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Our Ref: 0520539

20th October 2012

The General Manager
Goulburn Mulwaree Council
Locked Bag 22
GOULBURN NSW 2580

Attention: Wesley Folitarik

Dear Mr Berry,

PLANNING PROPOSAL FOR GOULBURN MULWAREE LEP 2009 – 152 MEDWAY ROAD, MARULAN

JW Planning Pty Ltd act for Argyle Properties Pty Ltd that owns 152 Medway Rd, Marulan - Lot 203 DP 870194 (the **"site"**). We refer to your letter dated the 4th July 2012 and the Department of Planning and Infrastructure advice to Council concerning the above.

We note Council's resolution dated 3rd July 2012 to separate the Medway site and other sites from the Amendment No. 4 planning proposal and that the site will now be progressed as part of Amendment No. 6 subject to the recommendations of the Department of Planning and Infrastructure contained in their advice to Council dated 13th June 2012. Consideration of these recommendations and your 4th July 2012 letter are provided as follows:

ZONING – RU4 *SMALL LOT PRIMARY PRODUCTION*

1. The introduction of the *RU4 Small Lot Primary Production* zone to the Goulburn Mulwaree LEP 2009 permits the application of a more appropriate zone to the site and is supported.

2. From the LEP template and a review of various LEPs across the State that apply this zone, the proposed RU4 zone for Goulburn Marulan LEP 2009 (and its application to the site only and no other lands in the LGA under the planning proposal) is suggested as follows with red text indicating inserted land uses:

1 Objectives of zone

- *To enable sustainable primary industry and other compatible land uses.*
- *To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

2 Permitted without consent

Home occupations **Extensive agriculture; Intensive plant agriculture; Forestry;**

3 Permitted with consent

Dwelling houses; Plant nurseries; **Advertising structures; Animal boarding or training establishments; Aquaculture; Bed and breakfast accommodation; Cellar door premises; Dual occupancies (attached); Environmental protection works; Farm buildings; Farm stay accommodation; Garden Centres, Flood mitigation works; Funeral homes; Group homes;**

Hardware and building supplies; Helipads; Home-based child care; Home businesses; Home industries; Intensive livestock agriculture; Kiosks; Landscaping material supplies; Markets; Mortuaries; Places of public worship; Recreation areas; Research stations; Roads; Roadside stalls; Rural supplies; Rural workers dwellings; Secondary dwellings; stock and sale yards; Timber yards; Veterinary hospitals; Water storage facilities.

Any other development not specified in item 2 or 4

4 Prohibited

Air transport facilities; Airstrips; Amusement centres; Camping grounds; Caravan parks; Child care centres; Commercial premises; Correction centres; Crematoria; Depots; Entertainment facilities; Freight transport facilities; Function centres; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Passenger transport facilities; Places of public worship; Registered clubs; Residential accommodation; Respite day care centres; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Wharf or boating facilities; Wholesale supplies

3. The minimum lot size for the RU4 zone is proposed to be 10ha and would apply to the entire site. It is understood that Council, through amendments to the Goulburn Mulwaree LEP 2009, will apply lot averaging controls to the site.

REVIEW OF NATURAL RESOURCES SENSITIVITY MAP – BIODIVERSITY - SHEET BDV-003 OF THE GOULBURN MULWAREE LEP 2009 BY ENVIRO ECOLOGY

4. The environmental values of part of the site mapped under Natural Resources Sensitivity Map ï Biodiversity - Sheet BDV-003 of the Goulburn Mulwaree LEP 2009 undertaken by Eco Logical for Council have been investigated by an independent consultant. The investigations, observations and recommendations of this review by Enviro Ecology is provided in **Attachment A.**

5. The pertinent observations by Enviro Ecology concerning the methodology and findings of the Eco Logical mapping include the following:

> *"The "Biodiversity" layer (Figure 1-2) under Goulburn Mulwaree Local Environmental Plan 2009 applying to the lower southern portion of the subject property (Figure 1-2) is not considered to be accurate nor warranted.*
>
> *The "biodiversity" layer is broad-based and solely upon a desktop assessment undertaken by Eco Logical Australia in July 2007. The desktop review and strategy relied heavily upon vegetation mapping, patch size to drive the assessment of areas of land to be defined as high or low conservation lands. There were numerous omissions within the Goulburn Mulwaree Biodiversity Strategy as to the level of accuracy of information relied upon to develop the biodiversity layer. The entire strategy was based upon a desktop assessment and contained no ground-truthing of vegetation/habitat types to determine there particular ecological significance for biodiversity".*

RESULTS OF SITE ECOLOGICAL INVESTIGATIONS

6. Enviro Ecology reviewed the ecological investigations May 2002 and a supplementary fauna report both prepared by Gunninah Environmental Consultants October 2002. Enviro Ecology then ground truthed the site in August 2012 to test the veracity of the data and conclusions of the Gunninah

reports and the Eco Logical vegetation mapping for the site. The report makes the following observations and comments:

> *"The coarse biodiversity mapping undertaken by Eco Logical 2007 that informed the environmentally sensitive land - biodiversity map was not supported by ground truthing. The Gunninah 2002 report and a lengthy site inspection undertaken by Enviro Ecology in August 2012 confirm that the floristics and structure of the remnant vegetation on the site are very degraded. This means that the biodiversity map should be amended to reflect this more detailed and more accurate site specific data and findings as per the suggested bidoversity layer polygon which is depicted on Figure 3-1."*
>
> and
>
> *"The application of clause **7.2 Environmentally sensitive land—biodiversity** over an area of land which is dominated predominantly by cleared and disturbed/grasslands (Figure 3-1) and which contains vegetation which has been assessed as being in poor condition (Table 2-3) is not considered to be warranted. The area of land mapped under the **environmentally sensitive land—biodiversity map** contains cleared and disturbed/grasslands community which provides limited-nil ecological benefit in terms of its contribution to biodiversity within a local context.*
>
> *At the time of the site inspection over 100 Eastern Grey Kangaroo were recorded from the subject property. It was noted that the condition of the vegetation in the ten years since the Gunninah ecological investigation has deteriorated further this is evident in the complete lack of an understorey throughout most of native vegetated areas identified as Map unit p10 Eastern Tablelands Dry Forest (Figure 3-1). An intensive grazing regime from the resident population of Eastern Grey Kangaroos has undermined whatever values the site previously may have had".*

6. Importantly, with some 100 kangaroos observed on the site, the report author notes that

> *"Should current management practices (grazing) continue to operate over the area of land mapped as "biodiversity" it is highly likely that in time that canopy trees would not be replaced and as a result pasture lands would become even more prevalent further simplifying the floristic structure and dominance of native vegetation/habitats for native flora and fauna species. As discussed in section 3.6.3 the subject property does not contain suitable habitats for any threatened flora species which have been recorded from the locality.*
>
> *The vegetation types within the subject property would at most provide a foraging resource only for three species of microbat. All three species are highly mobile and would not be dependent upon the habitats within the subject property exclusively all three species are also highly mobile and capable of flight across large areas of land"*

7. The ecological report makes the following recommendations:

> *"the "biodiversity" mapping layer applicable to the subject property apply only to the areas of land mapped as Map unit p24 Tableland Grassy Box-Gum which is considered to be representative of White Box Yellow Box Blakely's Red Gum Woodland an endangered ecological community listed under the TSC Act.*
>
> *Furthermore, any suggestion that an environmental protection zone be applicable to part of the site is not warranted for reasons contained within this report.*

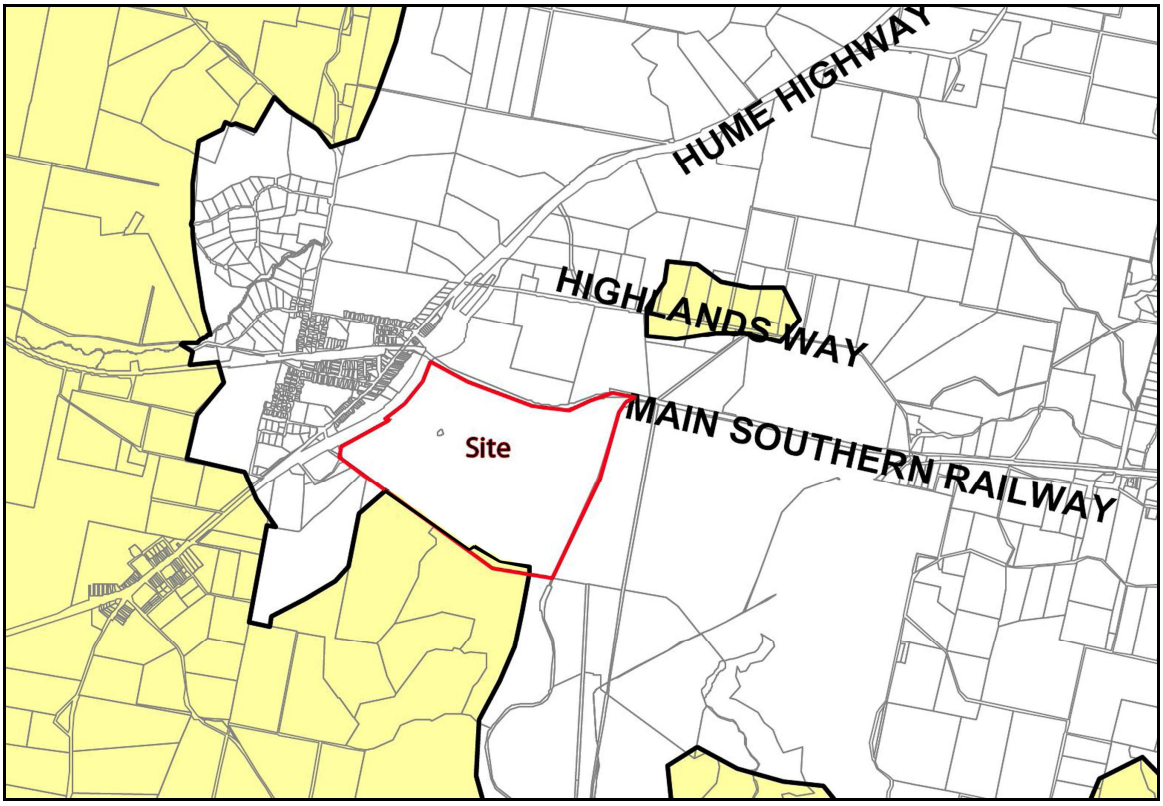
RECOMMENDED AMENDMENTS TO THE NATURAL RESOURCES SENSITIVITY MAP – BIODIVERSITY - SHEET BDV-003 OF THE GOULBURN MULWAREE LEP 2009

8. The majority of the remnant vegetation on the site:
    - is of poor quality in terms of structure and floristics due to excessive and prolonged grazing pressure from kangaroo and grazing stock;
    - does not contribute to a habitat corridor;
    - is not a wetland; and
    - is not located in a reserve.

