



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8494/1
Permit Holder:	Shire of Bruce Rock
Duration of Permit:	From 9 July 2021 to 9 July 2031

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The Permit Holder is authorised to clear native vegetation for the purpose of road construction.

2. Land on which clearing is to be done

Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock

3. Clearing authorised

The Permit Holder must not clear more than 0.19 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

5. Period during which clearing is authorised

The Permit Holder must not clear any native vegetation after 9 July 2026.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise, and reduce impacts and extent of clearing

In determining the native vegetation authorised to be cleared under this Permit, the Permit Holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

7. Weed and dieback management

When undertaking any clearing authorised under this Permit, the Permit Holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known dieback or weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

8. Revegetation

Within 12 months of the commencement of clearing, within the area cross-hatched green in Figure 1 of Schedule 1, the Permit Holder must implement the *revegetation* actions described in the *Revegetation plan*, which include, but are not limited to the following:

- (a) Retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared
- (b) Close off the *revegetation area* to prevent access to all vehicles
- (c) Install signage to keep people/vehicles out of the *revegetation area* and to warn road users that the road layout has changed
- (d) Remove and stockpile the road seal from the *revegetation area*
- (e) Deep rip the *revegetation area* to remove any areas of compaction or other obstruction that could prevent root penetration of seedlings
- (f) Undertake weed control in accordance with Section 7 of the *Revegetation plan*
- (g) Commence *revegetation* and *rehabilitation* within the *revegetation area* by:
 - (i) deliberately *planting* and *direct seeding* native vegetation that will result in similar species composition, structure and density of native vegetation to the surrounding vegetation within the *revegetation area*; and
 - (ii) ensuring only *local provenance* seeds and propagating material area used to *revegetate* the area
- (h) Spread mulch over the *revegetation area*
- (i) Spread brush/woody debris removed from the areas cleared under condition 3 of this Permit over the *revegetation area*
- (j) Establish three 10 x 10 metre quadrat monitoring sites across the *revegetation area* and conduct monitoring activities described in Section 11 of the *Revegetation plan*
- (k) Water planted vegetation to ensure that the completion criteria described in condition 8(l) are met

- (1) Achieve the following completion criteria after the 5 year monitoring period for areas *revegetated* under this Permit:

Item	Criterion	Completion targets	Completion criteria	Monitoring
1a	Species richness	Return dominant overstorey species (<i>Eucalyptus loxophleba</i> and <i>Acacia acuminata</i>) present at <i>reference sites</i> .	For each target revegetation type, the revegetation needs to support: <ul style="list-style-type: none"> • <i>Eucalyptus loxophleba</i>; and • <i>Acacia acuminata</i>. 	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
1b	Species richness	Minimum of 60 per cent of native species in each structural layer returned, based on <i>reference sites</i> .	For each target revegetation type, the revegetation needs to achieve a minimum species richness of six, including two native shrub species as recorded at the target reference sites.	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
2a	Cover and density	Minimum of 60 per cent of stems/ha for dominant overstorey species returned based on <i>reference sites</i> .	For each target revegetation type, the revegetation needs to support: <ul style="list-style-type: none"> • 215 stems/ha of <i>Acacia acuminata</i>; and • 16 stems/ha of <i>Eucalyptus loxophleba</i>. 	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
2b	Cover and density	Minimum of 60 per cent of plants /ha in each structural layer returned, based on <i>reference sites</i> .	For each target revegetation type, the revegetation needs to achieve a minimum species richness of <ul style="list-style-type: none"> • 540 plants/ha of <i>Dianella revoluta</i> var. <i>divaricata</i>; and • 460 plants/ha of <i>Maireana tomentosa</i>. 	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
3	Average percentage cover	Minimum of the overall average of 2% for total herb and grass percentage cover returned based on <i>reference sites</i> .	The revegetation sites need a minimum of 2% cover for herbs and grasses, as recorded at the reference sites.	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
4a	Weeds	Weed cover is no greater than at <i>reference sites</i>	For each target revegetation type, the revegetation needs a weed cover no greater than 6%.	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
4b	Weeds	No priority, high impact or highly invasive weeds present	No weeds present that are listed as Priority Alert, High Impact or Rapid invasiveness on the DBCA Wheatbelt Region Impact and Invasiveness Ratings list as updated from time to time.	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
5	Bare ground	No more than 5 per cent greater than at the <i>reference sites</i>	For each target revegetation type, the <i>revegetation area</i> must not have more than 23% (526 m ²) of bare ground.	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).

