Tarrawonga Coal Project

Environmental Assessment

APPENDIX G

CONTROLLING PROVISIONS OF THE EPBC ACT RELEVANT TO THE TARRAWONGA COAL PROJECT ENVIRONMENTAL ASSESSMENT

Resource Strategies

Tarrawonga Coal Pty Ltd

TARRAWONGA COAL PROJECT

APPENDIX G

CONTROLLING PROVISIONS OF THE EPBC ACT RELEVANT TO THE TARRAWONGA COAL PROJECT ENVIRONMENTAL ASSESSMENT

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1 INTRODUCTION

The purpose of this document is to demonstrate how the Tarrawonga Coal Project (the Project) Environmental Assessment (EA) addresses the requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) as a result of the decision by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (the Commonwealth Minister) to declare the Project a controlled action under the EPBC Act.

The EPBC Act provides for the protection of the environment in Australia, especially matters of national environmental significance (Commonwealth Department of Sustainability, Environment, Population and Communities [SEWPaC], 2011a). Matters of national environmental significance include:

- World Heritage properties;
- National Heritage places;
- wetlands of international importance (Ramsar wetlands);
- threatened species and ecological communities;
- migratory species, marine and other species;
- Commonwealth marine areas; and
- nuclear actions.

Tarrawonga Coal Pty Ltd (TCPL) lodged a referral for the Project on the 18 April 2011 to determine whether the proposed action[1] needed formal assessment and approval under the EPBC Act. Under the EPBC Act, an action requires approval by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities if the action is likely to have a significant impact on a matter of national and environmental significance.

On 23 May 2011, the Commonwealth Minister declared the Project to be a controlled action under section 75 of the EPBC Act, with the controlling provisions being threatened species and threatened ecological communities potentially present and listed under sections 18 and 18A, and migratory species listed under sections 20 and 20A of the EPBC Act.

A copy of the controlled action decision is provided in Attachment A of this document.

The Commonwealth Minister also determined that the proposed action is to be assessed by accredited assessment under the New South Wales (NSW) *Environmental Planning and Assessment Act, 1979* (EP&A Act) pursuant to section 87(4) of the EPBC Act.

A copy of the decision on the assessment approach is provided in Attachment A of this document.

The Commonwealth of Australia and the State of NSW governments have signed a Bilateral Agreement which accredits the NSW assessment regime under Part 3A of the EP&A Act for assessment purposes under the EPBC Act. The Bilateral Agreement was enacted in January 2007 and applies to actions that the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities has determined are controlled actions under the EPBC Act. As a result of the operation of the Bilateral Agreement, the Project will only be subject to the environmental assessment process under the EP&A Act, as opposed to the environmental assessment processes under both Part 3A of the EP&A Act and the EPBC Act.

[1] An action, defined by the SEWPaC (2011a) consists of a project, development, undertaking, activity, or a sequence of activities or an alteration of any of these things.

Guideline 1 of Schedule 1 in Part A of the Bilateral Agreement states:

1. *In addition to standard guidelines and directions, the New South Wales Minister, the Director-General or the consent authority must issue guidelines to proponents of controlled actions to ensure that material prepared by the proponent as part of the assessment:*

   (a) *contains an assessment of all relevant impacts that the controlled action has, will have or is likely to have;*

   (b) *contains enough information about the controlled action and its relevant impacts to allow the Commonwealth Environment Minister to make an informed decision whether or not to approve the controlled action under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999; and*

   (c) *addresses the matters outlined in Schedule 4 of the Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000.*

The Project will be assessed in accordance with the Bilateral Agreement and will require approval under both the EP&A Act and the EPBC Act.

Appendix B of the Director-General's Environmental Assessment Requirements (EARs) (Attachment 1 of the EA) requires information about the controlled action and its relevant impacts and matters outlined in Schedule 4 of the Commonwealth *Environment Protection and Biodiversity Regulations, 2000* (EPBC Regulations) to be addressed in the EA. This report provides a reference list of the Commonwealth requirements listed in Appendix B of the EARs and the corresponding section of the EA where the requirements are addressed.

2 GENERAL INFORMATION

Table 1 provides a list of the matters regarding general information about the Project and the corresponding section of the EA where the matters are addressed.

Table 1
Reconciliation of EA against Commonwealth Requirements – General Information

Assessment Requirement	EA Reference
General information	
The background of the action including:	
(a) the title of the action;	Section 1
(b) the full name and postal address of the designated proponent;	Section 1.1.6
(c) a clear outline of the objective of the action;	Section 1.1.3
(d) the location of the action;	Section 1 and Figure 1-1
(e) the background to the development of the action;	Section 1.1.2
(f) how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;	Section 2.1 of Appendix G and Attachment 3
(g) the current status of the action;	Section 2.2 of Appendix G
(h) the consequences of not proceeding with the action.	Section 6.9

2.1 OTHER ACTIONS IN THE REGION

There are two actions located in the vicinity of the Project that have been recently referred under the EPBC Act, namely the Continuation of the Boggabri Coal Mine and the Maules Creek Coal Project.

Boggabri Coal Pty Ltd (BCPL) owns and operates the Boggabri Coal Mine which is an open cut coal mine and is located immediately to the north of the Project. BCPL is currently seeking approval for an extension to the existing open cut operations, the Continuation of the Boggabri Coal Mine. The Continuation of the Boggabri Coal Mine was declared a controlled action under section 75 and section 87 of the EPBC Act on the 5 February 2010 with the controlling provisions being threatened species and threatened ecological communities potentially present and listed under sections 18 and 18A and migratory species listed under sections 20 and 20A of the EPBC Act.

Aston Coal 2 Pty Ltd is also seeking approval for the Maules Creek Coal Project, a proposed open cut coal mine located 3.5 kilometres (km) to the north of the Project. The Maules Creek Coal Project was declared a controlled action under the EPBC Act on the 13 August 2010 with the relevant controlling provisions being threatened species and threatened ecological communities potentially present and listed under sections 18 and 18A and migratory species listed under sections 20 and 20A of the EPBC Act.

2.2 CURRENT STATUS OF THE ACTION

The action (the Project) has not been commenced. Project Approval for the Project is being sought under Part 3A of EP&A Act.

It is anticipated that the Project construction and operation activities would commence as soon as practicable after all necessary approvals for the Project have been obtained. The Project construction/development activities would be progressively developed in parallel with ongoing mining operations at the Tarrawonga Coal Mine.

3 DESCRIPTION OF THE CONTROLLED ACTION

Table 2 provides a list of the matters regarding the description of the controlled action and the corresponding section of the EA where the matters are addressed.

Table 2
Reconciliation of EA against Commonwealth Requirements –
Description of the Controlled Action

Assessment Requirement	EA Reference
Description of the controlled action	
A description of the action, including:	
(a) all the components of the action;	Sections 2.6 to 2.14
(b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;	Sections 2.6 to 2.14 and Figure 2-1
(c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;	Sections 2.6 to 2.14
(d) to the extent reasonably practicable, a description of any feasible alternatives to the controlled action, that have been identified through the assessment and their likely impact, including:	
(i) if relevant, the alternative of taking no action;	Section 6.9
(ii) a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action;	Section 6.9
(iii) sufficient detail to clarify why any alternative is preferred to another.	Section 6.9

4 DESCRIPTION OF THE RELEVANT IMPACTS OF THE CONTROLLED ACTION

Table 3 provides a list of the matters regarding the description of the relevant impacts of the controlled action and the corresponding section of the EA where the matters are addressed.

Table 3
Reconciliation of EA against Commonwealth Requirements –
Description of the Relevant Impacts of the Controlled Action

