

Riverina Oils and BioEnergy

Integrated Oilseed Processing Plant

Appendix J
Ecological Assessment



Prepared for:
Riverina Oils and Bio Energy Pty Ltd
19 Grey St
Balwyn Victoria 3103

Ecological Assessment: Integrated Oilseed Processing and Biodiesel Plant

Final

HLA-Envirosciences Pty Limited (HLA ENSR)
18 March 2008
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Ecological Assessment: Integrated Oilseed Processing and Biodiesel Plant Wagga Wagga

18 March 2008

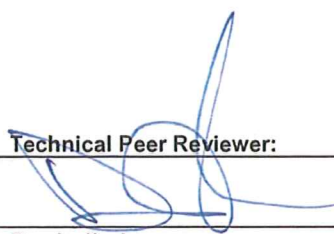
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1.0 Introduction

HLA-Envirosciences Pty Ltd (HLA ENSR) has undertaken an ecological assessment in support of an environmental assessment (EA) for an Integrated Oilseed Processing and Biodiesel Plant (IOPBP). The ecological assessment has been conducted on behalf of Riverina Oils and Bioenergy Pty Ltd (ROBE). The EA is being prepared for consideration under the provisions of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is being prepared in relation to the construction and operation of the IOPBP, which will be located on an approximately 17 ha site to the northwest of the town of Wagga Wagga (the Site). The proposed development is situated on the corner of Trahairs Road and Byrnes Road within the Wagga Wagga Local Government Area (LGA), and is known as 299 Trahairs Road. Wagga Wagga LGA is located approximately 470 km (by road) south west of Sydney. **Figure 1** shows the regional context of the Study Area.

The ecological assessment aims to identify potential impacts to ecological factors such as threatened species, threatened populations, endangered ecological communities (EECs) and whether the proposed works would constitute a key threatening process. Where potential impacts are identified, mitigation measures are recommended.

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2.0 Project Description

ROBE is seeking Project Approval to construct and operate an IOPBP. The plant would use canola and safflower seed as raw material to produce vegetable oil, from which bio-diesel is manufactured through a process known as trans-esterification. It is envisaged that the integrated plant would produce up to 75 ML of bio-diesel per annum using 165 000 tonnes of oilseed.

The IOPBP comprises a number of buildings to house the crushing, extraction and refining processes as well as a number of storage facilities. The majority of the buildings would be constructed of steel with concrete flooring and include the following:

- An oilseed crushing plant;
- A solvent extraction plant;
- A meal blending shed;
- A vegetable oil refinery;
- A glycerine plant;
- A biodiesel plant; and
- A weighbridge.

The storage facilities would comprise six steel silos and a number of day bins and tanks.

Canola and safflower oil seeds would be delivered to the plant in trucks where it would be unloaded and stored in separate silos. The different types of seed would be processed using the same equipment; however, this would be done at separate times to avoid product contamination. There are a number of stages to the process, each yielding one or more products which are either sold or undergo further processing. A layout of the proposed facilities is shown in **Figure 2**.

The proposed facility would have an Effluent Treatment Plant (ETP) on site which would treat wastewater resulting from processes occurring on-site. The ETP would treat wastewater to a standard consistent with relevant DECC guidelines. The wastewater would then be stored in an existing pond located east of the proposed facility footprint (see **Figure 3**). When required and during appropriate conditions, the wastewater would then be irrigated on surrounding adjacent land to the east and north of the facility footprint (see **Figure 3**). The wastewater would be treated and applied to the land in accordance with DECC's *Environmental Guidelines: Use of Effluent By Irrigation* (DEC, 2003).

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3.0 Applicable Policy and Legislation

3.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) sets out the requirements for actions that may have a significant impact on matters of National Environmental Significance (NES). Matters of NES include wetlands of national importance, Commonwealth listed threatened species, threatened ecological communities and migratory species.

Approval from the Commonwealth is in addition to any approvals under NSW legislation and is triggered by a proposal which has the potential to have a significant impact on a matter of NES.

3.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act* (EP&A Act) and the EP&A Regulation provide the framework for environmental planning in NSW and include provisions to ensure that proposals which have the potential to impact the environment are subject to detailed assessment, and provide opportunity for public involvement.

Section 5A of the EP&A Act provides specific provisions for determining whether an activity will have a significant impact on threatened species, populations or ecological communities, or their habitats.