- (m) Undertake remedial action for the *revegetation area* where monitoring indicated that revegetation has not met the completion criteria, outlined in condition 8(l) of this Permit, including:
- (i) revegetate the area by deliberately *planting* and *direct seeding* native vegetation that will result in the minimum target set out in condition 8(l) of this Permit and ensuring only *local provenance* seeds and propagating material are used;
 - (ii) undertake further weed control activities;
 - (iii) undertake further watering activities; and
 - (iv) annual monitoring by an *environmental specialist* of the *revegetation area* following the monitoring outlined in condition 8(j), until the completion criteria, outline in condition 8(l) of this Permit are met.

9. Directional clearing

The Permit Holder must conduct clearing activities in a slow, progressive manner from one side of the area authorised to be cleared under condition 3 of this Permit to another, to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

The Permit Holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 6; (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 7; and (g) actions taken in accordance with condition 9 of this Permit.
2.	In relation to the <i>revegetation</i> and <i>rehabilitation</i> areas pursuant to condition 8 of this Permit	<ul style="list-style-type: none"> (a) the location of any areas <i>revegetated</i> and <i>rehabilitated</i>, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; (b) a description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken; (c) the size of the area <i>revegetated</i> and <i>rehabilitated</i> (in hectares); (d) the species composition, structure and density of <i>revegetation</i> and <i>rehabilitation</i>; (e) the number of plants and species installed; (f) the assessment of the <i>revegetation</i> and <i>rehabilitation</i> against Criterion outlined in condition 8(l); (g) any remedial actions undertaken in accordance with condition

No.	Relevant matter	Specifications
		8(m); and (h) a copy of the environmental specialist's report.

11. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 10 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this Permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 9 April 2031, the Permit Holder must provide to the *CEO* a written report of records required under condition 10 of this Permit, where these records have not already been provided under condition 11(a) of this Permit.

DEFINITIONS

In this Permit, the terms in Table have the meanings defined.

Table 2: Definitions


Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
Clearing	has the meaning given under section 3(1) of the EP Act.
Condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
Direct seeding	means a method of re-establishing vegetation through establishment of a seed bed and the introduction of seeds of the desired plant species.
Environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the <i>CEO</i> as a suitable environmental specialist.
EP act	<i>Environmental Protection Act 1986</i> (WA)
Fill	means material used to increase the ground level, or to fill a depression.
Local provenance	means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
Mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
Native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
Planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
Reference sites	Means Lot 26192 on diagram 7646, Register Number LR3006/308, PIN 971189 and, Crown Reserve 19762, Bruce Rock, Shire of Bruce Rock
Regeneration	means revegetation that can be established from in situ seed banks contained either within the topsoil or seed-bearing mulch.
Revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
Revegetation area	Means the areas cross-hatched green in Figure 1 of Schedule 1 of this Permit.

Term	Definition
Revegetation plan	Means plans developed by the Permit Holder for the <i>revegetation</i> of the <i>revegetation area</i> in accordance with condition 8 of this Permit: “Shire of Bruce Rock: CPS 8494-1; Revegetation Plan for Sections of Road at the Junction of Bruce Rock-Narembeen Road with Cumminin Road (Maia Environmental Consultancy Pty Ltd, 2021)”.
Weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

REFERENCES

Maia Environmental Consultancy Pty Ltd. (2021). *Shire of Bruce Rock: CPS 8494-1; Revegetation Plan for Sections of Road at the Junction of Bruce Rock-Narembeen Road with Cumminin Road*. Revegetation plan prepared on behalf of Shire of Bruce Rock in relation to clearing permit application CPS 8494/1. Received by the Department on 3 May 2021. DWER Ref: A2003092.

END OF CONDITIONS



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Ryan Mincham
 MANAGER
 NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
 of the Environmental Protection Act 1986*

16 June 2021

Schedule 1

The boundary of the areas authorised to be cleared (cross-hatched yellow) is shown in the map below. The area cross-hatched green indicates the area which will be revegetated in accordance with the conditions of this Permit.



Figure 1: Map of the boundaries of the areas within which clearing may occur and revegetation must occur in accordance with the conditions of this Permit (cross-hatched yellow and green, respectively).



1. Application details

1.1. Permit application details

Permit application No.: 8494/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Bruce Rock (referred to as the Shire herein this report)

1.3. Property details

Property: Bruce Rock-Narembeen Road reserve (PIN 11650235)
Local Government Authority: Shire of Bruce Rock
Locality: Bruce Rock

1.4. Application

Initial Clearing Area (ha)	Revised Clearing Area	Method of Clearing	For the purpose of:
2.7995	0.19	Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 16 June 2021

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance with principle (e), may be at variance with principle (b) and is not, or not likely to be at variance with the remaining principles.

