



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	1084/1
Permit type:	Purpose Permit
Applicant name:	Beacon Mining Pty Ltd
Application received:	11 May 2023
Application area:	90 hectares
Purpose of clearing:	Mineral Production
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 15/621 Miscellaneous Licence 15/355
Location (LGA area/s):	Shire of Coolgardie
Colloquial name:	Geko Project

1.2. Description of clearing activities

Beacon Mining Pty Ltd proposes to clear up to 90 hectares of native vegetation within a boundary of approximately 596 hectares, for the purpose of mineral production. The project is located approximately 21 kilometres west, north-west of Coolgardie, within the Shire of Coolgardie.

The application is to allow for the development of the Geko Gold Project.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	30 November 2023
Decision area:	90 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 11 May 2023. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant, including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential impacts to Priority Flora;
- impacts to potential Malleefowl habitat; and
- potential land degradation in the form of erosion.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be managed by conditions and is not likely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- where practicable, avoid clearing riparian vegetation;
- commence construction no later than six months after undertaking clearing to reduce the risk of erosion;

- directional clearing to reduce impacts to malleefowl; and
- require areas proposed to be cleared between 1 September and 31 January to be inspected to identify active (in use) malleefowl mounds, and to maintain a 50 metre buffer around identified active mounds.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.