3.3 Threatened Species Conservation Act 1995

The objectives of the *Threatened Species Conservation Act 1995* (TSC Act) are to prevent the extinction and promote the recovery of threatened species, populations, ecological communities and critical habitat in NSW. It also aims to eliminate or manage key threatening processes, such as clearing of land and competition and grazing by the feral European rabbit. The schedules of the TSC Act provide lists of species, populations and ecological communities that are endangered, vulnerable or extinct. Actions that may impact on the threatened species, populations and ecological communities must be properly assessed.

3.4 State Environmental Planning Policy 44: Koala Habitat Protection

State Environmental Planning Policy 44 – Koala Habitat Protection (SEPP 44) aims to encourage conservation and management of Koala habitat. The schedules of SEPP 44 provide a list of Koala feed tree species and a list of local government areas (LGAs) in which Koala habitat occurs. It defines Core Habitat as areas which contain a resident Koala population and Potential Koala Habitat as areas in which the tree species listed in Schedule 2 comprise at least 15 % of the total number of trees in the upper or lower strata of the tree component.

The Wagga Wagga LGA is listed in Schedule 1 of SEPP 44. Of the species listed in Schedule 2 of the policy, *Eucalyptus albens* (White Box) occurs at the Site; however, it does not comprise at least 15 % of the total number of trees in the upper or lower strata of the tree component. As such, the Site does not contain Potential Koala Habitat. Furthermore, a search of the NSW Department of Environment and Climate Change (DECC) Online Wildlife Atlas revealed that Koalas have not been recorded within a 20 km x 20 km search area centred on the Site and evidence of a Koala population was not observed at the Site. As such, the Site does not contain Core Koala Habitat.

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4.0 Methods

4.1 Desktop Assessment

A desktop review of available information was undertaken in respect of the existing environment, including a review of aerial photography, previous reports prepared for the area and NSW and Australian Government databases.

The following databases were searched:

- The Commonwealth Department of Environment and Water Resources (DEW) online Protected Matters Search Tool. This database provides a list of matters of national Environmental Significance (NES) that may occur in the area;
- The DECC online Wildlife Atlas. The database provides a list of threatened species that have been recorded within the search area;
- The NSW Botanic Gardens Trust PlantNet Spatial Search for flora species that have been recorded in the area; and
- Bionet, which provides a list of species that have been recorded in the area based on records held by DECC, the Australian Museum and Department of Primary Industries (DPI).

The spatial searches were done over a 20 km x 20 km grid centred on the Site.

4.2 Field Investigation

A site investigation was undertaken on 15th November, 2007. The fauna values of the study areas were based upon an assessment of habitat quality and condition, including the following:

- The level of fragmentation of vegetation and fauna habitat;
- The presence of key habitat features such as hollow-bearing trees, fallen logs, water bodies and the presence of shrub layers; and
- An assessment of whether the preferred habitat for the species identified in the database searches was present.

The flora investigation was based on an assessment of the following:

- Structural characteristics of the vegetation (based on life forms, approximate height and canopy cover);
- Groundcover characteristics;
- The condition of the vegetation, based on a subjective assessment of the degree of naturalness, level of disturbance and proportion of exotic flora present;
- Presence of non-native species, including noxious weeds; and
- Dominant species in each structural component of the vegetation.

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5.0 Existing Environment

5.1 Introduction

The Site is highly modified with the majority having been previously cleared of a canopy and shrub species. The groundcover comprises planted crops with interspersed weeds. As such, the remaining vegetation comprises isolated paddock trees with a modified non-native groundcover, rather than viable ecological communities. A fenced area with an approximate width of 2 m containing planted trees runs along the boundary of the Site with Byrnes Road and Trahairs Road. Approximately 50 head of cattle are present on the Site. Extensive earthworks have been undertaken to the east of the Site to form ponds for the adjacent Wool Combing Facility. This area comprises bare soil with some isolated paddock trees along the boundary with the Site.

5.2 Ecological Communities

Previous vegetation mapping projects undertaken by DECC have reconstructed the vegetation communities that would have occurred at the Site prior to clearing and have identified it as Western Slopes Grassy Woodlands. These grasslands once extended from central Victoria to the Darling Downs region of Queensland, however, they are now reduced to fragments as a result of overgrazing and weed invasion (Keith, 2004). The native vegetation that occurs at the Site comprises isolated paddock trees with a groundcover of planted crops interspersed with weeds.