9. A phone conversation with Mark Parker, Senior Planner in the Wollongong Office of the Department of Planning and Infrastructure during September 2012 discussed the preliminary findings of the ecological investigations for the site. From this discussion, the Department are aware of the coarseness of the biodiversity mapping at a regional scale and that site specific investigations would be the basis for considering future amendments to this map.

10. The only vegetation on that contains regionally significant species of plant, animal or habitat is the Map unit p24 Tableland Grassy Box ï Gum located along the south western boundary of the site. To this end it is suggested that the Natural Resources Sensitivity Map ï Biodiversity - Sheet BDV-003 of the Goulburn Mulwaree LEP 2009 be amended (in accordance with Figure 3-1 of the Enviro Ecology report) as indicated in **Figure 1**.

Figure 1 Suggested amendment to the Natural Resources Sensitivity Map ï Biodiversity - Sheet BDV-003 of the Goulburn Mulwaree LEP 2009



11. It is clear from the ecological report that removal of grazing activities from the site, both native and domestic, would allow the vegetation on the rest of the site to regenerate. However, regeneration of the vegetation on the site does not suggest that the vegetation would have regional ecological significance to warrant protection under Clause 7.2 of the LEP - its size and isolation from other significant remnant vegetation is such that long term conservation values will always favour arboreal species or bird and bat species only. Nor does this suggest that the vegetation should simply be cleared.

    Rather, it is suggested that land management through the subdivision of land, associated fencing of both property boundaries and vegetation and closer settlement will see the reduction in herbivore grazing, and, in combination with conditions of consent or restrictive covenants, a significant portion of the remnant vegetation can be managed for retention and natural rehabilitation to contribute to local biodiversity (albeit limited) and other environmental outcomes such as protecting drainage channels, reducing sheet erosion and maintaining the vegetation on the ridgeline for rural landscape amenity as viewed from the Hume Highway.

12. Under Section 79C, 91 and 91A of the Environmental Planning and Assessment Act, the provisions of the Water Management Act and the extensive requirements of the Goulburn Mulwaree Development Control Plan 2009, Council has significant scope to consider the future development and balance the ecological and environmental issues and outcomes for the site and the range of permissible rural uses under the now proposed RU4 Rural Small Lot Production zone.

SUSTAINABILITY THRESHOLD CRITERIA – SYDNEY TO CANBERRA REGIONAL STRATEGY

9. Our Planning Proposal submission dated 18th April 2012 concerning the proposed IN1 General Industry for the south western corner of the site addressed the Sustainability Assessment Criteria in Appendix 1 of the Sydney to Canberra Regional Strategy. The component of our submission concerning a minimum 10ha rural lot size was not urban or housing development, and in accordance with the opening paragraph of Appendix 1 - ñthe Sustainability Criteria allow the Government to take strong positions in relation to matters of urban settlement in the Sydneyï Canberra Corridoròï it was considered that the Sustainability Criteria did not apply.

    However, based upon the Departments advice the Sustainability Criteria for the planning proposal is provided in **Attachment 2**.

Should you have any further questions please do not hesitate to contact the undersigned at any time.

Yours faithfully,
JW PLANNING PTY LTD

Trevor Allen
SENIOR URBAN PLANNER
B.C.A, B.A (Hons),
Grad. Dip. Nat. Res. Law & Policy

ATTACHMENT 1 ENVIRO ECOLOGY REPORT

Ecological Review for No 152 (Lot 203 DP 870194) Medway Road, Marulan

Enviro *Ecology*

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Revision	Details	Date	Amended By
A	Ecological Review	09/10/2012	John Whyte
B	Final Draft	16/10/2012	John Whyte

Author: .....John Whyte

Signed: 

Date: ..... 16th of October 2012

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1. Introduction

Enviro Ecology have been engaged by Trevor Allen of JW Planning Pty Ltd C-/O of Mr Kim Clarke (Property Owner) to undertaken an ecological review of ecological reports and Council Biodiversity strategy for No 152 (Lot 203 DP 870194) Medway Road, Marulan NSW hereafter referred to as the subject property.

This report examines the terrestrial flora assemblages and faunal species and their habitats within the subject property and then examines the relevance of Council proposed "Biodiversity" mapping layer over part of the subject property (Figure 1-2) under the new Local Environmental Plan (LEP).

The report then prescribes future recommendations for future proposed subdivision layout as well as the long-term management strategies which could be implemented to improve the vegetation/ habitats for threatened species listed under the *Threatened Species Conservation Act 199* and under the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999*.

1.1 Terminology

This report uses the following terminology:

- Subject property is defined by the red boundary as depicted on (Figure 1-1)
- TSC Act abbreviates the *Threatened Species Conservation Act 199 ;*
- EPBC Act abbreviates the *Environment Protection and Biodiversity Conservation Act 1999;*
- EP&A Act abbreviates the *Environmental Planning and Assessment Act 1979*;
- OEH abbreviates Office of Environment & Heritage (NSW);
- LGA abbreviates Local Government Area;
- LEP abbreviates Local Environmental Plan;
- Threatened species refers to those flora and fauna species listed as vulnerable, endangered or critically endangered under the TSC Act or EPBC Act
- EEC abbreviates Endangered Ecological Community.

Figure 1-1 Sub ect property

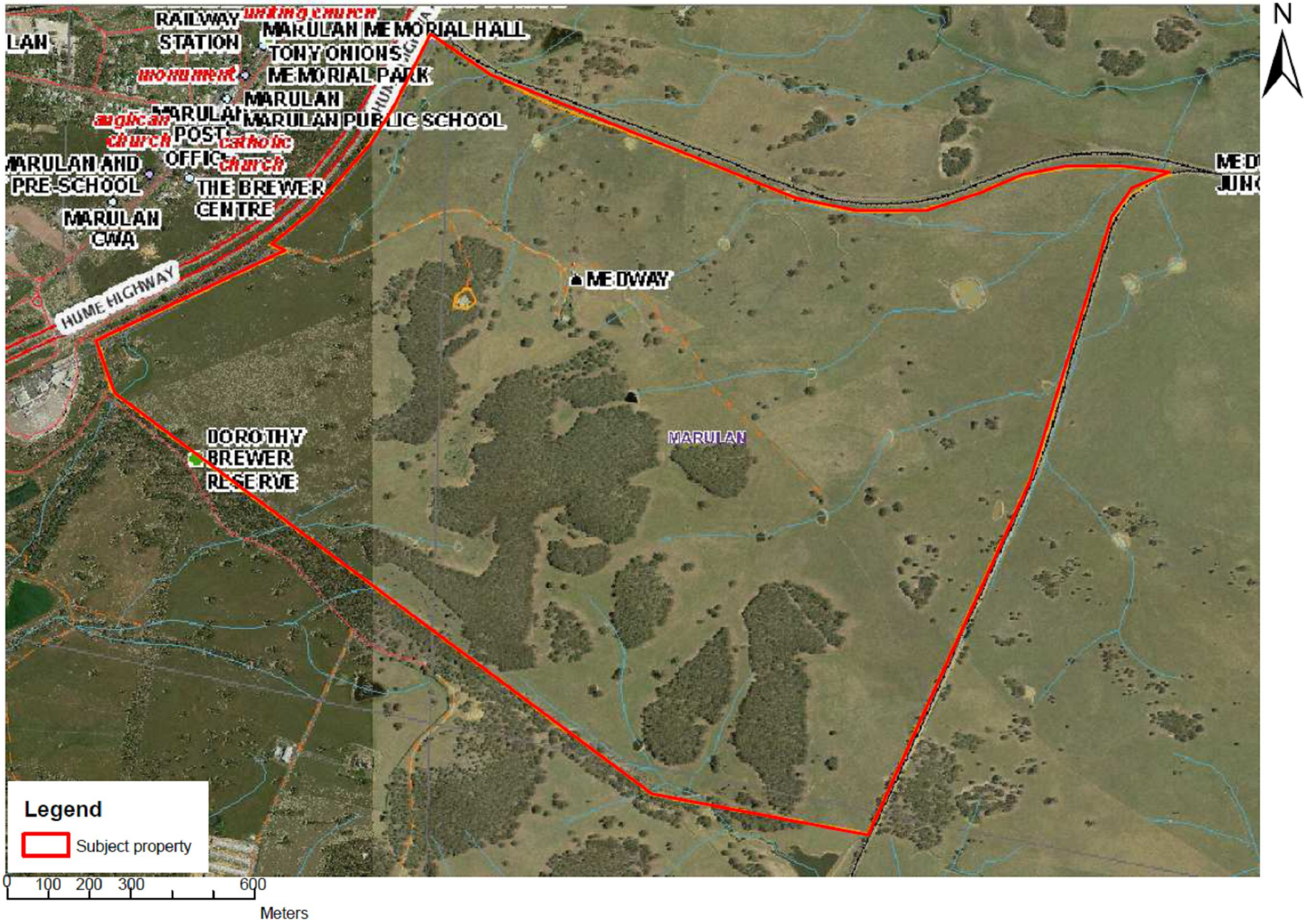
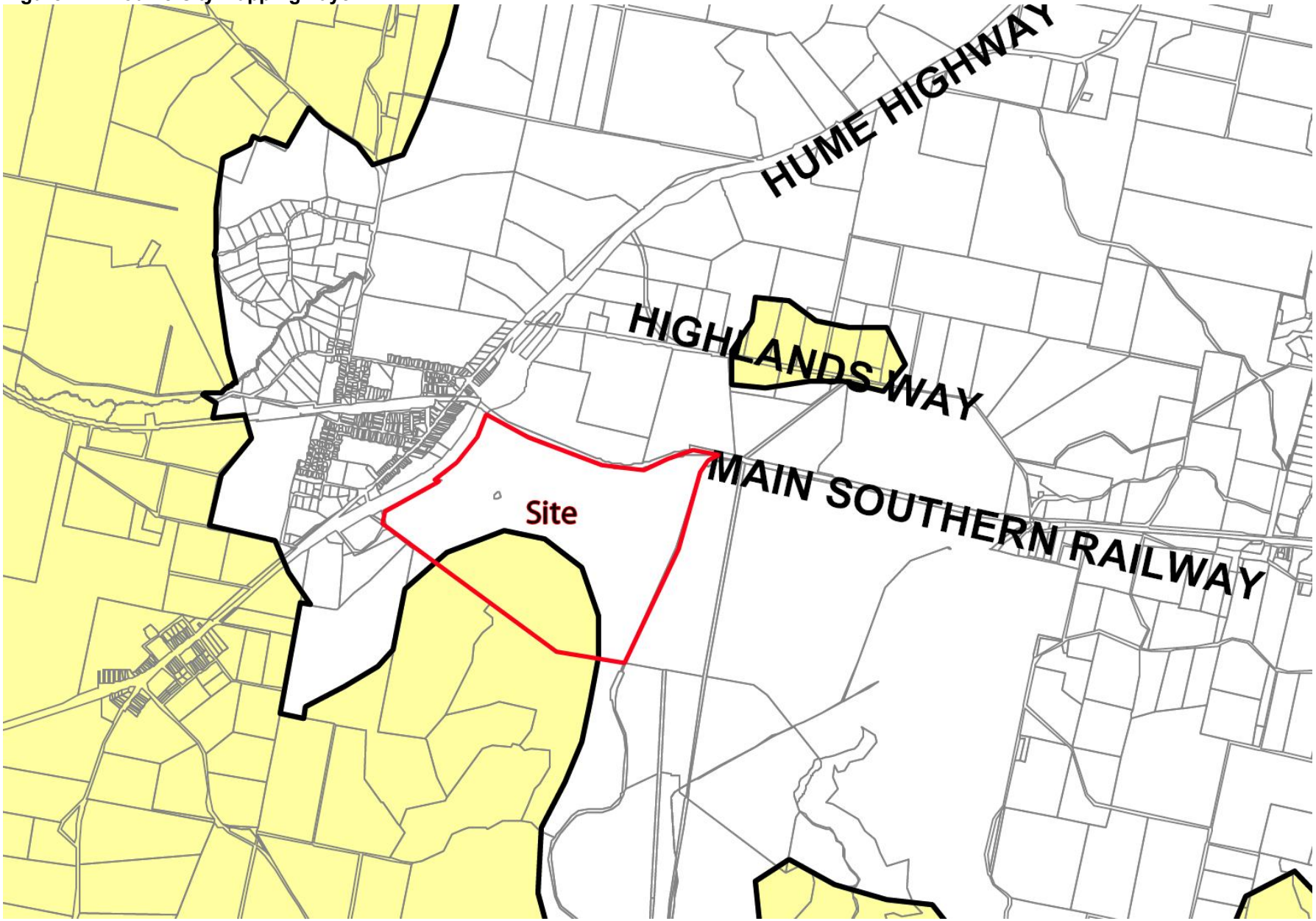


