



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 8989/1
<b>Permit type:</b>	Area permit
<b>Applicant name:</b>	Shire of Coolgardie
<b>Application received:</b>	29 July 2020
<b>Application area:</b>	3.68 hectares of native vegetation
<b>Purpose of clearing:</b>	Diverting Jaurdi Hills Road
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 1556 on Plan 70755 Jaurdi Hills Road reserve (PIN 11692550)
<b>Location (LGA area):</b>	Shire of Coolgardie
<b>Localities (suburb):</b>	Mount Burges

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The area proposed to be cleared is a strip approximately 1,900 metres long by 18 metres wide that will form the realignment of a section of Jaurdi Hills Road to facilitate mining activity. The construction of a new section of road will require all vegetation within the application area to be mechanically cleared.

### 1.3. Decision on application

<b>Decision:</b>	Refused
<b>Decision date:</b>	31 March 2023
<b>Decision area:</b>	3.68 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the planning instruments and any other matters considered relevant to the assessment. Consideration of planning instruments and other relevant matters when making a decision on a clearing permit application is a requirement under section 51O(4) of the EP Act.

The assessment identified that further information in the form of approval from the Department of Planning, Lands and Heritage (DPLH) for the realignment and dedication of Jaurdi Hills Road over Lot 1556 on Plan 70755, extent portion PIN 11692549), was required to support the purpose of the clearing.

On 17 December 2020, the application was placed into an Agreement in Principle (AIP). The AIP correspondence which was provided to the Shire of Coolgardie (the Shire) stated that the among the matters taken into consideration was the necessity for the Shire to obtain the required approval from DPLH for realignment and dedication of Jaurdi Hills Road, pursuant to section 56 of the *Land Administration Act 1997* and section 24KA on the *Native Title Act 1993*. The requested information was to be provided within 90 calendar days from the date of that letter. No advice from the Shire was received by this date. On several occasions, DWER extended the due date for this information. On each occasion, the requested information was not provided.

On 25 July 2022, the Shire was invited to make a submission to detail why the application should not be refused. In response, the Shire provided insufficient justification as to the reasons why the application should not be refused.

The Delegated Officer considers that the Shire has been afforded reasonable opportunity to provide the information which currently remains outstanding, and that it is appropriate to make a decision on this application based on the information which is currently available. In accordance with section 51O(4) of the EP Act, the requirement for approval from DPLH is a relevant matter to the assessment and determination of the clearing permit application. In the absence of this approval, the Delegated Officer decided to refuse to grant a clearing permit.