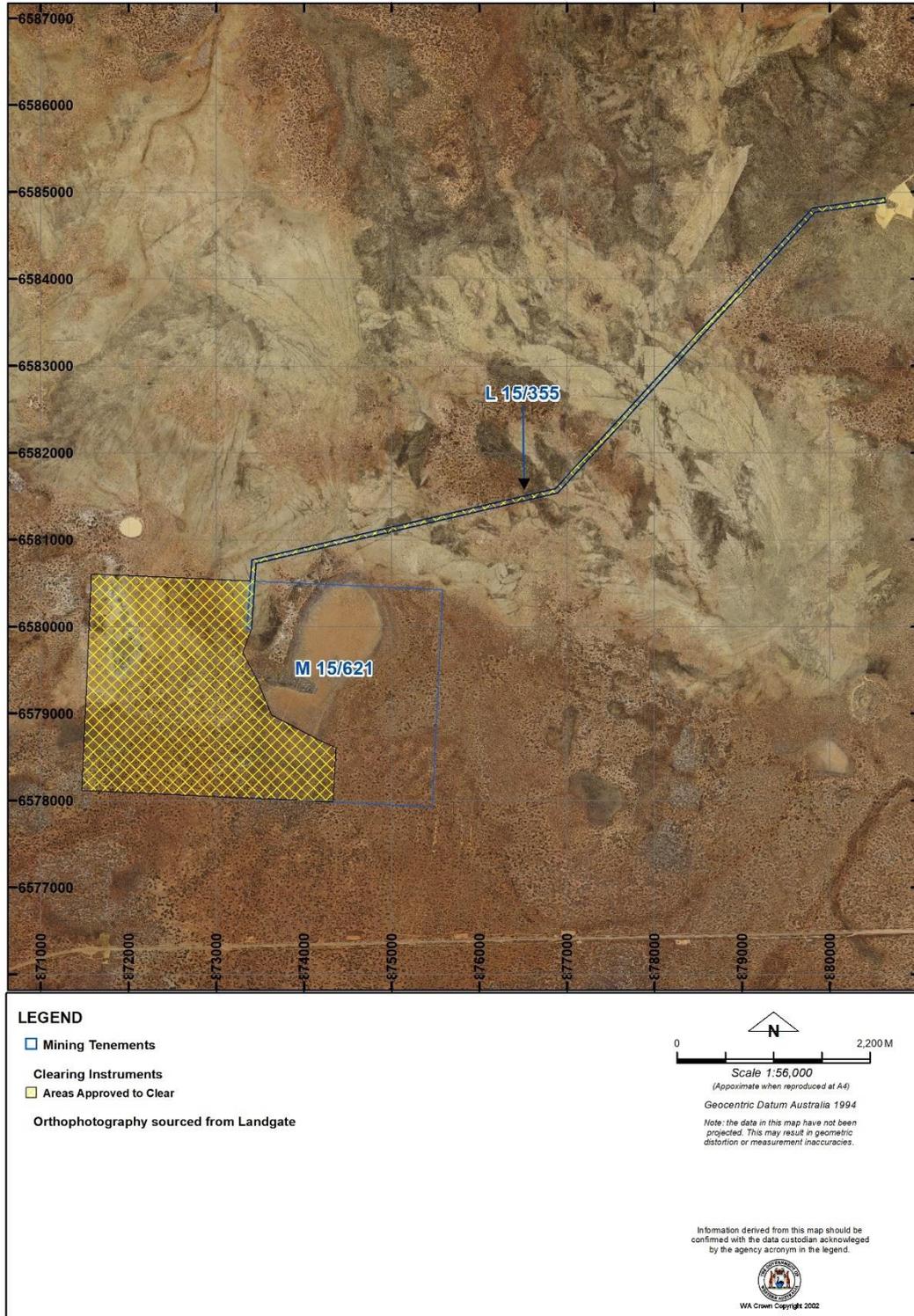


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

Relevant agreements (treatys) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016) (Delete if flora surveys not included)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020) (Delete if fauna surveys not included)

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 A) 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 B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise / hygiene / erosion management / directional clearing / staged clearing / fauna management conditions.

3.2.1. Biological values (flora and fauna) – Clearing Principles (a) & (b)

Assessment

A total of 133 flora taxa (including subspecies and variants) from 25 families and 58 genera were recorded within the broader survey area. The most frequently occurring families were Myrtaceae, Fabaceae, Scrophulariaceae and Proteaceae. The flora composition recorded was typical of the region with high numbers of both *Eucalyptus* and *Acacia* species (MWH, 2016).

No Threatened Flora species were recorded from the desktop study or during the survey and none were considered likely to occur (MWH, 2016). One species, *Acacia cylindrica* listed as a Priority 3 species was potentially identified from the survey, however the specimen could not be conclusively identified due to a lack of flowering or fruiting material. Additionally, a specimen of *Hakea* collected during the survey did not key out to other known species from the region and represents an anomaly (MWH, 2016). This record was in the north of the application area along the area of the haul road in the ArAc vegetation association (MWH, 2016; Western Australian Herbarium, 1998-). There was 12.6 hectares of this vegetation association mapped within the greater survey area and the proposed clearing for a road is not likely to remove enough suitable habitat in the local area to impact the conservation significance of this species (MWH, 2016).

An additional nine Priority flora species were assessed as possible or likely to occur (Western Australian Herbarium, 1998-). Each of these species was targeted during the survey however were not recorded (MWH, 2016).

No introduced flora species were identified by MWH (2016) during the flora survey. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area.

Malleefowl mounds were identified from seven locations during the fauna survey within or in close proximity to the application area (MWH, 2016). The mounds were all categorised as being inactive or disused/extinct at the time of survey (MWH, 2016). There were three mounds that were identified as having been active in recent years and may be used by the Malleefowl during

the breeding season (MWH, 2016). Vegetation in the vicinity of these mounds is likely to form important habitat for the species, particularly during the breeding season.

Given there is suitable breeding habitat present, new mounds may be constructed within the application area. The underlying clearing permits 7386/1 (expired) and 9133/1 had/have a fauna management condition which requires searches of the area to be cleared for Malleefowl mounds which are then avoided if clearing is occurring during the breeding season (1 September – 31 January). Potential impacts to Malleefowl may be minimised by the implementation of similar fauna management condition to the underlying clearing permits.

