BLACKWOOD ECOLOGICAL SERVICES

Preliminary Ecological Assessment

Proposed Industrial Rezoning of Lot 1 DP 783330, Lots 1 to 12 DP 976660 & Lots 14 to 20 DP 976660

Casino NSW
A Report to Jeff Imeson
March 2018

NOTE

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1 INTRODUCTION

1.1 Background

Blackwood Ecological Services have been engaged by JM & CA Imeson to complete a Preliminary Ecological Assessment for a proposed rezoning of land at the Bruxner Highway, Casino. The land is proposed to be rezoned to allow for industrial subdivision. The Ecological assessment is to include land within:

- Lots 14 to 20 DP 976660
- Lots 1 to 12 DP 976660
- Lot 1 DP 783330

The preliminary assessment is to involve initial field survey and provision of a brief report advising of key ecological issues. This assessment includes preliminary vegetation mapping and consideration of relevant database results and relevant ecological mapping.

1.2 The Subject site

The Subject site refers to the area proposed for rezoning. The Subject site for this study consists of land within Lots 14 to 20 DP 976660, Lots 1 to 12 DP 976660 and Lot 1 DP 783330, NSW. The Subject site is approximately 14.75 hectares. **FIGURE 1** shows the location of the Subject site.

The Subject site is located on the eastern outskirts of the township of Casino. The site consists of flat grazing land with scattered native trees. It is bordered to the south by the Bruxner Highway, to the west by an industrial estate and to the north and east by grazing land. The Richmond River is located approximately 400m to the south.

1.3 The Study area

The Study area refers to the Subject site together with any additional areas which are likely to be affected by the proposal, either directly or indirectly. The Study area in this case includes adjoining areas of land and vegetation.

The Study area is characterised by sparsely vegetated grazing and agricultural land with industrial and residential land to the west.

1.4 Proposed development

The proposed development involves the rezoning of the Subject site to allow for industrial subdivision. A plan showing the investigation area is included as **APPENDIX A**.

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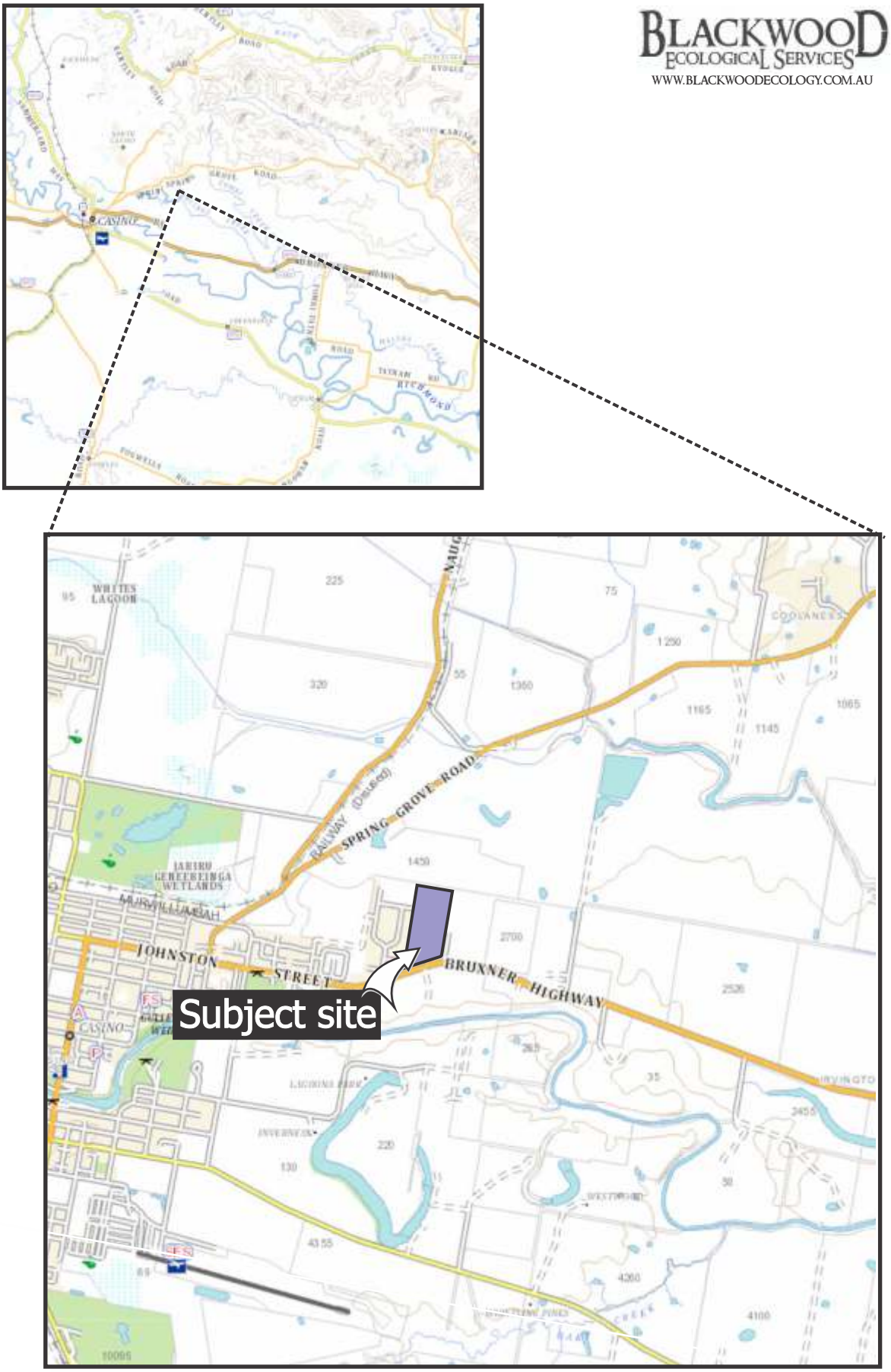

Project & Project No.	Author & Date	Source	Figure 1
1733 Bruxner Highway, Casino. Proposed rezoning.	MF 8/3/2018	NSW LPI SixViewer	Locality

2 FLORA

2.1 Introduction

This section discusses the methods used in the vegetation assessment and presents the results of the assessment. Relevant databases and reports were reviewed to identify records of locally occurring Threatened and Rare plant species, populations and communities.