## 1.5. Site map

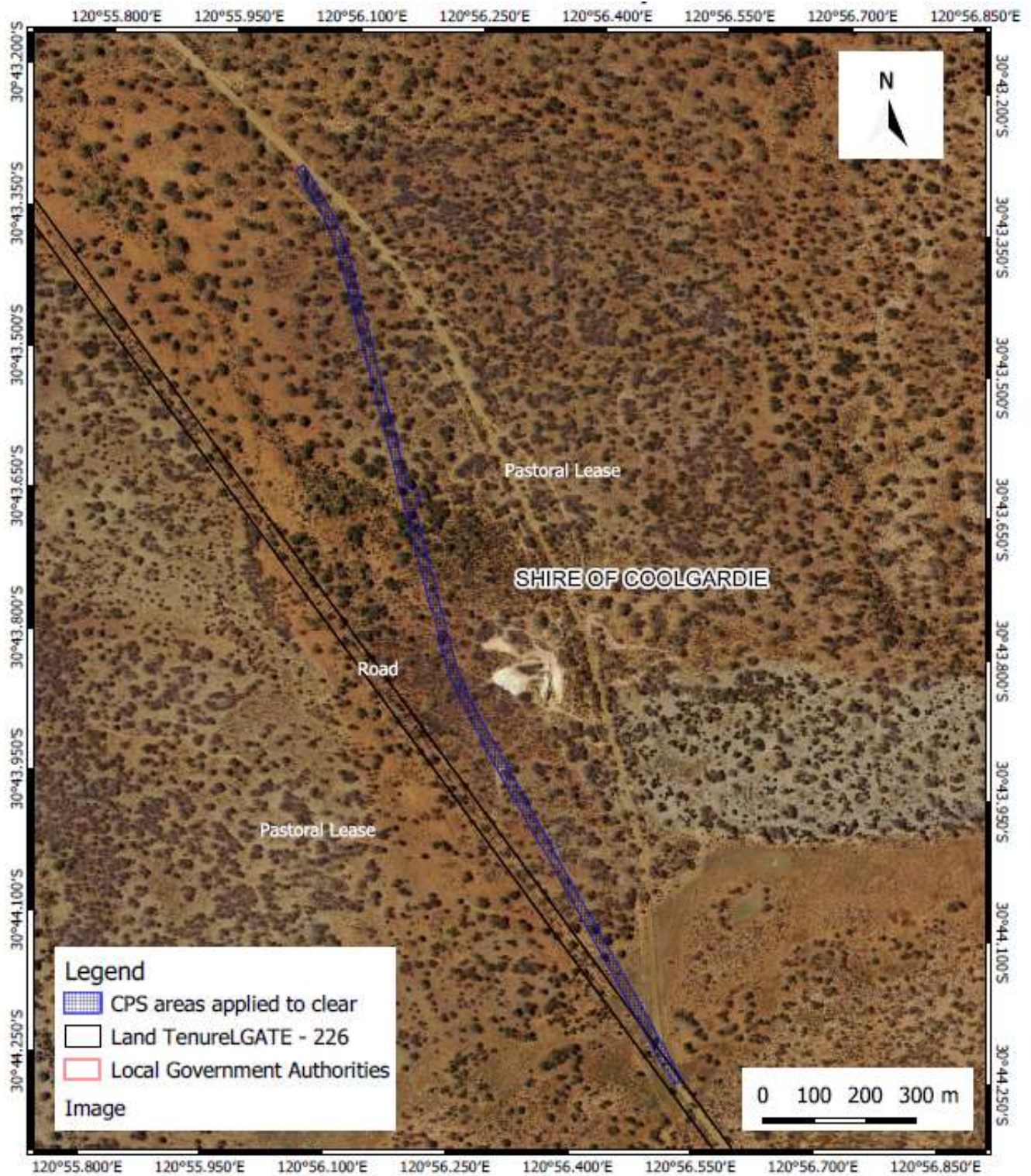


Figure 1. Map of the application area

## 2 Legislative context

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 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Land Administration Act 1997*
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Native Title Act 1993*
- *Soil and Land Conservation Act 1945* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019).

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application.

### 3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix D) identified that the impacts of the proposed clearing may present a risk to biological values, including fauna, and flora. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

#### 3.2.1. Biological values (fauna) - Clearing Principle (b)

##### Assessment

While the Shire did not commission a survey for the application area, a Level 1 Vertebrate Fauna Risk Assessment survey within the local area was completed by Terrestrial Ecosystems (2017) for Beacon Minerals Limited, in association with clearing permit CPS 7794/1. The Shire was given approval from Beacon Minerals Limited to use this survey for the purposes of this application. The Level 1 Vertebrate Fauna Risk Assessment survey covered approximately 65 per cent of the CPS 8989/1 application area.

The Department's preliminary desktop assessment identified that of the fauna species of conservation significance within the local area, the malleefowl (*Leipoa ocellata*) is most likely to occur within the application area. The malleefowl is recognised as a threatened species under State and Commonwealth legislation. In Western Australia the species is listed as fauna that is 'likely to become extinct' in the wild (Specially Protected) under the *Wildlife Conservation Act 1950* and has been assigned the threat status ranking of Vulnerable using International Union for Conservation of Nature (IUCN) criteria. Nationally the species is listed as Vulnerable under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

Malleefowl occur in arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in mulga (*Acacia aneura*), Broombush (*Melaleuca uncinata*), scrub pine (*Callitris verrucosa*), eucalyptus woodlands and coastal heathlands. Malleefowl require abundant leaf litter and a sandy substrate for the successful construction of nest mounds (Department of Parks and Wildlife, 2016).

Although several records exist for malleefowl in the local area, the Level 1 Vertebrate Fauna Risk Assessment identified the application area and adjacent habitat as providing limited quality habitat for this species. Also, the survey did not find any tracks, scratchings or nest mounds. The survey noted that it is likely that malleefowl are present within in the local area, as radio-tracking studies have shown the birds may range from their breeding sites over one to several square kilometres over the course of a year (Booth 1987; Benshemesh 1992). In addition, the application area forms part of an extensive tract of undisturbed vegetation allowing the birds to range and forage through the local area.

