



# Clearing Permit Decision Report

## 1. Application details and outcomes

### 1.1. Permit application details

Permit number:	10088/1
Permit type:	Purpose Permit
Applicant name:	Hamersley Iron Pty Limited
Application received:	23 February 2023
Application area:	28 hectares
Purpose of clearing:	Mineral Exploration and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Exploration Licence 47/1490
Location (LGA area/s):	Shire of Ashburton
Colloquial name:	Gorge Bore Project

### 1.2. Description of clearing activities

Hamersley Iron Pty Limited proposes to clear up to 28 hectares of native vegetation within a boundary of approximately 458.331 hectares, for the purpose of mineral exploration and associated activities. The project is located approximately 10.5 kilometres south-east of Wittenoom, within the Shire of Ashburton.

The application is to allow for a drill program that will comprise 325 drill holes with maximum depth of 200 metres, and 19.6 kilometres of new track using blade down technique when grading (Rio Tinto, 2023).

### 1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	27 June 2023
Decision area:	28 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 23 February 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), 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 an ephemeral drainage line, and consequently on surface water flow.

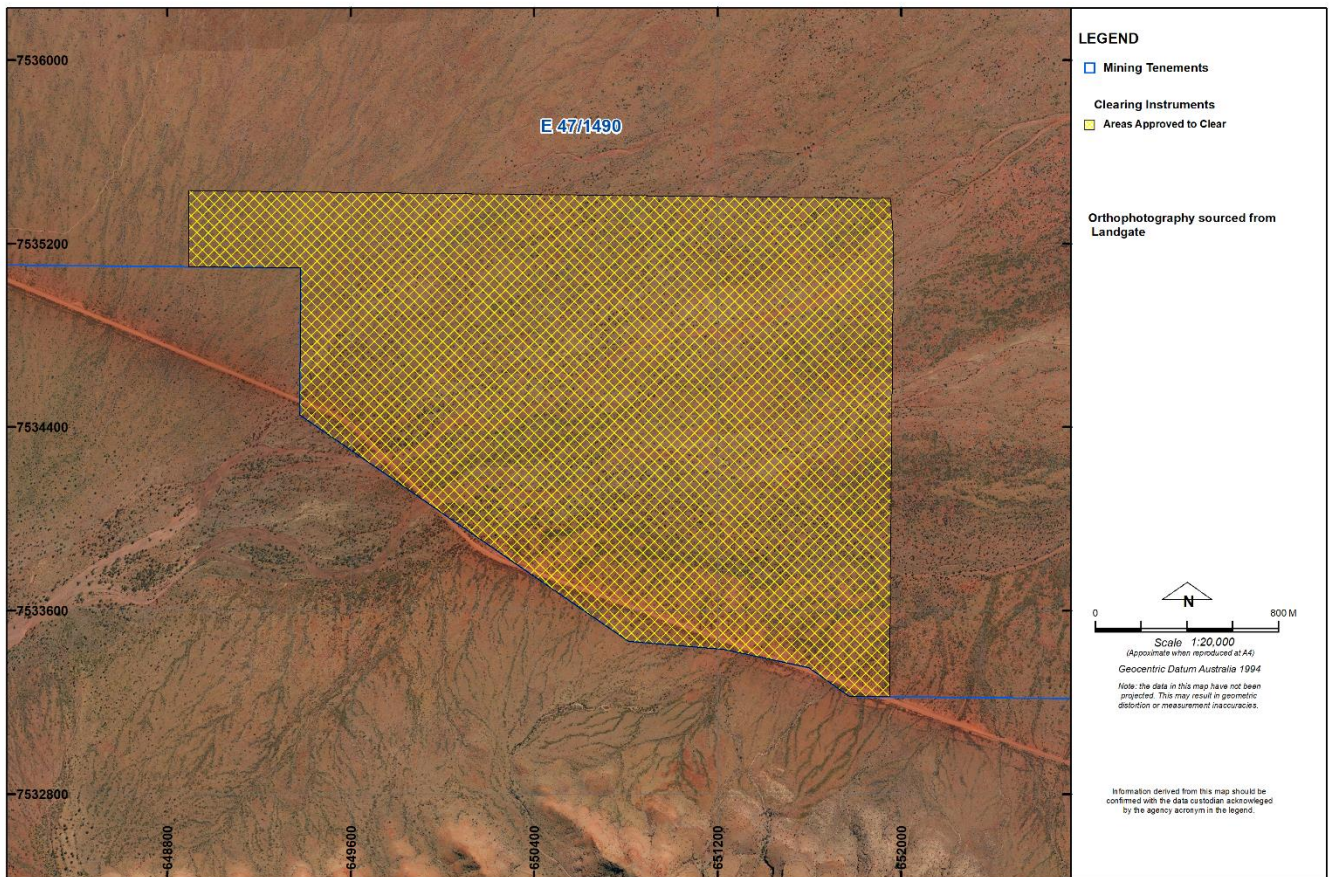
After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to have adverse impacts on the conservation of significant flora and fauna and the impacts of clearing can be minimised and managed to be unlikely 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; and
- avoid impacts to riparian vegetation and maintain surface water flow.