The trees at the Site comprise some of the characteristic species of White Box Yellow Box Blakely's Red Gum Woodland (Box-Gum Woodland), an endangered ecological community (EEC) under the TSC Act. As such, the vegetation community that existed prior to clearing is likely to have comprised Box-Gum Woodland. This community is similar to a critically EEC listed under the EPBC Act, the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. The *Identification Guidelines for Endangered Ecological Communities: White Box Yellow Box Blakely's Red Gum Woodland (Box-Gum Woodland)* were used to determine whether the vegetation at the Site constitutes an EEC (see **Appendix A**). The identification guidelines provide a five step key to determine whether a community is an EEC or not. Step 2 of the key refers to the understorey of the vegetation community. As there are no native species in the understorey, and the Site is unlikely to respond to assisted natural regeneration, it is not Box-Gum Woodland. While it is likely that the vegetation at the Site once comprised Box-Gum Woodland, the degraded nature of the vegetation means that this is no longer the case.

5.3 Flora

The database searches identified four (4) threatened species that have been recorded in a 20 km x 20 km search area, or which have the potential to occur within the search area (see **Appendix B**). The preferred habitat of these species does not occur at the Site, due to its highly modified state or due to a lack of key features of the species' preferred habitat. The remaining native vegetation at the Site comprises isolated paddock trees and scattered trees of varying maturity. The following species are present:

- *Eucalyptus blakelyi* (Blakely's Red Gum);
- *E. melliodora* (Yellow Box);
- *E. albens* (White Box);
- *E. dealbata* (Tumbledown Gum);
- *E. macrocarpa* (Grey Box);
- *Brachychiton populneus* (Kurrajong); and

- *Calitris glaucophylla* (White Cypress Pine).

The majority of the native trees at the Site occur outside the building footprint. Approximately four isolated paddock trees fall within the building footprint (see **Figure 3**).

5.4 Fauna and Fauna Habitat

The majority of the Site has been cleared and only provides limited habitat value for native fauna. The remaining trees provide habitat for bird species and common species such as the Galah and Magpie, which were observed using them. Key habitat features are largely absent from the Site with very few hollow bearing trees and scattered fallen logs. The fallen logs provide habitat for snakes and lizards. The surrounding grasslands, while not comprising native species, provide habitat for species such as snakes, grass birds and kangaroos, which were observed at the Site.

The remaining vegetation is not connected to other areas of native vegetation and as such, does not hold connectivity or corridor values. Its isolation means that it is less likely to provide habitat for native species. It is unlikely to support viable populations of native species; however, mobile species such as birds would use the remaining trees for shelter and foraging.

The database searches identified 21 threatened species that have been recorded in a 20 km x 20 km search area, or which have the potential to occur within the search area (see **Appendix B**). This included four ray-finned fishes, one amphibian, 10 birds and six mammals. Three of these species have the potential to use the trees at the Site:

- *Cacatua leadbeateri* (Major Mitchell's Cockatoo);
- *Polytelis swainsonii* (Superb Parrot); and
- *Nyctophilus timoriensis* (Eastern Long-eared Bat).

An assessment of significance was undertaken for these three species (see **Appendix C**) and found that the proposed works are not likely to have a significant impact on these species.

5.5 Key Threatening Processes

Key Threatening Processes (KTPs) are processes that threaten, or could threaten, the survival or evolutionary development of species, populations or ecological communities. Clearing of native vegetation is a KTP that has already occurred extensively at the Site. As the Site is already largely cleared of vegetation, only minimal further clearing is required. Other KTPs that may be occurring in the area are:

- Competition and grazing by the feral European rabbit;
- Predation by feral cats; and
- Predation by the European Red Fox.

Evidence of feral cats and the feral European rabbit was observed at the Site. The feral cat, feral European rabbit and European Red Fox have also been recorded within a 20 km x 20 km search area centred on the Site.

The proposed works do not constitute a KTP and are unlikely to increase the impact of an existing KTP.

5.6 Introduced Species

The database searches identified 80 introduced flora species that have been recorded in a 20 km x 20 km search area centred on the Site, some of which are declared noxious weeds in Wagga Wagga. Noxious weeds are required to be controlled by land owners or occupiers of land under the *Noxious*

Weeds Act 1993. Echium plantagineum (Patterson's Curse) is a noxious weed that occurs throughout the Site. It is in the Category 4 control class for which the following controls should be undertaken:

The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority.