The Delegated Officer considered the following:

- The Shire has reduced the initial application area by approximately 93.2 per cent.
- The findings of the 'Vegetation and Flora Survey of the Bruce Rock – Narembeen Road Reserve (PIN 11650235, Land ID 3677894)' conducted by Whisson and Courtenay in November 2020 (referred to as the flora survey in this report). The Delegated Officer noted the flora survey did not identify any conservation significant flora and threatened or priority ecological communities within the application area.
- The proposed clearing will result in the loss of 0.19 hectares of native vegetation considered significant in an extensively cleared landscape which may function as an ecological linkage enabling fauna to move between areas of remnant vegetation. To mitigate these potential significant residual impacts, the Shire had committed to revegetating two separate areas within the same road reserve comprising a total area of approximately 0.40 hectares. Based on calculations using the Department of Agriculture, Water and the Environment (DAWE) Offset calculator, the Delegated Officer determined that revegetation of approximately 0.23 hectares will adequately address the significant residual impacts of the proposed clearing.
- To maximise the revegetation success, the Shire has commissioned Maia Environmental Consultancy Pty Ltd (Maia) to prepare a comprehensive revegetation plan in accordance with the Department of Water and Environmental Regulation's (DWER) [Guide to Preparing Revegetation Plan for Clearing Permits](#) and [International standards for the practice of ecological restoration](#) (McDonald et al., 2016).
- The revegetation plan (Maia, 2021) was deemed adequate as:
 - an appropriate reference site has been nominated
 - sufficient baseline data in relation to the nominated reference site has been collected based on the assessment of appropriate quadrats
 - SMART (Specific, Measurable, Achievable, Realistic, and Time-bound) completion criteria were established based on the nominated reference site and the soil type, landscape position and site history of the proposed revegetation area
 - appropriate revegetation techniques were proposed
 - the identified species list was appropriate for the required outcomes
 - appropriate monitoring and contingency actions were proposed.
- Conservation significant fauna may be utilising the application area at the time of clearing. Slow, directional clearing that enables fauna to move into adjacent habitat will mitigate impacts to individuals that may be present at the time of clearing.

The Delegated Officer considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area. Potential impacts of the clearing will be mitigated by the avoid, minimise, weed and dieback

management, directional clearing and revegetation conditions imposed on the clearing permit.

2. Site Information

- Clearing Description:** The initial application was for the proposed clearing of 2.7995 hectares of native vegetation within Lot 325 on Deposited Plan 83501 (Crown Reserve 5314), Babakin, and Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock, for the purpose of improving road safety (Figure 1 and 2).
- During the assessment, the application area was reduced from 2.7995 hectares to 0.19 hectares, with all proposed clearing restricted to the Bruce Rock-Narembeen Road reserve.
- Vegetation Description:** The revised application area is mapped within Beard vegetation association 1023, which is described as a medium woodland of York gum, wandoo and salmon gum (*Eucalyptus salmonophloia*) (Shepherd *et al.*, 2001).
- Soil/Landform Type:** The revised application area is mapped by the Department of Primary Industries and Regional Development (DPIRD) as the following soil type:
- Wadderin 3 undifferentiated Phase, which is described as colluvial and residual mantle, gently undulating slopes, with acid to neutral duplexes under mallee on upper to mid slopes and Mallee, Gimlet and Salmon Gum vegetation on neutral to alkaline duplexes and clays in lower positions (Schoknecht *et al.*, 2004).
- Vegetation Condition:** The condition of the vegetation within the revised application area was determined based on the flora survey (Whisson & Courtenay, 2020). The vegetation is considered to be in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition, described as:
- Degraded: basic vegetation structure severely impacted by disturbance, scope for regeneration but not to a state approaching good condition without intensive management (Keighery, 1994)
 - Completely degraded: No longer intact, completely/almost completely without native species (Keighery, 1994).
- Comment:** The local area referred to in the assessment of this application is defined as a 20 kilometre radius measured from the perimeter of the application area. The local area retains approximately 8.9 per cent native vegetation cover.



