White Rock Wind Farm - Project Approval MP10_160

Modification Application No. 4 - Alternative Grid Connection

Appendix 3B - Supplementary Biodiversity Information

- Vegetation Condition Mapping (from Epuron Submissions Report, July 2013) Sheets 1 to 10

- Response to OEH Submission to MOD 1, July 2013

    - Table - Threatened Species of Flora
    - Table - Threatened Species of Fauna

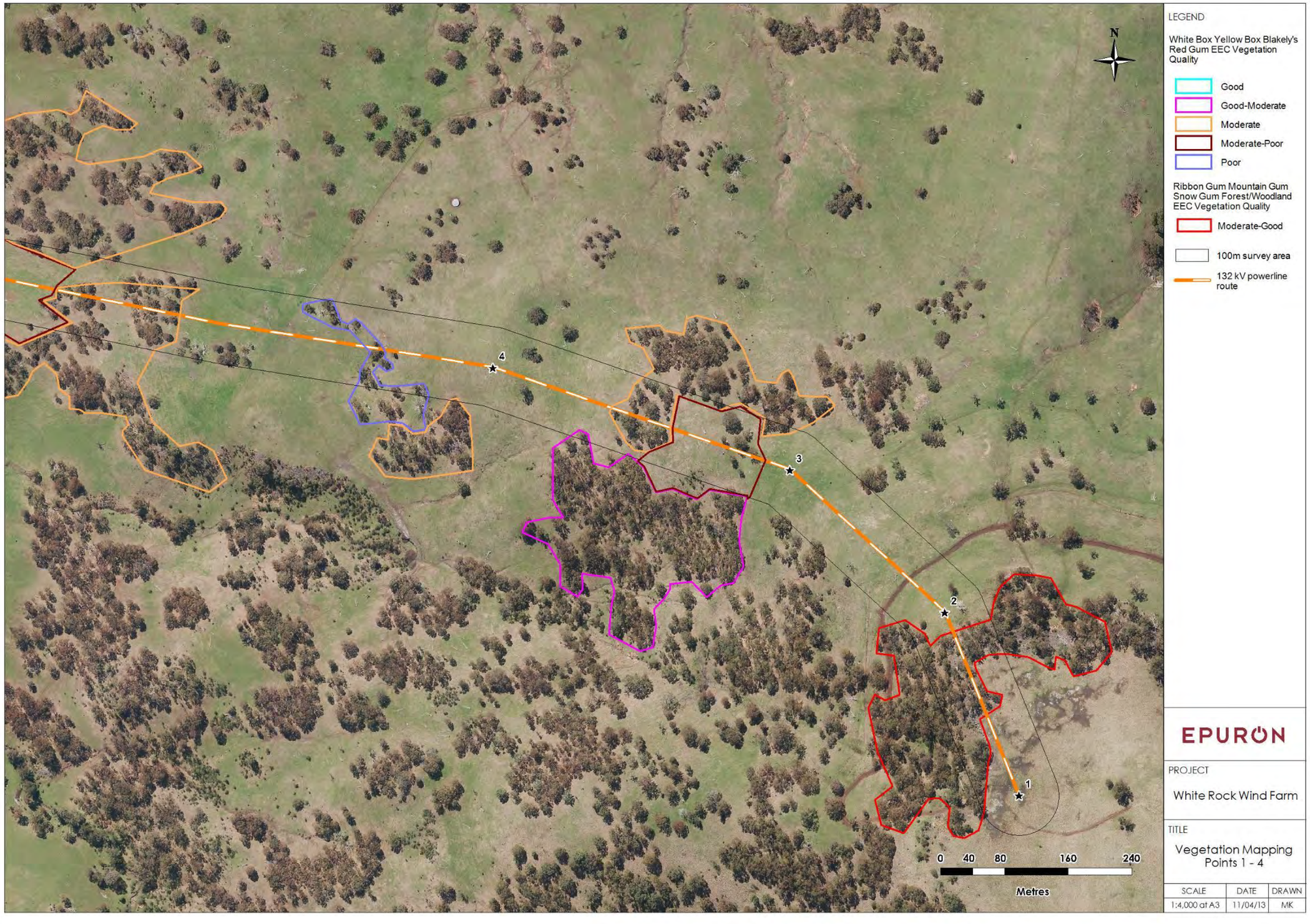

Figure 3.6 - Vegetation Mapping Point 1 to Point 4

Figure 3.7 – Vegetation Mapping Point 4 - 5

Figure 3.8 – Vegetation Mapping Point 5 to Point 8 (east)

Figure 3.9 – Vegetation Mapping Point 5 – Point 8 (west)