2.2 Database searches

2.2.1 NPWS Database search

A search of the NPWS Database revealed records of seven Threatened flora species within 5km of the Subject site. These species are shown in **TABLE 1**.

TABLE 1
NPWS DATABASE RECORDS OF THREATENED FLORA SPECIES WITHIN 5 KM OF THE SUBJECT SITE

Botanical name	Common name	NSW Status
Gossia fragrantissima	Sweet Myrtle	E1
Melaleuca irbyana	Weeping Paperbark	E1
Grevillea hilliana	White Yiel Yiel	E1
Desmodium acanthocladum	Thorny Pea	V
Sophora fraseri	Brush Sophora	V
Archidendron hendersonii	White Lace Flower	V
Clematis fawcettii	Northern Clematis	V

KEY

E1	Endangered
E4A	Critically endangered
V	Vulnerable

2.2.2 Commonwealth EPBC Act (1999) Database search

A search of the Commonwealth EPBC Act (1999) Database revealed potential suitable habitat for a number of Threatened flora species within 5km of the Subject site. These species are shown in **TABLE 2**.

The Commonwealth EPBC Act Protected Matters Report is included in full in **APPENDIX B**.

TABLE 2
COMMONWEALTH EPBC ACT (1999) DATABASE OF THREATENED FLORA SPECIES WITH POTENTIAL SUITABLE HABITAT WITHIN 5 KM OF THE SUBJECT SITE

Botanical name	Common Name	Status
Arthraxon hispidus	Hairy jointgrass	V
Bosistoa transversa	Three-leaved bosistoa	V
Bulbophyllum globuliforme	Hoop pine orchid	V
Clematis fawcettii	Stream clematis	V
Corchoris cunninghamii	Native jute	E
Cryptocarya foetida	Stinkning cryptocarya	V
Desmodium acanthocladum	Thorny pea	V
Eucalyptus glaucina	Slaty red gum	V
Gossia fragrantissima	Sweet myrtle	E
Marsdenia longiloba	Clear milkvine	V
Owenia cepiodora	Onionwood	V
Phaius australis	Lesser swamp orchid	E
Thesium australe	Austral toadflax	V

KEY
E Endangered
V Vulnerable

2.3 Site assessment

2.3.1 Introduction

This section discusses flora species and vegetation on the Subject site and the ecological significance of this vegetation. Site surveys were undertaken on the 21st of February 2018.

The objectives of the site assessment were:

- To identify vegetation communities and flora species present in the area subject to the proposed development.
- To complete initial targeted searches for significant flora species known from the locality and considered possible occurrences based on an assessment of site habitats. This includes targeted searches for Hairy joint grass.
- To assess key constraints and opportunities for development of the site based on the ecological assessment.

2.3.2 Site vegetation

Description

FIGURE 2 shows the location of vegetation patches and individual trees on the Subject site. A preliminary list of plant species recorded on the site is included in **APPENDIX C**.

Site vegetation generally consists of mixed pasture grassland typically between 30cm and 80cm tall. Grassland consists of a mixture of exotic and locally common native species including Kikuyu, Setaria, Swamp foxtail grass, Couch, Narrow-leaved carpet grass, Sporobolus, Kangaroo grass and Paspalums. Slightly lower lying areas of the site contain a mixture of wet grassland and sedgeland species including *Juncus usitatus*, *Persicaria* sp., *Cyperus* spp., Hydrocotyle and Water primrose.

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Project	Project No.	Author & Date	Source	Figure 2
Bruxner Highway, Casino. Proposed industrial rezoning	1733	MF 8/3/2018	NSW LPI SixViewer	Site Vegetation

PLATE 1 TYPICAL AREA OF GRASSLAND

Scattered Swamp turpentine (*Lophostemon suaveolens*) trees occur in the northern part of the site. These trees are relatively mature and some support small trunk and branch hollows. Occasional clumps of Cockspur also occur in the northern half of the site and these clumps include small fig saplings and some other native regrowth where the Cockspur vine protects seedlings from grazing and slashing.

PLATE 2 SWAMP TURPENTINE TREES IN THE NORTHERN PART OF THE SITE

An established Moreton Bay fig tree is located along the southern fenceline of the site. Beneath the fig Cockspur vine grows amongst small native trees including Hairy alectryon and Whalebone tree.

PLATE 3 MORETON BAY FIG ALONG THE SOUTHERN BOUNDARY

Conservation status

Vegetation across the majority of the site consists of highly modified grassland with scattered native trees and generally has minimal conservation value. Scattered fig and Swamp turpentine trees provide some forage and potentially roosting habitat for common mobile native fauna species, particularly birds and bats.

2.3.3 Significant species recorded

No Threatened (TSC Act 1995, EPBC Act 1999) flora species were recorded within the Subject site or adjacent land during the survey. The survey was completed at a time of year suitable for the detection of Hairy joint grass and wet grassland areas may provide potentially suitable habitat for this species. Hairy joint grass was not recorded on the site despite targeted searches in wetter grassland patches. The NPWS Atlas database search did not show any records of this species within 5km of the Subject site and it is not known to occur in the Study area.

No Endangered Ecological Communities are considered to occur on the site. Wet grassland areas are highly degraded and are considered to lack the species diversity and structure of *Freshwater wetlands on floodplains* EEC.

2.3.4 Priority Weeds

Consistent with new Commonwealth biosecurity measures, NSW has reformed its weed, pest and disease legislation. The NSW Biosecurity Strategy 2013-2021 and NSW Biosecurity Act (2015) provide a framework for safeguarding primary industries, natural environments and communities from a range of pests, diseases and weeds. The NSW Biosecurity Act (2015) repeals the Noxious Weeds Act (1993).