Figure 1-2 Biodiversity Mapping Layer



1.2 Legislative context

All proposals assessed under the *Environmental Planning and Assessment Act 1979* must include an examination of the threatened biodiversity, or their habitats, that are likely to occur within the development area or that may be indirectly affected by the construction and operation of a proposal. In the event that threatened biodiversity is within the vicinity of a proposal, the application must also include an assessment of the potential impact.

No proposed clearing is considered under the preparation of this report however general statements have been provided to inform current and future strategic planning, zoning and development controls under the Goulburn Mulwaree LEP 2009 and DCP 2009.

Commonwealth and State legislation relevant to the protection of flora, fauna and biodiversity within the study area include:

- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
- *Threatened Species Conservation Act 199*
- *ational Parks and Wildlife Act 1974*
- *oxious Weeds Act 1993.*

1.3 Site Description

The planning and cadastral details of the subject property are provided in (Table 1-1). The subject property is bound by the Hume Highway to the west, by rural residential properties to the north and east and partially to the south by rural residential and Medway Road (Figure 1-1).

Table 1-1 Site details

Location	No 152 (Lot 203 DP 870194) Medway Road, Marulan
Subject Property Area	288 ha
Schematic lots sizes	10-16ha
Topographic Map	Marulan 1:25000
Local Government Area	Goulbourn-Mulwaree
Aspect	northerly
Vegetation	Map unit p10 Eastern Tablelands Dry Forest, Map unit p24 Tableland Grassy Box-Gum & Cleared & disturbed-grassland

1.4 Study ob ectives

The objectives of this report are to:

- Undertake a literature review of ecological documents prepared by other consultants for client in 2002 and Council's Biodiversity Strategy;
- Undertake site investigation to confirm or otherwise that the reports in the Item above are accurate and that the draft biodiversity layer is applicable and appropriate to the subject property;
- Identify if the remnant patches of vegetation within the subject property and if vegetation should be retained and an appropriate lot layout and lot sizes for affected land;
- Provide advice on the adequacy or otherwise of Clause 7.2 of Local Environmental Plan for Goulburn-Mulwaree and/or the need for a site specific environmental zone.
- A database search and review of available documentation to identify threatened species or populations known or likely to occur in the locality of the site.
- Identification of vegetation communities within the site and production of a vegetation map.

2. Methodology

This ecological review was based on the results of a desktop review and site inspections on the 11th of August 2012 by Mr John Whyte B.Bio.Sc (Majors Botany & Zoology) of Enviro Ecology. This assessment has been prepared to to address the scope of works above.

2.1 Licensing

All work was carried out under the appropriate licences, including a scientific licence as required under Clause 22 of the National Parks and Wildlife Regulations 2002 and Section 132C of the *ational Parks and Wildlife Act 1974,* and under an Animal Research Authority issued by the Department of Industries and Investment formerly the Department of Industry & Investment 2012.

2.2 Nomenclature

Names of plants used in this document follow Harden (Harden 1992; Harden 1993; Harden 2000; Harden 2002) with updates from PlantNet (Royal Botanic Gardens 2012). Scientific names are used in this report for species of plant. Scientific and common names of plants are listed in Appendices A and C.

Names of vertebrates follow the Census of Australian Vertebrates (CAVS) database maintained by the Department of Sustainability Environment Water Population and Communities Department of Sustainability Environment Water Population and Communities 2012). Common names are used in the report for species of animal. Scientific names are included in species lists found in Appendices B and D.

2.3 Database searches and literature review

This assessment included a review of:

- Topographic maps
- Aerial photographs
- Flora and fauna assessment prepared by Gunninah Environmental Consultants dated May 2002
- Supplementary fauna report prepared by Gunninah Environmental Consultants dated October 2002
- Goulburn Mulwaree Biodiversity Strategy prepared by Eco Logical Australia (Project No. 145-001) dated July 2007
- Vegetation Mapping “Native Vegetation of Southeast NSW” (NSW Dept of Environment and Conservation and NSW Dept of Natural Resources 2006)
- Database searches, as summarised in Table 2-1.

Table 2-1 Database searches

Database	Search date	Area searched	Reference
Bionet Atlas of NSW Wildlife	10th of August 2012	Locality (10 km)	(Office of Environment & Heritage 2012)
PlantNet Database	10th of August 2012	Locality (10 km)	(Royal Botanic Gardens 2012)
Protected Matters Search Tool	10th of August 2012	Locality (10 km)	(Department of Sustainability Environment Water Population and Communities 2012)

2.4 Field Survey

Inspections of the subject property were undertaken on the 6th, 7th & 14th of May & on the 15th & 16th of October 2002 (Gunninah 2002). A recent site inspection was undertaken on the 11th of August 2012 by Enviro Ecology. This included:

- Verification of vegetation communities identified within the subject property by Gunninah (2002)
- Targeted Threatened species search flora and habitat assessments for threatened flora and fauna (Sections 2.5 & 2.6)
- Searching for specialised fauna habitat resources such as roosting/nesting hollows, whitewash, foraging resources e.g. feed trees
- Opportunistic fauna surveys during the flora survey

2.5 Flora Surveys

Detailed flora surveys have been undertaken by Gunninah (2002) which included three days of intensive flora surveys. The level of survey effort undertaken by Gunninah (2002) was determined to exceed the suggested minimum survey requirements of the *Threatened Biodiversity Survey and Assessment Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation 2004).

A combination of quadrat and traverse flora surveys was used to assess native floral diversity, dominant species, condition of vegetation communities and search for Threatened species within the study area.

2.5.1 Random meander survey

A random meander surveys are a variation of the transect type survey and were completed in accordance with the technique described by Cropper (1993), whereby the recorder walks in a random manner throughout the site recording all species observed. The survey is continued until no additional species are observed within a patch. Random meander surveys also allow the boundaries between various vegetation communities and condition of vegetation to be recorded and are valuable for recording species that may not occur within quadrats including, including Threatened species (Department of Environment and Conservation 2004).

Individual random meander surveys were separated whenever there was a significant change in vegetation community type or condition. For each random meander survey, the vegetation community was determined based on the dominant canopy species and the structure formation in accordance with Specht (1981) with reference to existing mapped vegetation communities. A random meander was conducted throughout the entire study area during the recent site inspection on the 11th of August 2012.

2.5.2 Vegetation condition

The condition of vegetation communities is an important criterion to determine suitable habitats for Threatened species and the conservation status of certain ecological communities. Vegetation within the subject prop[erty was assigned to one of the following condition classes (Table 2-2).

Table 2-2 Vegetation community condition classes

Condition Class	Criteria
Good	Vegetation still retains the species complement and structural characteristics of the pre-European equivalent. Such vegetation has usually changed very little over time and displays resilience to weed invasion due to intact groundcover.
Moderate	Vegetation generally still retains its structural integrity, but has been disturbed and has lost some component of its original species complement. Weed invasion can be significant in such remnants
Poor	Vegetation that has lost most of its species and is significantly modified structurally. Often such areas now have a discontinuous canopy of the original tree cover and very few shrubs. Exotic species, such as introduced pasture grasses or weeds, replace much of the indigenous ground cover. Environmental weeds are often co-dominant with the original indigenous species.

2.6 Terrestrial fauna

2.6.1 Fauna habitats

Fauna habitat assessments were undertaken to assess the likelihood of Threatened species of animal (those species identified from the literature and database review) to occur within the subject property. Fauna habitat characteristics assessed included the:

- Structure and floristic of the canopy, understorey and ground vegetation, including the presence of flowering and fruiting trees providing potential foraging resources
- Presence of hollow-bearing trees providing roosting and breeding habitat for arboreal mammals, birds and reptiles
- Composition of the ground cover vegetation, leaf litter, rock outcrops and fallen timber to provide protection for ground-dwelling mammals, reptiles and amphibians
- Presence of waterways (ephemeral or permanent) and water bodies.

The assessment of these fauna habitat characteristics enabled an overall assessment of fauna habitat condition within the study area (refer Table 2-3).