Assessment Requirement	EA Reference
A description of the relevant impacts of the controlled action	
An assessment of all relevant impacts[1] with reference to the EPBC Act Policy Statement 1.1 Significant Guidelines Matters of National Environmental Significance (2009) that the controlled action has, will have or is likely to have on:	
(a) relevant threatened species and/or threatened ecological communities listed under sections 18 and 18A of the EPBC Act, including but not limited to:	Appendices E and F, Sections 4.1 to 4.3 of Appendix G
• *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland;*	Section 4.1 of Appendix G
• *Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland;*	Section 4.1 of Appendix G
• *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia;*	Section 4.1 of Appendix G
• *Weeping Myall Woodlands;*	Section 4.1 of Appendix G
• *Regent Honeyeater (Anthochaera phrygia);*	Section 4.2 of Appendix G
• *Swift Parrot (Lathamus discolor);*	Section 4.2 of Appendix G
• *Greater Long-eared Bat (Nyctophilus timorensis);*	Section 4.2 of Appendix G
• *Superb Parrot (Polytelis swainsonii);*	Section 4.2 of Appendix G
• *Border Thick-tailed Gecko (Underwoodiasaurus sphyrurus);*	Section 4.2 of Appendix G
• *Large-eared Pied Bat, Large Pied Bat (Chalinolobus dwyeri);*	Section 4.2 of Appendix G
• *Finger Panic Grass (Digitaria porrecta);*	Section 4.3 of Appendix G
• *Homopholis belsonii* [2406] Vulnerable*;*	Section 4.3 of Appendix G
• *Leek-orchid (Prasophyllum sp. Wybong) (C. Phelps ORG 5269);*	Section 4.3 of Appendix G
• *Austral Toadflax (Thesium austral);*	Section 4.3 of Appendix G
• *Tylophora linearis* [55231]*;* and	Section 4.3 of Appendix G
• *Pultenaea setulosa.*	Section 4.3 of Appendix G
(b) Relevant migratory species listed under sections 20 and 20A of the EPBC Act, including but not limited to:	Appendix E and Section 4.4 of Appendix G
• *White-throated Needletail (Hirundapus caudacutus);*	Section 4.4 of Appendix G
• *Rainbow Bee-eater (Merops ornatus);*	Section 4.4 of Appendix G
• *White-bellied Sea-Eagle (Haliaeetus leucogaster);*	Section 4.4 of Appendix G
• *Regent Honeyeater (Xanthomyza phrygia);*	Section 4.4 of Appendix G
• *Fork-tailed Swift (Apis pacificus);*	Section 4.4 of Appendix G
• *Great Egret, White Egret (Ardea alba);*	Section 4.4 of Appendix G
• *Cattle Egret (Ardea ibis);*	Section 4.4 of Appendix G
• *Latham's Snipe, Japanese Snipe (Gallinago hardwickii);* and	Section 4.4 of Appendix G
• *Painted Snipe (Rostratula benghalensis s.lat).*	Section 4.4 of Appendix G
Information must include:	
(a) a description of the relevant impacts of the action on matters of national environmental significance;	Sections 4.9 and 4.10, Appendices E and F
(b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts, including a detailed assessment of the impacts of diverting Goonbri Creek on the relevant threatened species and ecological communities and migratory species;	Sections 4.9 and 4.10, Appendices E and F

Table 3 (Continued)
Reconciliation of EA against Commonwealth Requirements – Description of the Relevant Impacts of the Controlled Action

Assessment Requirement	EA Reference
(c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;	Sections 4.9 and 4.10, Appendices E and F
(d) analysis of the significance of the relevant impacts;	Sections 4.9 and 4.10, Appendices E and F
(e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.	Appendices E and F
The description of the impacts should include an analysis of the vegetation condition on the site, as well as the methods by which this was determined. It should also include direct, indirect, cumulative and facilitative impacts on the following EPBC-listed communities: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland; Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland; Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia; Weeping Myall Woodlands. For each community, it should include a description of:	
(a) extent, including connectivity with other areas of the ecological community;	Appendix F
(b) quality or integrity (including, but not limited to, assisting invasive species, that are harmful to the ecological communities, to become established; or causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the communities which kill or inhibit the growth of species in the ecological community);	Appendix F
(c) EPBC Act listed species in, or in any way dependent upon, the ecological community;	Appendix F
(d) composition;	Appendix F
(e) habitat present on site critical to the survival of the ecological community[2]; and	Appendix F
(f) abiotic (non-living) factors (such as water, nutrients or soil) necessary for the ecological community's survival, for example increasing groundwater levels or making the site wetter, soil disturbance or substantial alteration of surface water drainage patterns.	Appendix F
These impacts should be described for the construction and operation phases of the controlled action.	Appendix F
Where there is a potential habitat for EPBC Act listed species, surveys must be undertaken. These surveys must be timed appropriately and undertaken for a suitable period of time by a qualified person[3]. A subsequent description of the relevant impacts on such EPBC Act listed species should include, inter alia, direct, indirect, cumulative and facilitative impacts on the:	Appendices E and F
(a) population of the species at the site;	Appendices E and F
(b) area of occupancy of the species;	Appendices E and F
(c) habitat critical to the survival of the species;	Appendices E and F
(d) breeding cycle of the population; and	Appendices E and F
(e) availability or quality of habitat for the species.	Appendices E and F

1 The term 'relevant impact' is defined in section 82 of the EPBC Act.

2 "habitat critical to the survival of a species or ecological community" refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal;
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators);
- to maintain genetic diversity and long term evolutionary development; or
- for the reintroduction of population or recovery of the species or ecological community.

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the register of Critical Habitat maintained by the Minister under the EPBC Act.

3 Where available, species-specific survey guidelines can be obtained on the department's *Species Profile and Threats Database*: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

4.1 THREATENED ECOLOGICAL COMMUNITIES

Prior to the vegetation surveys of the Project area, four threatened Ecological Communities listed in the schedules of the EPBC Act (Table 4), were considered possible occurrences in the Project area (Appendix F). The likelihood of each occurring on the Project area was assessed (Table 4) by considering the known distributions and habitats of each, as well as the findings of previous studies on and near the Project area (Geoff Cunningham Natural Resource Consultants [GCNRC], 2005; EcoLogical Australia, 2010; Parsons Brinkerhoff, 2010).

From this assessment, two threatened ecological communities were considered to have a moderate to high potential to occur on the Project area; Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Inland Grey Box Woodland Endangered Ecological Community [EEC]) (moderate potential to occur) and the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grasslands (Box-Gum Woodland Critically Endangered Ecological Community [CEEC]) (high potential to occur).

A vegetation survey of the Project area was carried out over 17 days in the periods 9, 10, 16-19 November 2010, 17-21 January 2011, 23 May 2011, 29-31 July and 3 and 5 August 2011 (Appendix F). The survey encompassed all patches of native vegetation within the Project area in order to sample and map all ecological communities present.

No Inland Grey Box Woodland EEC was found on or near the Project area by this survey or previous surveys (GCNRC, 2005; Ecological Australia, 2010; Parsons Brinkerhoff, 2010). Therefore, it was concluded that the Inland Grey Box Woodland EEC was absent from the Project area.

The Box-Gum Woodland CEEC was identified during the vegetation survey on the western side of the Project area on and near the proposed infrastructure site and on part of the proposed services corridor. The likelihood of significant impacts from the Project on the Box-Gum Woodland CEEC is assessed in Table 5.

Table 4
Likelihood of Threatened Ecological Communities Listed Under the EPBC Act Occurring on the Project Area

Community Name EPBC Act[1]	Conservation Status EPBC Act	Known Distribution	Potential Habitats	Likelihood of Occurrence
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	E	Lower western slopes and plains from the Victorian border to Queensland (NSW Department of Environment and Conservation [DEC], 2005a). At a Commonwealth level it also occurs in Victoria and South Australia (Threatened Species Scientific Committee [TSSC], 2009a).	Inland Grey Box Woodland occurs on fertile soils of the western slopes and plains of NSW (DEC, 2005a). It often occurs on productive soils derived from alluvial or colluvial materials but may occur on a range of other substrates (TSSC, 2009a).	Moderate likelihood determined prior to surveys. Surveys confirmed community not on-site.
Natural grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Queensland	CE	NSW community is located around Coonabarabran, Gunnedah, Murrurundi, Narrabri, Tamworth and Quirindi on the North West Slopes and Plains (DEC, 2005b).	Occurs on the highly fertile cracking clay soils of the Liverpool Plains (DEC, 2005b). Generally occurs on flat to low slopes, of no more than 5% (or less than 1 degree) inclination (TSSC, 2009b).	Low likelihood determined prior to surveys. (Suitable soils are absent or rare on the Project area). Surveys confirmed community not on site.
Weeping Myall Woodlands	E	Scattered across the eastern parts of the alluvial plains of the Murray-Darling river system (DEC, 2005c) on the NSW western slopes and plains.	Occurs on red-brown earths and heavy textured grey and brown alluvial soils (DEC, 2005c) that become waterlogged in winter.	Low likelihood determined prior to surveys. (The Project area is upslope of landscapes suitable for this community). Surveys confirmed community not on site.
White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grasslands	CE	Occurs mainly on the tablelands and western slopes of NSW (DEC, 2005d). This community has been identified on or near the Project area by previous studies (GCNRC, 2005; Ecological Australia, 2010; Parsons Brinkerhoff, 2010).	Generally occurs on fertile lower parts of the landscape where resources such as water and nutrients are abundant.	High likelihood determined prior to surveys. Surveys confirmed community present on-site.

[1] Threatened Ecological Community status under Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (current to 11 May 2011).

E – Endangered; CE - Critically Endangered.

4.1.1 White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grasslands

Table 5 assesses the likelihood of significant impacts from the Project on the Box-Gum Woodland CEEC.

