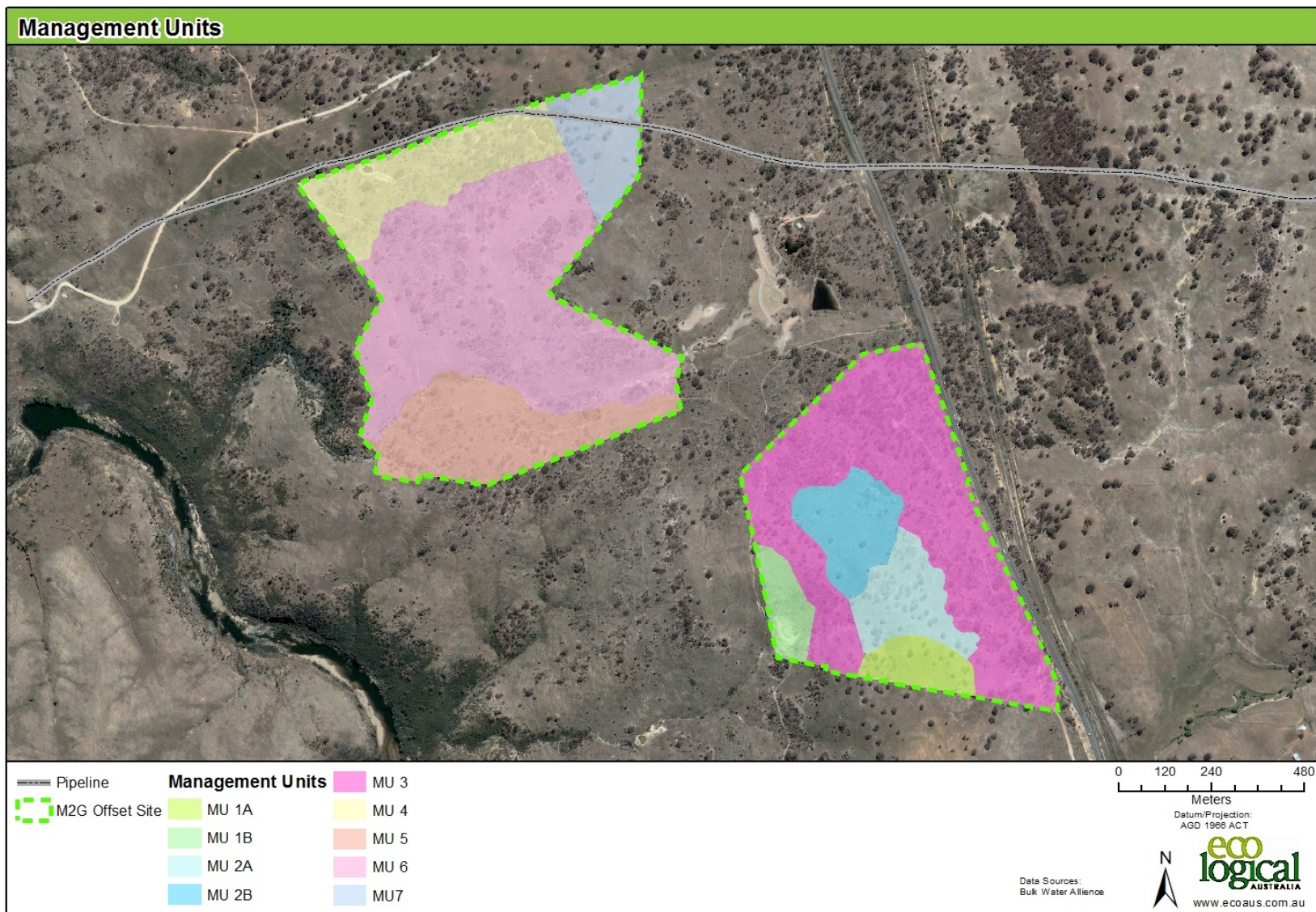


Figure 3: Management Units

Table 1: Summary of proposed actions within each Management Unit

MANAGEMENT UNITS	PROPOSED MANAGEMENT ACTIONS
MU1A	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> , <i>H. perforatum</i> , <i>C. lanatus</i> and <i>N. trichotoma</i> .
	<i>Revegetation:</i> Possible revegetation of over storey Eucalypt species and / or native grasses.
	<i>Fencing:</i> Property fencing is required along the southern border of the Management Unit (ACT/NSW border).
	<i>Feral Animal Control:</i> Low numbers of rabbits were observed on site. No control required at this stage. Monitoring to establish control in the future.
	<i>Erosion Control:</i> No sediment and erosion required at present. Monitoring to establish control in the future.
	<i>Monitoring Plot:</i> Plot has been established in centre of MU, within an area potentially requiring revegetation and high weed control.
MU1B	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> , <i>H. perforatum</i> and <i>E. curvula</i> .
	<i>Revegetation:</i> Possible revegetation of over storey Eucalypt species.
	<i>Fencing:</i> Property fencing is required along the southern border of the Management Unit (part of ACT/NSW border).
	<i>Feral Animal Control:</i> Low numbers of rabbits were observed on site. No control required at this stage. Monitoring to establish control in the future.
	<i>Erosion Control:</i> Limited control may be required for minor erosion on north-south drainage line and along the western edge.
	<i>Monitoring Plot:</i> No monitoring plot was established in this area.
MU2A	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> and <i>H. perforatum</i> .
	<i>Revegetation:</i> No revegetation required.

