

# Clearing Assessment Report – CPS 818

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Gordon River South Stage 1 September 2021 EOS 941

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## Document Control

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## **1 PURPOSE**

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the proposal using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

## 2 SCOPE

#### 2.1 Proposal Scope

Proposal Name: Gordon River South Stage 1

**Proposal Purpose / Components:** The proposal is required to rectify deficiencies in the standard and condition of the road within the Albany Highway Gordon River South Section (SLK 308.3 – 316.50). The current seal (pavement) width is not adequate for the class and volume of traffic currently utilising this section of road. There are several sections where poor vertical and horizontal alignments fail to provide the required vehicle sight stopping distances. Due to the age, poor condition and increased traffic loads, the road requires widening, reconstruction and maintenance to ensure the safety of road users.

Reconstruction and realignment has been recommended as the preferred approach to provide a roadway that meets the current design standards including a pavement with an expected 40 years' life. The proposal will involve widening and overlay works as well as reconstruction of substandard geometry (vertical and horizontal curves). The scope of works includes associated drainage works, side tracks, installation of fencing, and relocation of services.

The road improvements are intended to achieve the following outcomes:

- Improving safety for all traffic
- Improving a strategic freight route.

Due to the presence of Threatened Ecological Communities and Threatened flora on the eastern side of the road, the proposal footprint has been moved westwards to avoid (where possible) these environmental constraints.

Support activities will include:

- gravel from adjacent cleared paddocks;
- water from existing farm dams in cleared paddocks;
- sidetracks required around construction zones, predominantly in cleared adjacent farmland;
- rehabilitation of side roads which are being realigned; and
- laydown areas and a site office in cleared adjacent farmland.

As part of the 6.8 ha sidetrack construction, 0.31 ha of native vegetation will be cleared within the 2.85 ha road reserve footprint, 0.02 ha in the 0.02 ha DPLH reserve footprint, and 0.11 ha in the 3.9 ha private land footprint. Main Roads intends to revegetate the road reserve and DPLH reserve

cleared for sidetrack construction using local provenance species in accordance with Condition 9 of CPS818, and revegetate privately owned land in agreement with private landowner(s).

**The proposed clearing undertaking using CPS 818 is:** 9.7 ha of clearing within a 39.03 ha proposal area.

#### The proposed temporary clearing undertaking using CPS 818 is: 0 ha.

**Proposal Location(s):** The proposal area is located on Albany Highway (H001) between 308.0 SLK and 316.23 SLK, approximately 5 km north-west of Cranbrook, in the Shire of Cranbrook.

MGA reference: GDA 94 MGA Z50 Northern extent – 117.469 -34.223 Southern extent – 117.508 -34.288

The location of the proposed works is shown in Figure 1.

#### 2.2 Assessment Report Scope

The assessment area is confined to a local area of 10 km (study area), as shown in Figure 2.

#### 2.3 Alternatives to clearing

There are several factors driving the proposed widening of this section of Albany Highway, including the need to widen the road and address problems with the existing alignment to improve the longevity of the pavement and the safety of road users. The proposal has been designed to minimise the amount of clearing as much as possible, although some clearing will be necessary to achieve the safety objectives of the proposal.

Temporary ancillary activities such as site offices, storage areas, laydown areas and stockpiles will be restricted to previously cleared areas. Materials for the proposal will also be sourced from existing cleared areas such as farm paddocks to avoid additional clearing.

#### 2.4 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the clearing impacts by the proposal are provided in Table 1.



#### Figure 1. Proposal Area



Figure 2. Assessment Area

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#### Table 1. Measures undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management	Discussion and Justification
Measure	
Steepen batter slopes	There was the potential for the proposal to impact single plants of the Threatened species <i>Acacia prismifolia</i> at two locations at the interface of the cut batter with the natural ground. To avoid impacts to these plants, the cut batter was steepened to avoid any impact occurring.
Installation of safety barriers	Installation of safety barriers along these areas of fill within the proposal alignment will allow for a steeper batter slope which will minimise impacts on species of Priority flora and habitat for Carnaby's Cockatoo. The total length of proposed safety barrier is over 1 km.
Alignment to one	Note: Redacted from original
side of existing road	Due to the majority of the environmental constraints being located on the left hand side of the highway, the design was mostly aligned to the right hand side of the road to avoid impacts.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or degraded areas	Scope of works is to upgrade Albany Highway along its existing alignment. Realignment is not applicable to this proposal.
Installation of kerbing	Kerbing will be used to minimise impacts. A total length of approximately 6.5 km of kerbing will be part of this proposal.
Simplification of design to reduce number of lanes and/or complexity of intersections	The upgrade of this section of Albany Hwy will utilise the existing cleared zone as far as practicable, with only minor clearing required to widen Albany Hwy to the full design extent.
Preferential use of existing cleared areas for access tracks, construction storage and stocknilling	There is likely to be a need for side-tracks to enable the construction of this proposal. The proposed side-tracks are within cleared farmland and will therefore have minimal environmental impacts.

Design or Management Measure	Discussion and Justification
Drainage modification	Drainage has been considered and will be mostly unchanged, however there may be some minor changes around culverts at SLK 309.788, 311.425, 312.554, 313.673, and 315.263.
Modification of design to avoid impacts to Acacia prismifolia	Note: Redacted from original Biological surveys for the proposal identified a presumed extinct flora species - <i>Acacia prismifolia</i> . Main Roads commissioned a licensed surveyor to undertake a survey with a qualified botanist to obtain a differential GPS location of all of <i>A. prismifolia</i> plants. To ensure the most accurate data was obtained, a GPS point was taken of the trunk/central stem of the plant as well as a polygon of its full extent/shape (i.e. all foliage). This was due to the trunks of <i>A. prismifolia</i> plants not always being in the centre of the plant, with the foliage extending further towards one side. Through this process, modifications could be made to the design to avoid impacting the foliage of each plant. This information was then used to modify the road design disturbance footprint to avoid all occurrences of <i>A. prismifolia</i> so that no direct impacts were proposed. Main Roads has modified the proposed road design to avoid the closting of any individuals.
	Following the 2019 survey, a total of 499 plants were recorded. The location of the plants were considered in the design modification process to avoid impacts. Design modifications included local steepening of the cut batter, raising the vertical alignment, minimising construction works and realigning the centreline of the road.

#### 2.5 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 510 of the EP Act (see Section 1.3), Main Roads has also had regard to the below instruments.

#### Other Legislation of relevance for assessment of clearing and planning/other matters

- Biodiversity Conservation Act 2016 (WA) (BC Act)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Country Areas Water Supply Act 1947 (WA) (CAWS Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Planning and Development Act 2005 (WA) (P&D Act)
- Soil and Land Conservation Act 1945 (WA)
- Rights in Water and Irrigation Act 1914
- Aboriginal Heritage Act 1972 (WA)
- Town Planning and Development Act 1928.

#### **Environmental Protection Policies**

- Environmental Protection (Peel Inlet Harvey Estuary) Policy 1992;
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011.

#### Other Relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, August 2014)
- Technical guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities
- Approved Recovery Plans for threatened species
- EPBC Act Referral guidelines for the three threatened black cockatoo species
- Strategic advice EPA.

## **3 SUMMARY OF SURVEYS**

#### 3.1 Biological Surveys

The following biological surveys were undertaken.

- GHD (2017) Albany Highway Gordon South SLK 308-316 Biological Assessment
- Southern Ecology (2018) Biological Survey: Gordon South, Albany Highway extension survey
- Great Southern Bio Logic (2019a) Albany Highway Gordon South Stage 1, 308 316.5 SLK, Vegetation and Fauna Surveys
- Ecologia (2020a) Narrikup to Mount Barker and Gordon South Stage 1 and 2, Targeted Flora and Fauna Survey
- Ecologia (2020b) Gordon South Stage 1 and Stage 2 TEC Survey and Assessment
- Ecologia (2020c) Gordon South Stage 1 and Stage 2 Consolidated Vegetation Condition Mapping.

#### 3.1.1 Summary of Biological Surveys

#### Initial Surveys (GHD 2017 and Southern Ecology 2018)

GHD (2017) undertook a desktop and biological survey of the 58.3 ha study area in Spring 2016 finding seven native vegetation associations as well as planted vegetation identified from the survey area, with vegetation condition ranging from Good to Completely Degraded.

Three of the associations align with the Wheatbelt Woodlands of the WA Wheatbelt TEC, listed as Critically Endangered under the EPBC Act and as Priority 3 by DBCA. There was also 'other significant vegetation' present within the survey area, namely vegetation growing in association with watercourses and damplands and vegetation that is poorly reserved within the Avon Wheatbelt IBRA Bioregion and Katanning IBRA Sub-region.

The survey found 179 flora taxa representing 45 families and 115 genera. Thirty introduced flora were recorded, with One-leaf Cape Tulip listed as a Declared Pest under the BAM Act, and Bridal Creeper listed as a Declared Pest and as a WONS.

No EPBC Act or BC Act listed flora were recorded within the survey area, however two DBCA Prioritylisted flora species were recorded: *Banksia porrecta* (P4) and *Xanthorrhoea brevistylis* (P4). The likelihood of occurrence assessment concluded that in addition to the two priority flora, 15 conservation significant species may possibly occur, with the remaining 12 species unlikely to occur within the survey area.

A survey for a proposed extension of the proposal (Southern Ecology, 2018) found 136 plant taxa from 34 families. This survey recorded 2.36 ha of remnant vegetation including two additional vegetation associations, one of which, *Eucalyptus decipiens* Woodland (0.7 ha being mapped within the survey area), potentially being concordant with Wheatbelt Woodland TEC. The survey also identified one additional Priority listed flora, *Caladenia integra* (P3), an additional 20 individuals of *Banksia porrecta* (P4), and two weeds of national significance (Bridal Creeper and Single Leaf Cape Tulip).

The remnant vegetation within the survey area was considered to be locally important for native fauna. The overall value of the habitat of the survey area was considered to be high, because of the habitat diversity, intrinsic values of the habitat types, local and regional connectivity and for supporting known and potential habitat values for conservation significant fauna species (e.g. Carnaby's Black Cockatoo, *Calyptorhynchus latirostris*).

The eastern road reserve contained the highest habitat values for fauna as it was wider, more structurally and floristically diverse, and was largely continuous.

The survey identified 337 Black Cockatoo habitat trees of which 24 were identified with potentially suitable hollows for Black Cockatoo nesting.

One fauna species of conservation significance was recorded during the field survey - Carnaby's Black Cockatoo.

Seven additional fauna species of conservation significance were determined likely to occur within the survey area.

The Southern Ecology (2018) survey identified 45 additional potential breeding trees for Black Cockatoo species, with one containing a hollow with an entrance of >200mm (potentially suitable for breeding). The survey also mapped an additional 0.5 ha of high-quality foraging habitat for Black Cockatoo.

#### Great Southern Bio Logic – Vegetation and Fauna Surveys 2019

Due to some variations between the initial surveys, Great Southern Bio Logic was engaged to carry out a further survey including the initial proposal and proposal extension areas.