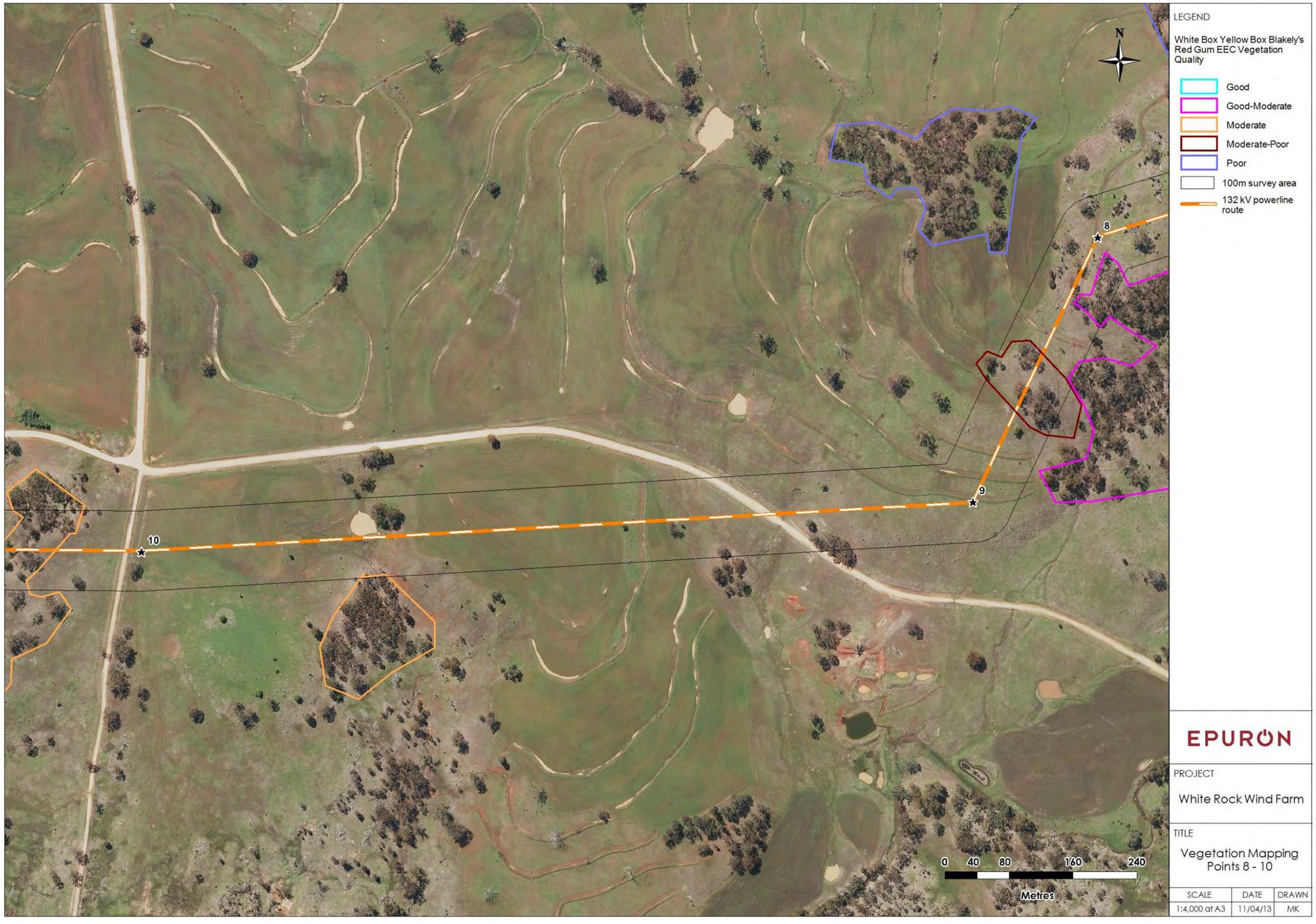

Figure 3.10 – Vegetation Mapping Point 8 to Point 10

Figure 3.11– Vegetation Mapping Point 10 to Point 11

Figure 3.12 – Vegetation Mapping Point 11 to Point 12

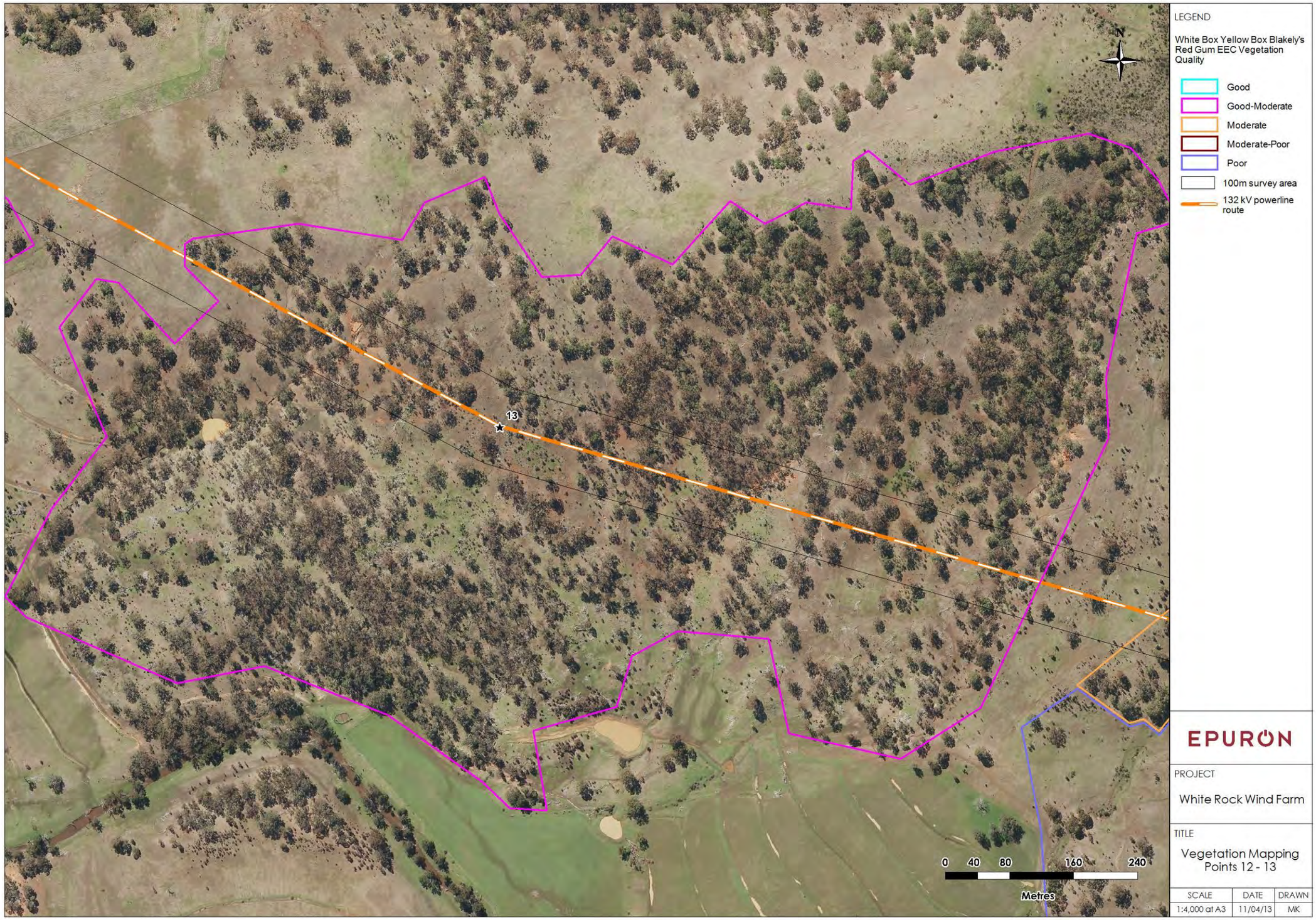

Figure 3.13 – Vegetation Mapping Point 12 to Point 13

Figure 3.14 – Vegetation Mapping Point 13 to Point 15

Figure 3-15 Vegetation Mapping Point 15 to Point 16

Extract from response to OEH Submission to MOD 1 Application July 2013 - Issue 8: The potential occurrence of a number of threatened species and the impact of the development on these species appears to be underestimated.

Recommendation: OEH suggests that a map of the threatened flora and fauna records is necessary on the basis of providing context. (included in Appendix 3A and Figure 7.3 of EA Report)

Further assessment of the likelihood of occurrence of threatened species is required. Clear statements regarding the rationale to further consider, or not consider, these threatened species is also required. These decisions must be soundly based on the species habitat requirements, ecology and the presence of known records in the district.

Response:

See updated map in Figure 7.3 of EA Report and Figure 7.1 of Biodiversity Report (Appendix 3A) showing the location of threatened flora and fauna records identified during the field survey.

Further assessment on the potential impact on the threatened species has been carried out by updating Table 1 and Table 2 from the Ecology Assessment (page 16 and page 18) to include additional columns which indicate the potential habitat within the study area and the potential of occurrence within the study area and hence the potential risk to the species. This risk assessment based approach was then used to determine the requirement for further assessment (application of seven part test of significance) where required.