	<i>Fencing:</i> No fencing required.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Sediment and Erosion Control:</i> No sediment and erosion required at present. Monitoring to establish control in the future.
	<i>Monitoring Plot:</i> No monitoring plot established in this area.
MU2B	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> , <i>H. perforatum</i> and <i>N. trichotoma</i> .
	<i>Revegetation:</i> No revegetation required.
	<i>Fencing:</i> No fencing required.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> No sediment and erosion required at present. Monitoring to establish control in the future.
	<i>Monitoring Plot:</i> No monitoring plot established in this area.
MU3	<i>Weeds:</i> Control required for <i>H. perforatum</i> and heavy infestations of <i>R. rubiginosa</i> (particularly within 30-40m of Monaro Highway).
	<i>Revegetation:</i> No revegetation required.
	<i>Fencing:</i> Fencing is required along the southern border of the MU (ACT/NSW border).
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> No sediment and erosion required at present. Monitoring to establish control in the future.

	<i>Monitoring Plot:</i> Two monitoring plots were established within MU3. The northern monitoring plot will function as a control plot.
MU4	<i>Weeds:</i> Control required for <i>R. fruticosus</i> , <i>H. perforatum</i> , <i>R. rubiginosa</i> and other woody weeds. Heavy infestations around drainage lines and dam.
	<i>Revegetation:</i> Possible revegetation surrounding the dam following weed control could be beneficial.
	<i>Fencing:</i> No fencing required.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> Erosion is likely to be required within the east-west drainage line east of the dam.
	<i>Monitoring Plot:</i> Monitoring plot established in the north-eastern section of the MU.
MU5	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> and <i>H. perforatum</i> .
	<i>Revegetation:</i> No revegetation required.
	<i>Fencing:</i> fencing likely to be required for the south-western corner of MU.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> Sediment and erosion control is unlikely to be required at present. Monitoring will determine if future control is required.
	<i>Monitoring Plot:</i> Monitoring plot established in the centre of the MU to serve as a control site.
	<i>Note:</i> MU5 does not include the main drainage line running east-west through the offset site.
	<i>Weeds:</i> Control required for <i>R. rubiginosa</i> and <i>H. perforatum</i> . Heavy infestations of <i>R. rubiginosa</i> occur along the drainage lines.

MU6	<i>Revegetation:</i> No revegetation required.
	<i>Fencing:</i> No fencing required.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> Sediment and erosion control may be required in the main drainage line running east-west.
	<i>Monitoring Plot:</i> Monitoring plot established in the far east of the MU within an area of moderate to high Sweet Briar abundance.
	<i>Note:</i> MU6 includes the drainage line running East-West through the offset site.
MU7	<i>Weeds:</i> <i>R. rubiginosa</i> control will be required
	<i>Revegetation:</i> Possible ground-layer rehabilitation maybe required. Monitoring of weed control success will inform rehabilitation needs.
	<i>Fencing:</i> No fencing required.
	<i>Feral Animal Control:</i> No feral animal control required at present. Monitoring to establish control in the future.
	<i>Erosion Control:</i> Erosion control is unlikely to be required at present. Monitoring will determine if future control is required.
	<i>Monitoring Plot:</i> Monitoring plot established within area that may require future rehabilitation of the ground-layer

3 Monitoring Methodology

3.1 VEGETATION MONITORING PLOT

Monitoring plots were established in spring 2011 to collect baseline data on the condition and species composition of the offset site. The monitoring plots were assigned as follows:

- Two control plots – MU3 & MU5
- Six standard monitoring plots – MU1A, MU2B, MU3, MU4, MU6 & MU7

Two control plots were chosen in order to observe natural changes in species composition. The control plots were positioned in areas of good quality EPBC listed Box-Gum Woodland. No management actions will occur within these monitoring plots over the duration of the monitoring period.

The six monitoring plots were located in areas where management actions were predicted to occur as outlined in the management sub-plans, in order to observe the effect that management actions have on species composition.

3.2 NATIVE VEGETATION SURVEYS

Monitoring will be undertaken through vegetation surveys in permanent quadrats (8 plots) across the offset site. These plots will be monitored annually in spring by qualified ecologists. The monitoring methodology has been adapted from the NSW Biobanking methodology to suit the offset site management requirements. The modified Biobanking methodology proforma (**Appendix H**) uses a combination of quadrat and transects surveys to establish vegetation condition.

Vegetation surveys aim to collect the following data:

- Species diversity, including native and exotic species.
- Cover abundance of native and exotic species.
- Identification of any threatened flora.
- Condition of vegetation community.

3.2.1 Quadrat Surveys

A 20 x 20m quadrat was established in eight locations across the offset site. The quadrats were permanently erected and marked using a star picket at each corner tagged with flagging tape. The location of the quadrats was marked using a GPS (north-west corner) and their location plotted on a map. The quadrat was surveyed by walking back and forth in transects approximately 2m apart (**Figure 4**). A cumulative list of flora species within each quadrat was recorded and assigned a cover abundance score using the Braun-Blanquet scale (**Table 2**).