#### Conclusion

Based on the above assessment, the proposed clearing is unlikely to significantly impact this species as the application area was absent of malleefowl breeding activity. In addition, any birds ranging within the application area may be able to move into adjacent undisturbed vegetation.

#### Conditions

For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed by the following measures to be imposed as conditions on the clearing permit:

- Slow, directional clearing to allow malleefowl to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals.

### **3.2.2. Biological values (flora) - Clearing Principle (a) and (c)**

#### Assessment

While the Shire did not commission a flora survey for the application area, a Level 2 Flora and Vegetation survey was completed by Native Vegetation Solutions (2017) for Beacon Minerals Limited, in association with clearing permit CPS 7794/1. The Shire was given approval from Beacon Minerals Limited to use this survey for the purposes of this application. The Level 2 Flora and Vegetation survey covered approximately 65 per cent of the CPS 8989/1 application area.

Desktop surveys of available databases identified 39 Priority and two Threatened flora species with the potential to occur within a 30-kilometre radius of the survey area, based on known distributions (Native Vegetation Solutions, 2017). With the exception of *Eremophila praecox* (*E. praecox*) (P2), none of these species were found during the Level 2 Flora and Vegetation survey (Native Vegetation Solutions, 2017). A population of *E. praecox* was recorded within vegetation group H (*Eucalyptus oleosa* subsp. *oleosa* over Chenopod shrublands), located adjacent to the application area (see Appendix F). Vegetation group H is not mapped within the application area and occurs on soils associated with rocky ranges and hills of greenstones and basic igneous rocks, which are not present within the application area. On that basis, it is not likely that the application area comprises suitable habitat for *E. praecox*.

*E. praecox* is a broom-like shrub, 1.5-3 metres in height and flowers from October or December. It occurs within undulating plains on red and brown sandy loams (Western Australian Herbarium, 2017). According to available databases, the majority of records for this species occur within a 2.5-kilometre radius of Kalgoorlie-Boulder, approximately 64 kilometres to the east of the application area, this indicates that the species is not restricted to areas within close proximity of the application area. The *E. praecox* population recorded in the above survey represents the western limit for this species. Herbarium records (Western Australian Herbarium (1998-) and available spatial data indicates that *E. praecox* tends to occur on hills and low rocky ranges. The application area is located within a low valley on deeper soils, habitat which is not likely suitable to support populations of *E. praecox*.

#### Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact *E. praecox* as suitable habitat is unlikely to occur within the application area.

### **3.3. Relevant planning instruments and other matters**

Beacon Minerals Limited submitted a request with the Shire to realign a section of the Jaurdi Hills Road, to facilitate mining activities for the Lost Dog mine site. The Shire agreed to the realignment and applied to DPLH to have the area, subject to this application, dedicated to road.

DWER has undertaken an assessment of the application against the Clearing Principles contained in Schedule 5 of the EP Act. Among the matters taken into consideration is the necessity for the Shire to obtain the required approval from DPLH for the realignment and dedication of Jaurdi Hills Road over Lot 1556 on Plan 70755, extent portion PIN 11692549, pursuant to section 56 of the LA Act 1997.

On 17 December 2020, DWER wrote to the Shire advising that the application had been placed into an AIP and that further information was required to inform the department's assessment of the Shire's application. The requested information (in the form of approval from DPLH) for the realignment and dedication of Jaurdi Hills Road over Lot 1556

on Plan 70755, extent portion PIN 11692549) was to be provided within 90 calendar days from the date of that letter, that being by 17 March 2021. No advice from the Shire was received by this date.

On 7 April 2021, 9 August 2021, 11 November 2021 and 17 May 2022, DWER wrote to the Shire requesting an update on the provision of further information. No correspondence, status update or further requests for an extension was received from the Shire in response to these requests.

On 4 July 2022, DWER requested a further update from the Shire. In response, the Shire advised that the finalisation of the road deviation and gazettal has been delayed due to resource limitations from the surveyor. The Shire was unable to provide information on when the survey date was due to be undertaken.

On 6 July 2022, DWER wrote to DPLH requesting an update regarding the progress and the expected timeframes for the finalisation of the road deviation and gazettal for this project. DPLH advised that the anticipated timeframe for completion would be at least seven months.

On 25 July 2022, DWER wrote to the Shire and advised that it intended to refuse the application. The Shire was invited to make a submission to detail why the application should not be refused. In response, the Shire advised it had faced delays in finalising this project and noted that the surveyor process had not been commenced. No further justification was provided as to the reasons why the application should not be refused.