Table 2-3 Fauna Habitat Condition Classes

Fauna habitat condition class	Description
Good	A full range of fauna habitat components are usually present (e.g. old growth trees, fallen timber, feeding and roosting resources) and habitat linkages to other remnant ecosystems in the landscape are intact.
Moderate	Some fauna habitat components may be missing (e.g. old growth trees, fallen timber), although linkages with other remnant habitats in the landscape are usually intact, but sometimes degraded.
Poor	Many fauna habitat elements in low quality remnants have been lost, including old growth trees (e.g. due to past timber harvesting or land clearing) and fallen timber, and tree canopies are often highly fragmented. Habitat linkages with other remnant ecosystems in the landscape have usually been severely compromised by extensive past clearing.

2.6.2 Koala habitat assessment

The site is located in the Goulburn-Mulwaree Local Government Area, which is listed under Schedule 1 of *State Environmental Planning Policy - 44 Koala Habitat Protection* (SEPP 44). The likelihood of the site to be 'potential koala habitat' or 'core koala habitat' was assessed. Under *State Environmental Planning Policy - 44 Koala Habitat Protection*, the following definitions apply:

'Potential Koala Habitat' - areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.

'Core Koala Habitat' - area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.

2.6.3 Fauna survey

Detailed fauna surveys were undertaken throughout the subject property on the 6th, 7th & 14th of May & on the 15th & 16th of October 2002 (Gunninah 2002).

The presence of faunal species within the subjects property was determined primarily through consideration of suitable habitats, with species of animal identified opportunistically during the 2002 surveys and also during the recent site inspection, habitat assessments and through direct targeted surveys. Although recording Threatened species during field survey can confirm their presence in an area, a lack of Threatened species records does not necessarily indicate the absence of the species from the study area when suitable habitat is present. By the very nature of their rarity, Threatened species are often difficult to detect. Suitable habitat is, therefore, an important factor to consider when determining the potential presence of Threatened species.

The level of survey effort undertaken in 2002 by Gunninah is considered to exceed the minimum survey requirements of the *Threatened Biodiversity Survey and Assessment Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation 2004)

During the recent site inspection an assessment of the habitat values identified by Gunninah and the fauna habitat characteristics at the time of the site inspection enabled an overall assessment of fauna habitat condition within the subject property.

2.7 Limitations

Within the subject property varying degrees of non-uniformity of flora and fauna habitats can be encountered. Hence no sampling technique can entirely eliminate the possibility that a species is present within the subject property (e.g. species of plant present in the seed bank). The conclusions in this report are based upon data acquired for the subject property during the 2002 surveys and during the recent field surveys and are, therefore, merely indicative of the environmental condition of the subject property at the time of survey, including the presence or otherwise of species. It should also be recognised that conditions of the subject property, including the presence of threatened species, can change with time.

Habitat assessments were completed for all threatened fauna species identified as a result of the database searches (Table 2-1) to determine whether or not suitable habitat for threatened fauna species occurred within the study area. This is a more conservative approach and is likely to include species that are difficult to detect.

3. Results

3.1 Vegetation mapping

Two vegetation mapping projects has mapped vegetation within the subject property

- Native vegetation of southeast NSW: a revised classifications and map for the coast and eastern tablelands (NSW Dept of Environment and Conservation and NSW Dept of Natural Resources 2006). The subject property has been mapped as containing Map unit p10 Eastern Tablelands Dry Forest and Map unit p24 Tableland Grassy Box-Gum.
- Vegetation mapping prepared by Gunninah (2002) for No 152 (Lot 203 DP 870194).

The vegetation within the subject property was ground-truthed and was best found to be represented by (Gunninah 2002) vegetation mapping. The other vegetation mapping project (NSW Dept of Environment and Conservation and NSW Dept of Natural Resources 2006) was less consistent with the findings of the current survey.

3.2 Vegetation communities

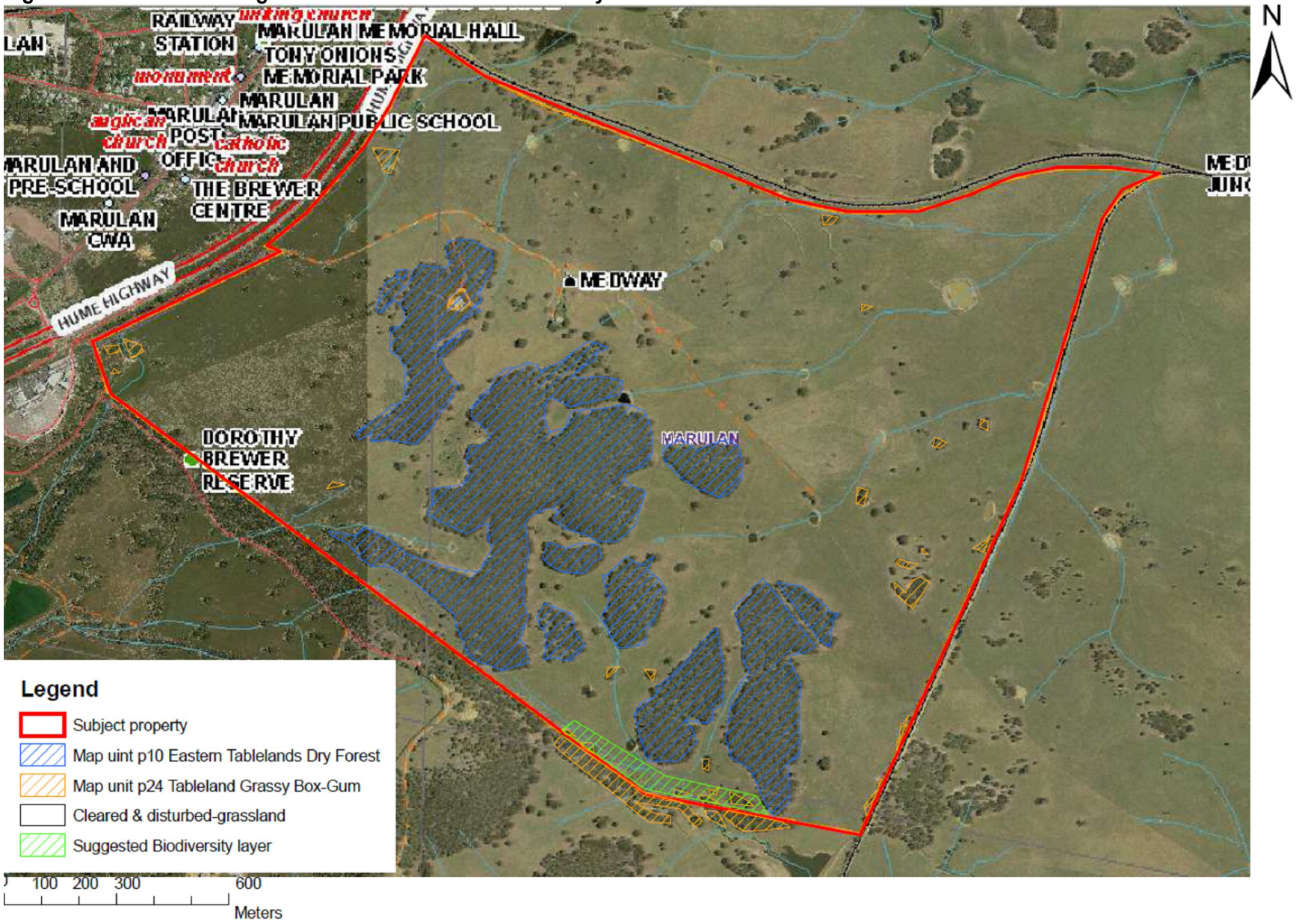
Four vegetation communities were identified during the Gunninah site inspection these being: White Stringybark/Silvertop Ash Woodland, Cabbage Gum Woodland, River Peppermint/Narrow-leaved Peppermint Woodland, wetland and artificial dams & cleared and disturbed/grasslands.

In the time since the vegetation mapping that was prepared by Gunninah (2002) a large scale vegetation mapping project has been undertaken by the NSW Department of Environment & Conservation (NSW Dept of Environment and Conservation and NSW Dept of Natural Resources 2006).

A review of the vegetation communities identified under this project has determined that the White Stringybark/Silvertop Ash Woodland is consistent with Map unit p10 Eastern Tablelands Dry Forest and that the Cabbage Gum Woodland & River Peppermint/Narrow-leaved Peppermint Woodland communities identified by Gunninah (2002) form part of Map unit p24 Tableland Grassy Box-Gum. The description given to the cleared and disturbed/grasslands mapped by Gunninah (2002) does not correlate to any vegetation type identified under the new mapping project as such no vegetation name change is warranted.

For full vegetation descriptions of the aforementioned vegetation communities see Attachment A (Flora and Fauna Assessment) prepared by Gunninah. Figure 3-1 has been prepared based upon ground-truthing vegetation and assigning the vegetation as per the new map units.

Figure 3-1 Field verified vegetation communities from the study area



3.2.1 Map unit p10 Eastern Tablelands

The Map unit p10 Eastern Tablelands Dry Forest has been subject to past clearing of canopy, shrub and ground vegetation and ongoing stock grazing and Kangaroo grazing. The understorey within this community is very simplified due to frequent grazing regimes.

At the time of the site inspection it was noted that a number greater than 100 Eastern Grey Kangaroos were within the large central portion of the subject property. This community was assessed as being in a poor-moderate condition (Table 2-3) at the time of the site inspection.