The vegetation field survey was undertaken on 8, 12, 17, 23 October and 26 November 2018. A summary of results is presented below:

- 42.6% of 59 ha survey area represents indigenous (remnant) vegetation. The rest of the survey area was roads, tracks, revegetation, or cleared areas (bare or introduced grassland).
- 13 vegetation units were mapped in the survey area. All but one unit (Revegetation) are equivalent to "associations" (Level 5), as defined in the National Vegetation Inventory Scheme (ESCAVI 2003).
- 11.2% (6.6ha) of the survey area has been mapped as the EPBC Act listed Eucalypt Woodland of the Western Australian Wheatbelt (EWWAW) TEC and 15.2% (8.9 ha) of the survey area has been mapped as DBCA listed EWWAW Priority Ecological Community (PEC)-Priority 3 iii. Parts of four vegetation associations were found to be congruent with the EWWAW TEC and PEC.
- *Acacia prismifolia X*, a presumed extinct species was rediscovered during this survey. This species has been collected twice before in 1901 and 1933.
- Five other flora conservation taxa were recorded: *Acacia microneura* P1, *Brachyloma mogin* P3, *Melaleuca pritzelii* P3, *Banksia porrecta* P4 and *Caladenia integra* P4.
- Two significant weeds were recorded: \**Asparagus asparagoides* (WON and Declared Pest) and \**Moraea setifolia* (Declared Pest). Locations of three other environmental weed species were recorded as their small infestations may be eradicable.

The fauna assessment was conducted on 25 and 27 September 2018. A summary of results are provided below.

- One conservation significant fauna species, Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (Threatened) was present within the survey area at one site on one occasion.
- Four conservation significant fauna species were considered likely to occur in the survey area.
- Three conservation significant fauna species were considered to possibly occur in the survey area, however, none of these were recorded during the field survey.

The fauna survey included a targeted survey for habitats that may be suitable for the three conservation significant Black Cockatoo species (*Calyptorhynchus latirostris, Calyptorhynchus baudinii* and *Calyptorhynchus banksii naso*), with the survey identifying 30 trees of Wandoo and

Jarrah species which contained or possibly contained hollows potentially suitable for Black Cockatoo nesting, and more than 300 trees of sufficient size (Wandoo  $\geq$ 300 mm DBH, Jarrah  $\geq$ 500 mm DBH) which, in the future, may have the potential to form hollows suitable for black cockatoo nesting and are considered to be potential breeding trees.

The fauna survey also included a targeted survey for habitats that may be suitable for Black Cockatoo foraging. There was little evidence of foraging, however the survey identified vegetation communities containing known foraging species (Jarrah and Marri communities and those containing proteaceous species (*Eucalyptus incrassata* Open Mallee over *Hakea corymbosa* Shrubland, Revegetation/cleared mosaic and Mixed Shrubland).

No actual roosting trees were identified and potential roosting trees could not be identified with confidence due to the lack of suitable guidelines in regards to roosting assessment.

#### Ecologia Targeted Flora and Fauna 2020

The flora and fauna assessment was conducted between 7th and 11th of October 2019. A summary of results is provided below.

#### Conservation Significant Flora

Eight Threatened and Priority flora species have been recorded within the Gordon South Stage 1 survey area: Acacia prismifolia (X), Acacia microneura (P1), Banksia lepidorhiza (P1), Brachyloma mogin (P3), Melaleuca pritzelii (P3), Banksia porrecta (P4), Caladenia integra (P4), and Xanthorrhoea brevistyla (P4). Banksia lepidorhiza was recorded for the first time within the survey area during the current survey. Fourteen Priority flora species had been assessed as 'possibly occurring' within the survey area based on a likelihood of occurrence assessment. Of these species, only Banksia lepidorhiza was recorded within the survey area, and the remaining 13 species are considered 'unlikely' to occur.

#### Vertebrate Fauna Habitat Assessment

Habitat assessments were conducted at 11 sites and a total of four habitat types were identified including Eucalypt/Allocasuarina Woodland, Wetland, Mixed Shrubland and Open Woodland. The remainder of the survey area consisted of Cleared/Agricultural land. Habitat was generally assessed as being in Good to Very Good condition. The Eucalypt/Allocasuarina Woodland habitat surrounding the Gordon River is of a higher conservation value as it provides continuous vegetation linking large patches of remnant vegetation. This area provides suitable habitat for the southern brown bandicoot (quenda) (P4 BC Act) and red-tailed phascogale (CD BC Act, VU EPBC Act).

#### **Conservation Significant Fauna**

One species of mammal (quenda) (P4 BC Act) was recorded during the survey in the vicinity of the Gordon River. One species of bird (Carnaby's cockatoo [EN BC Act and EPBC Act]) has been recorded within the survey area previously. One mammal (red-tailed phascogale [CD BC Act, VU EPBC Act]) was assessed with a likelihood of occurrence rating of 'likely'. Four species were assessed as having a likelihood of occurrence rating of 'Possible', including two mammals (south-western brush-tailed phascogale [CD BC Act], western brush wallaby [P4 BC Act]) and two birds (peregrine falcon [OS BC Act], forest red-tailed black cockatoo, [VU BC Act and EPBC Act]).

#### Targeted Red-Tailed Phascogale Survey

The Eucalypt/Allocasuarina Woodland habitat type in the vicinity of the Gordon River supports vegetation suitable for foraging and breeding for the red-tailed phascogale. Mature eucalypts provide hollows of a suitable size for red-tailed phascogales to use as shelter and nesting. This area also joins larger patches of remnant vegetation making it an important corridor for the movement of native species. Suitable habitat for this species coincides with the *Eucalyptus occidentalis/E*.

*wandoo/Allocasuarina huegeliana* Open Forest/Woodland over Mixed Shrubland vegetation community as described by Great Southern Bio Logic (2019a).

#### Ecologia TEC 2020

The TEC assessment and survey was conducted between  $7^{th} - 11^{th}$  October 2019. A summary of results is provided below.

The TEC assessment and survey comprised:

- A desktop study to evaluate biological values of the study area and surrounds, including a review of existing environmental values, threatened and priority community databases, and other relevant available literature, with a focus on Threatened Ecological Communities (TECs); and
- A Wheatbelt Woodlands TEC survey and assessment to describe and delineate the extent of the community within the survey area.

The desktop assessment confirmed the presence of the *Environment Protection and Biodiversity Conservation Act* 1999 listed 'Eucalypt Woodlands of the Western Australian Wheatbelt' Threatened Ecological Community (TEC), and the equivalent Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority Ecological Community (PEC), within the desktop study area, which have also been recorded previously from the Gordon South Stage 1 and Gordon South Stage 2 survey areas. The 'Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia' TEC is also present within the desktop study area but does not occur within the survey area.

Seven quadrats and 40 sample sites were surveyed within the Gordon South Stage 1 and Gordon South Stage 2 survey areas to identify and map the Wheatbelt Woodlands TEC. The Wheatbelt Woodlands occurring within the survey areas are typically dominated by two eucalypt species that are key indicators of the TEC: *Eucalyptus occidentalis* (flat-topped yate) and *Eucalyptus wandoo* subsp. *wandoo* (wandoo).

Twelve of the assessed eucalypt woodland patches were excluded from the TEC due to the dominance of *Allocasuarina huegeliana* or *Corymbia calophylla* in the overstorey and an additional 24 patches were excluded for not meeting the required minimum condition threshold according to the Department of Agriculture, Water and the Environment (DAWE) condition criteria.

Eleven patches of eucalypt woodland (*Eucalyptus wandoo* subsp. *wandoo* and/or *Eucalyptus occidentalis* open woodland, with occasional *Allocasuarina* species) that corresponded to the Wheatbelt Woodlands TEC were recorded across both survey areas, seven corresponding to condition 'Category A' vegetation and three corresponding to condition 'Category D' vegetation. The total extent of the Wheatbelt Woodlands TEC is 5.05 ha (6.47% of total area) within the Gordon South Stage 1 survey area.

#### 3.2 Dieback Survey

The Phytophthora Dieback Occurrence Survey was conducted by Great Southern Bio Logic in 2017.

Section 3.2.1 contains the summary of the survey.

#### 3.2.1 Summary of Dieback Survey

In accordance with the agreed proposal scope of works, the field survey was undertaken using a methodology referred to as a comprehensive linear survey. The comprehensive linear survey method is defined in the Parks and Wildlife guideline, *Phytophthora Dieback Interpreters Manual for lands* 

*managed by the Department* (2015) and provides high confidence disease distribution information suitable for operational scale implementation.

The VHS maintain a database of positive recoveries of *Phytophthora cinnamomi* from samples processed since 1986. There are no influential VHS positive recoveries associated with the proposal area. The nearest recorded positive sample recovery is within the town of Mount Barker, approximately 35km to the south.

In terms of interpretability for Phytophthora Dieback survey, the vegetation was largely low in susceptible species, with many areas where the disease indicator species were absent. The vegetation community described as a *Eucalyptus wandoo*, and *E. marginata* woodland (GHD) was the most interpretable in terms of dieback assessment.

With the exception of the Albany Highway, site specific vectors were limited to activities within private property immediately north of Rockwell Road and the highway road reserve at the intersection with Rockwell Road. Activities appear to be associated with gravel extraction and the development of drainage associated with a private dam.

Phytophthora Dieback was identified within two sections of native vegetation associated with or adjacent to the site specific vectors. Disease expression within infested areas of the *E. wandoo* and *E. marginata* woodland was considered to be excellent, with multiple fresh deaths of all indicator species. The impact of the disease was greatest around roadside drains and within artificial depressions, presumed to be result of previous gravel excavations. Such areas will cause localised water pooling, providing suitable conditions for the pathogen in the low rainfall area.

Application of the protectable area criteria results in an area of uninfested vegetation positioned between the two infested areas being considered to be protectable on the basis that it is located on the upper slopes of a minor ridge and is associated with a vegetated area of significant size within adjoining private property. Uninterpretable and small uninfested areas located south of the small creek line to the south of Rockwell Road are also considered protectable. Support for this determination includes the presence of limited healthy indicator species, a lack of disease evidence, absence of water gaining sites and no high risk disease vectors associated with the vegetation.

Due to the time since the 2017 survey was undertaken, another dieback survey is proposed to occur prior to proposal delivery.

#### **3.3 Targeted Flora Surveys**

Two targeted flora surveys were undertaken for the proposal:

- Great Southern Bio Logic (2019b) Albany Highway Gordon South Stage 1, 308 316 SLK, Targeted *Acacia prismifolia* (X) Flora Survey
- 35 Degrees South Surveyors and Elizabeth Sandiford (2019) Targeted *Acacia prismifolia* Flora Survey.

Section 3.3.1 contains the summary of the surveys.

#### **3.3.1 Summary of Targeted Flora and Fauna Surveys**

Biologic Great Southern Bio Logic – Acacia prismifolia Survey 2019

Note: Redacted from original

The targeted flora assessment was conducted on 30 November 2018. A summary of results is provided below.