The North Coast Regional Strategic Weed Management Plan has been developed in response to these reforms and lists priority weeds for the North Coast area. The status and distribution of any of these weeds present at the site are summarised in **TABLE 3**.

TABLE 3
STATE PRIORITY WEED OBJECTIVE AND DISTRIBUTION OF PRIORITY WEEDS RECORDED WITHIN THE SUBJECT SITE

Species	Sate Priority Weed Objective	Distribution
Camphor laurel	Additional species of concern	Occasional occurrence in Cockspur thickets.
Lantana	Asset protection	Occasional occurrence in Cockspur thickets.
Fireweed	Asset protection	Sparsely distributed throughout grassland areas.

Asset protection - These weeds are widely distributed in some areas of the State. As Weeds of National Significance, their spread should be minimised to protect priority assets.
Containment - These weeds are widely distributed in parts of the region. While broad scale elimination is not practicable, minimisation of the biosecurity risk posed by these weeds is reasonably practicable.
Additional species of concern - These species are a high priority for asset protection. Many are actively managed under a number of current programs, or are commercial species with a manageable biosecurity risk. It is not feasible to contain or eradicate these species, however minimising their impacts is
reasonably practicable.

3 FAUNA

3.1 Introduction

This section discusses the methods used in the fauna assessment and presents the results of the assessment. Relevant databases were reviewed to identify records of locally occurring Threatened fauna species, populations and communities.

The fauna assessment consisted of:

- A review of relevant databases and literature.
- An assessment of site fauna habitats.

Site habitats were assessed in terms of their value for native fauna species on the 21st of February 2018 in conjunction with the flora survey. The assessment focused on identifying habitat features associated with Threatened species known from the locality. Particular attention was paid to habitat features such as:

- The presence of mature trees with hollows, fissures and/or other suitable roosting/nesting places.
- Presence of hollow logs/debris and areas of dense leaf litter.
- The presence of preferred Koala food tree species.
- The presence of preferred Glossy black cockatoo feed trees.
- Condition, flow and water quality of drainage lines and bodies of water.
- Areas of dense vegetation.
- Presence of fruiting flora species and blossoming flora species, particularly winter-flowering species.
- Vegetation connectivity and proximity to neighbouring areas of vegetation.
- Presence of caves, hollow trees and/or man-made structures suitable as microchiropteran bat roost sites.

3.2 Database searches

3.2.1 NPWS Database search

A search of the NPWS Database revealed records for 13 Threatened fauna species within 5km of the Subject site. These species are shown in **TABLE 4**. Marine and oceanic species are not shown.

TABLE 4
NPWS DATABASE RECORDS OF THREATENED FAUNA SPECIES WITHIN 5 KM OF THE SUBJECT SITE

Common name	Scientific name	NSW Status
Australian Painted Snipe	*Rostratula australis*	E1
Black-necked Stork	*Ephippiorhynchus asiaticus*	E1
Black-tailed Godwit	*Limosa limosa*	V
Blue-billed duck	*Oxyura australis*	V
Brush-tailed phascogale	*Phascogale topoatafa*	V
Comb-crested Jacana	*Irediparra gallinacea*	V
Curlew sandpiper	*Calidris ferruginea*	E1
Eastern Grass Owl	*Tyto longimembris*	V
Freckled Duck	*Stictonetta naevosa*	V
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	V

Common name	Scientific name	NSW Status
Koala	*Phascolarctos cinereus*	V
Little Bentwing-bat	*Miniopterus australis*	V
Magpie Goose	*Anseranas semipalmata*	V

KEY
E1 Endangered
V Vulnerable

3.2.2 Commonwealth EPBC Act (1999) Database search

A search of the Commonwealth EPBC Act (1999) Database revealed potential suitable habitat for a number of Threatened fauna species within 5km of the Subject site. These species are shown in **TABLE 5**.

The Commonwealth EPBC Act Protected Matters Report is included in full in **APPENDIX B**.

TABLE 5
COMMONWEALTH EPBC ACT (1999) DATABASE OF THREATENED FAUNA SPECIES WITH POTENTIAL SUITABLE HABITAT WITHIN 5 KM OF THE SUBJECT SITE

Common Name	Scientific name	Status
Australasian Bittern	*Botaurus poiciloptilus*	E
Australian Painted Snipe	*Rostratula australis*	V
Australian Fritillary	*Argynnis hyperbius inconstans*	CE
Coxen's Fig-Parrot	*Cyclopsitta diophthalma coxeni*	E
Eastern bristlebird	*Dasyornis brachypterus*	E
Painted honeyeater	*Grantiella picta*	V
Black-breasted button quail	*Turnix melanogaster*	V
Giant barred frog	*Mixophyes iteratus*	E
Greater glider	*Petauroides volans*	V
Grey-headed Flying-fox	*Pteropus poliocephalus*	V
Brush-tailed rock wallaby	*Petrogale pencillata*	V
Koala (combined populations of Qld, NSW and ACT)	*Phascolarctos cinereus*	V
Large-eared Pied Bat	*Chalinolobus dwyeri*	V
Long-nosed Potoroo (SE mainland)	*Potorous tridactylus tridactylus*	V
Pink underwing moth	*Phyllodes imperialis smithersi*	E
New Holland Mouse	*Pseudomys novaehollandiae*	V
Red goshawk	*Erythrotriorchis radiatus*	V
Regent honeyeater	*Anthochaera phrygia*	E
Spotted-tailed Quoll	*Dasyurus maculatus*	V
Swift Parrot	*Lathamus discolor*	E

KEY
CE Critically endangered
E Endangered
V Vulnerable

3.3 Site assessment

3.3.1 Site habitats

The Subject site generally provides habitat only for common native species adapted to disturbed habitats. Scattered sclerophyll and fig trees on the site provide forage habitat for mobile native

fauna species, particularly birds and bats and may provide habitat for more common nomadic and migratory species.