Table 5
Likelihood of Significant Impacts on the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Reduce the extent of an ecological community?	No	Vegetation clearance for the Project would result in the removal of approximately 13 hectares (ha) of the Box-Gum Woodland CEEC. The Box-Gum Woodland CEEC in the proposed new mine facilities area and services corridor have been severely disturbed historically, are highly fragmented and have high perimeter to area ratios. They would have poor long term prospects for survival under continued agricultural land use. However, despite depleted biodiversity values, the remnants retain the ability to regenerate their overstorey and some understory components, and have potential for recovery if current disturbance factors were removed. Many remnants in similar condition occur widely in the immediate region and it is considered unlikely that the Project would result in the loss or serious depletion of the CEEC in the local area. Significant areas of the Box-Gum Woodland CEEC in very good condition occur in parts of Leard State Forest that would not be affected by any of the existing or proposed coal mining developments within the forest. In addition, the proposed offset area contains significant areas of this community that would benefit greatly from being removed from agricultural land use. The offset strategy for this community is presented in Attachment C of the Flora Assessment (Appendix F).
Fragment or increase fragmentation of an ecological community?	No	The patches of Box-Gum Woodland CEEC proposed to be cleared by the Project have been considerably disturbed and degraded by past land use practices, including clearing of trees and shrubs, cropping and heavy grazing by domestic animals. These areas have been reduced to small fragments isolated from other patches of Box-Gum Woodland CEEC in the region. The long term viability of these remnants is considered to be doubtful. The main impact of the proposed new mine facilities area and services corridor would be the removal of approximately 13 ha of young Box-Gum Woodland regeneration and derived grassland. There will be no disturbance to the mature Box-Gum Woodland corridor to the west of the new mine facilities area, which would maintain its limited connective capacity in the landscape. However, the majority of the adjoining patch of regeneration to the east would be unaffected by the development. While the Project would result in additional fragmentation of the Box-Gum Woodland remnants in the local area, the high degree of existing fragmentation of this community means that the additional fragmentation resulting from the Project is not likely to be significant.
Adversely affect habitat critical to the survival of an ecological community?	No	Critical habitat, as defined by the EPBC Act, has not been declared for any areas of Box-Gum Woodland CEEC. There is no critical habitat listed on the Commonwealth Register of Critical Habitat (SEWPaC, 2011b) in the Project area or surrounds.
Modify or destroy abiotic factors necessary for the ecological community's survival?	No	The Box-Gum Woodland CEEC occurs on low ridges and the footslopes of hills on the Project area and is unlikely to be ground-water dependent. Rather, it is vadophytic, depending primarily on water held in the soil profile that is replenished by infiltration of rainfall. Nor is it considered likely that the Project would substantially alter surface or subsurface flows in the vicinity of nearby Box-Gum Woodland CEEC remnants. The Project is also unlikely to have significant off-site effects, apart from dust deposition, that might affect the Box-Gum Woodland CEEC. In the case of dust, the nearest patch of Box-Gum Woodland CEEC in Leard State Forest is over 1.5 km from the nearest parts of the proposed open cut pit, such that minimal dust deposition would be expected to occur. However, patches of the Box-Gum Woodland CEEC close to the new mine facilities area are in closer proximity to the pit and may experience dust deposition in dry conditions. Dust effects would be mitigated by a dust suppression regime through regular watering of roads and implementation of other techniques within the Project area (Section 8.6 of Appendix F). However, drift of dust into surrounding bushland following blasting is difficult to mitigate and may result in some residual deleterious effects to vegetation adjacent to the Project area boundary. It is concluded that sporadic short term physiological damage to native plants may occur in areas near the working open cut.

Table 5 (Continued)
Likelihood of Significant Impacts on the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grasslands – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Cause substantial change in the species composition of an occurrence of an ecological community?	No	Increased fire frequency and dust deposition are two potential Project impacts that might result in a change in species composition of Box-Gum Woodland CEEC remnants on or near the Project area. Project activities, including exploration, construction and environmental management and monitoring, may increase the risk of fire ignition (e.g. via increased vehicle traffic through dry vegetation). TCPL would implement strategies to minimise fire risk including the use of diesel vehicles, prohibition of smoking in fire prone areas and rapid response to any outbreak of fire (Section 8.5 of Appendix F). The overall risk of increased bush fire frequency due to the Project is likely to be very low. Farmer (2002) cites many examples of changes in the composition of plant communities due to particulate pollution (i.e. dust). Although most of the examples relate to calcareous dust derived from limestone quarries or calcareous road materials, which can alter soil pH, it is clear that dust can affect soil chemistry, disease incidence and plant growth, ultimately affecting community composition. Dust control measures are detailed in Section 8.6 of Appendix F. See further discussion of the dust issue in the assessment criteria above. However, any changes to composition of the Box-Gum Woodland CEEC due to dust deposition are considered unlikely to be large and would be localised to areas close to the mine site. No effects on remnants of the community in the wider region are considered likely to occur.
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including but not limited to: - assisting an invasive species that are harmful to the ecological community; or - causing the mobilisation of regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community?	No	Most pests and weeds with potential to affect the Box-Gum Woodland CEEC are already prevalent in the landscape surrounding the Tarrawonga Coal Mine. An exception is Coolatai Grass (*Hyparrhenia hirta*) which has significant potential to invade Box-Gum Woodlands and displace native understorey species. Coolatai Grass is not yet prevalent in the Tarrawonga Coal Mine area or Leard State Forest. Weeds and pests have been controlled historically by landholders on farmland, the Shire Council on roadsides and State government agencies on crown land (e.g. Leard State Forest). TCPL would develop a detailed Biodiversity Management Plan for the Project that would specify appropriate weed and vertebrate pest control measures on land owned by the company. The plan would recognise the potential for some weeds, including Coolatai Grass, and pests to increase as result of the creation of new habitat opportunities by the Project, e.g. through soil disturbance and rehabilitation, and outlines strategies to suppress any outbreaks of noxious weeds or vertebrate pests. The Project is considered unlikely to release dangerous pollutants to the surrounds owing to strict management of toxic materials, lubricants, fuel, etc. As indicated in the assessment criteria above, there is potential for escape of dust from the mine site to the surrounds. Dust may affect the growth of plant species, the prevalence of plant pests and diseases, and the composition of ecological communities (Farmer, 2002). The likely magnitude of these effects and the mitigation strategies proposed to be deployed are discussed in the assessment criteria above.
Interfere with the recovery of an ecological community?	No	Areas of Box-Gum Woodland CEEC mapped on Figure 4 (Appendix F) as Community 3a and 3b comprise regeneration and represent areas on which the community is recovering. This recovery has occurred since the land was purchased for mining purposes and would not have occurred had the previous land use of farming continued. Part of this regeneration would be cleared by the proposed mine infrastructure area and the services corridor. The proposed offset strategy (Attachment C of Appendix F) would enable larger areas of similar Box-Gum Woodland CEEC habitat to similarly recover from past grazing and be preserved in perpetuity.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

4.2 THREATENED FAUNA SPECIES

There are potential habitat resources in the Project area for six threatened fauna species listed under the EBPC Act, namely the Swift Parrot, Superb Parrot, Regent Honeyeater, Greater Long-eared Bat (south-eastern form), Large-eared Pied Bat and Spotted-tailed Quoll (Appendix E). Three other threatened fauna species listed under the EBPC Act (the Border Thick-tailed Gecko, Brush-tailed Rock Wallaby and Pilliga Mouse) are known from elsewhere in the Namoi Catchment Management Authority region but are considered unlikely to occur in the Project area (Appendix E).

Terrestrial vertebrate fauna surveys were undertaken for the Project and involved various surveys conducted over multiple seasons (Appendix E). Survey techniques included: Elliot trapping, cage trapping, bat call recording, harp traps, hair tubes, spotlighting, herpetological searches, bird census, call playback and searches for tracks and traces. Potentially occurring threatened fauna species were targeted during the surveys.

No threatened fauna species listed under the EPBC Act were recorded in the Project area during the surveys (Appendix E). The Greater Long-eared Bat (south-eastern form), Large-eared Pied Bat are known from within Leard State Forest. There have been no recorded local sightings of the Swift Parrot, Superb Parrot, Regent Honeyeater, Spotted-tailed Quoll, Border Thick-tailed Gecko, Brush-tailed Rock Wallaby and Pilliga Mouse.

The likelihood of significant impacts from the Project on these species is assessed in Tables 6 to 14.

4.2.1 Regent Honeyeater (*Anthochaera phrygia*)

White Box (*Eucalyptus albens*) is a winter-flowering eucalypt found in the Project area and provides potential forage resource for the Regent Honeyeater during its migration to NSW. The species is not likely to breed within the Project area as the closest known breeding location is east in the Bundarra-Barraba region. This species has not been previously recorded in the vicinity of the Project area. However, the Project area may be used on a transient basis by the Regent Honeyeater. Table 6 assesses the likelihood of significant impacts from the Project on the Regent Honeyeater.