## 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)*

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 2021)*
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)*

## 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

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 / vegetation management conditions.

### 3.2.1. Biological values - Clearing Principle (a)

#### Assessment

A flora, vegetation and fauna habitat survey was conducted by Rio Tinto during October, 2022 (Rio Tinto, 2023). A total of 172 flora species from 92 genera, and 36 families were recorded within the application area. No Threatened or Priority flora species, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area (GIS Database), and none were identified during the flora and vegetation survey (Rio Tinto, 2023). The following Priority flora specie was identified as potentially occurring within the application area based on a desktop assessment of suitable landscape features and soil types:

- *Rostellularia adscendens* var. *latifolia* (P3)

This specie has not been previously recorded within the application area (Rio Tinto, 2023; GIS Database). A small proportion of the application area has previously been disturbed for tracks and exploration activities (Rio Tinto, 2023). The remaining sections to be cleared present large portions of open areas with scattered vegetation cover (GIS Database). In addition, Rio Tinto (2023) did not identify this specie during the field survey.

Seven weed species were recorded within the application area during the flora survey (Rio Tinto, 2023). No Declared Pests sectioned under the *Biosecurity and Agriculture Management Act 2007* or Weeds of National Significance were recorded within the application area (Rio Tinto, 2023). Weeds have the potential to out-compete native species and reduce the biodiversity of an area, and care should be taken to prevent the introduction and spread of weeds to the application area and surrounding areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by maintaining the weed management condition.

#### Conclusion

Based on the above assessment, the area proposed to be cleared is unlikely to have impacts on the above Priority flora specie. The proposal can be managed to be environmentally acceptable with avoid and minimise, and hygiene management conditions.