Conclusion

Based on the above assessment, the area proposed to be cleared is unlikely to have impacts on the above Priority flora species. However, the proposed clearing will result in the potential loss of malleefowl breeding habitat.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- A fauna management (malleefowl) condition requiring areas proposed to be cleared between 1 September and 31 January are inspected to identify active (in use) malleefowl mounds, and to maintain a 50 metre buffer around identified active mounds;
- A directional clearing condition to allow malleefowl to move into adjacent vegetation;
- A weed management condition to minimise the further introduction and spread of weed species in the permit area and surrounds.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 26 May 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WC2017/007 – Marinyu Ghoorlie) over the area under application (DPLH, 2023). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by various mining (prospecting and exploration) and pastoral land uses (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The application area is not located within any vested or proposed conservation areas (GIS Database). The nearest DBCA managed land is the Kangaroo Hills Timber Reserve, which is located approximately 16 kilometres south-east of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>8: Medium woodland; salmon gum & gimlet; and</p> <p>1413: Shrublands; acacia, casuarina & melaleuca thicket.</p> <p>A flora and vegetation survey was conducted over the application area by MWH Australia Pty Ltd (MWH) during 12 to 15 April 2016 and 26 to 29 April 2016 (MWH, 2016). The following vegetation associations were recorded within the application area (MWH, 2016):</p> <p>AaApCp <i>Acacia aptaneura</i>, <i>A. prainii</i> and <i>Callistemon phoeniceus</i> mid to low shrubland.</p> <p>AaLfPg <i>Acacia aptaneura</i> tall shrubland over <i>Leptospermum fastigiatum</i> and <i>Prostanthera grylloana</i> mid open shrubland.</p> <p>ArAc <i>Eucalyptus? rigidula</i> isolated clumps of trees over <i>Acacia resinimarginea</i>, <i>Allocasuarina campestris</i>, <i>Allocasuarina corniculata</i> and <i>Callitris preissii</i> tall shrubland to closed shrubland over <i>Beyeria sulcata</i> var. <i>sulcata</i> and/or <i>Myrtaceous</i> spp. low open to sparse shrubland over <i>Triodia scariosa</i> sparse hummock grassland.</p> <p>ArTs <i>Eucalyptus griffithsii</i> and/or <i>E. leptopoda</i> subsp. <i>leptopoda</i> open mallee woodland to isolated mallee trees over <i>Acacia resinimarginea</i> tall shrubland over <i>Phebalium filifolium</i> sparse low shrubland over <i>Triodia scariosa</i> hummock grassland.</p> <p>EcEiSs <i>Eucalyptus celastroides</i> subsp. <i>virella</i> woodland over <i>Eremophila ionantha</i> mid sparse shrubland over <i>Scaevola spinescens</i> low open shrubland.</p> <p>EcMp <i>Eucalyptus clelandii</i> (+/- <i>E. yilgarnensis</i>, <i>E. salmonophloia</i>, <i>E. urna</i>) open woodland over <i>Melaleuca pauperiflora</i> subsp. <i>fastigiata</i> scattered patches of closed shrubland (not continuous through the area) over <i>Scaevola spinescens</i>, <i>Alyxia buxifolia</i> and <i>Eremophila</i> spp. mid to low open shrubland.</p> <p>EgAa <i>Eucalyptus griffithsii</i> (<i>E. yilgarnensis</i>) low woodland to open woodland over <i>Acacia acuminata</i> (<i>Alyxia buxifolia</i> and <i>Allocasuarina helmsii</i>) tall to mid shrubland over <i>Senna artemisioides</i> and/or <i>Grevillea acuaria</i> low open shrubland.</p> <p>EgApTs <i>Eucalyptus griffithsii</i> low open woodland over <i>Acacia prainii</i> mid open shrubland over <i>Triodia scariosa</i> open hummock grassland.</p> <p>EIAaMI <i>Eucalyptus longissima</i>, <i>E. griffithsii</i> and <i>E. horistes</i> low open woodland over <i>Acacia acuminata</i> and <i>Melaleuca lanceolata</i> tall sparse shrubland.</p> <p>EgArTs</p>