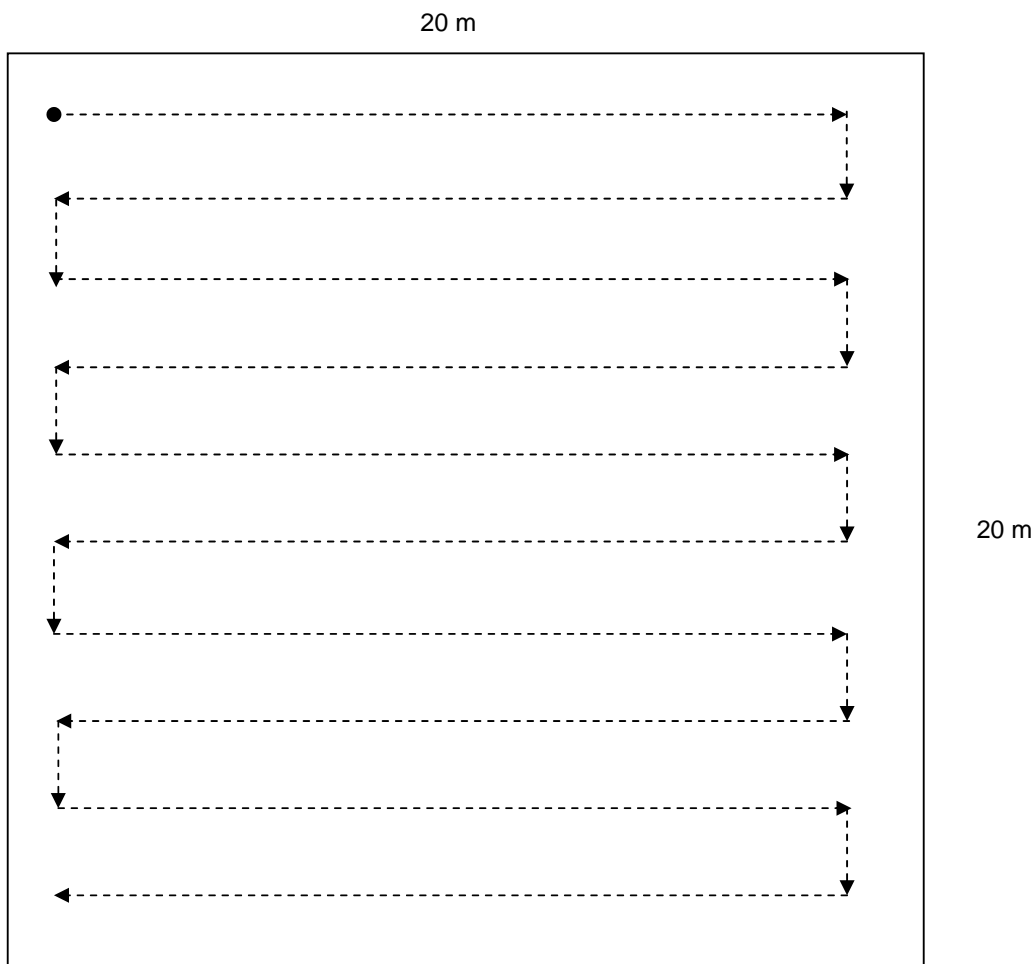


Figure 4: A representation of the 20m x 20m quadrats used for the monitoring surveys.

Table 2: Braun-branquet cover abundance scale

BRAUN-BRANQUET KEY
+ = few, small cover (<5%)
r = solitary, small cover (<5%)
1 = numerous (up to 5%)
2 = 5-25%
3 = 25-50%
4 = 50-75%
5 =>75%

3.2.2 Transect Surveys

A 50m transect (50m length of tape) was established to compliment the quadrat surveys and to determine the projected foliage cover and structural components of the community (**Figure 5**). Each transect was marked using a GPS and 3 photos were taken from the beginning of the transect (left side, centre, and right side). The 50m transect was surveyed as follows:

- At every 1m along the 50m tape, the understory layer was assessed (50 survey points per transect) as either native grass, native shrub, native other or exotic species.
- At every 5m along the 50m tape, the foliage cover of the mid and overstorey layer was recorded (10 survey points per transect). The foliage cover was recorded as a percentage for each layer.