#### Conditions

- 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 9 March 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 (Banjima People – WC2011/006) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court 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 Programme of Work 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. The project is located approximately 10.5 kilometres south-east of Wittenoom, within the Shire of Ashburton (GIS Database).
Ecological linkage	The Minor Drainage habitat present within the application area is valuable for its role as an ecological linkage, as it provides a continuous corridor of vegetation cover that allows fauna to traverse large distances (Rio Tinto, 2023). This habitat may also occasionally flood, providing a temporary water source for fauna species.
Conservation areas	The application area is located within the former Hamersley Range National Park on the Register of National Estate (Non-statutory archive) and adjacent to the northern boundary of Karijini National Park (The Hamersley Range National Park has been superseded by Karijini National Park) (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>29: Sparse low woodland; mulga, discontinuous in scattered groups; and            111: Hummock grasslands, shrub steppe; <i>Eucalyptus gamophylla</i> over hard spinifex (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by Rio Tinto (2023) during October, 2022. The following vegetation associations were recorded within the application area (Rio Tinto, 2023):</p> <p><b>Vegetation of Drainage Lines</b></p> <ul style="list-style-type: none"> <li>D1 ((ChEv)AprAhCICcCs) - Scattered trees of <i>Corymbia hamersleyana</i> and <i>Eucalyptus victrix</i> over low open woodland of <i>Acacia pruinocarpa</i> and <i>Atalaya hemiglauca</i> over open shrubland of <i>Corchorus laniflorus</i> over open tussock grassland of <i>*Cenchrus ciliaris</i> and <i>*Cenchrus setiger</i>.</li> <li>D2 (GwApyCcCsTp) - Tall shrubland of <i>Grevillea wickhamii</i> and <i>Acacia pyrifolia</i> over tussock grassland of <i>*Cenchrus ciliaris</i> and <i>*Cenchrus setiger</i> over scattered hummock grasses of <i>Triodia pungens</i>.</li> </ul> <p><b>Vegetation of Plains</b></p> <ul style="list-style-type: none"> <li>P1 (AapAanTp) - Low open woodland of <i>Acacia aptaneura</i> over tall open shrubland of <i>Acacia ancistrocarpa</i> over open hummock grassland of <i>Triodia pungens</i>.</li> <li>P2 (AprAbTw) - Scattered low trees of <i>Acacia pruinocarpa</i> over open shrubland of <i>Acacia bivenosa</i> over open hummock grassland of <i>Triodia wiseana</i>.</li> <li>P3 (AiTp) - Scattered tall shrubs of <i>Acacia inaequilatera</i> over hummock grassland of <i>Triodia pungens</i>.</li> <li>P4 (EgAsTw) - Scattered low trees of <i>Eucalyptus gamophylla</i> over scattered shrubs of <i>Grevillea wickhamii</i> over low open shrubland of <i>Acacia spondylophylla</i> over open hummock grassland of <i>Triodia wiseana</i>.</li> </ul>
Vegetation condition	<p>The vegetation survey (Rio Tinto, 2023) indicate the vegetation within the proposed clearing area is in 'Very Good' to 'Completely Degraded' (Trudgen, 1991) condition, described as</p> <ul style="list-style-type: none"> <li>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.</li> <li>Completely Degraded - Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.</li> </ul> <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>
Climate and landform	The application area is mapped within elevations of 440 – 460 meters AHD (GIS Database). The climate of the region is tropical semi-arid to dry, with an annual rainfall average of approximately 461.8 millimetres (BoM, 2023).

Characteristic	Details
Soil description	<p>The soil is mapped as My55 (GIS Database). The My55 soil unit is described as 'Gently sloping outwash plains generally flanking the northern face of the Hamersley Range; coarse surface gravels are extensive: chief soils are neutral red earths (GIS Database).</p> <p>Rio Tinto (2023) have described the soils as:</p> <ul style="list-style-type: none"> <li>• Czc: Alluvium and colluvium - red-brown sandy and clayey soil; on low slope and sheetwash areas</li> <li>• Qa: Alluvium - unconsolidated silt, sand, and gravel; in drainage channels and adjacent floodplains.</li> </ul>
Land degradation risk	<p>The application area is located within the Boolgeeda Land System and Urandy Land System (GIS Database). These land systems are described as:</p> <ul style="list-style-type: none"> <li>• The Boolgeeda Land System (284Bg) is characterised by stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands (Van Vreeswyk et al., 2004).</li> <li>• The Urandy Land System (284Ur) is characterised by stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands (Van Vreeswyk et al., 2004).</li> </ul> <p>These land systems are generally not susceptible to erosion.</p>
Hydrogeography and waterbodies	There are no permanent waterbodies or watercourses within the application area, however, there are numerous minor non-perennial watercourses present (GIS Database).
Flora	A total of 172 vascular flora taxa from 92 genera representing 36 families were recorded during the field survey. The number of taxa recorded by the current survey appears consistent than what was expected when compared with previous surveys completed nearby. No Threatened or Priority flora taxa were recorded during the survey. Seven weed species were recorded from the survey area.
Ecological communities	There are no mapped Threatened or Priority Ecological Communities (TEC/PEC) within the application area or within a 10 kilometres radius (GIS Database).
Fauna	Three broad fauna habitat types were recorded within the survey area: Minor Drainage, Mulga Woodland, and Stony Plain. These fauna habitats are not considered to be restricted at a local or regional level (Rio Tinto, 2023). No conservation significant fauna species were observed during a fauna survey of the application area (Rio Tinto, 2023).