Photograph 3-1 Map unit p10 Eastern Tablelands Dry Forest within the central portion of the sub ect property sub ect to intensive gra ing by Cattle & Kangaroos

Photograph 3-2 Map unit p10 Eastern Tablelands Dry Forest within the central portion of the sub ect property sub ect to intensive gra ing by Cattle & Kangaroos

Photograph 3-3 Map unit p10 Eastern Tablelands Dry Forest within the eastern portion of the sub ect property sub ect to intensive gra ing by Cattle & Kangaroos

Photograph 3-4 Map unit p10 Eastern Tablelands Dry Forest within the eastern portion of the sub ect property sub ect to intensive gra ing by Cattle & Kangaroos

3.2.2 Map unit p24 Tableland Grassy Box-Gum

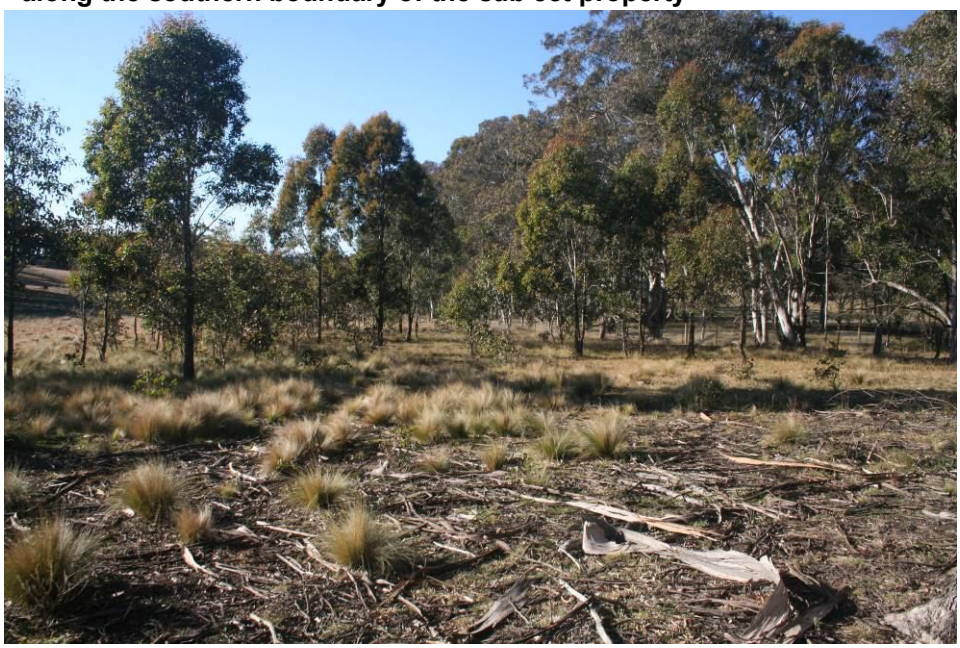
The Map unit p24 Tableland Grassy Box-Gum has been subject to past clearing of canopy, shrub and ground vegetation and the establishment of pasture for cattle grazing. The understorey within this community is very simplified due to the high level of vegetation clearing and the establishment for exotic grasses.

This community was assessed as being in a poor condition (Table 2-3) at the time of the site inspection.

Photograph 3-5 Map unit p24 Tableland Grassy Box-Gum Community within the eastern portion of the sub ect property

Photograph 3-6 Map unit p24 Tableland Grassy Box-Gum Community within the southern-central portion of the sub ect property

Photograph 3-7 Map unit p24 Tableland Grassy Box-Gum Community along the southern boundary of the sub ect property



Photograph 3-8 Regenerating canopy Map unit p24 Tableland Grassy Box-Gum Community within the southern-central portion of the sub ect property

3.2.3 Cleared and disturbed grasslands

The cleared and disturbed/grasslands community was found to be the dominant vegetation type across the subject property which is the result of past clearing of native vegetation and the establishment fo pasture grasses.

This community was assessed as being in a poor condition (Table 2-3) at the time of the site inspection.

Photograph 3-9 Cleared and disturbed grasslands Community within the western portion of the sub ect property

Photograph 3-10 Cleared and disturbed grasslands Community within the central portion of the sub ect property

Photograph 3-11 Cleared and disturbed grasslands Community within the eastern portion of the sub ect property

Photograph 3-12 Cleared and disturbed grasslands Community within the eastern portion of the sub ect property

3.3 Species of plant

A total of 141 species of plant was recorded from the subject property (Gunninah 2002) of which 122 species (85%) were native (Appendix A).

Nineteen species of weed were recorded from the subject property, only two of these weed species *Senecio madgarensis* *Rubus fruiticosis aggregate sp* are listed under the *oxious Weeds Act 1993.* No Weed of National Significance were recorded from the subject property (Thorp and Lynch 2000).

3.4 Species of animal

3.4.1 Fauna habitat types

The suitability, size and configuration of the terrestrial fauna habitats were found to correlate broadly with the structure, floristics, connectivity and quality of the local vegetation communities described above. These habitats mostly comprised the remnant woodland and open Forest communities.

The condition class of the habitats across all three vegetation communities: Map unit p10 Eastern Tablelands Dry Forest, Map unit p24 Tableland Grassy Box-Gum and the cleared and disturbed/grasslands communities was assessed as being in poor condition and provided limited habitat value due to the absence of good structural integrity, including the presence of upper, mid and groundcover layers, absence of a thick leaf litter and woody debris, with the fauna habitats being assessed as being in a poor condition in terms of their overall structure and the absence of microhabitat features.

3.4.2 Fauna microhabitat features

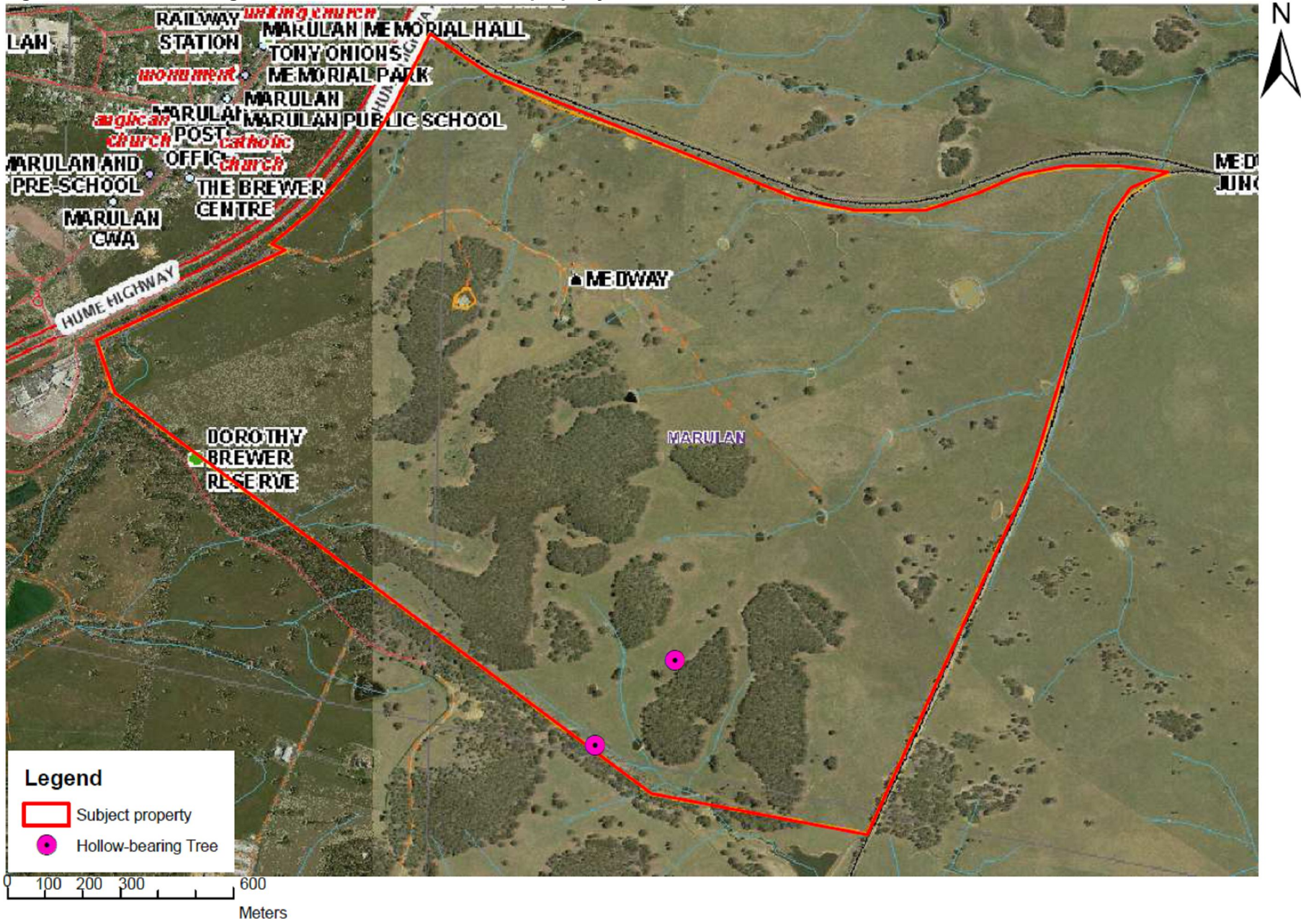
Tree hollows

Hollows develop in *Eucalypts* when the tree is under some form of stress, heartwood decay is present and the tree is sufficiently large to persist when decayed (Gibbons and Lindenmayer 2002). As such, hollows are more likely to occur in older and larger trees; however the abundance and size of hollows may vary within and between species.

Tree hollows typically provide den and nesting habitat for a range of common birds and arboreal mammal species (Gibbons and Lindenmayer 2002), including providing potential habitat for a number of Threatened species including microchiropteran bats and large forest owls. Whether or not tree hollows are used by animals, and which species use them, depends on a number of factors, including hollow characteristics (diameter, height, depth), the number of hollows in a tree, tree health, size, location and spacing (Gibbons and Lindenmayer 2002).

Two hollow-bearing trees were identified during the recent site inspection (Figure 3-1). The absent of hollow-bearing tree is the result of past clearing of old growth trees, the vegetation within the site is relatively young explaining the absence of hollows which develop within old trees.

Figure 3-2 Hollow-bearing tree locations from the sub ect property



Photograph 3-13 Hollow-bearing tree recorded from the sub ect property

Feeding resources

Fauna occurring in the project locality are likely to use a range of foraging resources including both native and exotic species. A number of floral feeding resources were found to be available that would provide foraging resources for a range of fauna including many of the species of bird recorded some of which include threatened species.

Flora feeding resources can be divided into blossoms, fruits (casuals, berries and drupes) and seeds. The dominant families providing these resources within the study area include:

- Blossoms (nectar and pollen): Myrtaceae, Proteaceae and Fabaceae (Mimosoideae).
- Fruits: Araliaceae, Euphorbiaceae, Oleaceae, Pittosporaceae, Solanaceae, Rosaceae, Verbenaceae.
- Seed: Poaceae, Lomandraceae, Casuarinaceae, Myrtaceae, Fabaceae (Faboideae and Mimosoideae).

The diversity of species across these families was limited and would provide very limited floral feeding resources throughout each season for sedentary species. During spring and summer when floral resource availability peaks, it is likely that other migratory and more transient species also frequent the locality for foraging.

3.5 Koala Habitat Assessment

Two Koala food tree (*Eucalyptus viminalis*) Ribbon Gum & (*Eucalyptus tereticornis*) listed on Schedule 2 of State Environmental Planning Policy No. 44 - Koala Habitat Protection, were observed within the subject property. Map unit p24 Tableland Grassy Box-Gum community contained less than the 15% density of these food trees indicated by SEPP 44 for classification as Potential Koala Habitat. Therefore this community is not considered to contain 'Potential Koala Habitat' as defined by SEPP 44.