The Subject site supports some mature trees with smaller hollows suitable for some hollow-dwelling mammals as well as occasional scattered dead stags that represent potential habitat for hollow-dwelling species. The lack of habitat continuity or significant forest patches in the vicinity of the site means that rarer hollow dwelling mammals such as the Brush-tailed phascogale and gliders are unlikely to occur.

No Koala feed trees or evidence of Koala activity (scats or scratches) were recorded on site. The NPWS Atlas of NSW Wildlife shows several records of Koalas in the neighbouring area and this species may occur in the Study area at times.

No waterbodies providing suitable amphibian habitat are present although some common amphibians may occur following substantial local rainfall. Reptile diversity is likely to be low due to the lack of structural complexity.

3.3.2 Significant fauna species

No Threatened (TSC Act 1995, EPBC Act) fauna species were recorded during the site assessment.

3.3.3 Wildlife corridors and habitat connectivity

Movement opportunities for fauna through this highly disturbed landscape are generally limited. Scattered trees in the surrounding area form a highly tenuous habitat linkage with trees on the property providing a stepping stone for mobile fauna species, particularly birds and bats and species tolerant of more open and disturbed habitats.

3.3.4 Potential occurrence of Threatened fauna

APPENDIX D lists the threatened fauna species known from the locality and considers the likelihood of these species occurring on the site. This Table includes species from the NPWS and EPBC databases as well as several other species known from other sources. Some of these species, particularly birds and bats, may be occasional or regular visitors to the site depending on seasonal migrations, availability of forage resources and other factors.

Based upon this assessment the following threatened fauna species have some limited potential to occur within the Subject site and surrounding study area:

- Koala
- Black-necked stork
- Grey-headed flying fox
- Little bent-wing bat

The Subject site is considered to provide marginal habitat for these species at best and they are unlikely to have any significant degree of reliance on site habitats.

4 BIODIVERSITY VALUES, IMPACTS AND AMELIORATION

4.1 Introduction

This section discusses the biodiversity values of the site as well as potential impacts associated with the proposed rezoning and future industrial development of the Subject site. It is assumed that future industrial development of the site would involve removal or effective isolation of vegetation and habitats on the Subject site.

4.2 Summary of biodiversity values

The Subject site has limited biodiversity value due to historical land clearing, fragmentation and ongoing grazing and occupation. There is very little connectivity with any habitat of substance for most fauna species. No threatened flora species or Endangered Ecological Communities were recorded within the Subject site. Site vegetation does not comply with the condition thresholds of any Threatened Ecological Communities listed under the EPBC Act.

Scattered sclerophyll and fig trees have conservation value and provide forage and potentially roosting habitat for mobile native fauna species, particularly birds and bats. No Koala feed trees or evidence of Koala activity (scats or scratches) were recorded on site.

4.3 Potential impacts

4.3.1 Flora

4.3.1.1 Direct removal of vegetation

Future industrial development of the site that required clearing of all site vegetation would involve the removal of nine Swamp turpentine trees and an established Moreton Bay Fig with several small native dry rainforest species. The remainder of the site consists of modified grassland and wet grassland with a mixture of exotic and common native species.

4.3.1.2 Creation of edge effects and introduction of weed species to the Study area

The Subject site is already highly modified as a result of past clearing and agricultural practices. The proposed rezoning would not fragment or isolate any areas of native vegetation or increase edge effects on areas of retained vegetation.

4.3.2 Fauna

4.3.2.1 Loss of fauna habitat and degradation of neighbouring areas of habitat

Site habitats are highly modified and have only marginal habitat value for the majority of native fauna. Future industrial development of the site would be unlikely to impact upon any populations of native fauna in the locality.

4.3.2.2 Impacts on corridor values

The proposed rezoning of the site would be unlikely to have any significant negative impact on fauna movement opportunities or sever any important wildlife corridors.

5 STATUTORY AND PLANNING ASSESSMENT

5.1 Introduction

This section includes consideration of the Proposed rezoning with regard to:

- NSW Biodiversity Conservation Act 2016; Local Land Services Act 2013 (NSW) (LLS Act) and the Local Land Services Regulation 2014 (NSW) (LLS Regulation).
- The Commonwealth Environment Protection and Biodiversity Conservation Act (1999).
- State Environmental Planning Policies (SEPP)
    - SEPP 14 Coastal wetlands
    - SEPP 26 Littoral rainforests
    - SEPP 44 Koala Habitat Protection

5.2 NSW Biodiversity Conservation Act 2016; Local Land Services Act 2013 (NSW) (LLS Act) and the Local Land Services Regulation 2014 (NSW) (LLS Regulation)

Land clearing in rural areas of NSW is regulated under the Local Land Services Act 2013 (NSW) (LLS Act) and the Local Land Services Regulation 2014 (NSW) (LLS Regulation). The site is currently zoned RU1 Primary Production.

The Native Vegetation Regulatory (NVR) Map (accessed March 2018) shows the site is not mapped as *Land excluded from the LLS Act*. It does not contain any areas mapped as *Sensitive Regulated Land* or *Vulnerable Regulated Land*. The NVR map has not been finalised and does not yet show areas of Category 1-Unregulated land. During the transition period when Stage 1b draft NVR mapping does not have regulatory effect, landowners will be responsible for determining how Category 1 - Unregulated Land and Category 2 – Regulated Land applies to their land, in accordance with the LLS Act.

FIGURE 3 NATIVE VEGETATION REGULATORY (NVR) MAPPING

As the site does not currently contain any areas of mapped Regulated land and the Ecological assessment indicates that the site does not contain sufficient biodiversity values to warrant categorisation as sensitive or vulnerable regulated land, the site is best described as unregulated land. If land is unregulated, or exempt, it can be cleared without needing to obtain authorisation under the LLS Act.