Table - Threatened Species of Flora

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODING	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES & RATIONAL FOR APPLICATION OF SEVEN PART TESTS OF SIGNIFICANCE
Cloak Fern	*Cheilanthes sieberi ssp. pseudovella* E1	No	Nil	Unlikely	Very low risk
Rod's Star Hair	*Astrotricha roddii* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Hawkweed	*Picris evae* V	No	Sporadic suboptimal habitat	Unlikely	Low risk
Heath Wrinklewort	*Rutidosis heterogama* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Aromatic Peppercress	*Lepidium hyssopifolium* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODING	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES & RATIONAL FOR APPLICATION OF SEVEN PART TESTS OF SIGNIFICANCE
Desert Cow Vine	*Ipomea diamantinensis* E1	No	Nil	Unlikely	Very low risk
Pygmy Cypress Pine	*Callitrus oblonga* V	No	Restricted suboptimal habitat (Swan Brook)	Unlikely	Very low risk
Waterwheel Plant	*Aldrovanda vesiculosa E1*	No	Nil	Unlikely	Very low risk
Large-leaved Monotaxis	*Monotaxis macrophylla* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Torrington Pea	*Almaleea cambagei* E1	No	Nil	Unlikely	Very low risk
Bailey's Indigo	*Indigofera baileyi* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Silky Swainson Pea	*Swainsona sericea* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Pindari Wattle	*Acacia acrionastes* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
MacNutt's Wattle	*Acacia macnuttiana* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Lancewood	*Acacia petraea* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Velvet Wattle	*Acacia pubifolia* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Bolivia Wattle	*Acacia pycnostachya* V	No	Unlikely habitat	Unlikely	Very low risk
Bolivia Stringybark	*Eucalyptus boliviana* V	No	Unlikely habitat	Unlikely	Very low risk
Ovenden's Ironbark	*Eucalyptus caleyi ssp. ovendenii* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODING	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES & RATIONAL FOR APPLICATION OF SEVEN PART TESTS OF SIGNIFICANCE
Warra Broad-leaved Sally	*Eucalyptus camphora ssp. relicta* E1	No	Unlikely habitat	Unlikely	Very low risk
Northern Blue Box	*Eucalyptus magnificata* E1	No	Nil	Unlikely	Very low risk
McKies Stringybark	*Eucalyptus mckieana* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Narrow-leaved Peppermint	*Eucalyptus nicholii* V	No	Unlikely habitat	Unlikely	Very low risk
Blackbutt Candlebark	***Eucalyptus rubida ssp. barbigerorum* V**	**Yes, species provisionally recorded within the study area**	**Sporadic potential habitat exists**	**Provisionally identified (RBG)**	**Low risk** **Seven Part Test applied due to the provisional status of the species present within the study area**