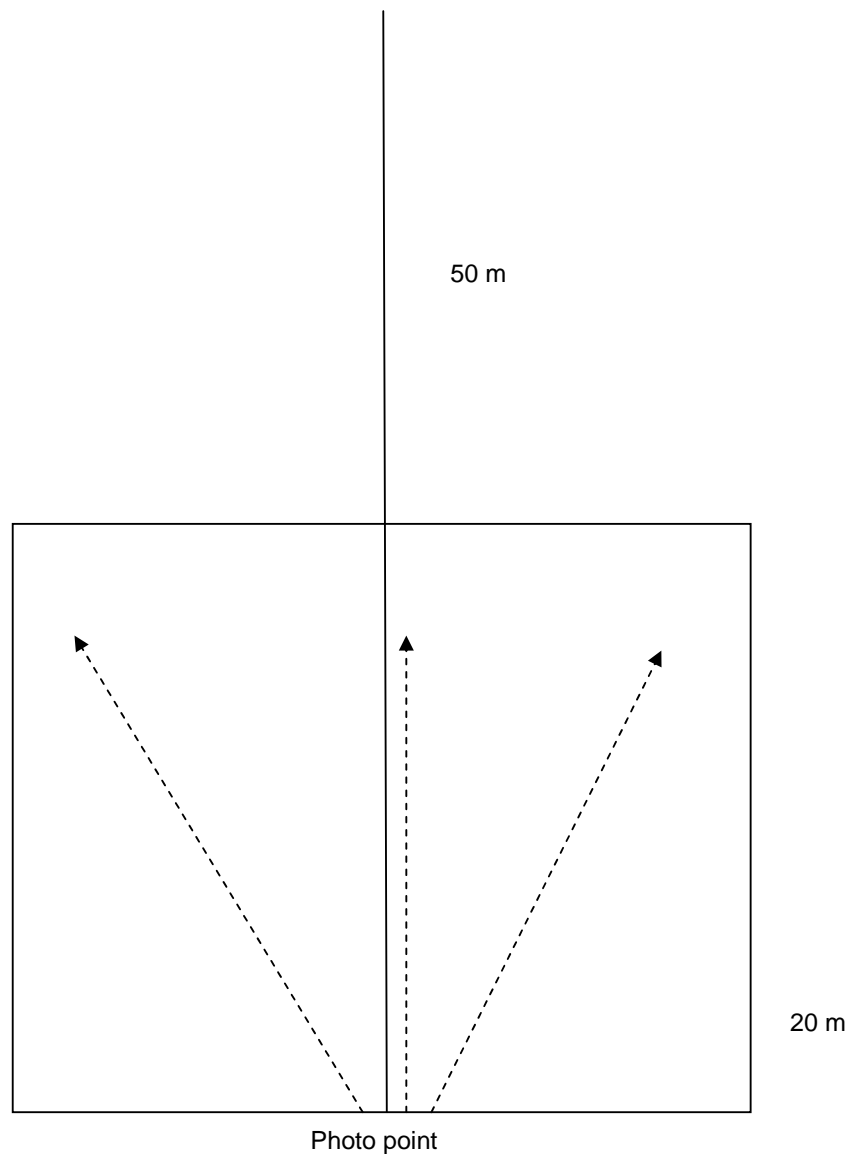


Figure 5: A representation of the 50m transect used for the monitoring surveys

4 Baseline Monitoring Results

4.1 VEGETATION MONITORING PLOT RESULTS

A description of each of the monitoring plots is provided in the pages below and the location of the monitoring plots in relation to the vegetation values on site are provide in **Figure 6**. The GPS co-ordinates of the monitoring plots using the north-west corner are provided below in **Table 3**.

A species list for each of the monitoring plots is included in **Appendix I**.

Table 3: Monitoring plot co-ordinates in GDA 1994 MGA Zone 55.

MONITORING PLOT	MANAGEMENT UNIT	EASTING	NORTHING
1	MU1	693669.493321867	6059272.51377754
2	MU2	693529.989705616	6059555.3430263
3	MU3	693872.060216125	6059467.43663788
4	MU4	692349.347803337	6060568.07406166
5	MU5	692559.97343706	6059906.51819571
6	MU6	692576.249030655	6060344.04500194
7	MU7	692860.593606171	6060583.39228746
8 (3b)	MU3	693414.373694811	6059863.01538471