Table 6
Likelihood of Significant Impacts on the Regent Honeyeater – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of a population of a species?	No	The Project is not likely to decrease the size of the population. The potential forage resources proposed to be removed for the Project area (279 ha) are a very small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of the species?	No	The Project would not reduce the area of occupancy of the species. The potential forage resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile and utilises large feeding ranges. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of a population?	No	The Project is unlikely to disrupt the breeding cycle of an important population. The species is not likely to breed within the Project area as the closest known breeding location is east in the Bundarra-Barraba region.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat?	No	The Project would not result in an invasive species harmful to the Regent Honeyeater in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the species is not likely to breed within the Project area as the closest known breeding location is east in the Bundarra-Barraba region; • the species has not been previously recorded using the potential foraging habitat that occurs in the Project area or Leard State Forest; • if used at any time, the potential foraging habitat that occurs in the Project is a very minor component of the habitat available in NSW; • the species' mobility (i.e. the Regent Honeyeater is listed as a 'Migratory' species under the EPBC Act) would enable the Regent Honeyeater to relocate easily to alternative habitats within its winter feeding range if need be; and • the proposed offset area provides potential habitat for this species and there is an opportunity to increase the area of winter-flowering trees (White Box) which represent potential foraging habitat for the Regent Honeyeater.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for the Regent Honeyeater but is very unlikely to cause physical harm to individuals of the species. There is likely to be a potential impact on this species in the short-term (mostly due to the loss of habitat), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (woodland); and
- conservation of the offset area would maintain 1,055 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. All of the broad fauna habitat types potentially used by the species in the Project area are represented in the offset area.

4.2.2 Swift Parrot (*Lathamus discolor*)

White Box (*E. albens*) is a winter-flowering Eucalypt found in the Project area and provides potential forage resource for the Swift Parrot during its winter migration to NSW. The area of White Box is adjacent to the Tarrawonga Coal Mine and Boggabri Coal Mine. Table 7 assesses the likelihood of significant impacts from the Project on the Swift Parrot.

Table 7
Likelihood of Significant Impacts on the Swift Parrot – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of a population of a species?	No	The Project is not likely to decrease the size of the population. The potential forage resources proposed to be removed for the Project area (54 ha) are a very small component of the species' habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of the species?	No	The Project would not reduce the area of occupancy of the species. The potential forage resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile and utilises large feeding ranges. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging habitat in the Project area is not considered to be critical to the survival of the species. The species migratory range in NSW spans from the coast to central NSW, with most sightings on the coast and south-west slopes. The potential habitat in the Project area (winter-flowering White Box) is a very minor component of potential habitat for the species.
Disrupt the breeding cycle of a population?	No	The Swift Parrot is migratory and exists as a single population. The species does not breed in NSW with breeding only occurring in Tasmania. The Project would not disrupt the breeding cycle of the population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat?	No	The Project would not result in an invasive species harmful to the Swift Parrot in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the species does not breed in NSW with breeding only occurring in Tasmania; • the Project area is located near the western edge of the species range in NSW and the species has not been previously recorded using the potential foraging habitat that occurs in the Project area or Leard State Forest; • if used at any time, the potential foraging habitat that occurs in the Project area is a very minor component of the habitat available in NSW; • the species' mobility (i.e. the Swift Parrot exhibits migratory behaviour) would enable the Swift Parrot to relocate easily to alternative habitats within its winter feeding range if need be; and • the proposed offset area provides potential habitat for this species and there is an opportunity to increase the area of winter-flowering trees (White Box) which represent potential foraging habitat for the Swift Parrot.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for this species but is very unlikely to cause physical harm to individuals of the species. There is likely to be a potential impact on this species in the short-term (mostly due to the loss of habitat), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (winter-flowering Eucalypts, e.g. White Box); and
- conservation of the offset area would maintain 397 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. The proposed offset area provides potential habitat for this species and there is an opportunity to increase the area of winter-flowering trees (White Box) which represent potential foraging habitat for the Swift Parrot.

4.2.3 Greater Long-eared Bat (*Nyctophilus timorensis*)

Most of the broad fauna habitat types that would be cleared by the Project (other than grasslands) provide potential foraging habitat resources for the Greater Long-eared Bat (south-eastern form) (moths and possibly other flying invertebrates). This species may use tree hollows, exfoliating bark or dense foliage in the Project area for roosting. It may also hunt for prey (large moths and beetles) over the dams in the Project area. However, the species has not been located in the Project area. Table 8 assesses the likelihood of significant impacts from the Project on the Greater Long-eared Bat.

Table 8
Likelihood of Significant Impacts on the Greater Long-eared Bat (south-eastern form) – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. The potential forage and breeding resources proposed to be removed for the Project area (557 ha) are a very small component of the species habitat resources in NSW. Although the species has been recorded at Leard State Forest, it has not been previously recorded in the Project area.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species. The potential forage and breeding resources proposed to be removed for the Project area are a relatively small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile. Furthermore, the species has not been previously recorded in the Project area.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging and breeding habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	The Project is unlikely to disrupt the breeding cycle of an important population. The potential breeding resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage and breeding resources proposed to be removed for the Project area are a relatively small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Greater Long-eared Bat (south-eastern form) in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the potential foraging and breeding habitats that occur in the Project area are a very minor component of the habitat available in NSW; • the species has not been previously recorded using the potential foraging and breeding habitat that occurs in the Project area; • the species' mobility would enable the Greater Long-eared Bat (south-eastern form) to relocate easily to alternative habitats if need be; and • the proposed offset area and adjoining Mount Kaputar National Park provide potential foraging and breeding habitat for this species with potential habitat for the Greater Long-eared Bat (south-eastern form) likely to increase under proposed management.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for this species. There is likely to be a very limited potential impact on this species in the short-term (mostly due to the loss of habitat and less likely due to the possible loss of individuals during clearing), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (woodland) supplemented with nest boxes; and
- conservation of the offset area would maintain 1,660 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. The proposed offset area provides potential foraging habitat for this species (i.e. 1,660 ha), which may be used by the species from time to time. This species has been recorded within Mount Kaputar National Park, adjoining the proposed offset area. All of the broad fauna habitat types potentially used by the species in the Project area are represented in the offset area.

4.2.4 Superb Parrot (*Polytelis swainsonii*)

Only limited potential habitat resources for the Superb Parrot exist within the Project area. These comprise the Grassy Woodland Habitat and the scattered woodland patches to the south of the Project area and within the semi-cleared agricultural land (Appendix E). Table 9 assesses the likelihood of significant impacts from the Project on the Superb Parrot.

Table 9
Likelihood of Significant Impacts on the Superb Parrot – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. The potential forage resources proposed to be removed for the Project area (18 ha) are a very small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species. The potential forage resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile and utilises large feeding ranges. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	The Project is unlikely to disrupt the breeding cycle of an important population. Birds breeding in the south-western slopes migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers, also in the mid-Lachlan catchment.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Superb Parrot being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the species generally breeds in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers, also in the mid-Lachlan catchment; • the species has not been previously recorded using the potential foraging habitat that occurs in the Project area or Leard State Forest; • if used at any time, the potential foraging habitat that occurs in the Project is a very minor component of the habitat available in NSW; and • the proposed offset area provides potential foraging habitat for this species with potential habitat for the Superb Parrot likely to increase under the proposed management strategies.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for this species. There is likely to be a potential impact on this species in the short-term (mostly due to the loss of habitat), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (winter-flowering Eucalypts – White Box); and
- conservation of the offset area would maintain 23 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. All of the broad fauna habitat types potentially used by the species in the Project area are represented in the offset area.

4.2.5 Border Thick-tailed Gecko (*Underwoodiasaurus sphyrurus*)

Only limited potential habitat resources for the Border Thick-tailed Gecko exist within the Project area, and the Project is below the altitude range of this species. Table 10 assesses the likelihood of significant impacts from the Project on the Border Thick-tailed Gecko.

Table 10
Likelihood of Significant Impacts on the Border Thick-tailed Gecko – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. Only limited potential habitat resources for this species exist within the Project area. The potential habitat resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species. The potential habitat resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	The potential habitat resources in the Project area are not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	The Project would not disrupt the breeding cycle of the population. The potential breeding resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential habitat resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Border Thick-tailed Gecko in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • only limited potential habitat resources for this species exist within the Project area; • if used at any time, the potential habitat that occurs in the Project is a very minor component of the habitat available in NSW; and • the species has not been previously recorded using the potential habitat that occurs in the Project area or Leard State Forest. Further, this species was located within the offset area proposed as part of the Project.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

Significant impacts on this species are unlikely given the lack of records in the Project area and surrounds and the nature and extent of likely impacts. Only limited potential habitat resources for this species exist within the Project area, and the Project is below the altitude range of this species. This species was, however, located in the proposed offset area during targeted searches (Appendix E).

4.2.6 Large-eared Pied Bat (*Chalinolobus dwyeri*)

Most of the broad fauna habitat types that would be cleared by the Project (other than grasslands) provide potential foraging habitat resources for the Large-eared Pied Bat (moths and possibly other flying invertebrates). The denser components of the Dry Sclerophyll Forest – Cypress Monoculture Regrowth Habitat are less likely to be used by this species due to limited accessibility by this species. This species may also hunt over the dams and in the grassland habitat. Table 11 assesses the likelihood of significant impacts from the Project on the Large-eared Pied Bat.