As a part of the required biological assessments, Great Southern Bio Logic undertook a vegetation assessment to identify and map the extent of threatened and priority ecological communities within

the study area. This assessment has been reported separately (GSBL 2019). During the vegetation assessment Great Southern Bio Logic associate botanist Elizabeth Sandiford opportunistically collected and identified the species *Acacia prismifolia* which is classified as "Presumed Extinct" under the state legislation, Biodiversity Conservation Act 2016 and as "Extinct" under the federal Environmental Protection and Biodiversity Conservation Act 1999.

Accordingly, Main Roads requested a targeted flora survey of this species to be conducted. The project study area for the targeted survey includes areas of Mixed Shrubland as the vegetation community associated with the discovery of the species during the preceding vegetation assessment (GSBL 2019).

Further to the identification of *Acacia prismifolia X*, an additional five conservation species were opportunistically recorded across the study area including *Acacia microneura* P1, *Banksia porrecta* P4, *Caladenia integra* P4, *Brachyloma mogin* P3 and *Melaleuca pritzelii* P3. Of these *Acacia microneura* P1, *Brachyloma mogin* P3 and *Melaleuca pritzelii* P3 were not previously identified across the survey area.

35 Degrees South Surveyors and Elizabeth Sandiford - Targeted Acacia prismifolia Flora Survey 2019

The botanist Libby Sandiford went out with a surveyor in March 2019 to accurately record each of the locations of the species, including a point at the trunk of the shrub as well as the foliage extent. This survey was undertaken to record the accurate location of each of the plants to input into the design process to assist with avoiding each plant.

## **4 VEGETATION DETAILS**

#### 4.1.1 Proposal Site Vegetation Description

The proposal site is located within the Great Southern region and is situated within a predominantly agricultural landscape.

Great Southern Bio Logic (2019a) and Southern Ecology (2018) recorded the following vegetation types in the 39.03 ha proposal area:

- 1. *Melaleuca cuticularis* Low Woodland +/- *E. occidentalis*
- 2. Melaleuca brevifolia Tall Open Scrub
- 3. Casuarina obesa Low Open Forest
- 4. Eucalyptus occidentalis Woodland over Mixed Sedgeland
- 5. *Eucalyptus occidentalis* Woodland over *Melaleuca brophyi* Tall Open Shrubland *Callitris pyramidalis* Open Shrubland
- 6. Eucalyptus wandoo Woodland
- 7. *Eucalyptus occidentalis/E. wandoo*/Allocasuarina Open Forest/Woodland over Mixed Shrubland
- 8. Eucalyptus marginata/E. Wandoo Woodland
- 9. Corymbia calophylla Open Forest
- 10. Eucalyptus incrassata Open Mallee over Hakea corymbosa Open Shrubland
- 11. Mixed Shrublands
- 12. Revegetation Shrublands
- 13. Trees, includes non-indigenous species, or planted specimens.

Ecologia (2020c) reported the vegetation condition within the 39.03 ha proposal area ranged from Very Good-Excellent to Completely Degraded condition. Less than 5% of the proposal area has vegetation in Good or better condition. More than 75% of the proposal area is cleared for roads/agriculture.

Tables 2 to 4 provide details of the pre-European Vegetation Associations with the 39.03 ha proposal area, the remaining extents of these associations and the vegetation condition.

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 967 described as a Medium woodland; wandoo & yate.	Clearing of up to 9.7 ha for the purpose of approximately 8 km of	Good to Completely Degraded	Vegetation description and condition determined from biological surveys
Vegetation Association 1967 described as Medium woodland; wandoo, yate & river gum. (Government of Western Australia, 2019)	road upgrades, including road widening, road reconstruction, and maintenance work.	(EPA 2016)	(Great Southern Bio Logic, 2019a and Ecologia, 2020a, 2020c)

#### Table 2. Summary of Proposal Area's Mapped Pre-European Vegetation Associations

#### Table 3. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre– European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No.	Statewide	216,684	36,536	16.86	3.02
967	IBRA Bioregion Avon Wheatbelt	174,907	26,637	15.23	1.43
	IBRA Sub-region Katanning	174,907	26,637	15.23	1.43
	<b>Local Government Authority</b> Shire of Cranbrook	77,064	15,137	19.64	2.47
Veg Assoc No.	Statewide	25,501	7,356	28.85	5.34
1967	IBRA Bioregion Avon Wheatbelt	24,928	7,203	28.90	4.85
	IBRA Sub-region Katanning	24,928	7,203	28.90	4.85
	<b>Local Government Authority</b> Shire of Cranbrook	18,725	6,288	33.58	5.37

#### Table 4. Vegetation condition in the proposal area

Vegetation Condition (EPA, 2016)	Area (ha)	Area (%)
Very Good-Excellent	0.18	0.46
Very Good	0.00	0.00
Good-Very Good	0.98	2.51
Good	0.11	0.28
Degraded-Good	5.52	14.14
Degraded	0.10	0.26
Completely Degraded	2.80	7.17
Cleared/Unvegetated	29.34	75.17
Total	39.03	99.99

### **5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES**

In assessing whether the proposal's proposed clearing is likely to have a significant impact on the environment, the proposal was assessed against the ten Clearing Principles (Environmental Protection Act 1986, Schedule 5).

Each principle has been assessed in accordance with DWER's 'A Guide to the Assessment of Applications to Clear Native Vegetation' and other relevant CPS Decision Reports prepared by DWER.

The proposed clearing is at or may be at variance with one or more of the 10 Clearing Principles.

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

#### Proposed clearing is at variance to this Principle

The proposal requires the clearing of up to 9.7 ha of native vegetation within a proposal area of approximately 39 ha. Ecologia reports the vegetation condition as rated from Very Good-Excellent to Completely Degraded. Less than 5% (1.27 ha) of the vegetation mapped was good or better. Most (14% / 5.52 ha) of the vegetation was in Degraded-Good condition. 75% (29.34 ha) of the proposal area is already cleared.

The proposal area is mapped as Beard Vegetation Association 967 described as a Medium woodland; wandoo & yate, and Vegetation Association 1967 described as Medium woodland; wandoo, yate & river gum.

Great Southern Biologic and Southern Ecology mapped thirteen vegetation types in the 39 ha survey area, namely:

- 1. *Melaleuca cuticularis* Low Woodland +/- *E. occidentalis*
- 2. Melaleuca brevifolia Tall Open Scrub
- 3. Casuarina obesa Low Open Forest
- 4. Eucalyptus occidentalis Woodland over Mixed Sedgeland
- 5. *Eucalyptus occidentalis* Woodland over *Melaleuca brophyi* Tall Open Shrubland *Callitris pyramidalis* Open Shrubland
- 6. Eucalyptus wandoo Woodland
- 7. Eucalyptus occidentalis/E. wandoo/Allocasuarina Open Forest/Woodland over Mixed Shrubland
- 8. *Eucalyptus marginata/E.Wandoo* Woodland
- 9. *Corymbia calophylla* Open Forest
- 10. Eucalyptus incrassata Open Mallee over Hakea corymbosa Open Shrubland
- 11. Mixed Shrublands
- 12. Revegetation Shrublands
- 13. Trees, includes non-indigenous species, or planted specimens.

#### TEC/PEC

Two EPBC Act listed TECs / DBCA Listed PECs occur within the 10km desktop study area: 'Eucalypt Woodlands of the Western Australian Wheatbelt' (Wheatbelt Woodlands) (Critically Endangered / P3) and 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia' (Kwongkan Shrubland) (Endangered / P3). No State listed TECs were identified as occurring in the study/survey area.

Ecologia (2020b) mapped 0.92 ha of the Wheatbelt Woodland EPBC Act listed TEC and DBCA listed PEC within the proposal area. This equates to 18% of the PEC mapped in the survey area. 68% of the PEC within the proposal area was considered to be in Degraded to Good condition. The clearing is linear and minor in nature and is adjacent to the road. Clearing for the proposal is unlikely to significantly impact this P3 PEC within the local area.

#### Flora

Note: Redacted from original

Desktop searches identified six conservation significant species within the 10km study area - *Acacia microneura* (P1), *Acacia prismifolia* (X), *Caladenia integra* (P4), *Brachyloma mogin* (P3), *Caladenia integra* (P4), and *Xanthorrhoea brevistyla* (P4).

Great Southern Bio Logic (2019a) and Ecologia (2020a) recorded one previously presumed extinct species, and six Priority flora species in the wider survey area:

- Acacia primsifolia (X) (previously presumed extinct)
- Acacia microneura (P1)
- Brachyloma mogin (P3)
- Melaleuca pritzelii (P3)
- Banksia porrecta (P4)
- Caladenia integra (P4)
- Xanthorrhoea brevistylis (P4).

Only three Priority flora species were recorded within the proposal area, namely:

- Banksia porrecta (P4) 12 plants (184 in survey area)
- Caladenia integra (P4) 2 plants (2 in survey area)
- Xanthorrhoea brevistylis (P4) 30 plants (387 in survey area).

*Banksia porrecta* generally grows on sandy/loam soils and is known from a number of areas including the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA bioregions (GHD, 2017). This species was recorded at numerous locations in the survey area. Given the widespread distribution of this species, the impact on 12 individuals is unlikely to affect this species.

*Caladenia integra* is known from approximately 46 locations in the western Wheatbelt (Southern Ecology, 2018). Florabase records show two occurrences adjacent to and to the east of Cranbrook. It is commonly found in clayey loam, around granite outcrops and rocky slopes in the IBRA subregions associated with moist habitats near granite or drainage lines (Avon Wheatbelt P2, Fitzgerald, Geraldton Sandplains, Northern Jarrah Forest, Southern Jarrah Forest, and Western Mallee) (Great Southern Bio Logic, 2019). Given the widespread distribution of this species, the impact on two individuals is unlikely to affect this species.

*Xanthorrhoea brevistylis* grows on sand or clay and is currently known from the Avon Wheatbelt and Jarrah Forest IBRA Bioregions (WA Herbarium 2016). Approximately 387 individuals of this species were recorded, the majority being located in the eastern road reserve. Given the number of individuals identified during surveys, together with the widespread distribution of this species, the impact on 30 plants is unlikely to affect this species.

35 Degrees South Surveyors and Elizabeth Sandiford (2019) undertook a Targeted *Acacia prismifolia* Flora Survey to accurately record each of the locations of the species. As part of project design, the location of each of the *Acacia prismifolia* was provided to the Consulting Engineers to enable them to design the roadworks to avoid of the clearing of any of these plants.

A follow-up survey in July 2021 by Southern Ecology and 35 Degrees South Surveyors (in preparation) rechecked the location of the *Acacia prismifolia* identified in the 2019 survey. The survey also identified additional locations of *Acacia prismifolia*. The disturbance area footprint was reviewed against this new survey data, and was amended (where required) to avoid disturbance. Shapefiles of the 2021 survey data have been provided to DWER and DBCA.

Main Roads will apply for a Section 40 Authorisation from DBCA for a 'Permit to Take' *Acacia prismifolia*, as habitat for this species within 10 m of the plants will be removed for the proposal. Targeted species management actions are addressed in the vegetation management plan for construction activities.