Crescent-leaved Homoranthus	*Homoranthus lunatus* V	No	Unlikely habitat	Unlikely	Very low risk
Granite Homoranthus	*Homoranthus prolixus* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Grove's Paperbark	*Melaleuca groveana* V	No	Nil	Unlikely	Very low risk
Severn River Heath-myrtle	*Micromyrtus grandis* E1	No	Nil	Unlikely	Very low risk
Barrington Tops Ant Orchid	*Chiloglottis platyptera* V	No	Nil	Unlikely	Very low risk
Small Snake Orchid	*Diuris pedunculata* E1	No	Sporadic suboptimal habitat	Unlikely	Low risk

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODING	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES & RATIONAL FOR APPLICATION OF SEVEN PART TESTS OF SIGNIFICANCE
Hairy Jointgrass	*Arthyraxon hispidus* V	No	Nil	Unlikely	Very low risk
Bluegrass	***Dichanthium setosum* V**	**No**	**Sporadic suboptimal habitat**	**Unlikely**	**Low risk** **Seven Part Test applied due to being a species of particular concern previously raised by OEH**
Finger Panic Grass	*Digitaria porrecta* E1	No	Sporadic suboptimal habitat	Unlikely	Low risk
Native Milkweed	*Polygala linariifolia* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Backwater Grevillea	*Grevillea scortechinii ssp. sarmentosa* V	No	Minor suboptimal habitat in Section 7	Unlikely	Very low risk
Scant Pomaderris	*Pomaderris queenslandica* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Cameron's Tarenna	*Triflorensia cameronii* E1	No	Nil	Unlikely	Very low risk
Granite Boronia	*Boronia granitica* V	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Leionema	*Leionema lachnaeoides* E1	No	Nil	Unlikely	Very low risk
Rusty Desert Phebalium	*Phebalium glandulosum ssp. eglandulosum* E1	No	Sporadic suboptimal habitat	Unlikely	Very low risk
Keith's Zieria	*Zieria ingramii* E1	No	Nil	Unlikely	Very low risk
Austral Toadflax	***Thesium australe* V**	**No**	**Sporadic suboptimal habitat**	**Unlikely**	**Low risk**

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODING	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES & RATIONAL FOR APPLICATION OF SEVEN PART TESTS OF SIGNIFICANCE
					Seven Part Test applied due to being a species of particular concern previously raised by OEH
Hop Bush	*Dodonaea stenophylla* E4	No	Unlikely (species deemed extinct)	Unlikely	Very low risk
Polblue Eyebright	*Euphrasia ciliolate* V	No	Potential suboptimal habitat present in drainage line traversing Sections 4-5	Unlikely	Low risk
Tentafield Eyebright	*Euphrasia orthocheila ssp. peraspera* E1	No	Potential suboptimal habitat present in drainage line traversing Sections 4-5	Unlikely	Low risk
Bolivia Hill Pimelia	*Pimelia venosa* E1	No	Unlikely habitat	Unlikely	Very low risk
Inverell Cycad	*Macrozamia humilis* E1	No	Nil	Nil	Very low risk

Bold type indicates that a Seven Part Test of Significance has been applied.