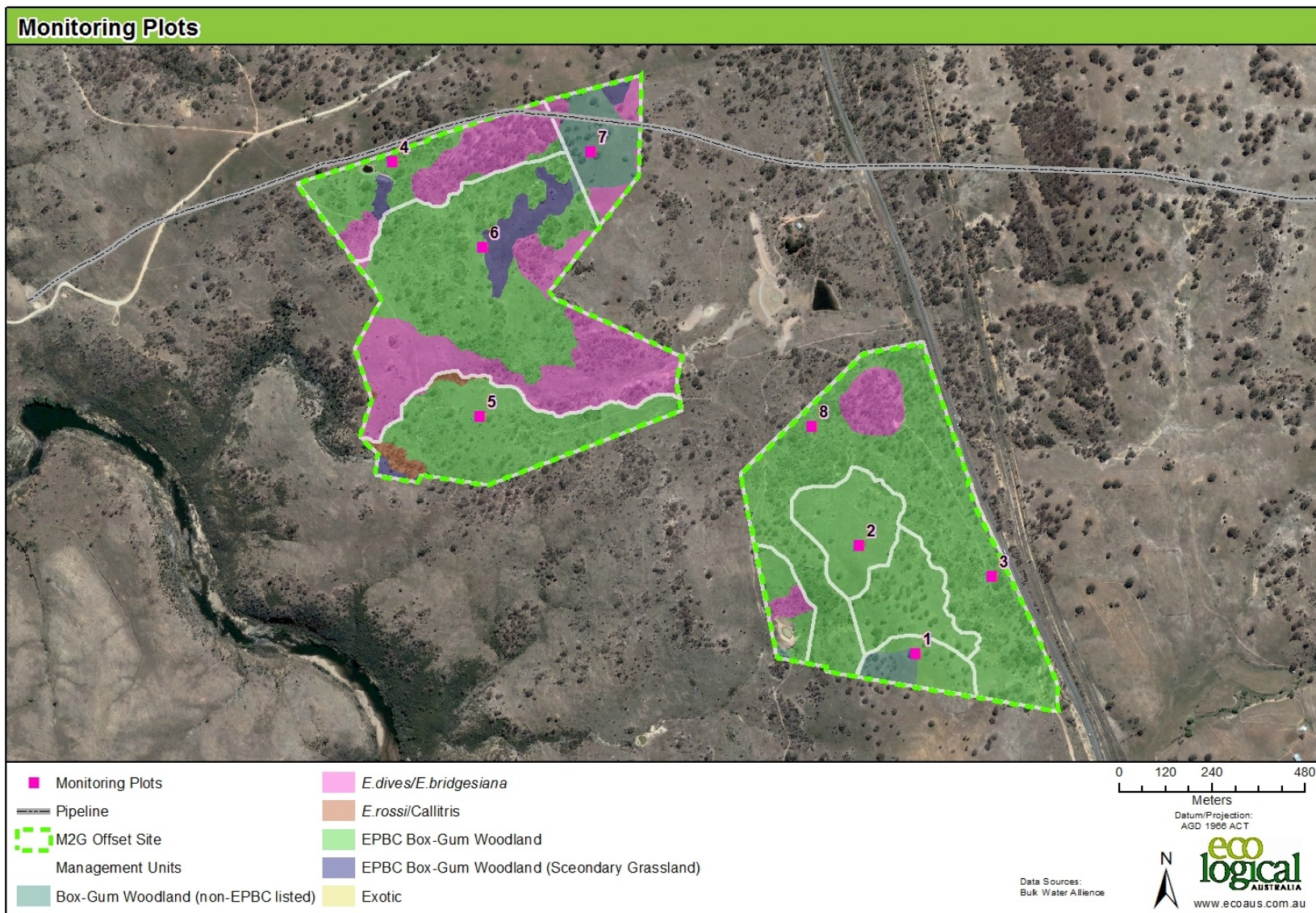


Figure 6: Monitoring plot locations in relation to offset site ecological values

4.1.1 Monitoring Plot 1

Monitoring plot 1 is located within Management Unit 1 on the southern offset (**Figure 7**). The monitoring plot is composed of degraded Box-Gum Woodland; however, no over storey or mid storey was present within the plot area. Native species diversity was low in comparison with other sites within the offset site, and comprised less than 50% of the total species diversity within the plot area (**Table 4**). The dominant species were *C. lanatus*, *Hordeum* sp. (Barley Grass), *Bromus* sp. (Brome), *Austrostipa scabra* and *A. bigeniculata* (Spear Grasses) and *Carex inversa* (Common Sedge).

Table 4: Plot statistics for monitoring plot 1

PLOT DESCRIPTION			
<i>Management unit</i>	MU1	<i>Plot number</i>	1
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>Condition</i>	Low
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	0	Regeneration	No
<i>Native mid storey cover (%)</i>	0	Species	N/A
<i>Native under storey cover (%)</i>	46		
<i>Exotic mid storey plant cover (%)</i>	0		
<i>Exotic under storey plant cover (%)</i>	58		
<i>Native species diversity</i>	14		



Figure 7: Monitoring plot 1

4.1.2 Monitoring Plot 2

Monitoring plot 2 is located within Management Unit 2 within the southern offset (**Figure 8**). It is situated on top of a rocky hill containing suitable habitat for the Pink-tailed Worm Lizard. It contains mature Box-Gum Woodland with limited natural regeneration. The dominant overstorey species is *E. blakelyi*. It contains a moderate to high diversity of native understorey species and is generally devoid of exotic grasses and forbs (**Table 5**). The groundlayer is dominant by *Austrodanthonia* spp., *Austrostipa* spp. and *Chrysocephalum apiculatum* (common everlasting).

Table 5: Plot statistics for monitoring plot 2

PLOT DESCRIPTION			
<i>Management unit</i>	MU2	<i>Plot number</i>	2
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>Condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	0	<i>Regeneration</i>	Yes
<i>Native mid storey cover (%)</i>	0	<i>Species</i>	<i>E. blakelyi</i>
<i>Native under storey cover (%)</i>	84		
<i>Exotic mid storey plant cover (%)</i>	0		
<i>Exotic under storey plant cover (%)</i>	6		
<i>Native species diversity</i>	30		



Figure 8: Monitoring plot 2

4.1.3 Monitoring Plot 3

Monitoring plot 3 is located within Management Unit 3 (**Figure 9**). The plot is located in moderate to good quality Box-Gum Woodland. The plot is dominated by mature and regenerating *E. blakelyi*. The mid storey is composed of the exotic *R. rubiginosa*; however, a diverse under storey exists with dominant species including *Themeda australis* (Kangaroo Grass), *Austrodanthonia* spp. (Wallaby Grass) and *Bothriochloa macra* (Red-leg Grass). The under storey has a moderate to high diversity with 27 native species recorded (**Table 6**).

Table 6: Plot statistics for monitoring plot 3

PLOT DESCRIPTION			
<i>Management unit</i>	MU3	<i>Plot number</i>	2
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	3.7	Regeneration	Yes
<i>Native mid storey cover (%)</i>	5.2	Species	<i>E. blakelyi</i>
<i>Native under storey cover (%)</i>	96		
<i>Exotic mid storey plant cover (%)</i>	0.2		
<i>Exotic under storey plant cover (%)</i>	10		
<i>Native species diversity</i>	27		



Figure 9: Monitoring plot 3

4.1.4 Monitoring Plot 4

Monitoring plot 4 is located in the northern offset in Management Unit 4 (**Figure 10**). The plot is located in moderate to good quality Box-Gum Woodland dominated by *E. blakelyi*. The plot supports a moderately diverse under storey composed of 24 native species. The dominant species are *T. australis*, *B. macra* and *H. perforatum*. A low to moderate level of weed invasion exists on site accounting for around 28% of the ground layer (**Table 7**). A low level of regeneration exists on site.

Table 7: Plot statistics for monitoring plot 4

PLOT DESCRIPTION			
<i>Management unit</i>	MU4	<i>Plot number</i>	4
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>Condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	4.7	<i>Regeneration</i>	Yes
<i>Native mid storey cover (%)</i>	11.5	<i>Species</i>	<i>E. Blakelyi</i>
<i>Native under storey cover (%)</i>	92		
<i>Exotic mid storey plant cover (%)</i>	2		
<i>Exotic under storey plant cover (%)</i>	28		
<i>Native species diversity</i>	24		



Figure 10: Monitoring plot 4

4.1.5 Monitoring Plot 5

Monitoring plot 5 is a control plot located in Management Unit 5 (**Figure 11**). No management actions will occur within the bounds of the monitoring plot. Plot 5 is located in moderate-good quality Box-Gum Woodland dominated by *E. blakelyi*. The monitoring plot supports a diverse under storey of grasses, herbs and forbs with 29 native species recorded (**Table 8**). The understorey supported a high diversity of forbs including *Swainsona sericea* (Silky Swainson-pea) and was dominated by *T. australis*.