(Department of Primary Industries, 2006)

Wagga Wagga City Council is the local control authority and has developed the *Class 4 Noxious Weed Control Management Plan 2006 – 2011*. This document outlines the control measures to be undertaken by property owners for Patterson's Curse.

The database searches identified 10 introduced fauna species that have been recorded in a 20 km x 20 km search area centred on the Site, including seven birds and three mammals.

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6.0 Potential Impacts

The proposed works have been sited to avoid the majority of the remaining native vegetation at the Site. Approximately four isolated paddock trees are located within the building footprint and these trees would be cleared. These trees do not contain hollows. Due to the isolation of these trees, they are not considered to retain conservation significance and as such, their removal would not represent a significant impact to the overall ecological values of the Site.

Wastewater irrigation is proposed to occur to the north and east of the building footprint when required. This has the potential to raise the water table and increase the level of salts/minerals in the soil. Changes to the soil and water table can alter the ecological processes existing at the Site and potentially lead to issues such as salinity, which can affect the remaining native vegetation at the Site. Areas of the Murrumbidgee catchment are affected by dryland salinity and irrigation salinity. Dryland salinity has resulted from replacing deep rooted vegetation with shallow rooted pastures or crops. Irrigation salinity has resulted from over-clearing, over-irrigation, channel seepage and inadequate drainage in irrigation areas (EPA, 1995). Potential impacts arising from irrigation of wastewater and recommended mitigation measures are described in detail in the EA.

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7.0 Mitigation Measures

To help avoid and minimise the potential impacts on flora and fauna, the following mitigation and rehabilitation measures are recommended:

- Felled trees should be left in-situ for at least 24 hours to allow fauna species to relocate. Ensure qualified personnel are on hand to check hollows for wildlife and relocate them;
- If any wildlife is inadvertently injured, an accredited veterinarian (and through them possibly a wildlife care group) should be contacted;
- Monitoring for weed infestations should occur during construction and operation so that appropriate control measures can be applied. Measures to control Patterson's Curse should be implemented in accordance with the *Class 4 Noxious Weed Control Management Plan 2006 – 2011*;
- The Landscape Management Plan should incorporate species endemic to the area; and
- An Irrigation Management Plan should be developed to ensure the irrigation works do not alter the existing soil and groundwater conditions at the Site, thus ensuring the remaining native trees and soil structure are not affected by the irrigation works.

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8.0 Limitations

Sections of this assessment are based on information contained within state and Commonwealth databases, topographic mapping and site observations. Field observations were undertaken in November, during daylight hours. As such, nocturnal aspects and seasonal variations could not be observed for this assessment.

HLA ENSR's opinions are based upon its professional judgement, experience, and training. HLA ENSR has limited its investigation to the scope agreed upon with its client. HLA ENSR believes that its opinions are reasonably supported by the reviews and analysis that have been done, and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time.

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9.0 Conclusion

Given the successful implementation of the mitigation recommendations provided in **Section 7**, this assessment has found that there is very limited potential for the proposed works to have a significant impact on threatened ecological communities, important fauna habitats or movement corridors or potentially present threatened flora or fauna species or populations. The key recommended actions are to control weeds (in particular Patterson's Curse) and to develop an Irrigation Management Plan.

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10.0 References

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Figures

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ENSR | AECOM



- Approximate IOPBP footprint
- Proposed storage pond
- Proposed irrigation area

Figure 1 | Regional Context
Riverina Oils and Bio Energy Pty Ltd
Ecology Assessment
 Integrated Oilseed Processing and
 Biodiesel Plant