At the time of this decision report being prepared, DWER has not received any further advice that the Shire has obtained the relevant approval. In accordance with section 51O(4) of the EP Act, planning instruments and any other relevant matters are an important consideration prior to making a decision on clearing permit application.

On this basis and taking into consideration the uncertainty in finalising the necessary approvals under the LA Act and accounting for the time which has lapsed since the environmental assessment against the clearing principles was originally undertaken, the Delegated Officer has determined to refuse the Shire's application for a clearing permit under section 51E(5)(b) of the EP Act.

Proposed clearing is mapped as occurring within the Goldfields Groundwater area proclaimed under the RiWI Act. No rivers proclaimed under the RiWI Act intersect the application and the application is not located in any CAWS Act clearing control catchments or Public Drinking Water Source Areas.


No Aboriginal sites of significance or Heritage places are found in the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

**End**

## Appendix C. Site characteristics

### A.1 Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation. It is situated between two low rises, approximately 35 kilometres north of Coolgardie, adjacent to Jaurdi Hills Road.</p> <p>Spatial data indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared) retains approximately 99.6 per cent of the original native vegetation cover.</p>
Conservation areas	<p>UCL - former leasehold proposed for conservation - ex Credo (Pin 784422) occurs approximately 19 kilometres north-east of the application area.</p> <p>No other conservation areas occur within the local area.</p>
Vegetation description	<p>Vegetation survey (Native Vegetation Solutions, 2017) indicated the vegetation within the proposed clearing area consists of four vegetation types. The full survey descriptions and maps are available in Appendix F. The vegetation types are summarised as:</p> <ul style="list-style-type: none"> <li>• <i>Eucalyptus salmonophloia</i> woodland</li> <li>• Mixed <i>Eucalyptus</i> woodland over sclerophyll shrubland</li> <li>• Eucalyptus thicket in open depressions</li> <li>• <i>Eucalyptus</i> over <i>Melaleuca sheathiana</i> over <i>Cratystylis conocephala</i> on calcrete rises</li> </ul> <p>These vegetation types include elements of the mapped vegetation type:</p> <ul style="list-style-type: none"> <li>• Mapped as Beard – Coolgardie 8, which is described as Medium woodland; salmon gum &amp; gimlet; York gum, salmon gum etc. <i>Eucalyptus loxophleba</i>, <i>E. salmonophloia</i>. Goldfields; gimlet, redwood etc. <i>E. salubris</i>, <i>E. oleosa</i>. Riverine; river gum <i>E. camaldulensis</i>. (Shepherd et al, 2001).</li> </ul> <p>The mapped vegetation type retains approximately 98 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Vegetation survey (Native Vegetation Solutions, 2017) indicated the vegetation within the proposed clearing area is in very good to good (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E.</p> <p>Representative photographs are available in Appendix F.</p>
Climate and landform	<ul style="list-style-type: none"> <li>• Mean annual rainfall: 308 millimetres</li> <li>• Temperature: mean annual minimum: 25 Degrees centigrade</li> <li>• Temperature: mean annual maximum: 27.5 Degrees centigrade</li> <li>• Landform: Gently undulating valley plains and pediments; some outcrop of basic rock.</li> </ul>
Soil description	<p>Chief soils are alkaline red earths (Gn2.13) with limestone or limestone nodules at shallow depth (&lt; 24 in.) on gently sloping slightly concave plains with low gentle rises of (Gc1.12) soils. Associated are (Ug5.38) clay plains flanking ultrabasic rock outcrop; some (Um5.41) soils on steeper slopes; and some small inclusions of units BB5, AC1, and Mx41. There are some breakaways in places marginal to units AC1, SV2, and SV15 (DPIRD 2017).</p>
Land degradation risk	<p>The Department of Primary Industries and Regional Development (DPIRD), provides a series of soil degradation risk mapping at the system level (DPIRD 2017). The application area is located within the Mx43 system. Soil degradation risk within the application area including, surface salinity, wind, erosion water erosion, water logging and acidification risk are all low-between 0-25 percent of map unit.</p>

Characteristic	Details
Waterbodies	 <p><b>Figure 2. Water bodies adjacent to and transecting the application area.</b></p> <p>Three unnamed non-perennial watercourses intersect the southern portion of the application area. Also, two small non-perennial lakes occur adjacent to the application area, one to the east at 358 metres and a larger lake to the southeast at 353 metres distance.</p>
Hydrogeography	Application area falls within the Goldfields Groundwater Area as proclaimed under the RIWI Act.
Flora	Refer to Flora analysis table section A.2 below.
Ecological communities	There are no PEC/TEC records in the local area.
Fauna	Refer to Fauna analysis table section A.3 below.