## A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Distance of closest record to application area (km)	Preferred habitat	Likelihood of occurrence
<i>Adiantum capillus-veneris</i>	P2	13.5	Moist, sheltered sites in gorges and on cliff walls.	Unlikely - No suitable habitat recorded within the survey area.
<i>Cladium procerum</i>	P2	12.7	Perennial pools.	Unlikely - No suitable habitat recorded within the survey area.
<i>Dicladantha glabra</i>	P2	3	Alluvium. Along watercourses, near rock pools.	Unlikely - Suitable habitat was present within the survey area (road verges). The survey was undertaken during the taxon's flowering period, therefore it is unlikely that it would have been missed during the survey.
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	P4	13.6	Skeletal soils over ironstone. Rocky screes.	Unlikely - No suitable habitat recorded within the survey area.
<i>Fimbristylis sieberiana</i>	P3	11.4	Mud, skeletal soil pockets. Pool edges, sandstone cliffs.	Unlikely - No suitable habitat recorded within the survey area.
<i>Gompholobium karijini</i>	P2	13.6	Flat to gently undulating plateau, hillslopes, drainage lines, mesa	Unlikely - No suitable habitat recorded within the survey area.

			tops, recently burnt areas. Red clay or gravelly loam over ironstone.	
<i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727)	P3	9.5	Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains.	Unlikely - No suitable habitat recorded within the survey area.
<i>Hibiscus</i> sp. Mt Brockman (E. Thoma ET 1354)	P1	2.8	Breakaways, rocky crevices, scree slopes, gullies, steep slopes. Red-brown skeletal soil, sand. Ironstone gravel, outcropping or boulders.	Unlikely - No suitable habitat recorded within the survey area.
<i>Isotropis parviflora</i>	P2	13.6	Valley slope of ironstone plateau.	Unlikely - No suitable habitat recorded within the survey area.
<i>Lepidium catapycnon</i>	P4	2.9	Stony hill slopes, open woodland in hilly areas, more frequently on south facing slopes, hill hummock grasslands, and road verges.	Unlikely - Suitable habitat was present within the survey area (road verges). The survey was undertaken during the taxon's flowering period, therefore it is unlikely that it would have been missed during the survey.
<i>Olearia mucronata</i>	P3	16.4	Schistose hills, along drainage channels.	Unlikely - Suitable habitat was present within the survey area (road verges). The survey was undertaken during the taxon's flowering period, therefore it is unlikely that it would have been missed during the survey.
<i>Ptilotus mollis</i>	P4	2.9	Stony hills and screes.	Unlikely - No suitable habitat recorded within the survey area.
<i>Rhynchosia bungarensis</i>	P4	13.5	Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.	Unlikely - No suitable habitat recorded within the survey area.
<i>Rostellularia adscendens</i> var. <i>latifolia</i>	P3	3.7	Ironstone soils. Near creeks, rocky hills.	Likely - Suitable habitat was present within the survey area (ironstone soils, near creeks). This taxon was recorded within 5 km of the survey area.
<i>Teucrium pilbaranum</i>	P2	9.6	Clay. Crab hole plain in a river floodplain, margin of calcrete table.	Unlikely - No suitable habitat recorded within the survey area.
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	P3	9.4	Red clay. Clay pan, grass plain.	Unlikely - No suitable habitat recorded within the survey area.
<i>Triodia</i> sp. <i>Karijini</i> (S. van Leeuwen 4111)	P1	13.7	Hillcrests and steep slopes. Sandy loam, grey or brown silty loam. Ironstone outcropping, boulders, cobbles and pebbles.	Unlikely - No suitable habitat recorded within the survey area.