Figure 1: Application area Lot 325 on Deposited Plan 83501 (Crown Reserve 5314), Babakin



Figure 2: Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock



Figure 3: Revised application area: Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock



Figure 4: Aerial image showing Lot 325 on Deposited Plan 83501 (Crown Reserve 5314), Babakin in 2006 (Landgate, 2019)



Figure 5: Aerial image showing Lot 325 on Deposited Plan 83501 (Crown Reserve 5314), Babakin in 2016. (Landgate, 2019)



Figure 6: Aerial image showing Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock in 2006. (Landgate, 2019)



Figure 7: Aerial image showing Bruce Rock-Narembeen Road reserve (PIN 11650235), Bruce Rock in 2016. (Landgate, 2019)



Figure 8: Photograph of vegetation within the proposed clearing area at Babakin (Shire of Bruce Rock, 2019)



Figure 9: Photograph of vegetation within the proposed clearing area at Babakin (Shire of Bruce Rock, 2019)



Figure 10: Photograph of vegetation within the revised clearing area at Bruce Rock (Maia, 2021)



Figure 11: Photograph of vegetation within the revised clearing area at Bruce Rock (Maia, 2021)

3. Minimisation and mitigation measures

In the application form, the Shire noted the large trees within the application area will be retained (Shire of Bruce Rock, 2019).

On 7 October 2019, DWER wrote to the Shire advising that the proposed clearing had the potential to impact on:

- threatened and/or priority flora
- the Eucalypt woodlands of the Western Australian Wheatbelt ecological community (hereafter referred to as Wheatbelt Woodland) threatened ecological community (TEC)
- habitat for threatened fauna species
- ecological linkages
- vegetation considered significant in an extensively cleared landscape.

The Shire subsequently reduced the application area and commissioned Whisson and Courtenay (2020) to undertake a flora survey. The Shire reduced the application area by removing a portion of the application area within Crown Reserve 5314 and minimising the amount of clearing within the Bruce Rock – Narembeen Road reserve (see Figure 12 below).



Figure 12: Revised application area (cross-hatched blue) and revegetation area (cross-hatched green)

The reduction resulted in mitigating the environmental impacts to the abovementioned environmental values through:

- a reduction of approximately 93.2 per cent in the amount of clearing proposed (from 2.7995 hectares to 0.19 hectares)
- the retention of approximately 2.2095 hectares of native vegetation considered significant in an extensively cleared landscape which contributes to an ecological linkage.

The findings of the flora survey are further discussed in Section 5 of this report.

On 7 January 2021, DWER advised the Shire that although the application area has been significantly reduced and the flora survey did not identify any threatened or priority flora species and/or vegetation representative of the Wheatbelt Woodland TEC, the proposed clearing had the potential to cause impacts on significant remnant vegetation and reduce the effectiveness of ecological linkages within the local area. To mitigate these impacts, the Shire has committed to revegetating a portion of the Bruce Rock – Narembeen Road reserve as described in Figure 12.

On 3 May 2021, the Shire submitted a revegetation plan prepared by Maia (2021) for two areas within the Bruce Rock – Narembeen Road reserve in the immediate vicinity of the application area. The total size of these areas was approximately 0.40 hectares. Having used the DAWE's Offset calculator, on 5 May 2021, DWER advised the Shire that revegetation of approximately 0.23 hectares will adequately address the significant residual impacts of the proposed clearing. The Shire confirmed that an area of 0.23 hectares, as described in Figure 12 above, will be revegetated to mitigate these impacts. The information provided in the revegetation plan is reflected in the revegetation conditions imposed on the clearing permit

The following assessment is the preliminary assessment of the original area of 2.7995 hectares across two different sites. Section 5 outlines the modifications made by the Shire and the consideration of the variances made in response to these modifications.

4. Assessment of application against clearing principles

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

Proposed clearing may be at variance with this Principle

The vegetation within the application area is considered to be in good to degraded (Keighery, 1994) condition, with the variance between the two areas largely due to historical clearing (Figures 3-6 above). The vegetation within Lot 325 on Deposited Plan 83501 (Crown Reserve 5314), Babakin (herein referred to as Babakin), does not appear to have been cleared and is likely to be largely intact. The vegetation within Bruce Rock-Narembeen Road reserve (PIN 11650235), (herein referred to as Bruce Rock-Narembeen Road) has undergone historical disturbance and is located between an intersection and is surrounded by agricultural properties.