'V' denotes .....vulnerable under the *NSW Threatened Species Conservation Act, 1995*

'E1' denotes .....endangered under the *NSW Threatened Species Conservation Act, 1995*

'E4' denotes .....extinct under the *NSW Threatened Species Conservation Act, 1995*

Table - Threatened Species of Fauna

VERNACULA R NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Zigzag Gecko	*Oedura rhombifer* E1	No	Possible suboptimal habitat may occur in upper slope of Section 7	Low	Very low risk

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Border Thick-tailed Gecko	*Underwoodisaurus sphrurus* V	No	Possible suboptimal habitat may occur in upper slope of Section 7	Low	Very low risk
Yellow-spotted Tree Frog	*Litoria castanea* E4 A	No	Unlikely	Very low	Very low risk
Australian Painted Snipe	*Rostratula australis* E1	No	Possible suboptimal habitat in drainage line/ marsh habitat in Sections 4-5 (new route deviation)	Low	Very low risk
Magpie Goose	*Anseranas semipalmata* V	No	Unlikely	Low	Very low risk
Blue-billed Duck	*Oxyura australis* V	No	Unlikely	Low	Very low risk
Black-necked Stork	*Xenorhynchus asiaticus* E1	No	Unlikely	Very low	Very low risk
Black Bittern	***Ixobrychus flavicollis* V**	**No**	**Possible suboptimal habitat present along Swan Brook and to a lesser degree the drainage line in Sections 4-5 (new route deviation)**	**Low**	**Very low risk** **Possible additional suitable habitat in adjacent areas along Swan Brook and species may venture into the study area at any time, Seven Part Test applied as a precautionary measure**
Square-tailed Kite	***Lophoictinia isura* V**	**No**	**Potential foraging & breeding habitat present throughout study area**	**High**	**Very low risk** **The species habitat broadly overlaps the habitat of the Little Eagle which was recorded within the study area. Therefore the rational to apply a Seven Part Test of Significance is warranted**

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Squatter Pigeon	*Petrophassa scripta* E1	No	Sporadic suboptimal foraging habitat	Low	Very low risk
Comb-crested Jacana	*Jacana gallinacean* V	No	Unlikely	Very low	Very low risk
Hooded Robin	***Melanodryas cucullata* V**	**No**	**Possible sporadic suboptimal marginal habitat**	**Moderate**	**Low risk** **Seven Part Test of Significance was applied as a precautionary measure as the species is considered as a moderate potential of occurrence**
Scarlet Robin	***Petroica multicolour* V**	**No**	**Possible sporadic suboptimal marginal habitat**	**Moderate**	**Low risk** **Seven Part Test of Significance was applied as a precautionary measure as the species is considered as a moderate potential of occurrence**
Diamond Firetail	***Stagonopleura guttata* V**	**Yes**	**Species recorded within a larger remnant area adjacent to Section 4 within the study area.**	**High-species recorded**	**Low risk** **Species recorded, therefore a Seven Part Test of Significance was applied**
Black-throated Finch	*Poephila cincta* E1	No	Very rare in area. Unlikely to occur	Very low	Very low risk
Speckled Warbler	***Pyrrholaemus saggitatus* V**	**No**	**Species is likely to occur, but would not be significantly affected by the proposal**	**Moderate**	**Low risk** **Seven Part Test of Significance was applied as a precautionary measure as the species is considered as a moderate potential of occurrence**