Table 8: Plot statistics for monitoring plot 5

PLOT DESCRIPTION			
<i>Management unit</i>	MU5	<i>Plot number</i>	5
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>Condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	0	<i>Regeneration</i>	Yes
<i>Native mid storey cover (%)</i>	11	<i>Species</i>	<i>E. blakelyi</i>
<i>Native under storey cover (%)</i>	98		
<i>Exotic mid storey plant cover (%)</i>	0		
<i>Exotic under storey plant cover (%)</i>	4		
<i>Native species diversity</i>	29		



Figure 11: Monitoring plot 5

4.1.6 Monitoring Plot 6

Monitoring plot 6 is located on the ecotone between Peppermint-Apple Box Dry Sclerophyll Forest and Box-Gum Woodland within Management Unit 6 (**Figure 12**). The plot is dominated by *E. dives* and *E. blakelyi*, with some regenerating *E. dives* present. The plot supports a moderately diverse ground layer with 26 native species recorded accounting for 90% of the ground layer (**Table 9**). The plot supported a number of woody weeds including *R. rubiginosa* and *C. monogyna*. The understory is dominated by *T. australis* and has a moderate diversity of forbs, including *Bulbine bulbosa* (Bulbine Lily), *Stackhousia monogyna* (Creamy Candles) and *Ranunculus* sp. (Buttercups).

Table 9: Plot statistics for monitoring plot 6

PLOT DESCRIPTION			
<i>Management unit</i>	MU6	<i>Plot number</i>	6
<i>Dominant vegetation type</i>	Peppermint-Apple Box-Red Woodland	<i>Condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	13	Regeneration	Yes
<i>Native mid storey cover (%)</i>	0	Species	<i>E. dives</i>
<i>Native under storey cover (%)</i>	90		
<i>Exotic mid storey plant cover (%)</i>	3.5		
<i>Exotic under storey plant cover (%)</i>	16		
<i>Native species diversity</i>	26		



Figure 12: Monitoring plot 6

4.1.7 Monitoring Plot 7

Monitoring plot 7 is located within Management Unit 7 in the northern offset (**Figure 13**). The monitoring plot is composed of degraded Box-Gum Woodland; however, no over storey or mid storey was present within the plot area. Native species diversity was low in comparison with other monitoring plots within the offset site, and comprised less than 50% of the total species diversity within the plot area (**Table 10**). The dominant species were *C. lanatus*, *Hordeum* sp., *Bromus* sp., *A. scabra*, *A. bigeniculata* and *C. inversa*.

Table 10: Plot statistics for monitoring plot 7

PLOT DESCRIPTION			
<i>Management unit</i>	MU7	<i>Plot number</i>	7
<i>Dominant vegetation type</i>	Blakely's Red Gum and Yellow Box Woodland	<i>Condition</i>	Low
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	0	Regeneration	No
<i>Native mid storey cover (%)</i>	0	Species	N/A
<i>Native under storey cover (%)</i>	0		
<i>Exotic mid storey plant cover (%)</i>	74		
<i>Exotic under storey plant cover (%)</i>	34		
<i>Native species diversity</i>	13		



Figure 13: Monitoring plot 7

4.1.8 Monitoring Plot 8

Monitoring plot 8 (3b) is a control plot located in Management Unit 3 (**Figure 14**). No management actions are proposed to occur within the bounds of the plot. The plot is located in moderate to good quality Box-Gum Woodland dominated by *E. blakelyi*. The plot supports a diverse under storey of grasses, herbs and forbs with 26 native species recorded (**Table 11**). The dominant species included *T. australis*, *Austrodanthonia* spp. and *B. macra*.

Table 11: Plot statistics for monitoring plot 8

PLOT DESCRIPTION			
<i>Management unit</i>	MU3B	<i>Plot Number</i>	3
<i>Dominant vegetation type</i>	Box-Gum Woodland	<i>Condition</i>	Mod-Good
PLOT STATISTICS			
<i>Native over storey cover (%)</i>	0	Regeneration	Yes
<i>Native mid storey cover (%)</i>	8.5	Species	<i>E. blakelyi</i>
<i>Native under storey cover (%)</i>	94		
<i>Exotic mid storey plant cover (%)</i>	0		
<i>Exotic under storey plant cover (%)</i>	4		
<i>Native species diversity</i>	26		



Figure 14: Monitoring plot 8

5 Reporting

An Annual Management Action and Monitoring Report will be prepared summarising the outcomes of the monitoring and management actions described in the sub-plans of the ODP (Appendix A – G). The annual report will identify any management actions or interventions that have been required throughout the year, or that are recommended for the subsequent year, refer to Section 12 of the Operations Environmental Management Plan (OEMP). Management actions also to be included in the report include actions implemented through the OEMP or through the sub-plans.

The annual report will be delivered shortly after the completion of the years monitoring surveys. The annual report will then be submitted to DPI following consultation with the M2G Environment Reference Group.

The Compliance Tracking program outlined in Section 6 of the OEMP will also be followed and any relevant components of the tracking program to the Offset Delivery Plan will be included in the annual report.

6 Management Sub-Plans

The following management sub-plans have been provided as appendices to the ODP. The management sub-plans have been developed in conjunction with the ODP, but have also been developed as standalone documents. The management sub-plans include:

- Appendix A - Weed Management Sub-Plan.
- Appendix B - Rehabilitation Management Sub-Plan.
- Appendix C - Erosion Management Sub-Plan.
- Appendix D - Bushfire Management Action Plan
- Appendix E - Feral Animal Management Sub-Plan.
- Appendix F - Fencing Management Sub-Plan.
- Appendix G - Grazing Management Sub-Plan.