Characteristic	Details
	<p><i>Eucalyptus griffithsii</i> (+/- <i>E. horistes</i> / <i>E. platycorys</i> / <i>E. rigidula</i>) mid mallee woodland over <i>Acacia resinimarginea</i> tall shrubland over <i>Beyeria sulcata</i> var. <i>sulcata</i> low open to sparse shrubland over <i>Triodia scariosa</i> hummock grassland.</p> <p>EgEpEc Mixed Eucalypts comprising <i>Eucalyptus griffithsii</i> and/or <i>E. platycorys</i>, and/or <i>E. celastroides</i> subsp. <i>virella</i> mid open mallee woodland over <i>Eremophila caperata</i>, <i>Acacia hemiteles</i> and <i>Scaevola spinescens</i> mid mixed shrubland with occasional patches of <i>Melaleuca ? hamata</i>.</p> <p>EsAbAh <i>Eucalyptus salmonophloia</i> low open woodland over <i>Acacia burkittii</i> tall sparse Shrubland over <i>Acacia hemiteles</i> mid sparse shrubland over <i>Scaevola spinescens</i>, <i>Alyxia buxifolia</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> low open shrubland.</p> <p>EsEcEyEgEm Mixed Eucalypts comprising <i>Eucalyptus salubris</i> and/or <i>E. clelandii</i> and/or <i>E. yilgarnensis</i> and/or <i>E. griffithsii</i>, and/or <i>E. moderata</i> tall to mid open woodland over <i>Acacia</i> and <i>Eremophila</i> spp. mid open shrubland over <i>Scaevola spinescens</i> and <i>Olearia muelleri</i> mid to low open shrubland.</p> <p>EyMp <i>Eucalyptus yilgarnensis</i> low isolated trees over <i>Melaleuca phoidophylla</i> tall to low shrubland over <i>Fabaceae</i> sp. low sparse shrubland.</p> <p>MhOiPr <i>Melaleuca hamata</i> tall closed shrubland over <i>Olearia incana</i> and <i>Psydrax rigidula</i> low sparse shrubland.</p>
Vegetation condition	<p>The vegetation survey (MWH, 2016) indicate the vegetation within the proposed clearing area is in Very Good to Excellent (Keighery, 1994) condition, described as</p> <ul style="list-style-type: none"> • Very Good: Vegetation structure altered; obvious signs of disturbance • Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994) <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p>
Climate and landform	<p>The climate of application area region is characterised as an arid to semi-arid climate with annual rainfall of approximately 265.5 millimetres (BoM, 2023). Mean maximum temperature ranges from 33.3°C in January to 16.1°C in July (BoM, 2023).</p> <p>The landform of the application area is relatively flat with elevations ranging between 400 – 450 metres AHD (GIS Database).</p>
Soil description and land degradation risk	<p>The soil is mapped as Mx43 across the majority of the application area, which is described as gently undulating valley plains and pediments; some outcrop of basic rock (Northcote et. al, 1960-68; GIS Database).</p> <p>The north-eastern end of the haul road is mapped as AC1, which is described as gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps, some granitic bosses, and tors (Northcote et. al, 1960-68; GIS Database).</p> <p>The terrain of the application area is relatively level and the soil substrate is comprised of firm clay loam (Infrastructure Area and Pipeline Corridor) or well-draining sandy loam (Haul Road Corridor) (MWH, 2016).</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that three minor, non-perennial watercourses and a non-perennial lake intersect the area proposed to be cleared (GIS Database).</p>
Hydrogeography	<p>There are no Public Drinking Water Source Areas within, or in close proximity to the application area (GIS Database).</p>
Flora	<p>No Threatened flora have been identified as occurring within, or in close proximity to the application area (MWH, 2016; GIS Database). Ten species of Priority flora were considered as 'possible' or 'likely' to occur within the survey area, based on habitat preferences and known distributions (MWH, 2016; Western Australian Herbarium, 1998-).</p>
Ecological communities	<p>A search of available databases revealed there are no known Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the application area (GIS Database). The flora surveys conducted over the application area have not identified any TECs or PECs and there are none known within 50 kilometres of the application area (MWH, 2016; GIS Database).</p>

Characteristic	Details
Fauna	Four broad fauna habitat types were identified within the application area: Eucalypt woodland, Mallee Woodland, Shrubland and Vegetated Claypan. All habitat types are considered relatively widespread and common throughout the region, and none are considered to be of local or regional significance. A total of 48 vertebrate fauna species were recorded during the field survey, comprising four mammals (one native), 38 birds and six reptile species.