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Little Eagle	***Hieraaetus morphnoides* V**	**Yes**	**Species recorded within Section 1 of the study area**	**High-species recorded**	**Low risk** **Species recorded, therefore a Seven Part Test of Significance was applied**
Glossy Black Cockatoo	***Calyptorhynchus lathami* V**	**No**	**Unlikely**	**No food plants present and suitable tree hollows very limited within the study area**	**Very low risk** **The application of the Seven Part Test of Significance is considered warranted as the species is likely to pass over the study area on an ad hoc basis to other foraging destinations even though the study area would be inconsequential to the species *per se***
Turquoise Parrot	*Neophema pulchella* V	No	Possible sporadic suboptimal marginal habitat, but doubtful due to the sparse and limited occurrence of an indigenous understorey	Very low	Very low risk
Swift Parrot	***Lathamus discolor* E1**	**No**	**Potential food plants plentiful throughout locality**	**Possible**	**Very low risk** **Seven Part Test was applied as one of the species winter food plants (White Box *Eucalyptus albens*) is prolific throughout the study area**
Little Lorikeet	***Glossopsitta pusilla* V**	**Yes**	**Species recorded within Section 3**	**High-species recorded**	**Very low risk** **Species recorded, therefore a Seven Part Test of Significance was applied**
Brown Treecreeper	***Climacteris picumnus victoriae* V**	**No**	**Possible suboptimal habitat present in lower slopes of Section 6**	**Low**	**Very low risk**

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
			and the Swan Brook riparian area generally		**Seven Part Test of Significance applied as a precautionary measure as the species could colonise the riparian area in time if land management practices were improved. It is also possible that the species may occur in nearby areas outside of the study area especially from areas to the north and south where the Swan Brook and the powerline easement intersect**
Regent Honeyeater	***Anthochaera phrygia* E1**	**No**	**Possible sporadic suboptimal marginal foraging habitat present**	**Low**	**Very low risk** **Seven Part Test applied as "loose" flocks of the species could forage within the study area at any time to forage on flowering eucalypts**
Black-chinned Honeyeater	*Melithreptus gularis gularis* V	No	Possible sporadic suboptimal marginal habitat	Very low	Very low risk
Varied Sittella	***Daphoenositta chrysoptera* V**	**No**	**Potential habitat present in nearby larger remnants as well as Section 2 and 6**	**Moderate**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure as the species is considered as a moderate potential of occurrence**
Grey-crowned Babbler	***Pomatostomus temporalis temporalis* V**	**No**	**Possible sporadic suboptimal habitat. No birds or highly conspicuous nest sites were observed**	**Low**	**Very low risk** **Seven Part Test of Significance was applied as the species could**

VERNACULA R NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
					colonise parts of the study area at any time
Powerful Owl	*Ninox strenua* V	No	Potential foraging and roosting habitat present along Swan Brook in Section 6	Low-moderate	Very low risk Seven Part Test of Significance was applied as the species is considered to have a low to moderate chance of occurring within the study area especially within the Swan Brook precinct
Barking Owl	*Ninox connivens* V	No	Potential foraging and roosting habitat present along Swan Brook in Section 6	Low-moderate	Very low risk Seven Part Test of Significance was applied as the species is considered to have a low to moderate chance of occurring within the study area especially within the Swan Brook precinct
Masked Owl	*Tyto novaehollandiae* V	No	Potential foraging habitat in Section 2 and possible roosting habitat present along Swan Brook in Section 6	Low-moderate	Very low risk Seven Part Test of Significance was applied as the species is considered to have a low to moderate chance of occurring within the study area namely within the Swan Brook precinct and Section 2
Spotted-tailed Quoll	*Dasyurus maculatus* V	No	Potential habitat present in Sections 2 & upper slope of Section 6 and White Rock Mountain	Low	Very low risk Seven Part Test of Significance was applied as a precautionary measure due to the possibility of