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?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>There are no known Threatened flora, Threatened or Priority Ecological Communities within the permit area (Rio Tinto, 2023; GIS Database). No Priority flora have been recorded within the application area, however two Priority flora species have been identified as potentially occurring (Rio Tinto, 2023).</p> <p>Seven weed species were recorded within the application area during the flora survey (Rio Tinto, 2023). No Declared Pests sectioned under the Biosecurity and Agriculture Management Act 2007 or Weeds of National Significance were recorded within the application area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> <p>No conservation significant fauna have been recorded within the application area (Rio Tinto, 2023; GIS Database).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</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 significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>Three broad fauna habitat types were recorded within the survey area:</p> <ul style="list-style-type: none"> <li>• Minor Drainage;</li> <li>• Mulga Woodland; and</li> <li>• Stony Plain.</li> </ul> <p>These fauna habitats are not considered to be restricted at a local or regional level. No conservation significant fauna species were observed during the survey. Five conservation significant species have the ‘potential’ to occur within the survey area:</p> <ul style="list-style-type: none"> <li>• Grey Falcon (VU);</li> <li>• Peregrine Falcon (OS);</li> <li>• Night Parrot (CR);</li> <li>• Ghost Bat (VU); and</li> <li>• Pilbara Leaf-nosed Bat (VU)</li> </ul> <p>These species may visit the survey area for foraging and hunting opportunities, however none are considered to be dependent on the habitats of the survey area.</p>	Not likely to be at variance	No
<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>There are no known records of Threatened flora within the application area (GIS Database). A flora survey of the application area did not record any species of Threatened flora (Rio Tinto, 2023).</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 Threatened Ecological Communities (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 (Rio Tinto, 2023).</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<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 located within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). Approximately 99% of the pre-European vegetation still exists in the Pilbara Bioregion (Government of Western Australia, 2019).</p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>The vegetation of the application area is broadly mapped as Beard vegetation associations 29 and 111 (GIS Database). Approximately 99% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2019).</p>		
<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>The application area is located within the former Hamersley Range National Park on the Register of National Estate (Non-statutory archive) and adjacent to the northern boundary of Karijini National Park (GIS Database).</p> <p>Given the proximity to the conservation area, the proposed clearing may have an impact on the environmental values of the conservation area.</p> <p>Due to the majority of the proposed clearing being north of Munjina Road, the proposal is not expected to significantly impact the environmental values of Karijini National Park (Rio Tinto, 2023; GIS Database).</p>	May be at variance	No
<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></p> <p>The application area has numerous minor ephemeral drainage lines (GIS Database). Drainage lines within the application area are only likely to flow following major rainfall events. As the vegetation associated with these ephemeral drainage lines may be cleared, it is recommended to maintain surface water flow or reinstate downstream into existing natural drainage lines.</p> <p>Potential impacts to watercourses be managed through the continuous implementation of a vegetation management condition, which includes avoiding clearing riparian vegetation and maintaining surface water flow.</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>The application area is located within the Boolgeeda Land System and Urandy Land System (GIS Database). These land systems are described as:</p> <ul style="list-style-type: none"> <li>• The Boolgeeda Land System (284Bg) is characterised by stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands (Van Vreeswyk et al., 2004).</li> <li>• The Urandy Land System (284Ur) is characterised by stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands (Van Vreeswyk et al., 2004).</li> </ul> <p>The proposed clearing of up to 28 hectares of native vegetation within a boundary of approximately 458.331 hectares, for the purpose of mineral exploration and associated activities is unlikely to cause appreciable 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></p> <p>There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.</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></p> <p>The climate of the region is tropical semi-arid to dry, with an annual rainfall average of approximately 461.8 millimetres (BoM, 2023).</p>	Not likely to be at variance	No



Assessment against the clearing principles	Variance level	Is further consideration required?
There are no permanent water courses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.		

### 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 Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

#### Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their 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](http://www.data.wa.gov.au)):

- 10 Metre Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- 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)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- 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

- BoM (2023) Bureau of Meteorology Website – Climate Data Online, Wittenoom. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 20 June 2023).
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## 4. Glossary

### Acronyms:

<b>BC Act</b>	<i>Biodiversity Conservation Act 2016, Western Australia</i>
<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia (now DPLH)
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia (now DPIRD)
<b>DCCEEW</b>	Department of Climate Change, Energy, the Environment and Water, Australian Government
<b>DBCA</b>	Department of Biodiversity, Conservation and Attractions, Western Australia
<b>DER</b>	Department of Environment Regulation, Western Australia (now DWER)
<b>DMIRS</b>	Department of Mines, Industry Regulation and Safety, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia (now DMIRS)
<b>DoEE</b>	Department of the Environment and Energy (now DCCEEW)
<b>DoW</b>	Department of Water, Western Australia (now DWER)
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia (now DBCA)
<b>DPIRD</b>	Department of Primary Industries and Regional Development, Western Australia
<b>DPLH</b>	Department of Planning, Lands and Heritage, Western Australia
<b>DRF</b>	Declared Rare Flora (now known as Threatened Flora)
<b>DWER</b>	Department of Water and Environmental Regulation, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986, Western Australia</i>
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)</i>
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914, Western Australia</i>
<b>TEC</b>	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.