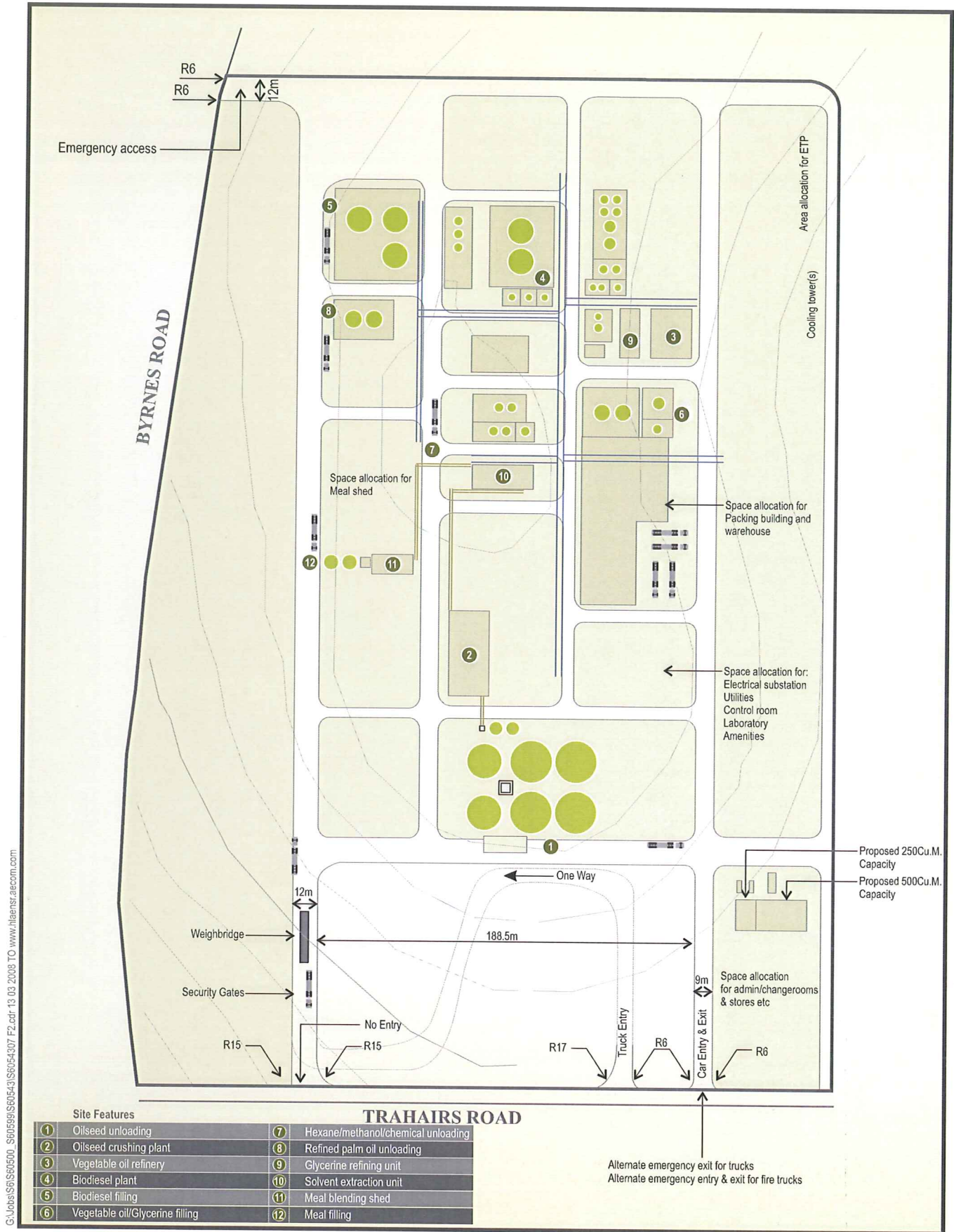


Figure 2 Proposed IOPBP Footprint
Riverina Oils and Bio Energy Pty Ltd
 Ecology Assessment
 Integrated Oilseed Processing and
 Biodiesel Plant

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ENSR | AECOM



- Approximate IOPBP footprint
- Proposed storage pond
- Proposed irrigation area

Figure 3 | **Project Footprint**
Riverina Oils and Bio Energy Pty Ltd
Ecology Assessment
Integrated Oilseed Processing and
Biodiesel Plant

Appendix A

Assessment of Vegetation Against Identification

Guidelines for Endangered Ecological Communities

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The key below has been taken from the *Identification Guidelines for Endangered Ecological Communities: White Box Yellow Box Blakely's Red Gum Woodland (Box-Gum Woodland)*. It has been used to determine whether the vegetation at the Site comprises Box-Gum Woodland.