As the road design has been amended to avoid impacts on all individuals of the previously presumed extinct *Acacia prismifolia*, and to avoid impacts on Priority species, other than limited numbers of *Xanthorrhoea brevistylis* (P4), *Caladenia integra* (P4) and *Banksia porrecta* (P4), it is unlikely that proposed clearing will significantly impact on the biodiversity of the area.

#### Fauna

Ecologia (2020a) identified four fauna habitat types within the proposal area including Eucalypt/Allocasuarina Woodland, Wetland, Mixed Shrubland and Open Woodland. The following conservation significant species were considered likely to occur in the proposal area:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (T)
- Baudin's Cockatoo (Calyptorhynchus baudinii) (T)
- Forest Red-tailed Black Cockatoo (Calyptorhynchus banksia naso) (VU)
- Red-tailed Phascogale, Kenngoor (Phascogale calura) (CD)
- Western Brush Wallaby (Notomacropus Irma) (P4)

Field surveys by Ecologia and Great Southern Bio Logic recorded Carnaby's Cockatoo and Quenda (from a digging) during its field survey. No fauna was recorded from within the proposal area.

The proposal area contains 96 trees DBH trees, all with no suitable hollows for Black Cockatoo breeding (Great Southern Bio Logic, 2019). The proposal area is within the range for Carnaby's and Baudins Cockatoos, and on the eastern edge of the modelled distribution for Forest Red-tailed Black Cockatoo. 5.43 ha of potential foraging, roosting or breeding habitat occurs within the proposal area.

Quenda, Red-tailed Phascogale, Western Brush Wallaby and South-western brush-tailed phascogale are likely or may occur in the wider survey area, but were no observed during the various field surveys in the proposal area.

Although the proposed clearing is linear in nature and there is significant amount of similar and better quality habitat immediately adjacent to the proposal area, and that no DBH trees with suitable hollows will be cleared, the proposed clearing is likely to have an impact on the biodiversity of this area.

DWER advise that the proposed clearing is at variance to this principle.

#### Methodology

35 Degrees South Surveyors and Elizabeth Sandiford (2019) Ecologia (2020a, 2020b) Great Southern Bio Logic (2019a) Main Roads GIS Shapefiles Southern Ecology (2018)

# (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

#### Proposed clearing is at variance to this Principle

Ecologia (2020a) identified 20 species of conservation significant fauna from Threatened and Priority fauna database searches within a 10km search area, including 14 mammals and six birds. Eleven Threatened species and nine migratory species were identified from the EPBC Act Protected Matters Search Tool (accessed 25 May 2021).

Ecologia identified four fauna habitat types within the proposal area including Eucalypt/Allocasuarina Woodland, Wetland, Mixed Shrubland and Open Woodland.

The following conservation significant species were considered likely to occur in the proposal area:

- Carnaby's Cockatoo (Calyptorhynchus latirostris) (T)
- Baudin's Cockatoo (Calyptorhynchus baudinii) (T)
- Forest Red-tailed Black Cockatoo (Calyptorhynchus banksia naso) (VU)
- Red-tailed Phascogale, Kenngoor (Phascogale calura) (CD)
- Western Brush Wallaby (Notomacropus Irma) (P4).

The following conservation significant species were considered possible to occur in the proposal area:

- Peregrine falcon (*Falco peregrinus*) (OS)
- Quenda (*Isoodon fusciventer*) (P4)
- South-western brush-tailed phascogale (Phascogale tapoatafa wambenger) (CD).

Ecologia and Great Southern Bio Logic recorded Carnaby's Cockatoo during their surveys and Ecologia recorded Quenda (from a digging) during its field survey.

Ecologia identified potentially suitable habitat is likely for Carnaby's Cockatoo, Quenda and Red-tailed Phascogale, and possible for Peregrine falcon, Forest Red-tailed Black Cockatoo, South-western brush-tailed phascogale and Western Brush Wallaby.

Great Southern Bio Logic and Southern Ecology report 5.43 ha of potential roosting habitat within the proposal area, but less than 1.8 ha of low to moderate foraging habitat, with no evidence of breeding, roosting or foraging observed for Black Cockatoos.

Carnaby's Cockatoo is listed as Threatened under the BC Act and Endangered under the EPBC Act and the local area occurs within the known distribution and predicted breeding range of the species (DBCA, 2017). Previous recent records exist within the 10km study area (Great Southern Bio Logic, 2019a). Carnabys prefer proteaceous plant species, however may forage on *Corymbia calophylla* (Marri) (EPA 2019). Edith Cowan University & Department of Environment and Conservation (2008) report that Carnaby's have been predominantly observed foraging on the seeds of 52 native species, including *Eucalyptus marginata* (Jarrah) and Marri and the flowers of Marri and *Eucalyptus wandoo* (Wandoo). DPaW (2011) report that Carnaby's feed on Marri and Jarrah, but not on *Eucalyptus occidentalis* (Swamp Yate). Vegetation Unit mapping indicates that 1.57 ha of Wandoo Jarrah Woodland and 0.1 ha of Marri Open Forest occur within the proposal area. This would provide low to moderate quality feeding habitat for Carnabys cockatoo. The clearing of these vegetation units for the proposal equates to 34% and 16% of these woodland types within the wider survey area.

Within the wider survey area, there were 335 trees with a suitable diameter at breast height (DBH), with 30 containing potentially suitable breeding hollows. The proposal area contains 96 DBH trees, all with no suitable hollows for breeding (Great Southern Bio Logic, 2019). Taking into consideration the low level of Carnaby's Cockatoo activity in the survey area; the number of DBH trees to remain in the wider survey area (239 trees) and the absence of potential breeding hollows within the proposal area, the loss of 96 DBH trees for linear clearing over 8 km is unlikely to significantly impact this species, given similar or better quality foraging habitat is immediately adjacent to the proposal area.

Forest Red-tailed Black Cockatoo is listed as Threatened under the BC Act and Endangered under the EPBC Act and is endemic to south-west Western Australia from Gingin to Green Range (east of Albany), being most common in the Jarrah forest region of the northern Darling Range. The proposal area is situated on the eastern edge of the modelled distribution of the Forest Red-tailed Black Cockatoo. Forest Red-tailed Black Cockatoo commonly occur in Jarrah, Karri and Marri forests and also in a range of other forest and woodland types, including Blackbutt, Wandoo, Tuart, Albany Blackbutt, Yate and Flooded Gum (DotEE, 2012). Vegetation unit mapping indicates that 2.91 ha of Wandoo, Marri and Jarrah low to moderate quality foraging habitat may occur within the proposal area. The clearing is linear nature and over 8 km adjacent to a road. A loss of up to 2.91 ha of potential low to moderate quality foraging habitat, up to 5.43 ha of potential roosting habitat and 96 DBH trees (with no hollows), the project clearing is unlikely to significantly impact this species, given similar or better quality foraging habitat is located immediately adjacent to the proposal area.

Baudin's Cockatoo is listed as Threatened under the BC Act and Endangered under the EPBC Act. This species usually occurs in heavily forested areas dominated by Marri, Jarrah and Karri. Vegetation Unit mapping indicates that 1.57 ha of Wandoo Jarrah Woodland and 0.1 ha of Marri Open Forest occur within the proposal area. This would provide low to moderate quality feeding habitat for Carnabys cockatoo. The clearing of these vegetation units for the proposal equates to 34% and 16% of these woodland types within the wider survey area. A loss of up to 1.57 ha of potential low to moderate quality foraging habitat, up to 5.43 ha of potential roosting habitat and 96 DBH trees (with no hollows), the project clearing is unlikely to significantly impact this species, given similar or better quality foraging habitat is located immediately adjacent to the proposal area.

The remnant vegetation layer (DAFWA, 2019) indicates there is over 10,000 ha of remnant vegetation of Eucalypt woodlands occurring within 10 km of the proposal area. The potential impact on all three species

of Black Cockatoo from the proposed clearing of 5.43 ha of potential roosting habitat and up to 1.8-2.9 ha of low to moderate value foraging habitat is not considered significant.

Spotlighting within the survey area near the Gordon River identified one small mammal, which may have been a Red-tailed Phascogale. It was not seen in any other part of the study area (Ecologia, 2020a). The closest confirmed record is at a property approximately 20km northeast of the survey area. However, 5.05 ha of suitable habitat (*Eucalyptus occidentalis/E. wandoo/Allocasuarina huegeliana* Open Forest/Woodland over Mixed Shrubland) was recorded in the survey area and was generally in Good condition. This habitat occurred in patches of less than 1.1 ha which are unlikely alone to support sustainable populations of Red-tailed Phascogales. The road reserve links these areas together with remnant vegetation along the Gordon River which may be suitable for this species (Great Southern Bio Logic, 2019a). Taking into account the relatively small and dispersed areas of suitable vegetation in the proposal area, it is unlikely that the removal of 1.87 ha of habitat (37 % of habitat in the survey area) for this proposal will significantly impact the Red-tailed Phascogale.

Quenda is listed as Priority 4 by DBCA. Quenda diggings were recorded within the Eucalypt/Allocasuarina Woodland habitat type adjacent to the Gordon River, and outside of the proposal area. The Eucalypt/Allocasuarina Woodland habitat surrounding the Gordon River provides continuous vegetation linking large patches of remnant vegetation. Habitat was generally assessed as being in Good-Very Good condition with some areas being classed at a lower rating of Degraded-Good due to the presence of weeds and/or human disturbance Ecologia (2020c). The potential loss of 1.87 ha of this habitat for this proposal is unlikely to significantly impact the Quenda.

Great Southern Bio Logic (2019a) report that potentially suitable habitat for the Western Brush Wallaby occurs within the open forest, woodland and open woodland vegetation communities of the survey area, particularly those that contain a low, fairly open shrub/ground layer, with patches of shrub thickets (e.g. *Eucalyptus marginata/E. wandoo* Woodland). No scats of this species were observed, but anecdotal evidence (pers.com. from landholder) suggests they are present on a large patch of remnant vegetation adjacent to the road reserve just south of the Gordon River (east of Albany Hwy). This species may be an occasional visitor to the survey area using roadside vegetation as part of its normal home range where roadside vegetation is contiguous with larger patches of potentially suitable habitat around the Gordon River. Where the remnant vegetation occurs only along the roadside, suitable habitat may act as a corridor between larger suitable remnants. As minimal vegetation is proposed to be cleared on the eastern side of Albany Hwy for the proposal, and is linear in nature, the removal of this habitat for this proposal is unlikely to significantly impact the Western Brush Wallaby.

Great Southern Bio Logic (2019a) report that suitable habitat for South-western brush-tailed phascogale exists in the survey area. Although this species is most common in Jarrah and Marri, it has been recorded in Wandoo woodlands. Woodlands and open forests containing Marri and Jarrah and possibly Wandoo are potential habitats. Trees with potential hollows with entrance sizes suitable for this species were recorded throughout these vegetation communities. This species is difficult to detect by signs. Taking into account the linear nature of clearing over 8 km within the proposal area, it is unlikely that the removal of 1.57 ha of potential habitat will significantly impact the South-western brush-tailed phascogale.