6.1 SUMMARY OF SUB-PLANS

Table 12: Summary of sub-plan monitoring commitments

SUMMARY TABLE			
<i>Sub-Plan</i>	<i>Monitoring</i>	<i>Related Sub-Plans</i>	<i>Primary Management Action/s</i>
Weed	Biannual	Rehabilitation - Appendix B	Integrated weed management for the suppression of weeds in offset site
Rehabilitation	Biannual	Weed – Appendix A Erosion – Appendix C	Tube-stock planning in MU1A. and monitoring of condition in MU7 & MU1B
Erosion	Biannual	Rehabilitation – Appendix B Grazing – Appendix G	Monitoring of potential erosion sites, particularly in Erosion Management Unit 1
Bushfire	Annual	Grazing – Appendix G	
Feral Animal	Biannual	Grazing - Appendix G	Monitoring of feral animal abundance
Fencing	Biannual		Maintenance of external boundary fence and investigation into adjacent land tenure
Grazing	Biannual	Bushfire – Appendix D Feral Animal – Appendix E Fencing – Appendix F	Cessation and exclusion of future stock grazing. Monitor native grazing intensity
Offset Delivery Plan	Annual	All sub-plans. Appendix A - G	Annual monitoring of vegetation condition and offset biodiversity values

Appendix A: Weed Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX A – WEED MANAGEMENT SUB-PLAN

Appendix B: Rehabilitation Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX B – REHABILITATION MANAGEMENT SUB-PLAN

Appendix C: Erosion Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX C – EROSION MANAGEMENT SUB-PLAN

Appendix D: Bushfire Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX D – BUSHFIRE MANAGEMENT ACTION SUB-PLAN

Appendix E: Feral Animal Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX E – FERAL ANIMAL MANAGEMENT SUB-PLAN

Appendix F: Fencing Management Sub-Plan

Not provided in this version.

See attachment: APPENDIX F - FENCING MANAGEMENT SUB-PLAN

Appendix G: Grazing Management Sub-Plan

Not provided in this version

See attachment: APPENDIX G - GRAZING MANAGEMENT SUB-PLAN

Appendix H: Proforma - BioBanking

Eco Logical Australia – BioBanking / BioCertification plot data sheet	Site Sheet No.
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Plot Information

Plot Number		Recorders		Date	
GPS datum		Easting *		Northing*	
Plot Orientation		Slope (degrees and direction)		Photo numbers	

* Record from Easting and Northing from the end of the 50m transect at the start of the 20m quadrat

Vegetation Zone Identification

Biometric Vegetation Type (Create a standard short version)			
Ancillary Code (Usually condition description)			
Condition (Low or Mod-Good)		Habitat Features (rocks etc)	
Comments			

Plot Statistics

20m x 20m Quadrat	Number of <u>native</u> plant species	Use species list over page (full Id is <u>not</u> required) Write no. natives here:		
50m Transect – 10 Points	Native over-storey cover (%)		Sum / 10	%
	Native mid-storey cover (%)		Sum / 10	%
50m Transect – 50 Points	Native ground cover (hits/50 points) – Grasses		Double score out of 50 to get %	%
	Native ground cover (hits/50 points) – shrubs		Double score out of 50 to get %	%
	Native ground cover (hits/50 points) – other		Double score out of 50 to get %	%
50m Transect – 10 points + 50 points	Exotic plant cover - Sum exotic cover (%) from (a) overstorey + (b) midstorey + (c) ground cover	Overstorey (10 points) Sum / 10 Midstorey (10 points) / 10 Ground (50 points) Double score	Sum	Sum exotic % cover %
20m x 50m Quadrat	Number of trees with hollows			
	Total length fallen logs >10cm width (m)			
Whole Veg. Zone	Over-storey regeneration	Species	Regenerating (ie. saplings)?	Proportion

Stratum	Growth form	Species name	Cover	Abund	Height to crown			Field No.
					min	avg		
Upper								
Upper								
Mid								
Mid								
Ground								
Ground								

Form	Species	C-A	Field #	Form	Species	C-A	Field #

Appendix I: Baseline Monitoring Species Lists

+ = few, small cover (<5%)
 R = solitary, small cover (<5%)
 1 = numerous (up to 5%)
 2 = 5-25%
 3 = 25-50%
 4 = 50-75%
 5 = >75%

NATIVE SPECIES								
Plot Number	1	2	3	4	5	6	7	8
Species	MU1A	MU2B	MU3	MU4	MU5	MU6	MU7	MU3
<i>Acaena ovina</i>		+	+	+	+	r		1
<i>Aristida ramosa</i>		1						
<i>Asperula conferta</i>		r	1	1	+			+
<i>Austrodanthonia carphoides</i>					1			
<i>Austrodanthonia sp.</i>		2	1	4		1	2	+
<i>Austrostipa bigeniculata</i>	1	2	+	r		2	1	1
<i>Austrostipa scabra</i>	2	2	+	r	1	2		
<i>Bossiaea buxifolia</i>						r		
<i>Bossiaea prostrata</i>					r	r		
<i>Bothriochloa macra</i>	1	2	1	1		2		2
<i>Bulbine bulbosa</i>								
<i>Bursaria spinosa</i>			r					
<i>Carex appressa</i>								
<i>Carex inversa</i>	2		r	r	1	+	1	
<i>Cheilanthes sieberi</i>		1	+		+	+		1
<i>Chloris truncata</i>	r						r	
<i>Chrysocephalum apiculatum</i>		2	+		1	1		1
<i>Clematis leptophylla</i>		r						
<i>Convolvulus erubescens</i>	r	1	+		r	+		1
<i>Craspedia sp.</i>		+		+				
<i>Cryptandra spinescens</i>					r			
<i>Cymbonotus lawsonianus</i>		1			r	1	1	r