Following future rezoning of the site, the site may potentially be mapped as *Land excluded from the LLS Act,* as this category applies to neighbouring areas of industrial land. Should this occur, the land clearing regulations of the LLS Act and LLS Regulation would no longer apply.

The Biodiversity Offsets Scheme Threshold is a test used to determine when it is necessary to engage an accredited assessor to apply the Biodiversity Assessment Method (the BAM) to assess the impacts of a proposal. It is used for local developments (development applications submitted to councils) and clearing that does not require development consent in urban areas and areas zoned for environmental conservation (under the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017).

The Biodiversity Conservation Regulation 2017 sets out threshold levels for when the Biodiversity Offsets Scheme will be triggered. The threshold has two elements:

- whether the amount of native vegetation being cleared exceeds a threshold area
- whether the impacts occur on an area mapped on the Biodiversity Values map published by the Minister for the Environment.

If clearing and other impacts exceeds either trigger, the Biodiversity Offset Scheme applies to the proposed development including biodiversity impacts prescribed by clause 6.1 of the Biodiversity Regulation 2017.

Under Clause 7.2 of the Biodiversity Conservation Regulation 2017, clearing of native vegetation is declared to exceed the biodiversity offsets scheme threshold if the area proposed to be cleared is in excess of 0.25ha on land less than 1ha in size or in excess of 0.5ha on land less than 40ha but not less than 1ha. The area proposed for rezoning is a total of approximately 14.75ha. The area of regrowth native vegetation on the site consists of a small number of scattered trees and is substantially less than the 0.5ha threshold.

Future clearing of this native vegetation will not exceed the biodiversity offsets scheme threshold and the Biodiversity Assessment Method will not need to be applied on this basis. The Biodiversity Offsets Scheme Entry Threshold Tool was accessed on the 6th of March 2018. The BOSET mapping shows that the site does not contain mapped Biodiversity Values.

Under the NSW BC Act (2016), the threatened species 'test of significance' is used to determine if a development or activity is likely to significantly effect threatened species or ecological communities, or their habitats. It is sometimes also referred to as the '5-part test'. It is applied as part of the Biodiversity Offsets Scheme entry requirements and for Part 5 activities. A Biodiversity Development Assessment Report would be required if the future development is likely to 'significantly affect threatened species'.

It is considered that future industrial development of the site is unlikely to significantly affect any threatened species or communities.

5.3 Commonwealth EPBC Act (1999)

5.3.1 Introduction

Under the environmental assessment provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of National Environmental Significance are subject to a rigorous assessment and approval process. An action includes a project, development, undertaking, activity, or series of activities. An action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The Act identifies seven matters of national environmental significance:

- World Heritage properties
- National heritage places
- Wetlands of international importance (Ramsar wetlands)
- Threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- Nuclear actions (including uranium mining)

The EPBC Act Policy Statement 1.1 Significant Impact Guidelines (DEH 2006) outline an assessment process, including detailed criteria, to assist in deciding whether or not referral to the Minister is required. These guidelines replace the EPBC Act Administrative Guidelines of July 2000.

It is considered that future industrial development of the site is unlikely to significantly affect any Federally listed threatened species or communities.

5.4 SEPP 14 Coastal Wetlands and SEPP 26 Littoral Rainforests

The Subject site does not occur within or adjacent to any areas of SEPP 14 Coastal wetlands or SEPP 26 Littoral Rainforest.

5.5 SEPP 44 Koala Habitat Protection

The SEPP 44 Koala Habitat Protection Policy aims to "encourage the proper conservation and management of area of natural vegetation that provide habitat for Koalas, to ensure permanent free-living populations over their present range and to reverse the current trend of population decline."

SEPP 44 consists of a series of questions to provide a basis for the assessment of lands as potential and/or core Koala habitat. These questions have been addressed below.

1. Does the policy apply?

Does the subject land occur in an LGA identified in Schedule 1?

The Subject site occurs in the Richmond Valley LGA, which is listed under Schedule 1.

Is the landholding to which the DA applies greater than 1 hectare in area?

Yes, most of the individual landholdings are currently greater than 1ha and the total area is greater than 1ha.

2. Is the land potential Koala habitat?

Does the site contain areas of native vegetation where the trees of 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?
No. No Schedule 2 feed trees are present.

3. Is there core Koala habitat on the subject land?
No.

4. Is there a requirement for the preparation of a Plan of Management for identified core Koala habitat?
No.

6 SUMMARY & CONCLUSIONS

Blackwood Ecological Services have been engaged by JM & CA Imeson to complete a Preliminary Ecological Assessment for a proposed rezoning of land at the Bruxner Highway, Casino. The land is proposed to be rezoned to allow for industrial subdivision. The Ecological assessment is to include land within:

- Lots 14 to 20 DP 976660
- Lots 1 to 12 DP 976660
- Lot 1 DP 783330

The preliminary assessment is to involve initial field survey and provision of a brief report advising of key ecological issues. This assessment includes preliminary vegetation mapping and consideration of relevant database results and relevant ecological mapping.

The Subject site is located on the eastern outskirts of the township of Casino. The site consists of flat grazing land with scattered native trees. It is bordered to the south by the Bruxner Highway, to the west by an industrial estate and to the north and east by grazing land. Site vegetation generally consists of mixed pasture grassland typically between 30cm and 80cm tall. Grassland consists of a mixture of exotic and locally common native species. Slightly lower lying areas of the site contain a mixture of wet grassland and sedgeland species. Scattered Swamp turpentine (*Lophostemon suaveolens*) trees occur in the northern part of the site. These trees are relatively mature and some support small trunk and branch hollows. An established Moreton Bay fig tree is located along the southern fenceline of the site.

No Threatened (TSC Act 1995, EPBC Act 1999) flora species were recorded within the Subject site or adjacent land during the survey. The survey was completed at a time of year suitable for the detection of Hairy joint grass and wet grassland areas may provide potentially suitable habitat for this species. Hairy joint grass was not recorded on the site despite targeted searches in wetter grassland patches. The NPWS Atlas database search did not show any records of this species within 5km of the Subject site and it is not known to occur in the Study area.