Great Southern Bio Logic (2019a) advise that suitable habitat exists for the Peregrine Falcon in all the forest/woodland vegetation communities, particularly those close to the Gordon River, however this species is not common, and would be a flying visitor to the area. Accordingly, the proposal in unlikely to significantly impact this species.

DWER advise that the proposed clearing is at variance to this principle.

#### Methodology DBCA Shapefiles DBCA (2017) DPaW (2011) Ecologia (2020a, 2020c) Edith Cowan University & Department of Environment and Conservation (2008) EPA (2019)

EPBC Act Protected Matters Search Tool (accessed 25 May 2021) Great Southern Bio Logic (2019a)

## (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

#### Proposal is at variance to this Principle

Note: Redacted from original

A GIS constraints search and NatureMap search for rare flora within the study area (10km radius) identified the presence of two rare flora:

- Acacia prismifolia (X), and
- Gastrolobium lehmannii (T).

Database searches show *Gastrolobium lehmannii* located north of the proposal area.

Surveys by Great Southern Bio Logic (2019a and 2019b) and 35 Degrees South Surveyors and Elizabeth Sandiford (2019) recorded *Acacia prismifolia* within the survey area.

As part of project design, the location of each of the *Acacia prismifolia* was provided to the Consulting Engineers to enable them to design the roadworks to avoid all of these plants. This has resulted in mitigation measures being implemented (as described in Table 1) to avoid the clearing of any *Acacia prismifolia*.

A follow-up survey in July 2021 by Southern Ecology and 35 Degrees South Surveyors (in preparation) rechecked the location of the *Acacia prismifolia* identified in the 2019 survey. The survey also identified additional locations of *Acacia prismifolia*. Shapefiles of the 2021 survey data have been provided to DWER and DBCA.

Accordingly, it is predicted that no Threatened flora will be cleared as part of this proposal.

Main Roads will apply for a Section 40 Authorisation from DBCA for a 'Permit to Take' *Acacia prismifolia*, as habitat for this species will be removed for the proposal. Targeted species management actions are addressed in the vegetation management plan for construction activities.

Although the clearing is unlikely to impact *Acacia prismifolia* plants directly, there is potential loss of habitat, DWER advise that the proposed clearing is at variance to this principle.

#### Methodology

35 Degrees South Surveyors and Elizabeth Sandiford (2019) DBCA shapefiles Great Southern Bio Logic (2019a, 2019b) NatureMap (accessed 25 May 2021)

## (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

#### Proposed clearing is not at variance to this Principle

The desktop assessment did not identify any State listed TECs within the desktop study area. No State listed TECs were recorded within the project area during the survey.

As no State listed TECs were identified in the proposal area, the proposed clearing is not at variance to this principle.

#### Methodology

DBCA shapefiles Ecologia (2020b) EPBC Act Protected Matters Report (printed 25 May 2021) Great Southern Bio Logic (2019a)

#### (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

#### Proposed clearing is at variance to this Principle

The Proposal proposes to clear up to 9.7 ha within a 39.03 ha proposal area and is mapped as containing pre-European vegetation association 967 described as Medium woodland; wandoo & yate, and vegetation association 1967 described as Medium woodland; wandoo, yate & river gum, as shown in the tables below. Vegetation association 1967 retains 28.85% of its pre-European extent at the Statewide scale, and 28.90% at the IBRA bioregion and subregion scales. Vegetation association 967 retains 16.86% of its pre-European extent at a Statewide scale, and 15.23% at the IBRA bioregion and subregion scales. At an LGA level, vegetation association 1967 is above the 30% threshold level.

Pre-European Vegetation Associations	Clearing Description	Vegetation Condition	Comments
Vegetation Association 967 described as a Medium	Clearing of up to 9.7 ha for	Good to Completely	Vegetation description and condition
woodland; wandoo & yate.	the purpose of approximately	Degraded (EPA 2016)	determined from biological surveys (Great
	8 km of road upgrades.		Southern Bio Logic, 2019a and Ecologia,
Veg Association1967 described as Medium	including road widening, road		2020a, 2020c)
woodiand; wandoo, yate & river gum.	reconstruction. and		
(Government of Western Australia, 2019)	maintenance work.		

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 967	Statewide	216,684	36,536	16.86	3.02
	IBRA Bioregion Avon Wheatbelt	174,907	26,637	15.23	1.43
	<b>IBRA Sub-region</b> Katanning	174,907	26,637	15.23	1.43
	<b>Local Government Authority</b> Shire of Cranbrook	77,064	15,137	19.64	2.47
Veg Assoc No. 1967	Statewide	25,501	7,356	28.85	5.34
	IBRA Bioregion Avon Wheatbelt	24,928	7,203	28.90	4.85
	IBRA Sub-region Katanning	24,928	7,203	28.90	4.85
	Local Government Authority Shire of Cranbrook	18,725	6,288	33.58	5.37

Vegetation Associations 967 and 1967 have:

- 26,637 ha and 7,203 ha remaining at the subregion level, respectively
- 15,137 ha and 6,288 ha at an LGA level, respectively
- 6,213 ha and 3,935 ha remaining within 10km of the proposal area, respectively.

Main Roads proposes to clear a calculated 6.72 ha of Vegetation Association 967 and 3.42 ha of Vegetation Association 1967, which equates to:

- 0.025 and 0.047% of vegetation at the subregion level, respectively, and
- 0.044 % and 0.054% at an LGA level, respectively.

The condition of Vegetation Association 967 ranges from Very Good-Excellent (5.8%), Good-Very Good (2.6%), Good (1.8%), Degraded-Good (53.3%), Degraded (0.3%) and Completely Degraded (41.2%). The condition of Vegetation Association 1967 ranges from Very Good-Excellent (4.3%), Good-Very Good (30.6%), Degraded-Good (62.1%) and Degraded (2.4%).

Accordingly, Main Roads proposes to clear a calculated:

- 3.89 ha of Vegetation Association 967 in Good-Degraded or better condition, and
- 3.33 ha of Vegetation Association 1967 in Good-Degraded or better condition.

The clearing for the project is not likely to have a significant impact on the remaining extent of either of these vegetation associations at the subregion, LGA and local (10km) levels. However, given that both vegetation types have less than 30% of their pre-European, the proposal is at variance with this principle.

Methodology

Ecologia (2020a, 2020c) EPA (2016) Government of Western Australia (2019) Great Southern Bio Logic (2019a) Shepherd (2009)

## (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

#### Proposed clearing is at variance to this Principle

Great Southern Bio Logic (2019) and Southern Ecology (2018) mapped the following watercourse / wetland vegetation units within the proposal area:

- *Melaleuca cuticularis* Low Woodland +/- E. occidentalis
- Melaleuca brevifolia Tall Open Scrub.

It is predicted that up to 0.24 ha of mapped *Melaleuca* vegetation may be cleared as a result of the proposal.

Accordingly, the proposal is at variance with this principle.

#### Methodology

Great Southern Bio Logic (2019)

Southern Ecology (2018)

## (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

#### Proposed clearing is not likely to be at variance to this Principle

DAFWA risk mapping indicates the soils of the proposal area have generally low to moderate risk of water erosion, a moderate to high risk of wind erosion, a low to high risk of salinity, and a low to high water logging risk.

ASRIS mapping indicates that the proposal area is located in an area with low or extremely low probability of Acid Sulphate Soils.

Given the linear nature of the clearing and sealing of areas for road construction, the proposed clearing is not likely to lead to an appreciable increase in land degradation. Standard erosion and dust management control measures will be implemented during construction to reduce the incidence of wind erosion. As construction is proposed to occur in summer, this will reduce the potential for water erosion and waterlogging.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

#### Methodology

DAFWA shapefiles (accessed 24 May 2021) ASRIS mapping (accessed 24 May 2021)

#### (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

#### Proposed clearing is not at to this Principle

There are no DBCA managed lands in the vicinity of the proposal area. The nearest DBCA managed land is Twongkup Nature Reserve located 6.5km west-south-west of the proposal area. At this distance, the proposed clearing is not expected to impact on the values of this reserve.

Accordingly, clearing of vegetation will not have an impact on the environmental values of any adjacent or nearby conservation area.

## Methodology

DBCA shapefiles

ImageNow

## (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

#### Proposed clearing is not likely to be at variance to this Principle

The Gordon River intersects the proposal area as do a number of other non-perennial watercourses. Clearing will not deteriorate the quality of the surface water for these watercourses and is unlikely that there will be any change to the water quality of this area.

The proposal is not located within a Public Drinking Water Source Area, Groundwater Area or within a CAWS Act Catchment.

Dewatering will not be required during construction and clearing of a relatively small area of native vegetation over the 8 km proposal length is not likely to impact on groundwater quality.

Clearing is not proposed to occur adjacent to the Gordon River, and construction is planned for summer months, both reducing the potential for impacts on this (and other) watercourse(s).

Given no dewatering or major drainage modifications are required and the scale of clearing is relatively minor and linear in nature, no deterioration of surface or underground water levels or quality is expected to result from clearing; the proposal is not likely to be at variance to this Principle.

#### Methodology

DWER and DBCA shapefiles

## (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

#### Proposed clearing is not at variance to this Principle

Cranbrook (5km south east of the proposal area) receives an average of 496 mm of rainfall per year (Bureau of Meteorology Australia (2021)), predominantly from May to October.

Ecologia (2020a) reports that 16 soil-landscape systems are associated with the survey area, which are dominated by grey sandy duplex soils within three subsystems (52% of the study area). Sandy soils typically have a significant infiltration capacity, so it is unlikely that runoff or flooding will occur as a result of the proposed clearing.

DAFWA risk mapping indicates the soils of the proposal area have a low to moderate water logging risk for the majority of the proposal length, with a moderate to high water logging risk near the mapped watercourses in the northern and southern extremities of the proposal area.

Given the linear nature of the clearing over the 8 km proposal area, the sandy nature of the soil, and that the works are proposed to be conducted during summer, the proposed clearing will not cause or exacerbate the incidence or intensity of flooding.

#### Methodology

Bureau of Meteorology Australia (2021) DAFWA Shapefiles Ecologia (2020a)

## **6** ADDITIONAL ACTIONS REQUIRED

Table 5 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

#### Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
<ol> <li>The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.</li> <li>Where the clearing is at variance or may be at variance to Clearing Principle (f) and no other Clearing Principle, and the area of the proposed clearing is less than 0.5 hectares in size and the Clearing Principle (f) impacts only relate to:         <ul> <li>(i) a minor non-perennial watercourse(s);</li> <li>(ii) a wetland(s) classed as a multiple use management category wetland(s); and/or (iii) a wetland that is not a defined wetland; the preparation of an Assessment Report, as required by condition 6(e), is not required.</li> </ul> </li> </ol>	Yes	<ol> <li>Submissions will be sought from relevant parties, including the LGA, in accordance with Condition 8 of CPS 818/15 published on the website.</li> <li>VMP has been completed, refer to Appendix 2.</li> <li>An offset proposal for approval by DWER is required where clearing is 'at variance'. The offset proposal must be approved prior to undertaking clearing of the area to which the offset is related. DWER in its letter dated 15 September 2021 detailed the offset requirements for this Proposal.</li> </ol>
<b>2.</b> Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
<b>3.</b> The proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
<ul> <li>4 a. Proposal is within Region that:</li> <li>Has rainfall greater than 400mm and</li> <li>Is South of the 26<sup>th</sup> parallel and</li> <li>Works are in 'Other than dry conditions' and</li> <li>Works have potential for uninfested areas to be impacted</li> </ul>	Yes	Proceed with standard Vehicle and Plant management actions from PEMR's and Vehicle and Plant Hygiene Checklists.
<b>4b.</b> Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?	No	No further action required.
<b>5.</b> Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback	No	No further action required.
<b>6.</b> The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and weeds likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	Νο	No further action required.