According to available datasets, five threatened flora species and 47 priority flora species (listed by DBCA) have been recorded within the local area (Western Australian Herbarium, 1998-). None of these records occur within the application area. Based on the habitat preferences of these species, the application area may contain habitat for the following species:

For the Babakin area:

- *Banksia splendida* subsp. *splendida* (Priority 2 (P2))
- *Acacia arcuatifolia* (P2)
- *Banksia densa* var. *densa* (P2)
- *Acacia inophloia* (P3)
- *Banksia horrida* (P3)
- *Banksia rufa* subsp. *Obliquiloba* (P3)
- *Beaufortia burbridgeae* (P3)
- *Daviesia uncinata* (P3)
- *Calothamnus brevifolius* (P4)
- *Daviesia oxylobium* (P4)

For the Bruce Rock- Narembeen Road area:

- *Acacia lirellata* subsp. *compressa* (P2)
- *Baekkea* sp. Narembeen (G.J. Keighery & N. Gibson 3010) (P2)
- *Ricinocarpos tuberculatus* (P2)
- *Acacia inophloia* (P3)
- *Acacia ancistrophylla* var. *peraracuata* (P3)
- *Eucalyptus subangusta* subsp. *virescens* (P3)
- *Hibbertia glabriuscula* (P3)
- *Phlegmatospermum eremaeum* (P3)
- *Thysanotus tenuis* (P3)
- *Daviesia oxylobium* (P4)
- *Eremophila caerulea* subsp. *merrallii* (P4)

As assessed under Principle (c), the application area may also contain, or provide suitable habitat for five threatened flora species recorded within the local area. No flora surveys have been completed within the application area. Noting that threatened and priority flora species may occur within the application area, an appropriately timed targeted flora survey is required to determine the presence of conservation significant flora species.

According to available datasets, there are several occurrences of the Wheatbelt Woodland within the local area, which is recognised by the State (as listed by the Department of Biodiversity, Conservation and Attractions (DBCA) as a Priority 3 Priority Ecological Community (PEC) and federally as a TEC, listed as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). An occurrence of this TEC is within the application area at Babakin. Aerial imagery and photographs provided by the applicant (Shire of Bruce Rock, 2019) indicate the vegetation within the Babakin area may be representative of the Wheatbelt Woodland and the proposed clearing may impact on an occurrence of this community. A survey is required to determine if the Babakin application area is representative of this TEC. State listed TEC's are discussed under Principle (d).

As assessed under Principle (b), the application area may provide suitable foraging and breeding habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), Red-tailed Phascogale (*Phascogale calura*) and Mallee fowl (*Leipoa ocellata*). The applicant has committed to retaining large trees which may be suitable habitat for Carnaby's Cockatoo and Red-tailed Phascogale. The application area is not likely to contain breeding mounds for the Mallee fowl, but individuals may utilise the application area for dispersal. Slow, progressive directional clearing will enable ground dwelling fauna to move into native vegetation adjacent to the application area, ahead of the clearing activity.

As the application area may contain habitat for threatened black cockatoo species and mallee fowl, may be representative of a TEC and may contain priority or threatened flora, the application area may comprise an area of high biodiversity and the proposed clearing may be at variance with this Principle.

(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.

Proposed clearing is at variance with this Principle

According to available datasets, there are 10 records of conservation significant fauna species within the local area, being:

- *Bettongia penicillata* subsp. *ogilbyi* (Woylie, Brush-tailed Bettong) (endangered under the EPBC Act and critically endangered under the *Biodiversity Conservation Act 2016* (BC Act))
- *Calyptorhynchus latirostris* (Carnaby's Cockatoo) (endangered under the EPBC Act and the BC Act)
- *Dasyurus geoffroyi* (Chuditch) (vulnerable under the EPBC Act and the BC Act)
- *Lagostrophus fasciatus* (Banded Hare-wallaby) (vulnerable under the EPBC Act and the BC Act)
- *Leipoa ocellata* (Malleefowl) (vulnerable under the EPBC Act the BC Act)
- *Macrotis lagotis* (Bilby) (vulnerable under the EPBC Act, and the BC Act)
- *Myrmecobius fasciatus* (Numbat) (endangered under the EPBC Act and the BC Act)
- *Notamacropus eugenii* subsp. *derbianus* (Tammar Wallaby) (*listed as Priority 4 by DBCA*)
- *Phascogale calura* (Red-tailed Phascogale) (vulnerable under the EPBC Act and conservation dependent under the BC Act)

area is likely to contain some suitable foraging habitat for Carnaby's cockatoo, due to the mapped vegetation type containing eucalypt species. Noting the Bruce Rock-Naremben Road reserve contains minimal vegetation, and the applicant is committed to retaining large trees in both areas, the proposed clearing is not likely to comprise significant foraging habitat for Carnaby's cockatoo.

'Breeding habitat' for Carnaby's cockatoo is defined as trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). The application area is likely to contain suitable breeding habitat for Carnaby's cockatoo species, however, the applicant has indicated that all large trees will be retained.