Table 11
Likelihood of Significant Impacts on the Large-eared Pied Bat – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. The potential forage resources proposed to be removed for the Project area (334 ha) are a very small component of the species habitat resources in NSW. Although the species has been recorded at Leard State Forest, it has not been previously recorded in the Project area.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species. The potential forage resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile. Furthermore, the species has not been previously recorded in the Project area.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	No breeding habitat (caves or similar subterranean habitats) would be removed by the Project. The Project would not disrupt the breeding cycle of the population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Large-eared Pied Bat in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • no breeding habitat (caves or similar subterranean habitats) would be removed by the Project; • if used at any time, the potential foraging habitat that occurs in the Project is a very minor component of the habitat available in NSW and is not near a known roost site; • the species has not been previously recorded using the potential foraging habitat that occurs in the Project area; • the species' mobility would enable the Large-eared Pied Bat to relocate easily to alternative habitats if need be; and • the proposed offset area provides potential foraging habitat for this species with potential habitat for the Large-eared Pied Bat likely to increase under proposed management.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for this species but is very unlikely to cause physical harm to individuals of the species. There is likely to be a very limited potential impact on this species in the short-term (mostly due to the loss of habitat), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- no breeding habitat (caves or similar subterranean habitats) would be removed by the Project;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (woodland); and
- conservation of the offset area would maintain 1,355 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. All of the broad fauna habitat types potentially used by the species in the Project area are represented in the offset area.

4.2.7 Spotted-tailed Quoll (*Dasyurus maculatus*)

It is likely that the Project would result in a limited impact on the Spotted-tailed Quoll by removing potential habitat resources. Table 12 assesses the likelihood of significant impacts from the Project on the Spotted-tailed Quoll.

Table 12
Likelihood of Significant Impacts on the Spotted-tailed Quoll - EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of a population?	No	The Project is not likely to decrease the size of the population. The potential forage and breeding resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of the species?	No	The Project would not reduce the area of occupancy of the species. The potential forage and breeding resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species as the species is very mobile and occupies large home and feeding ranges. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	The potential foraging and breeding habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of a population?	No	The Project is unlikely to disrupt the breeding cycle of an important population. The potential breeding resources proposed to be removed for the Project area are a small component of the species habitat resources in NSW.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	The potential forage and breeding resources proposed to be removed for the Project area are a very small component of the species habitat resources in NSW. Removal of these potential resources is not likely to cause the species to decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat?	No	The Project would not result in an invasive species harmful to the Spotted-tailed Quoll in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the potential foraging and breeding habitats that occur in the Project area are a very minor component of the habitat available in NSW; and • the species has not been previously recorded using the potential habitat that occurs in the Project area or Leard State Forest

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

The Project would result in the removal of potential habitat for this species but is very unlikely to cause physical harm to individuals of the species. There is likely to be a very limited potential impact on this species in the short-term (mostly due to the loss of habitat), however, there is unlikely to be a net impact on the species in the region over the medium to long-term since:

- clearing is staged over a 17 year period;
- progressive rehabilitation of the post-mine landforms would result in re-establishment of potential habitat (woodland); and
- conservation of the offset area would maintain 1,660 ha of potential habitat for the species over the medium to long-term, and furthermore through appropriate management of the offset area, likely increase areas of suitable habitat for the species. All of the broad fauna habitat types potentially used by the species in the Project area are represented in the offset area.

4.2.8 Brush-tailed Rock Wallaby (*Petrogale penicillata*)

The Brush-tailed Rock Wallaby mostly inhabits rocky escarpments that have a northerly aspect and favour areas that feature complex structures such as ledges, caves and crevices (Van Dyck and Strahan, 2008; NSW Office of Environment and Heritage [OEH], 2011a). No suitable rocky escarpments, outcrops and cliffs are located in the Project area and surrounds. Table 13 assesses the likelihood of significant impacts from the Project on the Brush-tailed Rock Wallaby.

Table 13
Likelihood of Significant Impacts on the Brush-tailed Rock Wallaby – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. Key habitat resources of this species (i.e. rocky escarpments, caves, outcrops and cliffs) are absent from the Project area. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species, as key habitat resources for this species are absent from the Project area. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species, due to the lack of key habitat resources required to support a population of this species. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	No key potential habitat resources are present in the Project area, therefore the habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	The breeding cycle of an important population would not be disrupted as the species is absent from the Project area and not likely to exist due to the absence of habitat.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	Key habitat resources for this species (i.e. rocky escarpments, caves, outcrops and cliffs) are absent from the Project area. The species is not present in the Project area.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Brush-tailed Rock Wallaby in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the Project area does not contain key habitat resources for this species (i.e. lack of suitable rocky escarpments, caves, outcrops and cliffs); and • the species has not been previously recorded in the Project area or Leard State Forest.

1 As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

Significant impacts on this species are unlikely given the lack of records in the Project area and surrounds and the nature and extent of likely impacts. No suitable habitat resources for this species exist within the Project area.

4.2.9 Pilliga Mouse (*Pseudomys pilligaensis*)

The Pilliga Mouse's distribution is limited to the Pilliga region of NSW (OEH, 2011a). The species was not located during targeted surveys nor has it been previously located in the local area. The Project area is outside of the known range for this species and suitable habitat is absent. Table 14 assesses the likelihood of significant impacts from the Project on the Pilliga Mouse.

Table 14
Likelihood of Significant Impacts on the Pilliga Mouse – EPBC Act Assessment

Assessment Criteria[1]	**Assessment**	
Is the Project likely to:		
Lead to a long-term decrease in the size of an important population of a species?	No	The Project is not likely to decrease the size of the population. Suitable habitat of this species is absent from the Project area. The species has not been previously recorded in the Project area or Leard State Forest.
Reduce the area of occupancy of an important population?	No	The Project would not reduce the area of occupancy of the species, as suitable habitat resources for this species are absent from the Project area. The species has not been previously recorded in the Project area or Leard State Forest.
Fragment an existing important population into two or more populations?	No	The Project would not cause an area of habitat to become fragmented or isolated from other areas of habitat for this species, due to the lack of suitable habitat required to support a population of this species. Furthermore, the species has not been previously recorded in the Project area or Leard State Forest.
Adversely affect habitat critical to the survival of a species?	No	No potential habitat resources are present in the Project area, therefore the habitat in the Project area is not considered to be critical to the survival of the species.
Disrupt the breeding cycle of an important population?	No	The breeding cycle of an important population would not be disrupted as the species is absent from the Project area and not likely to exist as the Project is outside of the species' range in NSW and due to the absence of habitat.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	Suitable habitat resources for this species are absent from the Project area. The species is not present in the Project area.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	The Project would not result in an invasive species harmful to the Pilliga Mouse in being established in the area. Furthermore, weeds and exotic animals would be managed to minimise their presence in the Project area.
Introduce disease that may cause the species to decline?	No	The Project does not include activities that would result in a disease that may cause the species to decline.
Interfere substantially with the recovery of the species?	No	The Project would not interfere substantially with the recovery of the species, as: • the Project area does not contain suitable habitat for this species; • the species distribution is limited to the Pilliga region of NSW, therefore the Project area is located outside of the species range in NSW; and • the species has not been previously recorded in the Project area or Leard State Forest.

1 As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

Significant impacts on this species are unlikely given the lack of records in the Project area and surrounds and the nature and extent of likely impacts. No suitable habitat resources for this species exist within the Project area.

4.3 THREATENED FLORA SPECIES

Prior to the vegetation surveys, 12 threatened plant species listed in the schedules of the EPBC Act were considered possible occurrences in the Project area. Table 15 assesses the likelihood of suitable habitat for these species in the Project area by analysing their distribution and habitat requirements from the available literature as well as records from previous studies on or near the Project area.

Ten of the 12 species were considered to have a low probability of occurring on the Project area. Two species (*Pultenaea setulosa* and *Thesium australe*) listed as Vulnerable under the EPBC Act were considered to have a medium probability of occurring through the potential existence of suitable habitat and were assessed further.

The vegetation survey was carried out over 17 days in the periods 9, 10, 16 to 19 November 2010, 17 to 21 January 2011, 23 May 2011, 29 to 31 July and 3 and 5 August 2011 (Appendix F). The survey encompassed all patches of native vegetation within the Project area in order to sample and identify all vegetation communities present. All vegetation communities were surveyed to maximise the chances of finding populations of any threatened flora species.

No threatened flora species, were found during the vegetation surveys conducted over the Project area. The likelihood of significant impacts from the Project on *P. setulosa* and *T. australe* are assessed collectively in Table 16.