## A.2 Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H), and biological survey information (Native Vegetation Solutions, 2017), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Eremophila praecox</i>	P2	No	No	No	0.36	2*	Yes
<i>Eucalyptus educta</i>	P2	No	No	No	3.7	4	Yes
<i>Chamelaucium sp.</i> Parker Range	P1	Yes	Yes	Yes	7.5	1	Yes
<i>Gompholobium cinereum</i>	P3	No	No	No	9.5	1	Yes
<i>Phebalium appressum</i>	P1	No	No	No	13.0	2	Yes
<i>Hakea rigida</i>	P2	Yes	No	Yes	17.8	1	Yes

Includes one record from vegetation survey, Native Vegetation Solutions (2017)

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority



### A.3 Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H), and biological survey information (Terrestrial Ecosystems, 2017), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
common greenshank ( <i>Tringa nebularia</i> )	IA	No	No	4	1	Yes
malleefowl ( <i>Leipoa ocellata</i> )	VU	Yes	Yes	3.5*	7	Yes
red-necked stint ( <i>Calidris ruficollis</i> )	IA	No	No	10.5	1	Yes
sharp-tailed sandpiper ( <i>Calidris acuminata</i> )	IA	No	No	10.5	1	Yes
curlew sandpiper ( <i>Calidris ferruginea</i> )	CR	No	No	10.5	1	Yes

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, IA international agreement

## Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> The proposed clearing area does not likely contain locally or regionally significant flora, fauna habitats, or assemblages of plants (Terrestrial Ecosystems, 2017 and Native Vegetation Solutions, 2017).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u></p> <p>While the Shire did not commission a survey for the application area, a Level 1 Vertebrate Fauna Risk Assessment survey within the local area was completed by Terrestrial Ecosystems (2017), which cover approximately 65 per cent of the application area. Based on likelihood analysis and results from the fauna survey, the area proposed to be cleared is unlikely to contain significant breeding habitat for malleefowl and the clearing will have negligible impact on foraging habitat.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u></p> <p>While the Shire did not commission a survey for the application area, Level 2 Flora and Vegetation survey within the local area was completed by Native Vegetation Solutions (2017), which cover approximately 65 per cent of the application area. No records of threatened flora were recorded in the survey. Based on likelihood analysis and results from the flora and vegetation survey, the area proposed to be cleared is unlikely to contain threatened flora species.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> The area proposed to be cleared does not contain species that can indicate a threatened ecological community (Native Vegetation Solutions (2017))</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The mapped native vegetation in the local area retains 99.66 percent of its pre-European extent and is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia 2001).</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> “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.”</p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of conservation areas.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f)</u>: <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment</u>: Three mapped non-perennial watercourses intersect the southern section of the application area (A.1 Figure 2). The vegetation within the clearing area is not representative of riparian or wetland vegetation.</p>	Not at variance	No.
<p><u>Principle (g)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment</u>: The mapped soils within the application area are not susceptible to wind, water erosion, nutrient export, or salinity. Noting the extent of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i)</u>: <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.”</i></p> <p><u>Assessment</u>: The application area occurs within a Goldfields Groundwater Area under the RiWI Act. Given no significant watercourses, wetlands or Public Drinking Water Source Areas, are recorded within the local area, the proposed clearing is unlikely to impact surface or groundwater quality.</p>	Not likely to be at variance	No
<p><u>Principle (j)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment</u>: Three non-perennial watercourses intersect the southern section of the application area. Clearing will not be of sufficient extent to change the hydrology of these watercourses. Mapped soil types do not indicate any risk of waterlogging.</p>	Not likely to be at variance	No

## Appendix E. Vegetation condition rating

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

### Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

## Appendix F. Flora survey excerpts

In 2017, Beacon Minerals Limited, commissioned Native Vegetation Solutions to carry out a Level 1 flora and vegetation survey on mining tenements adjacent to the application area. This report (Native Vegetation Solutions 2017) has been made available to the Shire of Coolgardie to support the current application. While no quadrats were taken within the application area at the time of the survey (only within the greater local area) Figure 3 shows the quadrats that were taken, in relation to the application area. Figure 4 represents the application area vegetation mapping. Figures 5 to 8 represent similar vegetation types found in the application area. Figure 9 represents the vegetation type that *Eremophila praecox* (P2) was found within.