Key for Box-Gum Woodland Identification

Key Descriptor	Relevance to the Site	Key Pathway
1 The Site is in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands or NSW South Western Slopes Bioregions	Yes, the Site is in the South Western Slopes Bioregion	Go to 2
1* The Site is outside the above bioregions		The Site is not Box-Gum Woodland
2 There are no native species in the understorey, and the Site is unlikely to respond to assisted natural regeneration	The understorey comprises planted crops and weed species	The Site is not Box-Gum Woodland
2* The understorey is otherwise		Go to 3
3 The Site has trees		Go to 4
3* The Site is treeless but is likely to have supported White Box, Yellow Box or Blakely's Red Gum prior to clearing		Go to 5
4 White Box, Yellow Box or Blakely's Red Gum or a combination of these species, are or were present		Go to 5
4* White Box, Yellow Box or Blakely's Red Gum have never been present		The Site is not Box-Gum Woodland
5 The Site is predominantly grassy		The Site is Box-Gum Woodland
5* The understorey of the Site is dominated by shrubs excluding pioneer species		The Site is not Box-Gum Woodland

The understorey at the Site comprises planted crops interspersed with weed species. As such, there are no native species in the understorey and the vegetation at the Site is not Box-Gum Woodland.

Appendix B

Threatened Species Recorded Within a 20 km x 20 km

Search Area or With Potential Habitat in the Area

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Threatened Flora Species Recorded Within a 20 km x 20 km Search Area or With Potential Habitat in the Area

Scientific Name	Common Name	Status TSC Act	Status EPBC Act	Preferred Habitat	Recorded in Search Area	Habitat in Search Area
<i>Brachycome muelleroides</i>	Claypan Daisy	V		Grows in damp areas on the margins of claypans in moist grassland with <i>Pycnosorus globosus</i> , <i>Agrostis avenacea</i> and <i>Austrodanthonia duttoniana</i> .	✓	✗
<i>Diuris tricolor</i>	Tricolor Diuris		V	Eucalypt open forest	✗	✗
<i>Senecio garlandii</i>	Woolly Ragwort	V		Occurs on sheltered slopes of rocky outcrops.	✓	✗
<i>Swainsona recta</i>	Mountain Swainson Pea	E		Occurs in the grassy understorey of woodlands and open-forests dominated by <i>Blakely's Red Gum Eucalyptus blakelyi</i> , <i>Yellow Box E. melliodora</i> , <i>Candlebark Gum E. rubida</i> and Long-leaf Box <i>E. goniocalyx</i> .	✓	✗

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Threatened Fauna Species Recorded Within a 20 km x 20 km Search Area or With Potential Habitat in the Area

Scientific Name	Common Name	Status TSC	Status EPBC	Status FMA	Preferred Habitat	Recorded in 20 km x 20 km Search Area	Habitat in Search Area
Amphibians							
<i>Litoria raniformis</i>	Southern Bell Frog		V		This species is found mostly amongst emergent vegetation (Robinson 1993), including Typha sp. (bullrush), Phragmites sp. (reeds) and Eleocharis sp. (sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams (NSW DEC 2005). The Southern Bell Frog can also inhabit agricultural and higher rainfall pastoral lands so long as permanent and non-permanent water sites are available with dense emergent or fringing vegetation.	x	x
Birds							
<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo	V			Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Nests in tree hollows.	✓	✓
<i>Climacteris picumnus</i>	Brown Treecreeper	V			Mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and <i>Eucalyptus camaldulensis</i> (River Red Gum) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging.	✓	x

Scientific Name	Common Name	Status TSC	Status EPBC	Status FMA	Preferred Habitat	Recorded in 20 km x 20 km Search Area	Habitat in Search Area
<i>Lathamus discolor</i>	Swift Parrot	E	E		Occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.	✓	✗
<i>Leipoa ocellata</i>	Malleefowl		V		Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300-450 mm mean annual rainfall) areas.	✗	✗
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V			Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially <i>Eucalyptus sideroxylon</i> (Mugga Ironbark), <i>Eucalyptus albens</i> (White Box), <i>Eucalyptus microcarpa</i> (Grey Box), <i>Eucalyptus melliodora</i> (Yellow Box) and <i>Eucalyptus tereticornis</i> (Forest Red Gum).	✓	✗
<i>Ninox connivens</i>	Barking Owl	V			Inhabits eucalypt woodland, open forest, swamp woodlands and, especially in inland areas, timber along watercourses. Denser vegetation is used occasionally for roosting.	✓	✗
<i>Polytelis swainsonii</i>	Superb Parrot	V	V		Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest.	✓	✓
<i>Rostratula australis</i>	Australian Painted Snipe		V		Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	✗	✗