Table 15
Likelihood of Threatened Flora Species Listed Under the EPBC Act Occurring on the Project Area

Family Name	Scientific Name	Conservation Status	Habitat	Distribution	Likelihood of Occurrence
		EPBC Act[1]			
Apocynaceae	*Tylophora linearis*	E	Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of *Eucalyptus fibrosa, Eucalyptus sideroxylon, Eucalyptus albens, Callitris endlicheri, Callitris glaucophylla* and *Allocasuarina luehmannii* (DEC, 2005e). On coarse-grained sediments.	Distributed to the west of the Project area from the Pilliga Scrub to Peak Hill and Dubbo.	Low (Known communities and soils absent from Project area)
Brassicaceae	*Lepidium aschersonii*	V	In NSW, the Spiny Peppercress is usually found on grey loam gilgai soils, on ridges between the gilgai depressions (Bower, unpublished; DEC, 2005f). Around Narrabri it is found in open to dense Brigalow (*Acacia harpophylla*) communities with a sparse grassy understorey (*ibid.*). In Central Western NSW it occurs mainly in communities dominated by Belah (*Casuarina cristata*), but also in Bull Mallee (*Eucalyptus behriana*) woodland and Grey Box (*Eucalyptus microcarpa*)/Buloke (*Allocasuarina luehmannii*) woodland (Bower, unpublished).	Distributed on the Central West Slopes in the Barmedman - West Wyalong - Lake Cowal area (Bower, unpublished) and near Narrabri on the North West Plains (DEC, 2005f). Recorded recently in the Leard State Conservation Area to the west of the Project area (OEH, 2011b).	Low (Habitat absent from Project area)
Fabaceae	*Pultenaea setulosa*	V	This species (as *Pultenaea* sp. I) is reported to occur on volcanic soils (Weston, 1991). Parsons Brinkerhoff (2010) recorded extensive populations in the centre and west of Leard State Forest. The habitat of *P. setulosa* in Leard State Forest is steep south-facing gullies which are more shaded and retain more moisture than the surrounding gentler terrain.	Occurs in the Nandewar Range (Mount Kaputar National Park) (Weston, 1991) and the southern slopes of the Willowtree Range in Leard State Forest (Parsons Brinkerhoff, 2010) (Attachment A of Appendix F). Scattered records occur in the wider region including a concentration near Nundle (Attachment A of Appendix F).	Medium (Lack of preferred soils and steep sheltered terrain, but proximity of other records suggests it may have potential to occur)
	Swainsona murrayana	V	Occurs on flat inland floodplains and depressions on clay-based soils, ranging from grey, red and brown cracking clays to red-brown earths and loams (DEC, 2005g).	Occurs principally on the NSW South West Plains with a few records on the margins of the NSW North West Plains and NSW North West Slopes Botanical Divisions (NSW Flora Online, 2011). There appear to be no records from the Liverpool Plains.	Low (Habitat absent from Project area)
Orchidaceae	*Prasophyllum* sp. Wybong	CE	Occurs on generally fertile soils in native grasslands and grassy woodlands (TSSC, 2009c). Soils on the Project area have generally low fertility, except on the valley floor, where farming practices would likely have eliminated the species.	Known from seven populations between Tenterfield and Yeoval. Project area is within the species' distribution.	Low (lack of suitable soils)
	Pterostylis cobarensis	V	Habitats are eucalypt woodlands, open mallee or *Callitris* shrublands on low stony ridges and slopes in skeletal sandy-loam soils (DEC, 2005h). Such habitats are absent from the Project area.	Recorded mainly west of the Project area, although there is a record from Narrabri (DEC, 2005h).	Low (lack of suitable soils)

Table 15 (Continued)
Likelihood of Threatened Flora Species Listed Under the EPBC Act Occurring on the Project Area

Family Name	Scientific Name	Conservation Status	Habitat	Distribution	Likelihood of Occurrence
		EPBC Act[1]			
Poaceae	*Dichanthuim setosum*	V	The main populations are on heavy black soils derived from basalt (DEC, 2005i). It has also been recorded from stony red-brown hard-setting loams over a clay subsoil (TSSC, 2008a). It is often found in disturbed areas including roadsides, cleared woodlands, grazing paddocks or highly disturbed sites. It is known to occur with White Box (*E. albens*), which occurs on the Project area.	Principally known from the New England Tableland, but also occurs on the NSW North West Slopes, NSW North West Plains and NSW Central West Slopes (TSSC, 2008a).	Low (lack of suitable soils)
	Digitaria porrecta	E	Soils are usually fertile, dark and fine textured with some degree of seasonal cracking (TSSC, 2008b). Favours native grassland, woodlands or open forest with a grassy understorey (DEC, 2005j). Suitable soils for this species are most likely derived from erosion of basalt and are absent from the Project area.	On the North West Slopes and Plains from near Moree south to Tambar Springs and from Tamworth to Coonabarabran (DEC, 2005j).	Low (lack of suitable soils)
	Homopholis belsonii	V	Occurs in a variety of landscape positions and soil types from rocky hills to alluvial flats (TSSC, 2008c).	Occurs between Wee Waa, Goondiwindi and Glen Innes (TSSC, 2008c), well outside the Project area.	Low (lack of suitable soils)
Rutaceae	*Philotheca ericifolia*	V	Occurs chiefly in dry sclerophyll forest and heath on damp sandy flats and gullies (Weston and Porteners, 1991 [as *Eriostemon ericifolius*]). Habitats include heath, open woodland, dry sandy creek beds, and rocky ridge and cliff tops (TSSC, 2008d). Tends to occur on coarse-grained sediments, which are absent from the Project area.	Occurs from the upper Hunter Valley and Pilliga to the Peak Hill, Dubbo and West Wyalong districts of NSW. The Project area is east of its known range.	Low (lack of suitable soils and habitat)
Santalaceae	*Thesium australe*	V	Occurs in grassland or grassy woodland. Often found in damp sites in association with Kangaroo Grass (*Themeda australis*) (DEC, 2005k). Can be found on a wide variety of soils derived from sedimentary, igneous and metamorphic rocks as well as recent alluvium (NSW Department of Sustainability and Environment [DSE], 2003).	Occurs in small populations scattered across the western slopes, tablelands and coast of NSW (DEC, 2005k) (Attachment A of Appendix F). In the wider region, there are concentrations in Kaputar National Park and around Inverell (Attachment A of Appendix F).	Medium (Main host plant is rare in the Project area, but may once have been more abundant)
Surianaceae	*Cadellia pentastylis*	V	Grows in dry rainforest, semi-evergreen vine thickets and sclerophyll ecological communities forming a closed or open canopy with eucalypt and cypress pine species (TSSC, 2008e). Grows on low to medium nutrient soils of sandy clay or clayey consistencies, with a typical soil profile having a sandy loam surface layer, grading from a light clay to a medium clay with depth (DEC, 2005l).	Western edge of the NSW north western slopes including the Gunnedah and Narrabri areas.	Low (There are no records for this obvious species close to the Project area)

[1] Threatened species status under the Commonwealth *Environment Protection and Biodiversity Conservation Act*, *1999* (current to 11 May 2011).
CE - Critically Endangered; E - Endangered; V - Vulnerable.

4.3.1 *Thesium australe* and *Pultenaea setulosa*

Table 16 assesses the likelihood of significant impacts from the Project on *P. setulosa* and *T. australe* (collectively).

Table 16
Likelihood of Significant Impacts on *Pultenaea setulosa* and *Thesium australe* (collectively) – EPBC Act Assessment

Assessment Criteria[1] Is the Project likely to:	**Assessment**	
Lead to a long-term decrease in the size of an important population of a species?	No	If *P. setulosa* or *T. australe* were to occur on the Project area there is a high probability that individuals would be lost through direct mortality during clearing of their habitat. However, there are no database records of the species in the Project area (Attachment A of Appendix F) and none were detected during extensive sampling, including targeted searches. Accordingly, the likelihood of actual adverse effects occurring to individuals or populations of these species is considered to be low. Consequently, it is highly unlikely that the Project would reduce the size of a population, reduce its area of occupancy or fragment it.
Reduce the area of occupancy of an important population?	No	If *P. setulosa* or *T. australe* were to occur on the Project area there is a high probability that individuals would be lost through direct mortality during clearing of their habitat. However, there are no database records of the species in the Project area (Attachment A of Appendix F) and none were detected during extensive sampling, including targeted searches. Accordingly, the likelihood of actual adverse effects occurring to individuals or populations of these species is considered to be low. Consequently, it is highly unlikely that the Project would reduce the size of a population, reduce its area of occupancy or fragment it.
Fragment an existing important population into two or more populations?	No	If *P. setulosa* or *T. australe* were to occur on the Project area there is a high probability that individuals would be lost through direct mortality during clearing of their habitat. However, there are no database records of the species in the Project area (Attachment A of Appendix F) and none were detected during extensive sampling, including targeted searches. Accordingly, the likelihood of actual adverse effects occurring to individuals or populations of these species is considered to be low. Consequently, it is highly unlikely that the Project would reduce the size of a population, reduce its area of occupancy or fragment it.
Adversely affect habitat critical to the survival of a species?	No	Critical habitat, as defined by the EPBC Act, has not been declared for any populations of *P. setulosa* or *T. australe*. There is no critical habitat listed on the Commonwealth Register of Critical Habitat (SEWPaC, 2011b) in the Project area or surrounds.
Disrupt the breeding cycle of an important population?	No	If populations of *P. setulosa* or *T. australe* were to occur near the Project area, there would be some potential for disruption of breeding by dust deposition if it were to occur during flowering. Dust could obscure flower colour making them less attractive to pollinators, could absorb nectar making it unavailable to pollinators and could block stigma function, thereby reducing flower visitation and pollination, and ultimately lowering seed production. No populations of *T. australe* are known to occur close enough to the Project area to be affected by dust deposition. By contrast, populations of *P. setulosa* occur within Leard State Forest. However, all known populations of *P. setulosa* are over 3 km from the Project area and are unlikely to receive sufficient dust deposition to be adversely affected.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	No	Habitat for *P. setulosa* and *T. australe* is absent from the Project area. Local populations of *P. setulosa* in Leard State Forest are dependent on the moist conditions of steep south facing gullies in the Willowtree Range to the north and west of the Project area. Suitable sheltered habitat for *P. setulosa* is lacking within the Project area. Dust deposition may potentially affect the habitat of nearby plant populations by altering soil chemistry (Farmer, 2002). However, the nearest known populations of *P. setulosa* are over 3 km from the Project area and their habitat is unlikely to be significantly affected, since the longest recorded effects of dust are up to 1 km from the source (Farmer, 2002). *T. australe* is dependent on native grasslands, mainly those dominated by Kangaroo Grass, *Themeda australis*, on relatively fertile soils. The soils of the Project area are mostly of low fertility and Themeda dominated grasslands are absent. It is concluded that the Project is unlikely to adversely affect habitat availability or quality for *P. setulosa* or *T. australe*.