No Endangered Ecological Communities are considered to occur on the site. Wet grassland areas are highly degraded and are considered to lack the species diversity and structure of *Freshwater wetlands on floodplains* EEC.

The Subject site generally provides habitat only for common native species adapted to disturbed habitats. The Subject site supports some mature trees with smaller hollows suitable for some hollow-dwelling mammals as well as occasional scattered dead stags that represent potential habitat for hollow-dwelling species. The lack of habitat continuity or significant forest patches in the vicinity of the site means that rarer hollow dwelling mammals such as the Brush-tailed phascogale and gliders are unlikely to occur. No Koala feed trees or evidence of Koala activity (scats or scratches) were recorded on site.

Based upon this assessment some threatened fauna species have some limited potential to occur within the Subject site and surrounding study area, including the Koala, Black-necked stork, Grey-headed flying fox and Little bent-wing bat. The Subject site is considered to provide marginal habitat for these species at best and they are unlikely to have any significant degree of reliance on site habitats.

Land clearing in rural areas of NSW is regulated under the Local Land Services Act 2013 (NSW) (LLS Act) and the Local Land Services Regulation 2014 (NSW) (LLS Regulation). The site is currently zoned RU1 Primary Production. The Native Vegetation Regulatory (NVR) Map (accessed March 2018) shows the site is not mapped as *Land excluded from the LLS Act*. It does not contain any areas mapped as *Sensitive Regulated Land* or *Vulnerable Regulated Land*.

The Subject site has limited biodiversity value due to historical land clearing, fragmentation and ongoing grazing and occupation and is considered suitable for rezoning for industrial subdivision. It is considered that future industrial development of the site is unlikely to significantly affect any threatened species or communities. No areas of SEPP 14 Coastal wetland or SEPP 26 Littoral rainforest are likely to be affected and the Subject site does not provide potential Koala habitat as defined by SEPP 44.

7 REFERENCES

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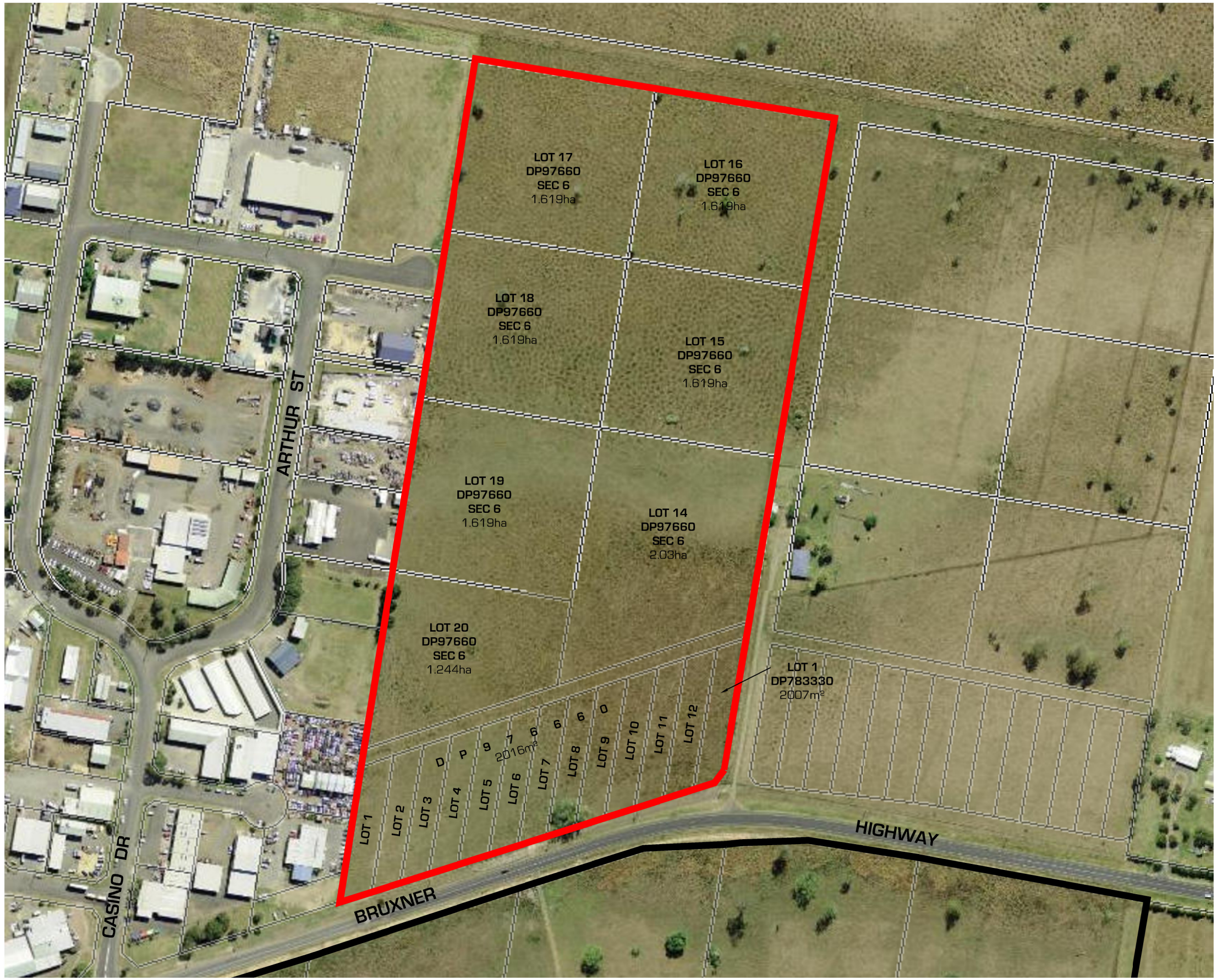
APPENDIX A

INVESTIGATION AREA



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NOTE:
This preliminary layout has been completed in accordance with the instructions provided by JM & CA Imeson.
In this respect preliminary desktop data has been used to form this layout. The final layout is subject to the completion of a detailed survey & engineering plans. Accordingly, the conclusions reached within this report may be modified by the author upon the completion of the final design plans & site inspection. Newton Denny Chapelle accepts no responsibility for any loss or damage suffered, however so arising, to any person or corporation who may use or rely on this report.