Scientific Name	Common Name	Status TSC	Status EPBC	Status FMA	Preferred Habitat	Recorded in 20 km x 20 km Search Area	Habitat in Search Area
<i>Stictonetta naevosa</i>	Freckled Duck	V			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.	✓	✗
<i>Xanthomyza phrygia</i>	Regent Honeyeater	E	E		Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	✓	✗
Mammals							
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V			Occur in rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky cliff-faces as dens	✓	✗
<i>Macrotis lagotis</i>	Bilby	E4			Arid and semi-arid regions	✓	✗
<i>Myotis adversus</i>	Large-footed Myotis	V			Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	✓	✗

Scientific Name	Common Name	Status TSC	Status EPBC	Status FMA	Preferred Habitat	Recorded in 20 km x 20 km Search Area	Habitat in Search Area
<i>Nyctophilus timoriensis</i> (south-eastern form)	Eastern Long-eared Bat		V		Roosts in tree hollows, crevices, and under loose bark.	✗	✓
<i>Onychogalea fraenata</i>	Bridled Nail-tail Wallaby	E4			Inhabits a mixture of tall shrubland and grassy woodland. Prefers scrub edges and adjacent vegetation	✓	✗
<i>Petaurus norfolcensis</i>	Squirrel Glider	V			Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas.	✓	✗
Ray-finned Fishes							
<i>Bidyanus bidyanus</i>	Silver Perch			V	Occurs in freshwaters throughout much of the Murray-Darling Drainage of Queensland, New South Wales, Victoria and South Australia. The species prefers fast-flowing waters but is also known from rivers, lakes and reservoirs.	✗	✗
<i>Maccullochella macquariensis</i>	Trout Cod			E	The species is usually found in rapidly flowing streams, often near snags or over rocky or gravel substrates. Larger fishes are found in deeper water.	✗	✗
<i>Maccullochella peelii peelii</i>	Murray Cod		V		The species occurs in the warm water habitats of the Murray-Darling Basin.	✗	✗
<i>Macquaria australasica</i>	Macquarie Perch		E		The species prefers deep, rocky holes with considerable cover.	✗	✗

Appendix C

TSC Act Section 5a Assessment (Seven Part Test) For Threatened Species

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EP&A Act Section 5a Assessment (7 Part Test) for Threatened Fauna

Appendix B provides a list of the threatened species that potentially occur or have habitat which potentially occurs within a 20 km grid centred on the site. The significance of potential impacts to the species for which habitat occurs in the study area have been assessed using Section 5A of the EP&A Act, also known as the 7 part test.

- a) *In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction***

***Cacatua leadbeateri* (Major Mitchell's Cockatoo)**

The Major Mitchell's Cockatoo nests in tree hollows lined with decayed wood dust and strips of bark. It can occur in a wide range of treed and treeless habitats, as long as there is a nearby source of water (Reader's Digest, 2003).

There are some hollow bearing trees at the Site; however, the hollows are small as there are very few mature trees at the Site and in many cases, hollows have yet to be formed. The proposed works would clear approximately four trees that fall within the building footprint. The Site is unlikely to support a viable population of the species as it is highly modified and has undergone extensive clearing already. During clearing, felled trees will be left in-situ for at least 24 hours to allow fauna species to relocate. Qualified personnel will be on hand during clearing to check for wildlife and relocate them.

***Polytelis swainsonii* (Superb Parrot)**

The Superb Parrot nests at great height in hollow limbs or holes of trees (Reader's Digest, 2003). In the Riverina region the species nests in hollows of large trees, usually in riparian *Eucalyptus camaldulensis* (River Red Gum) forest or woodland; however, it is also known to nest in isolated paddock trees in species such as Blakely's Red Gum, which occurs at the Site (DECC, 2007).

There are some hollow bearing trees at the Site; however, the hollows are small as there are very few mature trees at the Site and in many cases, hollows have yet to be formed. The proposed works would clear approximately four trees that fall within the building footprint. The Site is unlikely to support a viable population of the species as it is highly modified and has undergone extensive clearing already. During clearing, felled trees will be left in-situ for at least 24 hours to allow fauna species to relocate. Qualified personnel will be on hand during clearing to check for wildlife and relocate them.