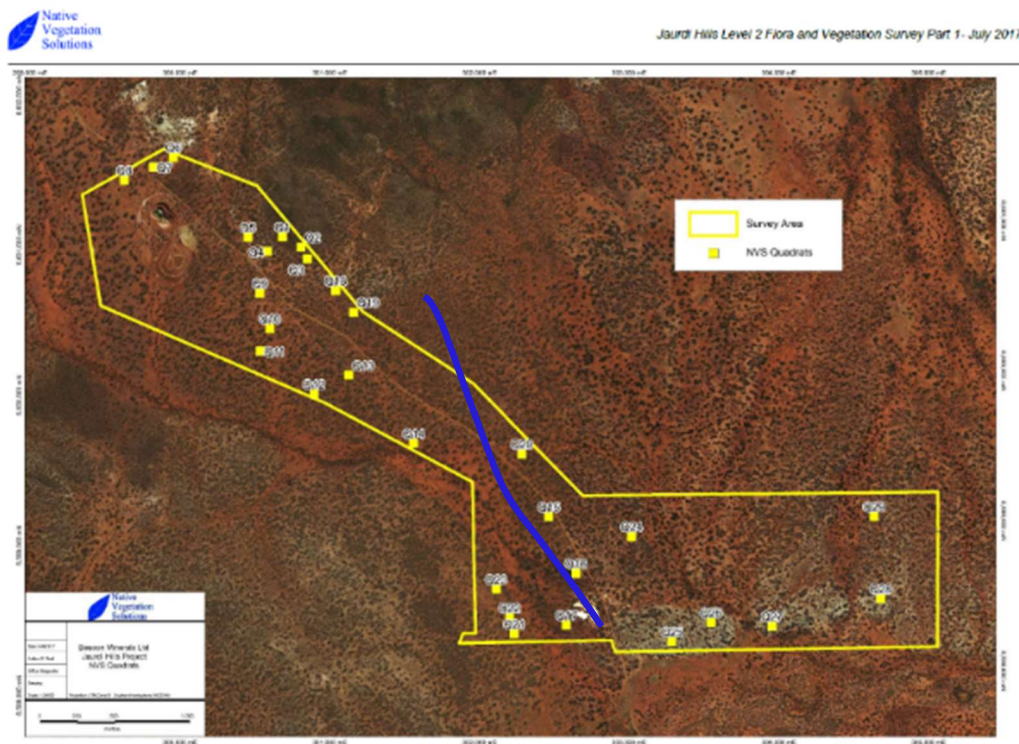


Figure 3. Location of quadrats relative to the application area, represented as a dark blue Line.