No Koalas were observed during the fauna survey and there was no evidence (Scats or scratches) of previous Koala habitation in the area. The study area is also not considered to be 'Core Koala Habitat' as defined by SEPP 44

As such the subject property is not considered to comprise Potential Koala Habitat as defined under SEPP 44 and no further assessment under this Policy is required.

3.6 Threatened biodiversity

This section details the threatened biodiversity recorded or likely to occur within the subject property. This is based on those species recorded or predicted to occur within the locality from database searches (Table 2-1) and the nature of the habitats observed within the vicinity of the proposed works during past surveys and during the recent site survey (Appendices C and D).

3.6.1 Threatened ecological communities

Five endangered ecological communities were identified from desktop review to occur within the locality of the study area (Table 3-1).

Table 3-1 Endangered Ecological Communities known from the Locality

Scientific Name	Common Name	NSW status	Comm. status
Montane Peatlands and Swamps of the ew England Tableland, SW orth Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	E
atural Temperate Grassland of the Southern Tablelands of SW and the Australian Capital Territory	Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory		E
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E3	
Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and SW South Western Slopes Bioregions	Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions	E3	
White Box Yellow Box Blakely's Red Gum Woodland	White Box Yellow Box Blakely's Red Gum Woodland	E3	CE

The floristic structure of Map unit p24 Tableland Grassy Box-Gum Community was considered to be commensurate with the endangered ecological community known as *White Box Yellow Box Blakely's Red Gum Woodland* listed under the TSC Act was identified from the subject property.

Although the *White Box Yellow Box Blakely's Red Gum Woodland* is also listed under the EPBC Act as a Critically Endangered Ecological Community (CEEC) due to the degraded nature of Map unit p24 Tableland Grassy Box-Gum it does not meet the criteria as listed under the EPBC Act determination.

No endangered ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* was recorded from the study area or immediately adjacent.

3.6.2 Endangered populations

No endangered populations were identified during the desktop review to occur within the locality of the site: nor were the habitats which were identified within the study area considered to be suitable for the aforementioned populations.

3.6.3 Threatened Flora

Four threatened flora species were identified as a result of the database searches within the locality of the subject property (Appendix A).

Table 3-2 Threatened flora recorded from the locality

Family	Scientific Name	Common Name	NSW status	Comm. status	No of Records
Myrtaceae	*Eucalyptus aggregata*	Black Gum	V,P		1
Myrtaceae	*Eucalyptus macarthurii*	Camden Woollybutt	V,P		2
Asteraceae	*Leucochrysum albicans var. tricolor*	Hoary Sunray	P	E	3
Solanaceae	*Solanum celatum*		E1,P		3

Due to the lack of preferred habitats and no threatened species being detected despite targeted surveys being undertaken in 2002 and during the recent site inspection it is considered that the subject property is unlikely to support threatened flora species.

3.6.4 Threatened fauna

Sixteen threatened fauna species were identified as a result of the database searches (Table 2-1) as occurring or having potential to occur within the locality of the subject property.

Based on the habitat assessment and targeted surveys undertaken in 2002 and during the recent site inspection it is considered that marginal foraging habitat for three microbat threatened fauna species occurs within the subject property (Appendix D). All three species are highly mobile and would not be dependent solely upon the habitat types within the subject property exclusively.

Table 3-3 Threatened fauna recorded from the locality

Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Psittacidae	*Glossopsitta pusilla*	Little Lorikeet	V,P		1
Meliphagidae	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		1
Petroicidae	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	V,P		1
Accipitridae	*Hieraaetus morphnoides*	Little Eagle	V,P		2
Climacteridae	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P		2
Acanthizidae	*Chthonicola sagittata*	Speckled Warbler	V,P		2
Petroicidae	*Petroica phoenicea*	Flame Robin	V,P		2
Estrildidae	*Stagonopleura guttata*	Diamond Firetail	V,P		2
Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	V,P,3		3
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	V,P		3
Petroicidae	*Petroica boodang*	Scarlet Robin	V,P		4
Petauridae	*Petaurus norfolcensis*	Squirrel Glider	V,P		1
Molossidae	*Mormopterus norfolkensis*	Eastern Freetail-bat	V,P		1

Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Vespertilionidae	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		3
Phascolarctidae	*Phascolarctos cinereus*	Koala	V,P	V	4
Vespertilionidae	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	V,P		5

3.6.5 Migratory species

Migratory species are protected under the international agreement to which Australia is a signatory, including the Japan-Australia Migratory Bird Agreement, the China-Australia Migratory Bird Agreement and the Bonn Convention on the Conservation of Migratory Species of Wild Animals. Migratory species are considered Matters of National Environmental Significance and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*.

Seven migratory species were identified from the Department of Sustainability Environment Water Population and Communities Protected Matters Search Tool (Department of Sustainability, Environment, Water, Population and Communities 2012) within the locality (Appendix D). None were recorded during the site inspections. Eight migratory species were considered to have suitable habitat within the study area (Table 3-6).

Table 3-4 Migratory Species considered to have suitable habitat within the study area

Scientific Name	Common Name	TSC Act	EPBC Act
Ardea alba	Great Egret		M
Ardea ibis	Cattle Egret		M
Hirundapus caudacutus	White-throated Needletail		M
Merops ornatus	Rainbow Bee-eater		M
Myiagra cyanoleuca	Satin Flycatcher		M
Rhipidura rufifrons	Rufous Fantail		M
anthomyza phrygia	Regent Honeyeater	E1	EM

The subject property is not considered to be important habitat for any Migratory species in accordance with the EPBC Act.

3.7 Critical habitat

Critical habitat is listed under both the *Threatened Species Conservation Act 199* and the *Environment Protection and Biodiversity Conservation Act 1999.* Critical habitat is the whole or any part or parts of an area or areas of land comprising the habitat of an endangered species, an endangered population or an endangered ecological community that is critical to the survival of the species, population or ecological community (Department of Environment and Conservation 2004).

The Directors-Generals of both the State and Federal departments of environment (Department of Environment and Climate Change and the Department of the Environment, Water, Heritage and the Arts respectively) maintain a register of critical habitat. Habitat that is not listed on these register, however consistent with the definition above, may also be considered as critical habitat.

No listed critical habitat occurs within the study area and no critical habitat is likely to be affected by the proposal.

4. Ecological Review of Council s Biodiversity Mapping Clause

4.1 Biodiversity mapping layer

The “Biodiversity” layer (Figure 1-2) under Goulburn Mulwaree Local Environmental Plan 2009 applying to the lower southern portion of the subject property (Figure 1-2) is not considered to be accurate nor warranted.

The “biodiversity” layer is broad-based and solely upon a desktop assessment undertaken by Eco Logical Australia in July 2007. The desktop review and strategy relied heavily upon vegetation mapping, patch size to drive the assessment of areas of land to be defined as high or low conservation lands.

The were numerous omissions within the Goulburn Mulwaree Biodiversity Strategy as to the level of accuracy of information relied upon to develop the biodiversity layer. The entire strategy was based upon a desktop assessment and contained no ground-truthing of vegetation/habitat types to determine there particular ecological significance for biodiversity.

Clause 7.2 Environmentally sensitive land—biodiversity from the Goulburn Mulwaree Local Environmental Plan 2009 states the following:

(1) The objectives of this clause are to protect, maintain or improve the diversity of the native vegetation, including

(a) protecting biological diversity of native flora and fauna, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the recovery of threatened species, communities or populations and their habitats.

(2) This clause applies to development on land that is identified as “environmentally sensitive land biodiversity” on the atural Resources Sensitivity Map Biodiversity.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered a report that addresses the following matters

(a) Identification of any potential adverse impact of the proposed development on any of the following

(i) a native vegetation community,

(ii) the habitat of any threatened species, population or ecological community,

(iii) a regionally significant species of plant, animal or habitat,

(iv) a habitat corridor,

(v) a wetland,

(vi) the biodiversity values within a reserve, including a road

reserve or a stock route, and

(b) a description of any proposed measures to be undertaken to ameliorate any such potential adverse impact.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and

(a) the development is designed, sited and managed to avoid the potential adverse environmental impact, or

(b) if a potential adverse impact cannot be avoided, the development

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures so as to have minimal adverse impact, and

(iii) mitigates any residual adverse impact through the restoration of any existing disturbed or modified area on the site.

The information contained within this report provides an assessment of vegetation types, habitat condition in relation to threatened species, endangered population and endangered ecological communities listed under both the TSC & EPBC Acts which occur within the subject property.

Conclusions of this report are summarised as following.

- No threatened flora species or endangered populations listed under both the TSC & EPBC Acts were recorded from the subject property.
- Map unit p24 Tableland Grassy Box-Gum community identified from the subject property (Figure 3-1) was considered to be commensurate with the endangered ecological community known as *White Box Yellow Box Blakely's Red Gum Woodland* listed under the TSC Act.
- Habitats within the subject property are considered likely to support three threatened species of microbat listed under the TSC Act.

The application of clause ***7.2 Environmentally sensitive land—biodiversity*** over an area of land which is dominated predominantly by cleared and disturbed/grasslands (Figure 3-1) and which contains vegetation which has been assessed as being in poor condition (Table 2-3) is not considered to be warranted. The area of land mapped under the ***environmentally sensitive land—biodiversity map*** contains cleared and disturbed/grasslands community which provides limited-nil ecological benefit in terms of its contribution to biodiversity within a local context.

At the time of the site inspection over 100 Eastern Grey Kangaroo were recorded from the subject property. It was noted that the condition of the vegetation in the ten years since the Gunninah ecological investigation has deteriorated further this is evident in the complete lack of an understorey throughout most of native vegetated areas identified as Map unit p10 Eastern Tablelands Dry Forest (Figure 3-1). An intensive grazing regime from the resident population of Eastern Grey Kangaroos has undermined whatever values the site previously may have had.

The coarse biodiversity mapping undertaken by Eco Logical 2007 that informed the environmentally sensitive land - biodiversity map was not supported by ground truthing. The Gunninah 2002 report and a lengthy site inspection undertaken by Enviro Ecology in August 2012 confirm that the floristics and

structure of the remnant vegetation on the site are very degraded. This means that the biodiversity map should be amended to reflect this more detailed and more accurate site specific data and findings as per the suggested bidoversity layer polygon which is depicted on Figure 3-1.

As discussed within the body of this report the dominant native vegetation type Map unit p10 Eastern Tablelands Dry Forest has been subject to past clearing of canopy, shrub and ground vegetation and ongoing stock grazing and Kangaroo grazing. The understorey within this community is very simplified due to frequent grazing regimes.