## **7 STAKEHOLDER CONSULTATION**

Main Roads has liaised with the Shire of Cranbrook regarding the proposal, and has provided it with 15% and 85% design drawings. No objections from the Shire have been received. Main Roads has also liaised with the landowner(s) to the west of the proposal area where land is being purchased and being used for the side track. Further, Main Roads has liaised with DBCA (Head Office) over the discovery of the *Acacia prismifolia* (in 2018) and the Narrogin Office (in May 2021) over the planned S40 Authorisation (Permit to Take).

The Proposal was advertised on the Main Roads website on 8 June 2021, with submissions closing on 3 July 2021. One submission was received. A summary of the submission and Main Roads response is provided below:

Submission (Wildflower Society; Website Submission 1, July 2021)	Main Roads Response	
There was difficulty inaccurately assessing the impact given the lack of resolution and detail in the figures that overview the development envelope (principally, Figure 1). It is stated that works will be aligned to the western side of the road to reduce impact to the Eucalypt Woodlands of the WA Wheatbelt TEC and the P1 Acacia microneura. Barriers will also be employed in certain sections. These are positive measures, but it is impossible to assess whether further improvements to the road alignment could be made, due to the aforementioned lack of detail in the document.	<ul> <li>Main Roads met with representatives of the Wildflower Society on 20 July 2021 to discuss the matters raised within the Wildflower Society's submission. High resolution vegetation mapping was provided to the Wildflower Society representatives. The Wildflower Society appeared supportive of the efforts Main Roads has taken to minimise the impacts on the various environmental constraints.</li> <li>Section 2 for the CAR details the measures that have been taken to avoid, minimise, reduce and manage proposal clearing impacts.</li> <li>The location of all significant environmental values (included the location of <i>Acacia prismifolia</i>, Priority flora, TEC, and DBH trees) were provided to the design engineers who took all reasonable measures were undertaken to avoid, minimise and reduce the proposals impacts: <ul> <li>the cut batter was steepened in two locations to avoid impact occurring to <i>Acacia prismifolia</i> individuals,</li> <li>installation of approximately 6.5 km of kerbing, reducing the need for roadside drainage channels,</li> <li>the design was mostly aligned to the western side the road to avoid impacts to <i>Acacia prismifolia</i> and minimise impacts to potential Black Cockatoo breeding trees, the Eucalypt Woodlands of the Wheatbelt TEC and <i>Acacia microneura</i> (Priority 1),</li> <li>utilise the existing cleared zone as far as practicable,</li> <li>locate side-tracks predominantly within cleared farmland to the west of the proposed road alignment,</li> <li>modify the road design to avoid impacting the foliage of each <i>Acacia prismifolia</i> plant, particularly those located immediately adjacent to the existing edge of the maintenance zone,</li> <li>realign the existing intersection of Rockwell Road and Albany Highway away from several clusters of <i>Acacia prismifolia</i>,</li> </ul> </li> </ul>	

Submission (Wildflower Society; Website Submission 1 July 2021)	Main Roads Response
	<ul> <li>reducing earthworks buffer distances near Acacia prismifolia, Priority flora, TEC, and DBH trees).</li> <li>Information contained in the various consultants' reports was used to guide the design process. Improved clarity of mapping in the CAR would not have changed the outcome of the design process.</li> </ul>
The WSWA considers the lack of detail regarding the offset does not meet the requirement for public consultation described in the objectives of the Environmental Protection (EP) Act and the requirements for consultation required under the Act.	The Wildflower Society's opinion is noted. Main Roads developed an offset proposal in accordance with CPS 818/15 and it was subsequently approved by the DWER CEO.
The WSWA considers that Main Roads should have assessed the potential impact of proposed Eucalypt Woodlands of the WA Wheatbelt TEC in Clearing Principle (d).	The Wildflower Society's opinion is noted. Condition 6 of CPS 818/15 requires Main Roads to assess clearing impacts in "accordance with the Department's "A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environmental Protection Act 1986"". Accordingly, the potential impact on Eucalypt Woodlands of the WA Wheatbelt TEC was appropriately assessed under Clearing Principle (a).
The impact assessment on significant remnant vegetation (Clearing Principle (e)) says that the impact is not "significant". Such an assessment may be used to reduce the amount of land (or equivalent) needed to offset the residual impact. Assessments of significance are frequently contentious and highly subjective, and access to the flora surveys referenced in the document is not provided; without further information, it is not adequately demonstrated that the impact is not truly significant.	<ul> <li>The term 'significant' was based on the:</li> <li>proportion of pre-European vegetation units 967 and 1967 remaining at a LGA level,</li> <li>the amount of remnant vegetation occurring within 10km of the proposal area,</li> <li>the condition of the vegetation, and</li> <li>linear nature of the clearing.</li> <li>It should be noted that Main Roads did consider the clearing was at variance with Clearing Principle (e), as did DWER.</li> </ul>
The WSWA believes that CAR does not provide any information of the relative influence of the project on the TEC and the P1 and threatened, identified within the biological surveys, with respect to either the local population/size or the overall known population/size. It also does not describe the provision of adequate buffers, and, in fact expresses a wish to remove individual plants of a P1 species. This is not acceptable and the road alignment should be moved or the project should be submitted to a wider ranging assessment and review by an independent authority and not be processed through CPS 818.	<ul> <li>Main Roads met with representatives of the Wildflower Society on 20 July 2021 to discuss the matters raised within the Wildflower Society's submission including impacts on Priority flora and significant ecological communities. The Wildflower Society appeared supportive of the efforts Main Roads has taken to minimise the impacts on the various environmental constraints.</li> <li>The CAR details potential impacts on TEC/PEC, and Threatened and Priority flora. No P1 species will be cleared as part of this proposal. Three P4 species may be cleared as a result of this proposal, namely:-</li> <li>Banksia porrecta (P4) – 12 plants (184 in survey area)</li> <li>Caladenia integra (P4) – 2 plants (2 in survey area)</li> <li>Xanthorrhoea brevistylis (P4) - 30 plants (387 in survey area).</li> <li>Earthworks buffers have been reduced as far as practicable, whilst ensuring constructability and operator safety. In areas on TEC and DBH trees, this is typically 1 (one) m beyond edge of earthworks. In</li> </ul>

Submission (Wildflower Society; Website Submission 1 July 2021)	Main Roads Response
	relation to <i>Acacia prismifoila</i> , a 0 (zero) m buffer to edge of earthworks has been applied. DBCA has been provided the CAR for review, with DWER being provided with copies of the biological studies undertaken for this proposal.
	Further, Main Road has applied to DBCA for a S40 Permit to Take (soil/accidental take only). As part of this process, Main Roads has provided additional information to DBCA to assist them in its assessment of the S40 (although no threatened flora will be taken, a permit will be sought to clearing within the vicinity of neaby threatened flora).
The WSWA believes there is insufficient information given in relation to the other Priority species described in the CAR. It should be indicated where these populations exist within the overall spread of populations to establish there relative importance within that spread. It should also indicate how many individuals will be affected in relation to the population within the project study area and within the overall population. Given that these species can be classed as Critical species, WSWA considers that the impact on more than 0.05% of the total population would be highly	<ul> <li>The Wildflower Society's opinion is noted.</li> <li>The CAR details potential impacts on Priority flora. Three P4 species may be cleared as a result of this proposal, namely:- <ul> <li>Banksia porrecta (P4) – 12 plants (184 in survey area)</li> <li>Caladenia integra (P4) – 2 plants (2 in survey area)</li> <li>Xanthorrhoea brevistylis (P4) - 30 plants (387 in survey area).</li> </ul> </li> <li>Commentary is provided in the CAR that provides context to the population in the wider survey area and beyond.</li> <li>DBCA (2019) advise in Conservation codes for Western Australian flora and fauna that Priority 4 species are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic</li> </ul>
total population would be highly significant and warrant independent review.	reasons. Main Roads considers that all Threatened and Priority species are important, but believes that the potential removal of these Priority 4 individuals is not significant at a local or Statewide level.
WSWA considers the clearing impact assessment provided does not meet the requirements needed to properly assess the impact of this project on the vegetation, and	The information for the Proposal and supporting documentation provided in the Clearing Assessment Report (CAR) is adequate and fulfils the requirements outlined under CPS 818. Section 2 of the CAR describes how the design has been amended
<ul> <li>environment, in the project area as:</li> <li>It does not provide sufficient design information to allow a proper assessment of the design options considered and identification of other alternatives to the design proposed. WSWA expects that the design drawings with at least 80% certainty of</li> </ul>	to avoid, minimise, reduce and manage proposal clearing impacts. Considerable effort by the design engineers has resulted in a design which minimises the impact on environmental constraints, whilst providing a design that meets current safety and design requirements. The proposal area in the CAR was based on at least 85% design drawings. In accordance with CPS 818/15, Main Roads provided a summary of the flora and fauna surveys that were undertaken to inform the assessment. A summary is provided to ensure sensitive
<ul> <li>It should include proper consideration of the information to be made publicly available and the objectives to be achieved, as described in the Environmental Protection</li> </ul>	Information (such as localities of threatened species) is not unknowingly released, especially given the heightened transparency the Main Roads website provides. The surveys completed for the proposal were undertaken by highly regarded botanists and environmental scientists, with the methodology and survey effort reviewed by internal technical

Submission (Wildflower Society; Website Submission 1 July 2021)	Main Roads Response
<ul> <li>Submission (Wildflower Society; Website Submission 1 July 2021)</li> <li>Act and the EPBC Act. WSWA considers at least all flora and fauna surveys would be provided to enable an assessment of the survey contents and standard to be completed. Assessment of the local and bioregional data to enable the impact of loss of TEC and priority species should be included, as well as the total vegetation extent provided in the CAR.</li> <li>The detail regarding the proposed area to be offset and the location of offsets and how those offset areas were determined – both calculation</li> </ul>	<ul> <li>experts. Final versions of the biological reports are provided to DWER as part of its assessment of the CAR.</li> <li>In accordance with CPS 818/15, Main Roads provided DWER with an offset proposal and the completed offset calculator used to determine the required amount of offset. DWER has subsequently approved Main Roads' CAR and associated offset proposal.</li> <li>A dieback survey was undertaken in 2017. This survey identified that the majority of the proposal area was either uninterpretable or infected. Two small areas were identified as being uninfected. An</li> </ul>
	additional dieback survey was undertaken in June 2021. The outcome of the new survey will guide Main Roads (and its contractors) in the management of dieback. Hygiene management measures will be included as part of contract documentation.
<ul> <li>of area and habitat type.</li> <li>The mapping detail provided is insufficient to determine the extent and impact of dieback and the adequacy of the dieback management proposed. More generally, this applies to the mapping provided in the CAR.</li> </ul>	Main Roads met with representatives of the Wildflower Society on 20 July 2021, and provided them with more detailed mapping in relation to Vegetation type and condition, fauna constraints, flora constraints and design changes made to reduce impacts on environmental constraints. The Wildflower Society appeared supportive of the efforts Main Roads has taken to minimise the impacts on the various environmental constraints and the detail of this additional mapping.