<i>Cymbopogon refractus</i>		r				1		
<i>Desmodium varians</i>			1		+	+		1
<i>Dichondra repens</i>		1		r			1	
<i>Einadia nutans</i>	r					+		
<i>Elymus scaber</i>	+	+	r		+			
<i>Erygium ovium</i>			r					
<i>Eucalyptus blakelyi</i>		r	1	2	2	r		2
<i>Eucalyptus blakelyi</i> (Juv)		+				+		
<i>Eucalyptus dives</i>								
<i>Eucalyptus melliodora</i>			r					
<i>Euchiton</i> sp.	+	+				r		r
<i>Fimbristylis dichotoma</i>		r						
<i>Gallium gaudichaudi</i>					r			
<i>Geranium solanderi</i>		+	+	+				
<i>Glycine tabacina</i>	1	1				1		
<i>Gonocarpus tetragynus</i>			+		+			1
<i>Goodenia hederacea</i>								r
<i>Haloragis heterophylla</i>				2	r			+
<i>Hydrocotyle laxiflora</i>		1	+	+	1	+	+	
<i>Hypericum gramineum</i>							r	+
<i>Juncus</i> sp.		r	r	+			1	
<i>Lachnagrostis</i> sp.				+				
<i>Leptorhynchus squamatus</i>			+	+	1			1
<i>Lomandra filliformis</i>		+	r		r	1		r
<i>Lomandra filliformis</i> ssp. <i>coricaea</i>				r				
<i>Lomandra multiflora</i>					r			
<i>Melichrus urceolatus</i>					+	r		r
<i>Microlaena stipoides</i>	+	1		+		1	3	
<i>Microtis uniflora</i>								r
<i>Oxalis perennans</i>		1		+	+			
<i>Oxalis</i> sp.	+		r					+
<i>Panicum effusum</i>	1			1		1	+	+
<i>Pimelea</i> sp.					r			
<i>Poa sieberiana</i>			1	r	+			
<i>Ranunculus</i> sp.								
<i>Rumex brownii</i>	r			r		r	1	
<i>Schoenus apogon</i>		1		2			+	1
<i>Senecio quadridentatus</i>		r			r			
<i>Stackhousia monogyna</i>								
<i>Swainsona sericea</i>			+		+			
<i>Themeda australis</i>			4	4	4	r		4
<i>Tricoryne elatior</i>								r
<i>Vittadinia muelleri</i>		1			+	+		
<i>Wahlenbergia</i> sp.		1	+		+	+		+

EXOTIC SPECIES								
Plot Number	1	2	3	4	5	6	7	8
Species	MU1A	MU2B	MU3A	MU4	MU5	MU6	MU7	MU3B
<i>Acetosella vulgaris</i>		+		r		+	1	
<i>Aira</i> sp.	+	+		r		+	1	r
<i>Anagalis arvensis</i>							r	
<i>Briza minor</i>				r				r
<i>Bromus</i> sp.	1			+			+	+
<i>Capsella</i>								
<i>Capsella bursa-pastoris</i>							r	
<i>Carthamus lanatus</i>	3							
<i>Centaurium erythraea</i>		r		r	+	+		+
<i>Conyza</i> sp.	r	+	r	r		r	r	r
<i>Crataegus mongyna</i>								
<i>Cynodon dactylon</i>							1	
<i>Cynosurus echinatus</i>		r						
<i>Cyperus eragrostis</i>							+	
<i>Echium plantagineum</i>								r
<i>Eragrostis curvula</i>				r			1	
<i>Erodium</i> sp.	+	r		+			1	
<i>Geranium</i> sp.	r				r	r	1	
<i>Holcus lanatus</i>								
<i>Hordeum</i> sp.	3						1	
<i>Hypericum perforatum</i>		+	1	1	+	1		r
<i>Hypochaeris radicata</i>	+	+		+	r	1	1	
<i>Linaria arvense</i>		+				+		
<i>Malva</i> sp.	r						r	
<i>Marrubium vulgare</i>							r	
<i>Nassella trichotoma</i>	r							+
<i>Onopordum acanthium</i>						r	+	
<i>Oxalis corniculata</i>							+	
<i>Oxalis</i> sp.						+	+	
<i>Paronychia brasiliiana</i>	1	+				r	1	
<i>Petrorrhagia nanteuilii</i>	1		r					r
<i>Plantago lanceolata</i>	r	r	1	1	+	r	+	
<i>Prunella vulgaris</i>							r	
<i>Rosa rubiginosa</i>	+	r	2	1	+	+	2	r
<i>Rubus fruticosus</i>								
<i>Solanum linnaeanum</i>								
<i>Solanum nigrans</i>							r	
<i>Sonchus</i> sp.			r	r				
<i>Tolpis umbellata</i>		r				1		r
<i>Trifolium arvense</i>	+	1		r		r		1
<i>Trifolium campestre</i>				r	r			+

<i>Trifolium repens</i>	1						3	
<i>Trifolium</i> sp.			r		r	r		r
<i>Verbascum thaspus</i>	+	r				r	r	
<i>Verbena bonariensis</i>							+	
<i>Vulpia</i> sp.	r			+				

Appendix J: Reference Letter – Offset Implementation

Appendix J is a letter from Eco Logical Australia dated 24th January to Simon Webber (ACTEW M2G Project Manager) providing a project status update for the M2G Terrestrial Ecology Services being undertaken by Eco Logical Australia.

The purpose of the letter is to demonstrate that the M2G offset package has been implemented by ACTEW. The letter briefly describes those tasks which have already been completed, and describes the tasks that are currently (as of the 24th January) in preparation for the delivery of the offset package.

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