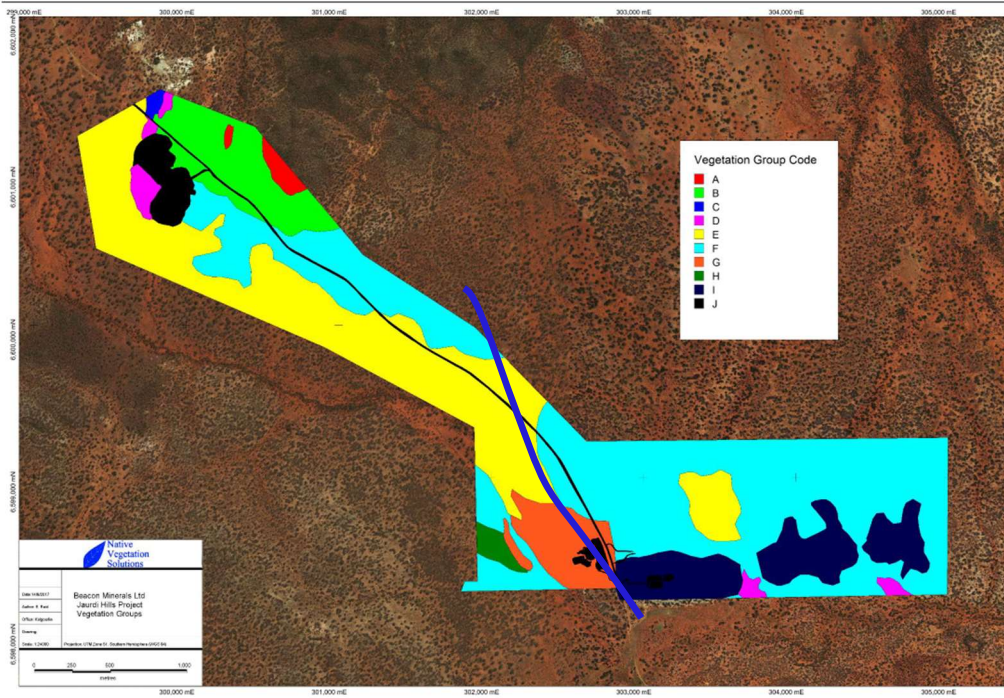


Figure 4. Vegetation mapping. Application area represented as a dark blue line.



Figure 5. Representative photograph of Vegetation type E (quadrat 13)

**Vegetation type E: *Eucalyptus salmonophloia* woodland**

Woodland of *Eucalyptus salmonophloia* with occasional *E. transcontinentalis* over occasional *E. oleosa* subsp. *oleosa* over *Eremophila scoparia*, *Exocarpos aphyllus*, *Eremophila caperata*, *Eremophila interstans* subsp. *virgata* and *Eremophila ionantha* over *Olearia muelleri*, *Senna artemisioides* subsp. *filifolia*, *Atriplex vesicaria*, *Atriplex stipitata*, *Senna cardiosperma*, *Acacia hemiteles*, *Ptilotus obovatus* and *Scaevola spinescens*.

Quadrats: 8,10,11,12,13,14 and 20



Figure 6. Representative photograph of Vegetation type F (quadrat 9)

**Vegetation type F. Mixed *Eucalyptus* woodland over sclerophyll shrubland**

Low Woodland of *Eucalyptus clelandii*, *Eucalyptus salubris*, *Eucalyptus oleosa* subsp. *oleosa*, *Eucalyptus griffithsii* and occasional *Casuarina pauper* over *Eremophila interstans* subsp. *virgata*, *Santalum acuminatum*, *Eremophila caperata*, and *Eremophila oldfieldii* subsp. *angustifolia*, over *Senna artemisioides* subsp. *filifolia*, *Eremophila glabra* subsp. *glabra*, *Olearia muelleri*, *Acacia hemiteles*, *Eremophila pustulata* and *Eremophila parvifolia* subsp. *auricampa*.

Quadrats: 9, 15, 18, 19, 21, 24 and 29



Figure 7. Representative photograph of Vegetation type G (quadrat 16)

**Vegetation type G. Eucalyptus thicket in open depressions**

Low Open Forrest of *Eucalyptus clelandii*, *E. salubris* and *E. oleosa* subsp. *oleosa* over *Senna artemisioides* subsp. *filifolia*, *Acacia merrallii*, *Exocarpos aphyllus* and *Eremophila scoparia* over *Acacia colletioides*, *Eremophila ionantha* and *Eremophila decipiens* subsp. *decipiens*.

Quadrats: 16 and 17



**Figure 8. Representative photograph of Vegetation type I (quadrat 26)**

**Vegetation type I. *Eucalyptus* over *Melaleuca sheathiana* over *Cratystylis conocephala* on calcrete rises**

Low Woodland of *Eucalyptus clelandii* over *Melaleuca sheathiana*, *Acacia hemiteles* and *Exocarpos aphyllus* over *Cratystylis conocephala*, *Westringia rigida*, *Grevillea acuaria*, *Acacia colletioides* and *Eremophila scoparia*.

Quadrats: 25, 26, 27 and 28



**Figure 9. Representative photograph of Vegetation type H (quadrat 22)**

Below is a description of the vegetation type, that included the Priority 2 species *Eremophila praecox*. Two individuals were found within quadrat 22 located 350 metres east of the application area

**H. *Eucalyptus oleosa* subsp. *oleosa* over Chenopod shrublands contains *Eremophila praecox* P2**

Open Shrub Mallee of *Eucalyptus oleosa* subsp. *oleosa* with occasional *E. yilgarnensis* over *Eremophila interstans* subsp. *virgata* and *Eremophila scoparia* over *Cratystylis subspinescens*, *Cratystylis conocephala*, *Eremophila decipiens* subsp. *decipiens* and *Eremophila parvifolia* subsp. *auricampa*.

Quadrats: 22 and 23



## Appendix H. Sources of information

### H.1. GIS databases

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

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