## **8 VEGETATION MANAGEMENT**

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum. A Vegetation Management Plan (VMP) has been developed to manage and minimise vegetation clearing for the proposal (refer to Appendix 2).

### 9 **REFERENCES**

35 Degrees South Surveyors and Elizabeth Sandiford. (2019) Targeted Acacia prismifolia Flora Survey.

Australian Government. EPBC Act referral guidelines for three threatened black cockatoo species (2012). Department of Sustainability, Environment, Water, Population and Communities.

Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002). Land-use and vegetation in Western Australia. Department of Agriculture, Western Australia, Resource Management Technical Report 250.

Bureau of Meteorology Australia. (2021) Climate Averages for Australian Sites – Cranbrook> – Available online from <u>http://www.bom.gov.au/climate/data/index.shtml</u> Accessed 24 May 2021.

Centre for Ecosystem Management, Edith Cowan University and the Department of Environment and Conservation. (2008) Food Resources of Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy study area.

CSIRO. (2014). Australian Soil Resource Information System (ASRIS) Database. Available online from <u>http://www.asris.csiro.au</u> Accessed 24 May 2021

Department of Natural Resources and Environment (2002). Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Department of Biodiversity, Conservation and Attractions. (2017). *Fauna Profile - Carnaby's cockatoo Calyptorhynchus latirostris*. Retrieved from <u>http://www.dbca.wa.gov.au/</u>,

Department of Parks and Wildlife. (2011) Plants Used by Carnaby's Black Cockatoo. List of plants used by Carnaby's black cockatoo (dpaw.wa.gov.au)

Ecologia. (2020a) Narrikup to Mount Barker and Gordon South Stage 1 and 2, Targeted Flora and Fauna Survey.

Ecologia. (2020b) Gordon South Stage 1 and Stage 2 TEC Survey and Assessment.

Ecologia. (2020c) Gordon South Stage 1 and Stage 2 Consolidated Vegetation Condition Mapping.

Environmental Protection Authority (2020). Technical Guidance – Terrestrial vertebrate fauna surveys for Environmental Impact Assessment. Perth, Western Australia.

Environmental Protection Authority (2016). *Technical Guide – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment* (eds. K Freeman, G Stack, S Thomas and N Woolfrey). Perth, Western Australia.

Environmental Protection Authority (2019). EPA Technical Report: Carnaby's Cockatoo in Environmental Impact Assessment in the Perth and Peel Region. Perth, Western Australia

GHD. (2017) Albany Highway Gordon South SLK 308-316 Biological Assessment.

Government of Western Australia. (2019). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions, Perth. Available online from: <u>https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics</u>

Government of Western Australia (2019). Native Vegetation Clearing Permits. Application, assessment, and management requirements under Part V Division 2 of the Environmental Protection Act 1986. Department of Water and Environmental Regulation.

Government of Western Australia (2014). A guide to the assessment of applications to clear native vegetation Under Part V Division 2 of the Environmental Protection Act 1986. Department of Environmental Regulation.

Government of Western Australia (2014). WA Environmental Offset Guidelines. Perth, Western Australia.

Government of Western Australia (2011). WA Environmental Offset Policy. Perth Western Australia.

Great Southern Bio Logic. (2019a) Albany Highway Gordon South Stage 1, 308 – 316.5 SLK, Vegetation and Fauna Surveys

Great Southern Bio Logic (2019b) Albany Highway Gordon South Stage 1, 308 – 316 SLK, Targeted *Acacia prismifolia* (X) Flora Survey

Natural Resource Management in WA. (2019) SLIP portal, Soil-Landscape Mapping. Available online from: http://maps.agric.wa.gov.au/nrminfo/framesetup.asp. Accessed 24 May 2021.

Western Australian Herbarium. 1998- *FloraBase* - The Western Australian Flora. Department ofBiodiversity, Conservation and Attractions. Available online from: <u>https://florabase.dpaw.wa.gov.au/</u> Accessed 25 May 2021

## **10 APPENDICES**

Appendix	Title
Appendix 1	Constraints Mapping
Appendix 2	Vegetation Management Plan

#### **Appendix 1: Constraints Mapping**



Study Area – Water and Groundwater Source Areas, CAWS Catchments, DBCA lands



Study Area – TECs (Commonwealth)







### Acid Sulphate Soil Risk Mapping (CSIRO)

#### **Appendix 2: Vegetation Management Plan**

#### Purpose and Scope

This Vegetation Management Plan (VMP) has been prepared by Main Roads for the purpose of managing native vegetation clearing impacts associated with the Gordon River South Stage 1 proposal.

In order to bring this section of road up to current standards, road widening plus overlay with targeted construction of substandard horizontal and vertical curves is required. The proposal will require land acquisition and clearing on the east and west of the Highway.

Works will include 8 km of construction, potentially three temporary traffic diversion access tracks around construction sites, and the realignment of two side roads intersecting Albany Highway.

Support activities will include:

- gravel from adjacent cleared paddocks;
- water from existing farm dams in cleared paddocks;
- sidetracks required around construction zones in cleared adjacent farmland; and
- laydown areas and site office in cleared adjacent farmland.

In specified circumstances, Main Roads VMP is required to be approved by Department of Water and Environmental Regulation (DWER) as a condition of Main Roads Statewide Clearing Permit CPS 818.

#### Action

Appendix 2.1 references the standard Principal Environmental Management Requirements (PEMRs) (Table's 1 to 9) that will be utilised for all proposals that involve clearing to avoid, mitigate and manage the environmental impacts of the proposal.

Proposal Specific Environmental Management Requirements are contained in Table 1.

#### Timeframes

Actions shall be undertaken in accordance with those described in the relevant PEMR and the Proposal Specific Environmental Management Requirements.

#### Responsibilities

It is the responsibility of the Superintendent's Contract Management Team to ensure that the requirements are implemented by the Contractor. This shall be done by adhering to the Environmental Measurement and Evaluation Checklist.

### Appendix 2.1: Vegetation Management

VMP Requirement	Standard Management Action	Specific Management Action
Clearing	<ul> <li>Refer to Table 1: Clearing PEMR</li> <li>Specification 204 Environmental Management</li> <li>Construction Environmental Management Plan</li> <li>Specification 301 Vegetation Clearing and Demolition</li> <li>Environment Measurement and Evaluation Checklist (for release of HOLD POINTS)</li> <li>Contract Tender Documents available at <a href="https://www.mainroads.wa.gov.au/technical-commercial/tender-preparation/">https://www.mainroads.wa.gov.au/technical-commercial/tender-preparation/</a></li> </ul>	<ul> <li>Prior to construction, a qualified surveyor will clearly and accurately demarcate the Limits of Vegetation Clearing.</li> <li>During clearing activities, daily pre-start meetings attended by all clearing crews will thoroughly review and discuss approved clearing maps, planned clearing activities, methodologies and controls to prevent unapproved clearing. These pre-start meetings attendance forms will be signed by all in attendance and forwarded to the Superintendent each day.</li> <li>The locations of mapped patches of <i>Acacia prismifolia</i>, Priority flora, the Eucalypt woodlands of the Wheatbelt TEC/PEC and the requirements to protect the vegetation outside of the pegged clearing line will be clearly communicated through site inductions and pre-start meetings, particularly on dates when clearing is undertaken.</li> <li>The individuals of <i>Acacia prismifolia</i> located in close proximity (within 50 m), individuals of any Priority flora located in close proximity (within 10 m) to the clearing footprint, and areas of TEC will be pegged and demarcated as exclusion zones to ensure that there are no impacts to these plants.</li> <li>Clearing near Threatened Flora:</li> <li>Main Roads will obtain the necessary approval from DBCA regarding indirect impacts on <i>Acacia prismifolia</i> (s 40 Application for Authorisation to take Threatened Flora in a management operation).</li> <li>Mulch and topsoil cleared from areas adjacent to <i>Acacia prismifolia</i> will be stockpiled separately for later selective use/rehabilitation.</li> </ul>
Dieback	Refer to Table 2: Dieback PEMR	
Management	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	

VMP Requirement	Standard Management Action	Specific Management Action
Erosion and	Refer to Table 3: Erosion and Sedimentation Control PEMR	
Sedimentation	Specification 204 Environmental Management	
Control	Construction Environmental Management Plan	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Fauna	Refer to Table 4: Fauna PEMR	
	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Machinery and	Refer to Table 5: Machinery and Vehicle Management	Copies of completed Vehicle/Machine Hygiene Checklists will be provided by the
Vehicle Management	PEMR	contractor within two weeks of completion of site works.
	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Mulch and Topsoil	Refer to Table 6: Mulch and Topsoil Management	<ul> <li>Storage, disposal and/or reuse of vegetation, mulch and topsoil materials,</li> </ul>
Management	Specification 204 Environmental Management	including for the segregation of 'clean' materials from 'contaminated' materials
	Construction Environmental Management Plan	(e.g. materials contaminated by weeds) will be planned prior to clearing.
	Specification 301 Vegetation Clearing	Mulch and topsoil cleared from areas adjacent to Acacia prismifolia will be
	Specification 304 Revegetation and Landscaping	stockpiled separately for later selective use/rehabilitation.
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Pegging and Flagging	Refer to Table 7: Pegging and Flagging PEMR	Areas where the patches of Eucalypt Woodlands of the Western Australian
	Specification 204 Environmental Management	Wheatbelt and Acacia prismifolia occur will be pegged at no greater than 10 m
	Construction Environmental Management Plan	Significant flora (i.e. Acacia prismifolia) located within 50 m of the proposal area
	Specification 301 Vegetation Clearing and Demolition	boundary, and Priority flora located within 10 m of the proposal area boundary.