The species *Leipoa ocellata* is a ground dwelling species found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee eucalypts on sandy soils (Department of Parks and Wildlife 2016). Recordings of this species within the local area have occurred in larger patches of vegetation such as the nature reserves, however, the species is known to utilise strips of native vegetation along roadsides for dispersal (Benshmesh, J 2007).

The vegetation within the Bruce Rock-Naremben Road reserve does not appear to contain dense vegetation as a result of historical clearing (figures 2, 5 and 6 above) and as a result of this and the location between two roads surrounded by agriculture, the application area is not likely to contain suitable habitat for *Leipoa ocellata*, other than facilitating the movement of this species. The application area may provide habitat that facilitates the movement of this species and act as an ecological linkage between patches of remnant vegetation

The vegetation within the proposed clearing at Babakin (figures 1, 3 and 4 above) appears to be intact and may provide habitat for *Leipoa ocellata*, given its preferred habitat of mallee eucalypts over sandy soils and that the proposed clearing at Babakin is surrounded by intact vegetation throughout the extent of Crown Reserve 5314.

According to available databases, the species *Lagostrophus fasciatus* has been recorded recently within the local area. This recording is significant as it appears to be outside the normal range for the species as most recent recordings and known populations are within islands off the coast of Western Australia. It is unlikely that the application areas provides habitat for this species as they are smaller patches surrounded by agriculture.

According to available databases, the species *Bettongia penicillata* subsp. *ogilbyi*, and *Dasyurus geoffroyi* has been recorded recently within the local area. Recordings of *Macrotis lagotis* are not recent and date back over 60 years; similarly there are no recent recordings of *Myrmecobius fasciatus*. It is unlikely that the application areas provide significant habitat for the species listed above as the vegetated areas are smaller patches surrounded by agriculture.

The species *Phascogale calura* is an arboreal species and is generally nocturnal. Suitable habitat may include trees within the application area, but the species has the preference for continuous habitat. The proposed clearing at Bruce Rock Naremben Road is not likely to meet the habitat requirement of this species, but the vegetation may within the proposed clearing area at Babakin. The retention of large trees that may contain hollows is likely to reduce the potential impacts to this species.

Given the good to degraded (Keighery, 1994) condition of the vegetation within the application area, and that part of the application area is part of a larger remnant, it is considered that the application area may contain suitable habitat for ground dwelling fauna, specifically *Leipoa ocellata*. Slow, progressive directional clearing will aid ground dwelling fauna to move into native vegetation adjacent to the application area, ahead of the clearing activity.

The local area has been extensively cleared (refer to Principle (e)). Aerial imagery indicates that the application area may function as an ecological linkage between areas of remnant vegetation in the local area, and may facilitate landscape connectivity and contribute to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape.

Given the application area contains suitable habitat for fauna and may function as an ecological linkage, the proposed clearing is at variance with this Principle.

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

Proposed clearing may be at variance with this Principle

According to available datasets, there are five species of threatened flora mapped within the local area (Western Australian Herbarium, 1998-).

The following flora species may be present within the proposed clearing area Babakin;

- *Grevillea scapigera* (listed as endangered under the EPBC Act and critically endangered under the BC Act)
- *Rhizanthella gardneri*; (listed as endangered under the EPBC Act and critically endangered under the BC Act); and
- *Banksia cuneata*; (listed as endangered under the EPBC Act and the BC Act).

The following flora species may be present within the proposed clearing area within the Bruce Rock- Naremben Road reserve;

- *Conospermum galeatum*; (listed as critically endangered under the EPBC Act and the BC Act)
- *Symonanthus bancroftii*; (listed as endangered under the EPBC Act and critically endangered under the BC Act)

An assessment of the habitat requirements of the threatened species listed above indicated that the vegetation types and soil type present in the application area may provide suitable habitat for these species (DBCA, 2019).

Given the above, an appropriately timed targeted flora survey is required to determine the presence of threatened flora. The proposed clearing may be at variance with this Principle.

(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 likely to be at variance with this Principle

According to available datasets, there are no state listed TECs within the local area, however, part of the application area is within a mapped occurrence of a federally listed TEC as discussed under principle (a).

Given the above, the application area is not likely to comprise the whole or a part of, or be necessary for the maintenance of a state listed TEC and the proposed clearing is not likely to be at variance with this Principle.

(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 with this Principle

The National Objectives and Targets for Biodiversity Conservation 2001-2005 in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion which retains approximately 18.5 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The mapped Beard vegetation association 1023 retains approximately 10.84 per cent of its pre-European vegetation extent within the Avon Wheatbelt Bioregion (Table 1).