Table 16 (Continued)
Likelihood of Significant Impacts on *Pultenaea setulosa* and *Thesium australe* (collectively) – EPBC Act Assessment

Assessment Criteria[1]	**Assessment**	
Is the Project likely to:		
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	No	Most pests and weeds with potential to affect *P. setulosa* and *T. australe* or their habitats are already prevalent in the landscape surrounding the Tarrawonga Coal Mine. An exception is Coolatai Grass (*Hyparrhenia hirta*) which has significant potential to invade natural ecosystems on the north-west slopes and displace native understorey species. Coolatai Grass is not yet prevalent in the Tarrawonga Coal Mine area or Leard State Forest. Weeds and pests have been controlled historically by landholders on farmland, the Shire Council on roadsides and State government agencies on crown land (e.g. Leard State Forest). TCPL would develop a detailed Biodiversity Management Plan that would specify appropriate weed and vertebrate pest control measures on land owned by the company. The plan would recognise the potential for some weeds, including Coolatai Grass, and pests to increase as result of the creation of new habitat opportunities by the Project (e.g. through soil disturbance and rehabilitation, and outlines strategies to suppress any outbreaks of noxious weeds or vertebrate pests).
Introduce disease that may cause the species to decline?	No	The main plant disease of conservation concern in Australia is *Phytophthora cinnamomi*. Dieback caused by the root-rot fungus *P. cinnamomi*, is listed as a key threatening process under the EPBC Act. The genus Pultenaea, of which *P. setulosa* is a member, contains species known to be susceptible to *P. cinnamomi*. However, damage to native ecosystems by *P. cinnamomi* is confined largely to the southern parts of Australia with winter-dominant rainfall (Environment Australia, 2001). It is generally a minor problem in NSW and is not known to affect the north-west slopes region.
Interfere substantially with the recovery of the species?	No	No recovering populations of *P. setulosa* or *T. australe* occur in the Project area or surrounds. Populations of *P. setulosa* in Leard State Forest are largely undisturbed, apart from some forestry access tracks and can be regarded as in a climax condition.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DEWHA, 2009).

It is concluded that the Project is unlikely to adversely impact on any populations of *P. setulosa* or *T. australe*.

4.4 MIGRATORY SPECIES

Relevant migratory species listed under sections 20 and 20A of the EPBC Act, include:

- Cattle Egret (*Ardea ibis*);
- Great Egret (*Ardea alba*);
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*);
- Painted Snipe (Australian subspecies) (*Rostratula benghalensis australis*);
- Latham's Snipe (*Limosa limosa*);
- White-throated Needletail (*Hirundapus caudacutus*);
- Fork-tailed Swift (*Apus pacificus*);
- Rainbow Bee-eater (*Merops ornatus*); and
- Regent Honeyeater (*Xanthomyza phrygia*) (refer to Section 4.2.1 of this assessment).

The Project is not likely to have a significant impact on migratory species listed under the EPBC Act as it is unlikely that the Project would:

- substantially modify, destroy or isolate an area of important habitat for a migratory species;
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.

5 PROPOSED SAFEGUARDS AND MITIGATION MEASURES

Table 17 provides a list of the matters regarding the proposed safeguards and mitigation measures and the corresponding section of the EA where the matters are addressed.

Table 17
Reconciliation of EA against Commonwealth Requirements –
Proposed Safeguards and Mitigation Measures

Assessment Requirement	EA Reference
Proposed safeguards and mitigation measures	
A description of feasible mitigation measures, changes to the controlled action or procedures, which have been proposed by the proponent or suggested in public submissions, and which are intended to prevent or minimise relevant impacts. Information must include:	
(a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;	Sections 4.9 and 4.10
(b) any statutory or policy basis for the mitigation measures;	Section 6
(c) the cost of the mitigation measures;	Appendix M
(d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;	Sections 4.9 and 4.10
(e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program;	Sections 4.9 and 4.10
(f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action.	Sections 4.9 and 4.10

6 OFFSETS

Table 18 provides a list of the matters regarding proposed offsets and the corresponding section of the EA where the matters are addressed.

Table 18
Reconciliation of EA against Commonwealth Requirements – Offsets

Assessment Requirement	EA Reference
Offsets *Should any residual impact exist that cannot be mitigated it may be necessary for offset measures to be considered in order to ensure the protection of matters of national environmental significance in perpetuity.*	Attachment E of Appendix E, Attachment C of Appendix F and Section 6.1 of Appendix G

6.1 ENVIRONMENTAL OFFSET REQUIREMENTS

The EPBC Act and supporting guidelines (refer to Consultation Draft: EPBC Act Environmental Offsets Policy, 2011 [SEWPaC, 2011c]) contain a number of requirements for environmental offsets. The Project includes a comprehensive offset proposal as described in Attachment E of the Fauna Assessment (Appendix E) and Attachment C of the Flora Assessment (Appendix F). Section 5 of the EA describes the rehabilitation and landscape management for the Project. Table 19 highlights the elements of the Project offset that address the EPBC Act offset principles.

Table 19
Environmental Offset Requirements

Offset Requirements	Elements of the Project Offset that address these Requirements
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environmental law and affected by the proposed development.	As noted in Section 1 of Appendix G, the relevant EPBC Act protected matters are threatened species and threatened ecological communities listed under sections 18 and 18A of the EPBC Act and migratory species listed under sections 20 and 20A (Appendices E and F of the EA). The proposed offset area would secure the long-term viability of a substantial area of approximately 232 ha of existing Box-Gum Grassy Woodlands and Derived Native Grasslands CEEC (Box-Gum Woodland CEEC). The offset area also provides potential habitat for a number of EPBC listed fauna species including the Border Thick-tailed Gecko, Regent Honeyeater, Superb Parrot, Swift Parrot, Greater Long-eared Bat and Large-eared Pied Bat.
Be efficient, effective, transparent, proportionate, scientifically robust and reasonable.	Flora and fauna surveys have been undertaken in the proposed offset area to determine it's suitability as an offset for the Project. The flora surveys identified eight native vegetation communities in the proposed offset area including the Box-Gum Woodland CEEC. The area of Box-Gum Woodland CEEC present in the offset area (approximately 232 ha) is substantially larger than the area of Box-Gum Woodland CEEC proposed to be cleared by the Project (approximately 13 ha). The fauna surveys identified potential habitat resources for a number of EPBC listed threatened fauna species including the Regent Honeyeater, Superb Parrot, Swift Parrot, Greater Long-eared Bat and Large-eared Pied Bat, Spotted-tailed Quoll and Border Thick-tailed Gecko. The Border Thick-tailed Gecko was located in the offset area during the surveys.
Be built around direct offsets but may include indirect offsets.	The proposed offset is a direct offset and would secure 1,660 ha of land in perpetuity through an agreement with the National Parks and Wildlife Service to add the offset area to the adjoining Mount Kaputar National Park. The proposed offset area would be actively managed to enhance its values for native flora and fauna through revegetation, weed control and animal pest management.
Be of a size and scale proportionate to the impacts being offset.	The proposed offset area for the Project covers approximately 1,660 ha land and comprises of 1,355 ha of remnant vegetation and 305 ha of grasslands. The proposed offset area would offset the 334 ha of native vegetation and 223 ha of grasslands proposed to be cleared by the Project. The 13 ha of Box-Gum Woodland CEEC proposed to be cleared by the Project would be offset with 232 ha of existing Box-Gum Woodland CEEC within the proposed offset area.