VMP Requirement	t Standard Management Action	Specific Management Action
	Contract Tender Documents available at https://www.mainroads.wa.gov.au/technical- commercial/tender-preparation/	<ul> <li>and areas of TEC will be demarcated and flagged to avoid any indirect impacts to these plants/communities. These areas will be mapped as exclusion zones and these maps will be discussed during site inductions and pre-start meetings.</li> <li>Mulch and topsoil stockpiles from areas adjacent to <i>Acacia prismifolia</i> will be pegged and flagged so as to distinguish that they may contain <i>Acacia prismifolia</i> seeds.</li> </ul>
Water Drainage	Refer to Table 8: Water Drainage PEMR	
Management	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
Weed Management	Refer to Table 9: Weed Management PEMR	
	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Monitoring	Specification 204 Environmental Management	
	Construction Environmental Management Plan	
	Superintendent's Contract Management Plan &	
	Environmental Measurement and Evaluation Checklist.	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	
Auditing	Specification 204 Environmental Management	
	Superintendent's Contract Management Plan &	
	Environmental Measurement and Evaluation Checklist.	
	Contract Tender Documents available at	
	https://www.mainroads.wa.gov.au/technical-	
	commercial/tender-preparation/	

## Principal Environmental Management Requirements (PEMR's)

### Table 1: Clearing PEMR

#### STANDARD MANAGEMENT REQUIREMENTS

#### **PRE WORKS**

- 1. The Contractor must prepare, implement and maintain processes to ensure that the movement of all vehicles, plant and machinery does not occur outside of the Limits of Vegetation Clearing. This must include all turnaround areas.
- 2. The Contractor must minimise vegetation clearing and the area of disturbance on ground by utilising existing cleared area where possible.

#### **DURING WORKS**

- 1. The Contractor must report any damage to vegetation beyond the Limits of Vegetation Clearing as an Environment Incident.
- 2. The Contractor must ensure Movements are confined to the Limits of Vegetation Clearing during the works.
- 3. The Contractor must undertake the clearing in accordance with the Fauna PEMR.

#### POST WORKS

1. NIL

### Table 2: Dieback PEMR

#### STANDARD MANAGEMENT REQUIREMENTS

#### PRE WORKS

- 1. Contractor's Pre-starts must detail the requirements from the DMP/HMP, where relevant, dieback management areas and the requirements of each area, maps of infested and uninfected locations, and hygiene requirements.
- 2. Where relevant a copy of the DMP/HMP must be onsite. This plan will include maps of management areas and obligatory control actions.
- 3. Prescribe where vehicles, machinery and plant are going to be stored/parked during the works.
- 4. Use the Plant, Vehicle and Equipment Hygiene Checklist or equivalent Hygiene form to check that all machinery and vehicles are clean on entry (i.e. free of soil and vegetation).

#### **DURING WORKS**

- 1. If required, locations of dieback infested or dieback free areas and hygiene control locations marked on site in accordance with contract HMP or DMP.
- 2. Hygiene works to be undertaken as per the HMP or DMP, where required.
- 3. Restrict movement of machines and other vehicles to the Limits of Vegetation Clearing.
- 4. Ensure no known weed affected soil, mulch, fill or other material is brought into the Limits of Vegetation Clearing.
- 5. Ensure cleared materials are stockpiled or disposed at waste at the locations approved by the Superintendent.

#### **POST WORKS**

- 1. Record that the proposal was undertaken in dry soil conditions (unless an approved DMP authorises otherwise).
- 2. Use the Plant, Vehicle and Equipment Hygiene Checklist to check that all machinery and vehicles are clean on exit (i.e. free of soil and vegetation).

### Table 3: Erosion and Sedimentation

#### STANDARD MANAGEMENT REQUIREMENTS

#### PRE WORKS

- 1. The Contractor must develop, implement and maintain processes and procedures to ensure that:
  - The Contractor is responsive to and addresses incidents of erosion and sedimentation within and adjacent to the work areas.
  - Prevent water and wind soil erosion within and adjacent to the works areas.
  - Prevent the sedimentation and siltation of watercourses located within and adjacent to the works area.
  - Ensure that sedimentation and siltation of drainage lines due to the removal of riparian vegetation is avoided, minimised and mitigated.
  - Ensure that loose surfaces and recently cleared areas are protected from wind and soil erosion.
  - Minimise exposed soil working surfaces or protect them from stormwater erosion.
  - Ensure material such as gravel, crushed rock and excavated material is stockpiled away from drainage paths and covered to prevent erosion.
  - Ensure that water quality monitoring is undertaken when turbidity and sedimentation is an issue.

#### **DURING WORKS**

1. Implement, monitor and adhere to the sedimentation and erosion processes developed to address the requirements in the pre-works.

#### POST WORKS

- 1. If required, the Contractor must continue to monitor water quality until the turbidity/sedimentation dissipates.
- 2. The Contractor must ensure that disturbed areas are stabilised as soon as is practicable after construction activities are completed.

#### Table 4: Fauna

#### STANDARD MANAGEMENT REQUIREMENTS

#### **PRE WORKS**

- 1. The Contractor must ensure that fauna management requirements are communicated to the crew undertaking the clearing works during the induction and pre-start meeting.
- 2. A Fauna Specialist will undertake a pre-clearance check of suitable hollows for Red-tailed Phascogale immediately prior to clearing.
- 3. The clearing of an occupied hollow shall not occur until such time that Red-tailed Phascogale has vacated the hollow or been removed by a Fauna Specialist.

#### **DURING WORKS**

1. The Contractor must undertake the clearing in the following manner to allow fauna to move out of the clearing area;

i. Prior to the clearing activities commencing, use machinery to tap large trees with habitat hollows to encourage any animals evacuate.

ii. Undertake the clearing in one direction and towards areas of native vegetation to allow the animals to escape to adjacent habitat.

- 2. The Contractor must ensure that all onsite personnel undertake visual monitoring and are vigilant to the presence of fauna. Any sightings of fauna, including injury or fatality, must be reported as an Environmental Incident.
- 3. The Contractor must ensure that;
  - i. No pets, traps or firearms are brought into the proposal area
  - ii. Fauna are not fed
  - iii. Fauna are not intentionally harmed or killed

iv. Fauna that venture into the work area are encouraged to leave in a manner that does not harm the animal or operator (loud noise, slowly approaching in a vehicle etc.)

4. The Contractor must ensure that in the event that sick, injured or orphaned native wildlife are located on the proposal site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance. The Contractor must maintain records of any animal taken to a wildlife carer.

#### **POST WORKS**

1. The Contractor must provide any records of fauna impact to the Superintendent.

#### Table 5: Machinery and Vehicle Management

#### STANDARD MANAGEMENT REQUIREMENTS

#### PRE WORKS

- 1. The Contractor must ensure that all areas associated with the storage, parking, servicing, wash down and refuelling of all vehicles, plant and machinery is located within the Limits of Clearing and approved by the Superintendent.
- 2. The Contractor must ensure that all vehicles, machinery and plant are clean on entry (i.e. free of all soil and vegetation material) and comply with the requirements of 204.B.32.
- 3. The Contractor must ensure that vehicle servicing and refuelling will be undertaken at designated areas approved by the Superintendent.
- 4. The Contractor must ensure that all staff suitably qualified and competent to undertake works, especially refuelling activities.

#### **DURING WORKS**

1. The Contractor must maintain records of checking all vehicles, machinery and plant are clean on entry.

#### **POST WORKS**

NIL

#### Table 6: Mulch and Topsoil Management

#### STANDARD MANAGEMENT REQUIREMENTS

#### PRE WORKS

1. The Contractor must ensure that the movement of soil and vegetation is only undertaken in dry conditions unless otherwise approved and / or directed by the Superintendent.

2. The Contractor must ensure that poor quality topsoil and mulched vegetation does not contaminate the good quality topsoil and vegetation.

#### **DURING WORKS**

- 1. The Contractor must ensure that all machinery used in the removal of weed-infested topsoil must be cleaned down before and between operations to prevent the introduction and spread of weeds.
- 2. The Contractor must ensure the movement of large equipment over topsoil materials is avoided to minimise compaction.
- 3. The Contractor must ensure that Dieback and weed infected topsoil and mulch vegetation must be handled separately to minimise the risk of spreading dieback and weed species across the site and stockpiles.
- 4. The Contractor must ensure that stockpiling operations must occur in a manner to ensure that the properties of the topsoil are not degraded and the topsoil made unsuitable for use in revegetation.

#### **POST WORKS**

NIL

### Table 7: Pegging and Flagging

STANDARD MANAGEMENT REQUIREMENTS

#### PRE WORKS

- 1. Pegging must be done in accordance with the requirements detailed in Specification 301.
- 2. The Contractor must clearly communicate, either at the pre-start meeting or equivalent, to the crew undertaking the clearing works, through clear maps and other additional means, what the Pegging represents.

#### **DURING WORKS**

- 1. The Contractor must peg the Limits of Clearing by PINK flagging tape.
- 2. The Contractor peg/demarcate vegetation proposed to be retained is demarcated by WHITE flagging tape.
- 3. The Contractor must ensure that the vegetation demarcated with PINK and WHITE flagging tape is consistent with the approved clearing areas.

#### POST WORKS

1. The Contractor remove and dispose of appropriately any demarcation, pegging or flagging once proposal works are completed.

#### Table 8: Water Drainage

#### STANDARD MANAGEMENT REQUIREMENTS

#### **PRE WORKS**

1. Use pollution control and containment strategies for proposal activities in Public Drinking Water Source Areas (PDWSAs) / Underground Water Pollution Control Areas (UWPCAs) and liaise with the DWER where necessary.

#### **DURING WORKS**

1. Existing natural drainage paths and channels along the road or the vicinity of the proposal area will not be unnecessarily blocked or restricted.

- 2. Temporary drainage systems may be installed to carry surface water away from the areas where excavation and foundation construction work is taking place or from any other area where the accumulation of water could cause delay or damage to the work.
- 3. Maintain these drainage systems in proper working order at all times.
- 4. Runoff from disturbed areas must be managed to minimise adverse impacts on surrounding vegetation, watercourses and properties.
- 5. Booms and silt fences must be used when working over or adjacent to areas of surface water in order to protect the quality of surface water from construction impacts.

#### **POST WORKS**

- 1. Water quality monitoring to be undertaken (if turbidity/ sedimentation is an issue).
- 2. Prior to backfilling the completed pipe work certify that the entire system is flushed clean and tested
- 3. Disturbed areas will be stabilised soon after construction activities are completed.
- 4. Culvert and drainage structures will be free of all grass, weeds, silt and debris.

#### Table 9: Weed Management

#### STANDARD MANAGEMENT REQUIREMENTS

#### **PRE WORKS**

- 1. The Contractor must remove or kill any weeds growing in proposal area that are likely to spread and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.
- 2. The Contractor must develop, implement and maintain procedures to identify and control declared and invasive weed species within the Contract areas, to the satisfaction of the Superintendent.
- 3. The Contractor must prepare a weed control program, for nominated weed species for control and disposal, to the satisfaction of the Superintendent.
- 4. The Contractor must undertake weed management in Stockpiles as directed by the Superintendent.

#### **DURING WORKS**

- 1. The Contractor must implement the weed control procedures and management plan and record and manage records of its implementation.
- 2. The Contractor must treat nominated weed infestations as many times as necessary to control and eradicate the weed species in accordance with the approved weed control program.
- 3. The contractor must ensure that no known weed, pest or diseased affected soil, mulch, fill or other material is brought into the Site.

#### POST WORKS

 The relevant <u>Vegetation Maintenance Record Sheets</u> available at: <u>https://www.mainroads.wa.gov.au/BuildingRoads/Contracting/Pages/ReportingForms.aspx</u> must be completed and sent to the Superintendent.