The local area retains approximately 8.9 per cent vegetation cover, which the application area represents approximately 0.001 per cent of the remaining vegetation within the local area and the proposed clearing would reduce the extent of native vegetation within the local area to 22,520 hectares.

Noting the current vegetation extents for the bioregion and the mapped Beard vegetation associations are all below the 30 per cent threshold, and that the application area contains suitable habitat for conservation significant fauna, and may contain the presence of a TEC and conservation significant flora, the application area is considered to be a significant remnant within an extensively cleared area.

Given the above, the proposed clearing is at variance with this Principle.

Table 1: Remnant Native Vegetation Extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Current extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA bioregion:					
Avon Wheatbelt	9,517,110	1,763,063	18.5	174,980.68	1.84
Beard vegetation association					
1023	1,601,605.76	172,875.16	10.79	18,926.07	1.18
Beard vegetation association in IBRA bioregion:					
1023 (Avon Wheatbelt)	1,522,680.40	165,123.60	10.84	17,277.64	1.13

(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 not at variance with this Principle

According to available datasets, no watercourses or wetlands are located within close proximity to the application area. The closest waterbodies to the application area are significant streams. A significant stream is mapped approximately 1.9 kilometres to the east of the Bruce Rock –Narembeen Road reserve and another significant stream is mapped approximately 540 metres east of the proposed clearing at the Babakin area. There are no other wetlands or major watercourses mapped within the application area.

Noting the descriptions of the mapped vegetation types, photographs of the vegetation within the application area and the distance from any known watercourses or wetlands, it is considered that the vegetation within the application area is not growing in association with a watercourse or wetland.

Given the above, the proposed clearing is not at variance with this Principle.

(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 with this Principle

The application area has been mapped by DPIRD within the Wadderin 3 undifferentiated phase and the Walyerming 3 undifferentiated phase, described in more detail within Section 2 (Schoknecht et al., 2004). Table 2 outlines the land degradation risks for the two mapped soil systems.

Table 2: Land degradation risk for mapped soil systems.

Risk categories	Wadderin 3 undifferentiated Phase	Walyerming 3 undifferentiated Phase
Wind erosion	10-30% of the map unit has a high to extreme hazard	10-30% of the map unit has a high to extreme hazard
Water erosion	<3% of the map unit has a very high to extreme hazard	<3% of the map unit has a very high to extreme hazard
Salinity	<3% of the map unit has a moderate or high hazard or is presently saline	3-10% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	50-70% of the map unit has a high susceptibility	>70% of the map unit has a high susceptibility
Flood risk	<3% of the map unit has a moderate to high hazard	<3% of the map unit has a moderate to high hazard
Water logging	<3% of the map unit has a moderate to very high to risk	<3% of the map unit has a moderate to very high to risk
Phosphorus export risk	<3% of the map unit has a high to extreme hazard	<3% of the map unit has a high to extreme hazard

As indicated within Table 2, the soil types within the application area present low risk of land degradation with the exception of subsurface acidification which presents a high risk. However, given the size of the proposed clearing within an extensively cleared landscape, the proposed clearing is not likely to impact on subsurface acidification.

Given the above, the proposed clearing is not likely to be at variance with this Principle.

(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 likely to be at variance with this Principle

There are numerous conservation areas within the local area. According to available datasets, the closest conservation area to the Bruce Rock- Narembeen Road reserve is an unnamed reserve located approximately 3.8 kilometres north-west and the closest conservation area to the proposed clearing at Babakin is the Wialkutting Nature Reserve, which is located approximately 3.6 kilometres to the west. Noting the distance between the application area and the closest conservation areas, it is not likely that the proposed clearing would impact of the environmental values of these conservation areas.

The proposed clearing is not likely to be at variance with this Principle.

(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 with this Principle

As discussed under Principle (f), the closest watercourses to the application areas are significant streams located more than 500 metres from the application areas. Given the distance to the nearest surface water feature, the proposed clearing is not likely to cause deterioration of the surface water

Groundwater salinity over the application area has been mapped as being 7000 to 14,000 milligrams per litre total dissolved solids. Noting the condition and extent of clearing, the proposed clearing is not likely to cause deterioration of groundwater.

The proposed clearing is not likely to be at variance with this Principle.

(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 likely to be at variance with this Principle

The average rainfall of the local area is 400 millimetres per annum. As discussed under principle (g), the soils within the application area are not considered a high risk for flooding given their moderate permeability.

Noting the soil type, vegetation condition, extent of the proposed clearing and relatively low annual rainfall of the local area, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance with this Principle.

Planning instruments and other relevant matters.