The condition class of the habitats across all three vegetation communities: Map unit p10 Eastern Tablelands Dry Forest, Map unit p24 Tableland Grassy Box-Gum and the cleared and disturbed/grasslands communities was assessed as being in poor condition and provided limited habitat value due to the absence of good structural integrity, including the presence of upper, mid and groundcover layers, absence of a thick leaf litter and woody debris, with the fauna habitats being assessed as being in a poor condition in terms of their overall structure and the absence of microhabitat features.

Note: Should current management practices (grazing) continue to operate over the area of land mapped as “biodiversity” it is highly likely that in time that canopy trees would not be replaced and as a result pasture lands would become even more prevalent further simplifying the floristic structure and dominance of native vegetation/habitats for native flora and fauna species..

As discussed in section 3.6.3 the subject property does not contain suitable habitats for any threatened flora species which have been recorded from the locality (Appendix A).

The vegetation types within the subject property would at most provide a foraging resource only for three species of microbat (Appendix B). All three species are highly mobile and would not be dependent upon the habitats within the subject property exclusively all three species are also highly mobile and capable of flight across large areas of land.

4.2 Recommendations

4.2.1 Biodiversity mapping

It is recommended that the “biodiversity” mapping layer applicable to the subject property apply only to the areas of land mapped as Map unit p24 Tableland Grassy Box-Gum which is considered to be representative of *White Box Yellow Box Blakely’s Red Gum Woodland* an endangered ecological community listed under the TSC Act.

Furthermore, any suggestion that an environmental protection zone be applicable to part of the site is not warranted for reasons contained within this report.

It is understood from discussions by JW Planning with the Department of Planning and Infrastructure that the Department recognises the coarseness of the biodiversity mapping in the Goulburn Mulwaree LEP and that site specific investigations will inform future amendments to the biodiversity map. Accordingly, this report recommends the biodiversity map be amended and that an environmental protection zone is not warranted for the site.

4.2.2 Future development

It is recommended that future development be promoted within areas of the subject property in particular the area mapped as “biodiversity” (Figure 3-1). Development of the site through subdivision to create smaller rural lots will facilitate the removal of grazing by domestic animals and kangaroos from within the vegetated areas to allow their natural regeneration. This and initiatives such as positive covenants for future land owners to retain and protect this vegetation are urgently required to ensure the long term survival of the remnant native vegetation on site.

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Appendix A

Threatened flora species recorded in the locality

Appendix A Threatened Flora species recorded in the locality

This appendix details the Threatened species of plant that have either been recorded in the local area based on records the *Bionet Atlas of SW Wildlife* Office of Environment & Heritage, 2012, data received 10th of August 2012. Threatened species with habitat likely to occur in the locality were also considered based on records from the *EPBC Protected Matters Search Tool* Department of Sustainability, Environment, Water, Population and Communities 2012, data received 10th of August 2012.

Table 5-1 Threatened flora species recorded in the locality

Family Name	Scientific Name	Common Name	Conservation Status			Habitat	Likelihood of Occurrence within the sub ect property
			TSC Act[1]	EPBC Act[2]	ROTAP[3]		
Asteraceae	*Leucochrysum albicans var. tricolor*			E	3E	The species occurs in a wide range of communities and habitats from peaty upland to stony plains. This subspecies is restricted to the central and southern tablelands and the cetnral western slopes {Royal Botanic Gardens, 2007 #1478}.	Low No suitable habitat was recorded from the study area for this species.
Myrtaceae	*Eucalyptus aggregata*	Black Gum	V			Locally frequent, in grassy woodland on alluvial soils along creeks on broad, cold flats; south from Bathurst	Low Targeted searches were conducted for this species despite this no individuals were recorded from the subject property.
Myrtaceae	*Eucalyptus macarthurii*	Camden Woollybutt	V		2Ri	Locally frequent, in grassy woodland on relatively fertile soils on broad cold flats; from the Boyd Plateau to Paddys Range {Royal Botanic Gardens, 2004 #9}.	Low Targeted searches were conducted for this species despite this no individuals were recorded from the subject property.
Solanaceae	*Solanum celatum*		E1			Restricted to an area from Wollongong to just south of Nowra, and west to Bungonia. Majority of records are prior to 1960 and the majority of populations are likely to have been lost to clearing {Department of Environment and Conservation, 2005 #762}. Grows on hills and slopes in eucalypt woodland; commonly found after fire or disturbance. *Solanum celatum* is endemic to New South Wales and has been recorded from a restricted area from Wollongong to just south of Nowra, and west to Bungonia. The majority of records are prior to 1960 and a recent survey of six sites found only a single plant within Macquarie Pass National Park, SW of Wollongong, although the species may be present in the soil seed bank at this and other sites.	Low No suitable habitat was recorded from the study area for this species.

1) V= Vulnerable, E1 = Endangered (TSC Act) E2= Endangered Population

2) ROTAP (Rare or Threatened Australian Plants, Briggs and Leigh 1996) is a conservation rating for Australian plants.

1 = Species only known from one collection. 2 = Species with a geographic range of less than 100km in Australia. 3 = Species with a geographic range of more than 100km in Australia,

X = Species presumed extinct; no new collections for at least 50 years. E = Endangered species at risk of disappearing from the wild state if present land use and other causal factors continue to operate, V = Vulnerable species at risk of long-term disappearance through continued depletion. R = Rare, but not currently considered to be endangered. K = Poorly known species that are suspected to be threatened. C = Known to be represented within a conserved area.

a = At least 1,000 plants are known to occur within a conservation reserve(s). i = Less than 1,000 plants are known to occur within a conservation reserve(s). The reserved population size is unknown. t = The total known population is reserved. + = The species has a natural occurrence overseas.

3) V = Vulnerable, E = Endangered *(Environment Protection and Biodiversity Conservation Act 1999*).

Appendix B

Threatened fauna species recorded in the locality

Appendix B Threatened fauna species recorded in the locality

This appendix details the Threatened species of animal that have either been recorded in the local area based on records the *Bionet Atlas of SW Wildlife* Office of Environment & Heritage, 2012, data received 10th of August 2012. Threatened species with habitat likely to occur in the locality were also considered based on records from the *EPBC Protected Matters Search Tool* Department of Sustainability, Environment, Water, Population and Communities 2012, data received 10th of August 2012.

Table 5-2 Threatened fauna species recorded in the locality

Scientific Name	Common Name	TSC Act[1]	EPBC Act[2]	Habitat	Likelihood of occurrence within the sub ect property
Amphibians					
Bird					
Climacteris picumnus victoriae	Brown Treecreeper (eastern subsp)	V		Found in eucalypt woodlands and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly in habits woodlands dominated by stringybarks or other rough-barked eucalypts. Nesting occurs in tree hollows.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Melanodryas cucullata	Hooded Robin	V		Found in south-eastern Australia, generally east of the Great Dividing Range. Found in eucalypt woodland and mallee and acacia shrubland. This is one of a suite of species that has declined in woodland areas in south-eastern Australia {Traill, 2000 #42; Garnett, 2000 #21}.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Apus pacificus	Fork-tailed Swift		M	Breeds from central Siberia eastwards through Asia, and is migratory, wintering south to Australia. Individuals never settle voluntarily on the ground and spend most of their lives in the air, living on the insects they catch in their beaks (Higgins 1999).	**Low** No suitable habitat was recorded from the subject property for this species.
Ardea alba	Great Egret		M	Great Egrets occur throughout most of the world. They are common throughout Australia, with the exception of the most arid areas. Great Egrets prefer shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands. Great Egrets can be seen alone or in small flocks, often with other egret species, and roost at night in groups. In Australia, the breeding season of the Great Egret is normally October to December in the south and March to May in the north. This species breeds in colonies, and often in association with cormorants, ibises and other egrets. (Australian Museum 2003).	**Low** No suitable habitat was recorded from the subject property for this species.

Scientific Name	Common Name	TSC Act[1]	EPBC Act[2]	Habitat	Likelihood of occurrence within the sub ect property
Ardea ibis	Cattle Egret		M	Sub-species *A. i. coromanda* is found across the Indian subcontinent and Asia as far north as Korea and Japan, and in South-east Asia, Papua New Guinea and Australia (McKilligan 2005).	**Low** Sub-optimal habitat was recorded from the subject property for this species.
Callocephalon fimbriatum	Gang-gang Cockatoo	V		Occurs in wetter forests and woodland from sea level to an altitude over 2000 metres, timbered foothills and valleys, coastal scrubs, farmlands and suburban gardens (Pizzey and Knight 1997).	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Daphoenositta chrysoptera	Varied Sittella	V	V	The Varied Sittella *Daphoenositta chrysoptera* (Latham 1802) is a small (10 cm) songbird with a sharp, slightly upturned bill, short tail, barred under tail, and yellow eyes and feet. In flight the orange wing-bar and white rump are prominent. The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands, with a nearly continuous distribution in NSW from the coast to the far west (Higgins and Peter 2002). It inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland (Higgins and Peter 2002).	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Hieraaetus morphnoides	Little Eagle	V		The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. The Little Eagle occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used (Marchant and Higgins 1993). For nest sites it requires a tall living tree within a remnant patch, where pairs build a large stick nest in winter and lay in early spring	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Hirundapus caudacutus	White-throated Needletail		M	Occurs in airspace over forests, woodlands, farmlands, plains, lakes, coasts and towns. Breeds in the northern hemisphere and migrates to Australia in October-April (Pizzey and Knight 1997).	**Low** Suitable foraging habitat for this species was recorded from the subject property. No important habitat for this species in the proposal area as defined under the *EPBC Act 1999*.

Scientific Name	Common Name	TSC Act[1]	EPBC Act[2]	Habitat	Likelihood of occurrence within the sub ect property
Merops ornatus	Rainbow Bee-eater		M	Usually occur in open or lightly timbered areas, often near water. Breed in open areas with friable, often sandy soil, good visibilit, convenient perches and often near wetlands. Nests in embankments including creeks, rivers and sand dunes. Insectivorous, most foraging is aerial, in clearings (Higgins 1999).	**Low** Sub-optimal foraging habitat for this species was recorded from the subject property. No important habitat for this species in the proposal area as defined under the *EPBC Act 1999*.
Myiagra cyanoleuca	Satin Flycatcher		M	Occurs in heavily vegetated gullies, in forests and taller woodlands. During migration it is found in coastal forests, woodlands, mangroves, trees in open country and gardens (Pizzey and Knight 1997).	**Low** Sub-optimal foraging habitat for this species was recorded from the subject property. No important habitat for this species in the proposal area as defined under the *EPBC Act 1999*.
Rhipidura rufifrons	Rufous Fantail		M	Occurs in a range of habitats including the undergrowth of rainforests/wetter eucalypt forests/gullies, monsoon forests paperbarks, sub-inland and coastal scrubs, mangroves, watercourses, parks and gardens. When migrating they may also be recorded on farms, streets and buildings. Migrates to SE Australia in October-April to breed, mostly in or on the coastal side of the Great Dividing Range (Pizzey and Knight 1997).	**Low** Sub-optimal foraging habitat for this species was recorded from the subject property. No important habitat for this species in the proposal area as defined under the *EPBC Act 1999*.
Melithreptus gularis gularis	Black-chinned Honeyeater	V		Found in dry eucalypt woodland particularly those containing ironbark and box. Occurs within areas of annual rainfall between 400-700 mm. Feed on insects, nectar and lerps {Garnett, 2000 #21}.	**Low** No suitable habitat was recorded from the subject property for this species.
Petroica boodang	Scarlet Robin	V		The Scarlet Robin lives in open forests and woodlands in Australia, while it prefers rainforest habitats on Norfolk Island. During winter, it will visit more open habitats such as grasslands and will be seen in farmland and urban parks and gardens at this time.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.