REV	DATE	AMENDMENT
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SOURCE PLAN: www.maps.six.nsw.gov.au - accessed 06.02.17

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Newton Denny Chapelle
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LISMORE 31 Carrington St. Lismore 2480 PH: 6622 1011
CASINO 100 Barker St. Casino 2470 PH: 6662 5000
ABN: 36 220 045 469

PLAN - INDUSTRIAL REZONING INVESTIGATION AREA

CLIENT: JM & CA IMESON

LOCATION: LOT 48 & 49 DP755727, LOTS 1 & 2 772606 & LOT 1 DP 633101 BRUXNER HIGHWAY CASINO NSW

DATE: 06.02.17 REF: 17/044
SCALE: 1 : 4000@A3 DRAWN: bk

APPENDIX B

COMMONWEALTH EPBC DATABASE PROTECTED MATTERS SEARCH RESULTS

Australian Government
Department of the Environment and Energy

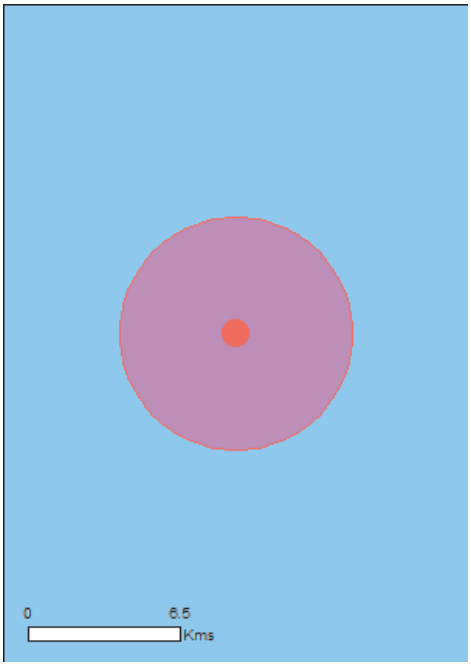
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 06/03/18 10:33:57



Coordinates
Buffer: 5.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	31
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	3
Commonwealth Heritage Places:	1
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	34
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		

Name	Status	Type of Presence
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Bulbophyllum globuliforme Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may occur within area
Clematis fawcettii Stream Clematis [4311]	Vulnerable	Species or species habitat likely to occur within area
Desmodium acanthocladum Thorny Pea [17972]	Vulnerable	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat likely to occur within area
Owenia cepiodora Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Thesium australe		
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Saiphos reticulatus		
Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Telstra Corporation Limited

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Historic		
Casino Post Office	NSW	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Feral deer		
Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis		
Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus		
House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus		
Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus		
Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides		
Alligator Weed [11620]		Species or species habitat likely to occur within area
Cabomba caroliniana		
Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera		
Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata		
Bitou Bush [16332]		Species or species habitat likely to occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana		
Broom [67538]		Species or species habitat may occur within area
Hymenachne amplexicaulis		
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata		
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate		
Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla		
Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-28.85058 153.0871

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Department of the Environment
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APPENDIX C

PRELIMINARY FLORA SPECIES LIST

Flora species list, Bruxner Highway, Casino

• Lots 14 to 20 DP 976660
• Lots 1 to 12 DP 976660
• Lot 1 DP 783330

Where uncertainty exists due to the unavailability of reproductive material, the taxon is preceded by a question mark, or plants are identified to genus level only. Botanical nomenclature follows G.J. Harden (ed) (1990-2002) Flora of New South Wales, UNSW Press, except where recent changes have occurred.

Notes:

* Denotes an introduced species as well as non-local native species.

BOLD Species of conservation significance are bolded.

Grouping and Family	Botanical Name	Common Name
Monocotyledons		
Cyperaceae	*Cyperus exaltatus*	
	Cyperus sp.	
Juncaceae	*Juncus usitatus*	Common rush
Poaceae	*Axonopus fissifolius**	Narrow-leaf carpet grass
	Cynodon dactylon	Couch grass
	*Paspalum dilatatum**	Paspalum
	Paspalum sp*	
	Pennisetum alopecuroides	Swamp foxtail
	*Pennisetum clandestinum**	Kikuyu
	*Setaria sphacelata**	Setaria
	Sporobolus sp.	
	Themeda australis	Kangaroo grass
Dicotyledons		
Apiaceae	*Hydrocotyle* sp.	Pennywort
Asclepiadaceae	*Gomphocarpus fruticosus**	Narrow- leafed cotton bush
Asteraceae	*Bidens pilosa**	Cobblers pegs
	Conyza sp.*	Fleabane
	*Onopordum acanthium**	Scotch thistle
	*Senecio madagascariensis**	Fireweed
Fabaceae	*Trifolium repens**	White clover
Loranthaceae	*Amyema* sp.	Mistletoe
Malvaceae	*Sida rhombifolia**	Paddy's lucerne
Moraceae	*Ficus macrophylla*	Moreton bay fig
	Ficus watkinsiana	Strangler fig
	Maclura cochinchinensis	Cockspur
	Streblus brunonianus	Whalebone tree
Myrtaceae	*Lophostemon suaveolens*	Swamp turpentine
Onagraceae	*Ludwigia peploides*	Water primrose
Polygonaceae	*Persicaria* sp.	Smartweed
Sapindaceae	*Alectryon tomentosus*	Hairy alectryon