The application was advertised on the Department of Water and Environmental Regulation's website on 16 July 2019, with a 21 day submission period. One public submission was received during the submission period.

The submission opposed the proposed clearing and raised the following concerns:

- The applicant has not considered alternatives that avoid or minimise the proposed clearing other than retaining trees. Namely, traffic management options appear to be absent and may achieve the same outcome.
- No flora surveys over the area have been completed. The proposed clearing may contain threatened and/or priority flora species and may contain the threatened ecological community Eucalypt Woodlands of the Wheatbelt.
- The vegetation within the application area may contain habitat for threatened fauna species including *Calyptrorhynchus latirostris* (Carnaby's Cockatoo) and *Leipoa ocellata* (Malleefowl).

The comments from the public submission have been addressed within the clearing principles above.

There are no Aboriginal Sites of Significance mapped within the application area.

5. Consideration of variances following the Shire's submissions/further information

Principle (a)

The proposed clearing is not likely to be at variance with this Principle

To allow DWER to determine whether the proposed clearing had the potential to cause significant environmental impacts to biodiversity, the Shire engaged Earth Creations to undertake a flora survey. The flora survey (Whisson & Courtenay, 2020) was undertaken in October 2020, which is the optimal period for the South – West and Interzone Botanical Province (Environmental Protection Authority, 2016), and covered the revised application area and the surrounding vegetation (Figure 13).



Figure 13: Boundaries of the flora survey and Vegetation Units identified (Whisson and Courtenay, 2020)

The flora survey (Whisson & Courtenay, 2020) identified that the survey area contains four Vegetation Units:

- 1) *Eucalyptus/Acacia* Open Low Woodland with 10% *Eucalyptus* cover
- 2) *Eucalyptus/Acacia* Open Low Woodland with 2% *Eucalyptus* cover (emergents) (within the revised application area)
- 3) Open *Acacia* Scrub (within the revised application area)
- 4) *Eucalyptus torquata* (individual tree)

- the survey area comprises of 33 taxa, including 27 genera and 15 families
- no threatened or priority flora species were present within the survey area
- no Weeds of National Significance were present within the survey area

- the vegetation condition ranged from degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition
- no TECs or PECs occurred within the survey area
- the vegetation in the survey area lacked structural and floristic diversity.

Taking the above into consideration, the Delegated Officer determined that the proposed clearing is not likely to impact native vegetation comprising a high level of biodiversity.

Principle (b)

The proposed clearing may be at variance with this Principle

Based on the vegetation observed within the revised application area (Whisson & Courtenay, 2020) and photographs supplied by Maia (2021), the Delegated Officer determined that the proposed clearing is not likely to provide significant foraging, roosting or breeding habitat for Carnaby's cockatoo, or significant habitat for any other conservation significant fauna recorded within the local. The revised application area does not contain any large trees but it contains some emerging eucalyptus species which are typical foraging species for Carnaby's cockatoo. These emergents are too juvenile to provide foraging habitat for Carnaby's cockatoo. To mitigate any potential impacts on Carnaby's cockatoo foraging habitat, in accordance with the clearing permit conditions, the Shire will have to meet the revegetation completion criteria which require the Shire to revegetate a list of flora species, which include *Eucalyptus loxophleba*, in close proximity of the application area.

Noting the revised application proposes to clear sparse mid- and overstorey vegetation over the understorey dominated by introduced species, the revised application area is unlikely to provide significant habitat the malleefowl which typically inhabits thicker vegetated areas (Bannerman and Davies, 2014).

The application area may be used for fauna dispersal. The Shire will be required to undertake slow, progressive directional clearing which will enable ground dwelling fauna to move into native vegetation adjacent to the application area, ahead of the clearing activity (as conditioned on the clearing permit).

The proposed clearing will impact on native vegetation which supports fauna movement across patches of native vegetation in an extensively cleared landscape. A revegetation condition imposed on the Shire's clearing permit will adequately address the potential impacts on ecological linkages. The extent of the area required to be revegetated was calculated using the DAWE's Offset calculator. The revegetation will result in a net gain of vegetation within the Bruck Rock – Narembeen road reserve.

Principle (c)

The proposed clearing is not likely to be at variance with this Principle

Noting the findings of the flora survey (Whisson & Courtenay, 2020), the proposed clearing is not likely to impact on any flora taxa listed as threatened under the BC Act.

Having re-assessed the revised application area, the proposed clearing may be at variance with Clearing Principle (b) and is not likely to be at variance with principles (a) and (c). The assessment against the remaining clearing principles remains unchanged following the reduction in the application area.

6. References

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Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)