A.2. Flora analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Acacia crenulata</i>	P3	Y	13	Y
<i>Acacia cylindrica</i>	P3	Y	Within	Y
<i>Acacia epedunculata</i>	P1	Y	15	Y
<i>Acacia sclerophylla</i> var. <i>teretiuscula</i>	P1	Y	13	Y
<i>Acacia websteri</i>	P1	Y	10	Y
<i>Elachanthus pusillus</i>	P2	Y	>30	Y
<i>Eremophila microphylla</i> (Chinnoek) R.Fowler	P3	Y	12	Y
<i>Hakea rigida</i>	P2	Y	12	Y
<i>Melichrus</i> sp. Coolgardie (K.R. Newbey 8698)	P1	Y	14	Y
<i>Phebalium appressum</i>	P1	Y	9	Y

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

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>There is no known Threatened flora, TECs or PECs within the permit area (MWH, 2016; GIS Database). One species, <i>Acacia cylindrica</i> listed as a Priority 3 species was potentially identified from the survey, however the specimen could not be conclusively identified due to a lack of flowering or fruiting material. Additionally, a specimen of <i>Hakea</i> collected during the survey did not key out to other known species from the region and represents an anomaly (MWH, 2016).</p>	May be at variance	Yes <i>Refer to Section 3.2.1, 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>The area proposed to be cleared contains breeding habitat for conservation significant fauna.</p> <p>One species of conservation significance, the Malleefowl listed as vulnerable under the EPBC Act and WC Act, was detected within and in close proximity to the application area via the presence of nesting mounds. In total seven mounds were detected, of which three appeared to have been active in recent years and may again be used by the birds in the upcoming breeding season. Potential impacts to Malleefowl may be managed by the implementation of a fauna management condition.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>There are no known TECs located within, or in close proximity to the application area (GIS Database).</p> <p>A flora and vegetation survey of the application area did not identify any TECs (MWH, 2016).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area is within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 97.96% of the pre-European vegetation still exists in the Murchison Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 8 and 1413 (GIS Database). These vegetation associations have not been extensively cleared as over 98% of the pre-European extent of each of these vegetation associations remains uncleared at a bioregional level (Government of Western Australia, 2019). The permit area does not contain any remnants, nor does it form part of any remnants in the local area (GIS Database).</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area (approximately 16 kilometres), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<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></p> <p>No permanent watercourses or wetlands occur within the amendment area. Three non-perennial drainage lines and a minor non-perennial lake intersect the permit area (GIS Database).</p>	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></p> <p>When not protected by a stony mantle, footslopes and valley floors within the Coolgardie system are susceptible to water erosion, particularly in areas where perennial cover is substantially reduced or the soil surface is disturbed (DPIRD, 2021). Although there is only a small amount of this land type within the application area, it is recommended that a staged clearing condition be placed on the permit to minimise potential impacts from soil erosion.</p>	May 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></p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Given no permanent water courses, wetlands or Public Drinking Water Sources Areas are recorded within (or nearby) the application area, the proposed clearing is unlikely to impact surface or ground water quality.		
<p>Principle (j): “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Furthermore, given no permanent water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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 D. Sources of information

D.1. GIS databases

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

- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics

- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

- Bureau of Meteorology (BoM) (2023) Bureau of Meteorology Website – Climate Data Online, Coolgardie. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 28 November 2023).
- Department of Environment Regulation (DER) (2014) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- Department of Planning, Lands and Heritage (DPLH) (2023) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 28 November 2023).
- DPIRD (2021) Advice received in relation to Clearing Permit Application CPS 9133/1. Office of the Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, January 2021.
- Department of Water and Environmental Regulation (DWER) (2021) Procedure: Native vegetation clearing permits. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.pdf
- Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf
- Environmental Protection Authority (EPA) (2016) Technical Guidance – Terrestrial Fauna Surveys. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- MWH (2016) Geko Level 1 Flora, Vegetation and Fauna Assessment and Targeted Survey for Malleefowl (*Leipoa ocellata*). Report prepared by MWH Australia Pty Ltd for Golden Eagle Mining Ltd, August 2016.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils, Sheets 1 to 10, with explanatory data*. CSIRO and Melbourne University Press: Melbourne.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 28 November 2023).

4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)

GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia):-

T Threatened species:

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX Extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI

Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD

Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS

Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P

Priority species:

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that 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 reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1

Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2

Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3

Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (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.
- (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.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (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.
- (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.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.