Grouping and Family	Botanical Name	Common Name
Solanaceae	*Solanum* spp.	Nightshade
Verbenaceae	*Verbena bonariensis**	Purple top

APPENDIX D

LIKELIHOOD OF OCCURRENCE OF THREATENED FAUNA SPECIES

BLACKWOOD ECOLOGICAL SERVICES

TABLE D1
LIKELIHOOD OF OCCURRENCE OF THREATENED FAUNA SPECIES

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Amphibians			
Giant barred frog	Giant Barred Frogs forage and live amongst deep, damp leaf litter in rainforests, moist eucalypt forest and nearby dry eucalypt forest, at elevations below 1000 m. They breed around shallow, flowing rocky streams from late spring to summer.	Unlikely. Not recorded within 10km of the subject site and no suitable habitat present.	No
Forest and woodland birds			
Black-breasted button-quail	Preferred habitat includes drier low closed forests, including dry rainforests, vine forest and vine thickets, often in association with Hoop Pine, and Bottletree scrubs. The understorey may be dense or sparse, but a deep, moist leaf-litter layer, in which the birds forage, is an important component of habitat.	No suitable habitat present.	No
Coxen's Fig-Parrot	Limited to about five populations scattered between Bundaberg in Queensland and the Hastings River in NSW. Usually recorded from drier rainforests and adjacent wetter eucalypt forest.. Also found in the wetter lowland rainforests that are now largely cleared in NSW. The bird shows a decided preference for fig trees, but also feeds on other fruiting rainforest species.	Unlikely. Species has not been recorded within a 10km area around the site on the NSW Atlas database.	No
Eastern Bristlebird	Occurs in vegetation with a dense ground cover, typically high elevation open forest or woodland with a dense tussock-grass or sedge understorey adjacent to rainforest or wet eucalypt forest.	No suitable habitat present.	No
Eastern grass owl	The Grass owl occupies coastal heath and tall grassland habitats.	Unlikely	No
Glossy black cockatoo	Found in coastal forests and open inland woodland in eastern Australia. The Glossy black-cockatoos distribution is limited to habitat which contains sufficient seed reserves of their three favoured species of food trees: *Allocasuarina littoralis*, *Allocasuarina torulosa* and *A. verticillata* (Forshaw 1981) and suitable large hollow bearing trees for nesting. There is no suitable forage habitat on site.	Unlikely . There is no suitable forage habitat on site.	No
Painted honeyeater	Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*.	No suitable habitat present.	No

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Red goshawk	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Unlikely. Not recorded within 10km of the subject site.	No
Regent honeyeater	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. In NSW the distribution is very patchy and mainly confined to the two main breeding areas (at Capertee Valley and the Bundarra-Barraba region) and surrounding fragmented woodlands. In some years non-breeding flocks converge on flowering coastal woodlands and forests where they prefer Swamp mahogany and Spotted gum forests.	Unlikely. Not recorded within 10km of the subject site.	No
Swift parrot	This migratory species is very rarely recorded in the locality.	Unlikely. Not recorded within 10km of the subject site.	No
Wetland birds			
Australasian Bittern	The Australasian bittern generally prefers freshwater habitats although it may also use dense saltmarsh vegetation in estuaries and flooded grasslands.	Unlikely.	No
Australian painted snipe	This species prefers the fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Unlikely.	No
Black-necked stork	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries.	Unlikely	No
Blue-billed duck	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. Blue-billed Ducks are partly migratory, with short-distance movements between breeding swamps and overwintering lakes with some long-distance dispersal to breed during spring and early summer. Blue-billed Ducks usually nest solitarily in Cumbungi over deep water between September and February. They will also nest in trampled vegetation in Lignum, sedges or Spike-rushes, where a bowl-shaped nest is constructed.	Unlikely.	No

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Comb-crested jacana	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation.	Unlikely	No
Freckled duck	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Unlikely	No
Magpie goose	Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges.	Unlikely	No
Oceanic and coastal birds			
Black-tailed godwit	Primarily a coastal species. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats.	Unlikely.	No
Curlew sandpiper	Generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland.	Unlikely.	No
Terrestrial mammals			
Brush-tailed rock wallaby	Typically occupy north-facing cliffs in dry eucalypt forest and woodland. The species is highly territorial and remains in the same site permanently.	No suitable habitat present.	No
Brush-tailed phascogale	Prefers dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter.	No suitable habitat present.	No
Koala	Koalas live in eucalypt woodlands and forests. Home range size varies according to quality of habitat, ranging from less than two hectares to several hundred hectares.	Possible	**Minor**
Long-nosed potoroo	This species occurs in coastal heathland habitats at several locations along the Far North Coast.	Unlikely. Not recorded within 10km of the subject site.	No
Spotted-tail quoll	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls are rarely recorded in the locality.	Unlikely. Suitable habitat is not present.	No
New Holland Mouse	Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Unlikely. No suitable habitat is present and species has not recorded within 10km of the subject site.	No
Bats			

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Grey-headed flying fox	This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens and cultivated fruit crops also provide habitat for this species.	**Likely** to forage throughout the Study area during flowering and fruiting of site vegetation.	**Minor**
Large-eared pied bat	This species is found in well-timbered areas containing gullies. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin, frequenting low to mid-elevation dry open forest and woodland close to these features.	Unlikely. This species was not recorded on the Atlas of NSW Wildlife and the site contains no roost sites and only marginal forage habitat.	No
Little bent-wing bat	This species generally roosts in caves and tunnels during the day and forages for insects beneath the canopy of forested habitats at night.	**Possible,** has been previously recorded in the Study area.	**Minor**
Invertebrates			
Pink underwing moth	The Pink Underwing Moth is found below the altitude of 600 m in undisturbed, subtropical rainforest. It occurs in association with the vine *Carronia multisepalea*, a collapsed shrub that provides the food and habitat the moth requires in order to breed	Unlikely. No suitable habitat is present and species has not recorded within 10km of the subject site.	No