VERNACULAR NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
					the species occurring even if considered to be low
Koala	***Phascolarctos cinereus* V**	**No**	**Potential habitat & food plants present (White Box *Eucalyptus albens*)**	**Very low**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the abundance of one of the Koala's primary food trees being present viz: White Box *Eucalyptus albens***
Yellow-bellied Glider	*Petaurus australis* V	No	No significant habitat present within powerline route, but may occur within the Swan Brook vicinity and upper slope of Section 6 and 7	Very low	Very low risk
Squirrel Glider	*Petaurus norfolkensis* V	No	No significant habitat present within powerline route, but may occur within the Swan Brook vicinity and upper slope of Section 6 and 7 as well as Section 2	Very low	Very low risk
Large-eared Pied Bat	*Chalinolobus dwyeri* V	No	Potential foraging habitat present throughout the study area and environs. Tree hollows very limited within powerline route	Moderate	Very low risk
Greater Broad-nosed Bat	***Scoteanax rueppellii* V**	**No**	**Potential habitat present along Swan Brook and major drainage lines and open dams. However tree hollows for roosting sites for microbats are very limited**	**High**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the presence of potential foraging habitat being Swan Brook**

VERNACULA R NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Greater Long-eared Bat	*Nyctophilus timoriensis* V	No	Potential foraging habitat present throughout the study area and environs. However tree hollows for roosting are very limited	Moderate	Very low risk
Hoary Wattle Bat	*Chalinolobus nigrogriseus* V	No	Potential foraging habitat present throughout the study area and environs. However tree hollows for roosting are very limited	Moderate	Very low risk
Eastern False Pipistrelle	***Falsistrellus tasmaniensis* V**	**No**	**Potential foraging habitat present throughout the study area and environs. However tree hollows for roosting are very limited**	**High**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the high probability of occurrence of the species**
Yellow-bellied Sheath-tailed Bat	***Saccolaimus flaviventris* V**	**No**	**Potential foraging habitat present throughout the study area and environs. However tree hollows are very limited**	**High**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the high probability of occurrence of the species**
Eastern Bent-wing Bat	***Miniopterus schreibersii* V**	**No**	**Potential foraging habitat present throughout the study area and environs. Caves, rock shelters and other shelter sites suitable for this species are absent from most sections of the study area. However these may be present in adjacent locales to Section 7's escarpment area.**	**High**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the high probability of occurrence of the species as the species was recorded within the nearby Wind Farm site**

VERNACULA R NAME	SCIENTIFIC NAME & *TSC ACT* CODINGS	SPECIES RECORDED DURING FIELD SURVEYS	POTENTIAL OF HABITAT WITHIN THE STUDY AREA	POTENTIAL OF OCCURRENCE WITHIN THE STUDY AREA	DEGREE OF RISK TO THE THREATENED SPECIES
Grey-headed Flying Fox	***Pteropus poliocephalus* V**	**No**	**Potential foraging habitat present throughout the study area and environs. There are no suitable roosting sites for the species anywhere within the study area**	**High**	**Very low risk** **Seven Part Test of Significance was applied as a precautionary measure due to the abundance the species food trees being present viz: the nectar resources of the White Box, Yellow Box, Blakely's Red Gum etc and all other species of eucalypts present throughout the study area**
Brush-tailed Rock Wallaby	***Petrogale penicillata* E1**	**No**	**Possible habitat present on and below White Rock Mountain and far upper slope of Section 6**	**Low**	**Very low risk** **Precautionary measure due to the possibility of habitat within the White Rock Mountain vicinity**

Bold type indicates that a Seven Part Test of Significance has been applied.

'V' denotes .....vulnerable under the *NSW Threatened Species Conservation Act, 1995*
'E1' denotes .....endangered under the *NSW Threatened Species Conservation Act, 1995*
E4 A denotes..... critically endangered under the *NSW Threatened Species Conservation Act, 1995*