Table 19 (Continued)
Environmental Offset Requirements

Offset Requirements	Elements of the Project Offset that address these Requirements
Be in proportion to the level of statutory protection that applies to the affected species or community.	The Box-Gum Woodland proposed to be cleared by the Project is listed as critically endangered under the EPBC Act. The 13 ha of Box-Gum Woodland CEEC proposed to be cleared by the Project would be offset with 232 ha of existing Box-Gum Woodland CEEC within the proposed offset area. No threatened fauna species listed under the EPBC Act were located during the fauna surveys in the proposed Project area. However, the proposed offset provides potential habitat for a number of threatened species listed under the EPBC Act namely, the Border Thick-tailed Gecko, Regent Honeyeater, Superb Parrot, Swift Parrot, Greater Long-eared Bat, Large-eared Pied Bat and Spotted-tailed Quoll.
Effectively manage the risks of the offset not succeeding.	TCPL intends to reach an agreement with the NSW government during the Project life so that the biodiversity offset can be permanently added to the adjoining Mount Kaputar National Park. In the interim (i.e. within 12 months of Project approval), an alternate arrangement would be made to ensure protection and management of the biodiversity offset (e.g. a voluntary conservation agreement with the NSW Minister for the Environment), until such time that it can become part of the Mount Kaputar National Park.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	TCPL intends to reach an agreement with the NSW government during the Project life so that the biodiversity offset can be permanently added to the adjoining Mount Kaputar National Park. In the interim (i.e. within 12 months of Project approval), an alternate arrangement would be made to ensure protection and management of the biodiversity offset (e.g. a voluntary conservation agreement with the NSW Minister for the Environment), until such time that it can become part of the Mount Kaputar National Park. An Offset Area Management Plan would be prepared by a suitably qualified person(s) to facilitate the management of the biodiversity offset prior to integration into Mount Kaputar National Park. The Offset Area Management Plan would be developed within 12 months of Project Approval. Based on the findings of the detailed flora and fauna surveys of the biodiversity offset, a number of management measures are proposed to enhance its flora and fauna values. These measures would be detailed in the Offset Area Management Plan and would include: Promotion of natural regeneration and revegetation; • habitat enhancement; • habitat manipulation; • control of weeds; • pest management; and • fire management. Further detail of each of the above management measures is provided in Appendix E. The Offset Area Management Plan would also include a programme to monitor the effectiveness of the management measures and to evaluate performance against performance and completion criteria (including independent audits). The monitoring would be undertaken by a suitably qualified person(s).

7 OTHER APPROVAL CONDITONS

Table 20 provides a list of the matters regarding the approval conditions for the proposed Project and the corresponding section of the EA where the matters are addressed.

Table 20
Reconciliation of EA against Commonwealth Requirements – Other Approvals and Conditions

Assessment Requirement	EA Reference
Other approvals and conditions	
Any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action. Information must include:	
(a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:	Sections 6.2 to 6.6
(i) what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy; and	Sections 6.2 to 6.6
(ii) how the scheme provides for the prevention, minimisation and management of any relevant impacts;	Section 6.7
(b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;	Sections 6.1 to 6.3
(c) a statement identifying any additional approval that is required;	Section 6.4
(d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.	Section 6.8

8 ECONOMIC AND SOCIAL MATTERS

Table 21 provides a list of economic and social matters and the corresponding section of the EA where the matters are addressed.

Table 21
Reconciliation of EA against Commonwealth Requirements – Economic and Social Matters

Assessment Requirement	EA Reference
Economic and social matters	
A description of the short-term and long-term social and economic implications and/or impacts of the project.	Appendix M

9 ENVIRONMENTAL RECORD OF THE PERSON PROPOSING TO TAKE THE ACTION

Table 22 provides a list of the matters regarding the environmental record of the person proposing to take the action and the corresponding section of the EA where the matters are addressed.

Table 22
Reconciliation of EA against Commonwealth Requirements – Environmental Record of the Person Proposing to Take the Action

Assessment Requirement	EA Reference
Environmental record of person proposing to take the action	
Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:	
(a) the proponent; and	Section 9.1 of Appendix G
(b) for an action for which a person has applied for a permit, the person making the application.	Not Applicable
Details of the proponent's environmental policy and planning framework.	Attachment B of Appendix G

9.1 ENVIRONMENTAL RECORD OF TARRAWONGA COAL PTY LTD

TCPL is a joint venture between Whitehaven Coal Mining Pty Ltd (Whitehaven) (70% interest) and Boggabri Coal Pty Limited (30% interest). The major shareholder, Whitehaven is currently involved in a number of mining projects in the Gunnedah region of NSW, namely:

- Canyon Mine;
- Narrabri Coal Mine.
- Rocglen Coal Mine;
- Sunnyside Coal Mine;
- Tarrawonga Coal Mine; and
- Werris Creek Coal Mine.

These mines have been operating in the region for many years without significant incident. Whitehaven has never been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or conservation and sustainable use of natural resources.

Periodic audits of compliance against environmental criteria are conducted for all Whitehaven owned mines. In each case, the results of the audits have determined general compliance with the conditions of approval for each operation.

10 INFORMATION SOURCES

Table 23 provides a list of the matters regarding the EA information sources and the corresponding section of the Project EA where the matters are addressed.

Table 23
Reconciliation of EA against Commonwealth Requirements – Information Sources

Item	Assessment Requirement	EA Reference
9	***Information sources***	
	For information given in an environmental assessment, the draft must state:	
	(a) the source of the information;	Appendices A to Q
	(b) how recent the information is;	Appendices A to Q
	(c) how the reliability of the information was tested; and	Appendices A to Q
	(d) what uncertainties (if any) are in the information.	Appendices A to Q

11 CONSULTATION

Table 24 provides a list of the matters regarding consultation undertaken about the Project and the corresponding section of the EA where the matters are addressed.

Table 24
Reconciliation of EA against Commonwealth Requirements - Consultation

Item	Assessment Requirement	EA Reference
10	***Consultation***	
	Any consultation about the action, including:	
	(a) any consultation that has already taken place;	Section 3.1 and Attachment 5
	(b) proposed consultation about relevant impacts of the action;	Section 3.1
	(c) if there has been consultation about the proposed action — any documented response to, or result of, the consultation.	Section 3.1
	Identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.	Section 3.1

12 REFERENCES

Department of Environment and Conservation (2005a) *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions - profile*.
Website: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=20072

Department of Environment and Conservation (2005b) *Native Vegetation on Cracking Clay Soils of the Liverpool Plains - profile*.
Website: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10550

Department of Environment and Conservation (2005c) *Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions - profile*.
Website: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10973

Department of Environment and Conservation (2005d) *White Box Yellow Box Blakely's Red Gum Woodland - profile*.
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ATTACHMENT A

CONTROLLED ACTION AND ASSESSMENT APPROACH DECISION

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Notification of REFERRAL DECISION AND DESIGNATED PROPONENT – controlled action DECISION ON ASSESSMENT APPROACH

Tarrawonga Coal Project 2011/5923

This decision is made under section 75 and section 87 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

proposed action	To expand the Tarrawonga coal mine to extract additional coal through open cut mining, near Boggabri NSW, as described in the referral received by the department on 18 April 2011 [See EPBC Act referral 2011/5923].

decision on proposed action	The proposed action is a controlled action. The project will require assessment and approval under the EPBC Act before it can proceed.
relevant controlling provisions	• Listed threatened species and communities (sections 18 & 18A) • Listed migratory species (sections 20 & 20A)
designated proponent	Tarrawonga Coal Pty Ltd ACN 100 742 185

assessment approach	The project will be assessed by accredited assessment under the *Environmental Planning and Assessment Act 1979* (NSW).

Decision-maker

Name and position	James Barker A/g Assistant Secretary Environment Assessment Branch
Signature	
date of decision	23/5/11

ATTACHMENT B

WHITEHAVEN COAL MINING PTY LTD ENVIRONMENTAL POLICY

Whitehaven Coal Mining Pty Ltd has a documented Health, Safety and Environmental Policy which states:

Whitehaven is committed to supplying coal in a safe, efficient and environmentally responsible manner. Whitehaven will conduct business in a way that maintains a safe and healthy workplace for our employees, contractors, visitors and the surrounding community and will protect the environment in all stages of mining and processing.

Whitehaven's Goals are:

- *To achieve zero injuries and occupational illnesses.*
- *To achieve zero equipment damage.*
- *To achieve zero environmental incidents.*

Whitehaven will achieve these goals by:

- *Ensuring health, safety and environment is considered in all planning and work activities.*
- *Involving our employees through regular communication, consultation and training.*
- *Identifying and controlling all potential hazards in the workplace through hazard identification and risk analysis.*
- *Ensuring all incidents are reported, controlled and learning's applied and shared.*
- *Providing effective injury management and rehabilitation for all employees.*
- *Seeking continuous improvement in performance by taking into account employee & community concerns and advances in health, safety and environment.*
- *Providing details of legislative and other requirements and necessary training and resources to meet these requirements.*

Responsibilities:

All persons working for Whitehaven have a personal responsibility to comply with this policy and subsidiary Health, Safety & Environment systems. No work is to be undertaken without a clear understanding of a safe method that minimises the risk of injury, equipment damage and environmental harm.

Whitehaven employees shall share the responsibility to:

- *Work in a healthy, safe and environmentally responsible manner.*
- *Encourage others to work in a healthy, safe and environmentally responsible manner.*
- *Promptly report incidents, unsafe practices or conditions and environmental concerns as they become apparent.*
- *Co-operate with Management in the support of promotion of health and safety and responsible environmental management in the work place."*

This policy applies to all mines operated by Whitehaven Coal Mining Pty Ltd and its subsidiaries.