Scientific Name	Common Name	TSC Act[1]	EPBC Act[2]	Habitat	Likelihood of occurrence within the sub ect property
Petroica phoenicea	Flame Robin	V		Flame Robins prefer forests and woodlands up to about 1800 m above sea level.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Pyrrholaemus sagittatus	Speckled Warbler	V		Occurs in a wide range of eucalypt dominated vegetation with a grassy understorey and is often found on rocky ridges or in gullies. It feeds on seeds and insects and builds domed nests on the ground {Garnett, 2000 #21}.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Stagonopleura guttata	Diamond Firetail	V		Occurs in a range of eucalypt dominated communities with a grassy understorey including woodland, forest and mallee. Most populations occur on the inland slopes of the dividing range. Feed on seeds, mostly of grasses {Garnett, 2000 #21}.	**Low** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Mammals					
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		Usually roosts in tree hollows in higher rainfall forests. Sometimes found in caves (Jenolan area) and abandoned buildings. Forages within the canopy of dry sclerophyll forest. It prefers wet habitats where trees are more than 20 metres high (Churchill 1998).	**Low Medium** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Miniopterus schreibersii	Eastern Bent-wing Bat	V		Usually found in well timbered valleys where it forages on small insects above the canopy. Roosts in caves, old mines, stormwater channels and sometimes buildings and often return to a particular nursery cave each year (Churchill 1998).	**Low Medium** Suitable habitat for this species was recorded from the subject property. A call was recorded from this species during the surveys in 2002.

Scientific Name	Common Name	TSC Act[1]	EPBC Act[2]	Habitat	Likelihood of occurrence within the sub ect property
Mormopterus norfolkensis	Eastern Freetail-bat	V		Thought to live in sclerophyll forest and woodland. Small colonies have been found in tree hollows or under loose bark. It feeds on insects above the forest canopy or in clearings at the forest edge (Churchill 1998).	**Low Medium** Suitable habitat for this species was recorded from the subject property. Despite this no individuals were recorded during targeted surveys.
Phascolarctos cinereus	Koala	V		Found in sclerophyll forest. Throughout New South Wales, Koalas have been observed to feed on the leaves of approximately 70 species of eucalypt and 30 non-eucalypt species. However, in any one area, Koalas will feed almost exclusively on a small number of preferred species. The preferred tree species vary widely on a regional and local basis. Some preferred species in NSW include Forest Red Gum *Eucalyptus tereticornis*, Grey Gum *E. punctata*, Monkey Gum *E. cypellocarpa* and Ribbon Gum *E. viminalis*. In coastal areas, Tallowwood *E. microcorys* and Swamp Mahogany E. robusta are important food species, while in inland areas White Box *E. albens*, Bimble Box *E. populnea* and River Red Gum *E. camaldulensis* are favoured (NSW National Parks and Wildlife Service 1999; NSW National Parks and Wildlife Service 2003).	Low No suitable habitat was recorded from the subject property for this species.

Notes:

1. V= Vulnerable, E1 = Endangered, E2 = Endangered Population *(Threatened Species Conservation Act 199) (Fisheries Management Act 1994)*

2. V = Vulnerable, E = Endangered, M = Migratory, C = Conservation Dependent (*Environment Protection and Biodiversity Conservation Act 1999) (Fisheries Management Act 1994)*

Appendix C

Flora and Fauna Assessment (Gunninah 2002)

Appendix D

Supplementary fauna survey (Gunninah 2002)

ATTACHMENT 2 SUSTAINABILITY THRESHOLD CRITERIA

Threshold Sustainability Criteria for any proposed development site outside designated areas in the Sydney– Canberra Corridor Regional Strategy	Measurable explanation of criteria	Response
1. Infrastructure Provision Mechanisms in place to ensure utilities, transport, open space and communication are provided in a timely and efficient way	Development is consistent with the Sydneyï Canberra Corridor Regional Strategy, any subregional strategy, the State Infrastructure Strategy and relevant section 117 directions. The provision of infrastructure (utilities, transport, open space and communications) is costed and economically feasible based on government methodology for determining infrastructure development contributions. Preparedness to enter into development agreement.	The planning proposal is consistent with the strategic directions of the Regional Strategy by providing smaller rural lots on the edge of Marulan adjacent to the urban B6 highway service centre and existing jobs, services and facilities in Marulan itself. The proposed lots are large enough for on site sewage disposal, satisfy non reticulated water supply and power requirements of DCP 2009. All other infrastructure service and facility demands generated by the rural lots will be provided at Marulan and Goulburn according to the LGA centres hierarchy. The likely infrastructure required is the upgrading of access to the site from Dorothy Brewer Drive and the highway. Subject to consultation, the details of works required can be detailed and costed. If necessary a development agreement may be required at development implementation stage.
2. Access Accessible transport options for efficient and sustainable travel between homes, jobs, services and recreation to be existing or provided	Accessibility of the area by public transport and/or appropriate road access in terms of: > Location/land use ï to existing networks and related activity centres. > Network ï the areaõs potential to be serviced by economically efficient transport services. > Catchment ï the areaõs ability to contain, or form part of the larger urban area which contains adequate transport services. Capacity for land use/transport patterns to make a positive contribution to achievement of travel and vehicle use goals. No net negative impact on performance of existing sub regional road, bus, rail and freight network.	The site has controlled access to the Hume Highway and to Marulan. Hence the site draws upon its location attributes for efficient transport services and will not have a negative impact upon the performance of the Highway. A Rural Small Lot Production zone applying to the site would have little bearing in making a positive contribution to achieving travel and vehicle use goals due to its inherent land use objectives and small size.
3. Housing Diversity Provide a range of housing choices to ensure a broad population can be housed	Contributes to the geographic market spread of housing supply, including any government targets established for aged, disabled or affordable housing.	No urban housing proposed. However, the 10ha rural lot size provides a more flexible choice for older farmers in the area seeking to down size close to Marulan yet continue farming activities with or without off farm income

4. Employment Lands Provide regional/local employment opportunities to support the Sydneyï Canberra Corridorôs expanding role in the wider regional and NSW economies	Maintain or improve the existing level of subregional employment self-containment. Meets subregional employment projections. Employment-related land is provided in appropriately zoned areas.	No employment land is proposed.
5. Avoidance of Risk Land use conflicts, and risk to human health and life, avoided	No residential development within 1:100 floodplain. Avoidance of physically constrained land e.g high slope, highly erodible. Avoidance of land use conflicts with adjacent or existing or future land use as planned under relevant subregional or regional strategy. Where relevant, available safe evacuation route (flood and bushfire).	Land use conflict risks are low and the site is not recognised as physically constrained. The smaller rural lots will continue with permissible rural land uses consistent with existing uses of the adjoining larger rural lots. The 10ha lot size is such that future dwellings and rural activities are unlikely to generate conflict with the adjoining highway service centre. There are no bushfire issues relevant to the site that cannot be readily provided for in planning for the development.
6. Natural Resources Natural resource limits not exceeded/environmental footprint minimised	Demand for water within infrastructure capacity to supply water and does not place unacceptable pressure on environmental flows. Demonstrates most efficient/suitable use of land: > Avoids identified significant agricultural land. > Avoids productive resource lands ï extractive industries, mining and forestry. Demand for energy does not place unacceptable pressure on infrastructure capacity to supply energy ï requires demonstration of efficient and sustainable supply solution.	Tank or dam water for each lot will not place unacceptable pressure on environmental flows. The Jaqua and the Durran Durra Soil landscapes occurring on the site do not have characteristics of significant agricultural land. The slope, depth to water table and salinity issues normally associated with these soil landscapes can be managed through development design and water cycle management. No resource, extractive industries, mining or forestry resource lands are currently recognised on the site or on adjoining lands that the planning proposal will impact upon. The demand for energy will be accommodated in accordance with the requirements of DCP 2009 and will not place unacceptable pressure on infrastructure capacity. The proposal does minimise the environmental footprint at a district level by having smaller rural lots on the edge of the village of Marulan rather than scattered around the district and away from the village.

7. Environmental Protection Protect and enhance biodiversity, air quality, heritage and waterway health	Consistent with government-approved regional conservation plan (if available). Maintains or improves areas of regionally significant terrestrial and aquatic biodiversity (as mapped and agreed by DECC). This includes regionally significant vegetation communities, critical habitat, threatened species, population, ecological communities and their habitats. Maintain or improve existing environmental condition for air quality. Maintain or improve existing environmental condition for water quality: > Consistent with community water quality objectives for recreational water use and river health (DECC and CMA). > Consistent with catchment and stormwater management planning (CMA and council). Protects areas of Aboriginal cultural heritage value (as agreed by DECC).	Site is predominantly cleared farm land adjacent to the highway. With remnant vegetation of poor condition. A DA under Part 4 of the Act will be required to address the LEP, Sections 5A, 79C and 91 and 91A of the Environmental Planning and Assessment Act; the Threatened Species Conservation Act and the Water Management Act. This will ensure adequate protection of significant remnant vegetation, maintain or improve existing water quality along the first order streams leaving the site and protect any known areas of Aboriginal cultural heritage value.
8. Quality and Equity in Services Quality health, education, legal, recreational, cultural and community development and other government services are accessible	Available and accessible services: > Do adequate services exist? > Are they at capacity or is some capacity available? > Has Government planned and budgeted for further service provision? > Developer funding for required service upgrade/access is available?	The proposed rural lots are adjacent to Marulan and therefore, future residents are close to existing employment, health, education and other government services in Marulan. The additional lots and residents will increase patronage to these services. Conversely, the size of the development is such that existing facilities and services would not be inadequate, at capacity or require expansion with funding by government or the developer.