***Nyctophilus timoriensis* (Eastern Long-eared Bat)**

The Eastern Long-eared Bat roosts in tree hollows, crevices and under loose bark. It is more common in box / ironbark / cypress pine vegetation. Such vegetation occurs at the Site and while there are few tree hollows, the tree species at the Site contain loose bark under which the Eastern Long-eared Bat could roost. The proposed works would clear approximately four trees that fall within the building footprint. The Site is unlikely to support a viable population of the species as it is highly modified and has undergone extensive clearing already. During clearing, felled trees will be left in-situ for at least 24 hours to allow fauna species to relocate. Qualified personnel will be on hand during clearing to check under loose bark for wildlife and relocate them.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

Endangered populations have not been identified as occurring within the study area.

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Endangered ecological communities have not been identified as occurring within the study area.

d) in relation to the habitat of a threatened species, population or ecological community:

i) the extent to which habitat is likely to be removed or modified as a result of the action proposed; and

ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action; and

iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality;

Cacatua leadbeateri (Major Mitchell's Cockatoo)

The species forages on the ground or in the branches of trees and shrubs. It feeds on seeds, nuts, fruit and roots, particularly on the seeds of Cypress Pine species and Acacia (Reader's Digest, 2003).

- i) The proposed activity will involve the removal of some individual trees, which may include White Cypress Pine individuals. The development will mainly occur in cleared areas and as such, the extent of clearing or modification of habitat will be minimal.
- ii) The vegetation at the Site is already very isolated from other areas of habitat. Vegetation clearing associated with the project will be minimal and as such, it is unlikely that areas of habitat will become further isolated or fragmented as a result of the proposed activity.
- iii) The habitat at the Site represents an isolated fragment of scattered paddock trees. As this species is relatively mobile, the fragments are important as stepping stones between more substantial areas of habitat.

***Polytelis swainsonii* (Superb Parrot)**

The Superb Parrot forages on the ground for seeds or feeds on eucalypt blossoms, fruits and leaf buds. It will also feed on wheat and oats in farmlands. The species shelters in the crowns of large trees (Reader's Digest, 2003).

- (i) The proposed activity will involve the removal of some individual trees, which will include Eucalypts. The development will mainly occur in cleared areas and as such, the extent of clearing or modification of habitat will be minimal.
- (ii) The vegetation at the Site is already very isolated from other areas of habitat. Vegetation clearing associated with the project will be minimal and as such, it is unlikely that areas of habitat will become further isolated or fragmented as a result of the proposed activity.
- (iii) The habitat at the Site represents an isolated fragment of scattered paddock trees. As this species is relatively mobile, the fragments are important as stepping stones between more substantial areas of habitat.

***Nyctophilus timoriensis* (Eastern Long-eared Bat)**

The Eastern Long-eared Bat hunts for non-flying prey such as caterpillars and beetles in the understorey and sometimes on the ground (DECC, 2007). The species roosts in tree hollows and under loose bark.

- (i) The proposed activity will involve the removal of some individual trees, which will include Eucalypts. The understorey at the Site lacks diversity as it does not contain a mid-storey and the groundcover comprises a monoculture of planted crops. As such, the Site does not comprise suitable foraging habitat for this species. As the development will mainly occur in cleared areas, the extent of clearing or modification of habitat will be minimal.
- (ii) The vegetation at the Site is already very isolated from other areas of habitat. Vegetation clearing associated with the project will be minimal and as such, it is unlikely that areas of habitat will become further isolated or fragmented as a result of the proposed activity.
- (iii) The habitat at the Site represents an isolated fragment of scattered paddock trees. The understorey at the Site lacks diversity as does not contain a mid-storey and the groundcover comprises a monoculture of planted crops. As such, the Site does not comprise suitable foraging habitat for this species.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitats are currently mapped within a 20 km radius of the project area.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

There are no Recovery Plans or Threat Abatement Plans relevant to the species being assessed.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The proposed project involves some clearing of native vegetation. Clearing of native vegetation is listed as a key threatening process (KTP) in Schedule 3 of the TSC Act. The amount of clearing to be undertaken will be minimal, comprising clearing of approximately four trees. The proposed works will be undertaken in areas that are already disturbed where further clearing is not required. During clearing, felled trees will be left in-situ for at least 24 hours to allow fauna species to relocate. Qualified personnel will be on hand during clearing to check for wildlife and relocate them.

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