



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 7447/1
<b>Permit Holder:</b>	Atlas Iron Limited
<b>Duration of Permit:</b>	From 9 September 2017 to 31 January 2019

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

### PART I – CLEARING AUTHORISED

**1. Purpose for which clearing may be done**

Clearing for the purposes of road upgrades, geotechnical and water investigations, and water infrastructure.

**2. Land on which clearing is to be done**

Corunna Downs Road reserve (PIN 11734822)  
Crown Reserve 13676  
Crown Reserve 2906  
Halse Road reserve (PIN 11412373)  
Hillside - Marble Bar Road reserve (PINs 11734807, 11734808, 11734809, 11734810, 11734811, 11734814)  
Limestone - Marble Bar Road reserve (PIN 11997584)  
Lot 111 on Plan 238589 (Pastoral Lease N049987)  
Lot 266 on Plan 213709 (Crown Reserve 33941)  
Lot 350 on Plan 49438  
Lot 85 on Plan 189228 (Crown Reserve 41179)  
Unallocated Crown Land (PIN 1017726)  
Unallocated Crown Land (PIN 1017731)  
Unnamed Road reserve (PIN 11734489)

**3. Area of clearing**

The Permit Holder must not clear more than 142 hectares of native vegetation within the area cross-hatched yellow on attached Plan 7447/1a.

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

### PART II – MANAGEMENT CONDITIONS

**5. Avoid, minimise etc clearing**

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

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

**6. Weed control**

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

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

**7. Vegetation management - flora and fauna habitat**

The Permit Holder shall not clear native vegetation within the area shaded red on attached Plan 7447/1b for the purpose of temporary construction areas, water infrastructure or extraction of borrow material, with the exception of minor access tracks to these areas.

**8. Vegetation management - watercourse**

The Permit Holder shall not clear the *riparian vegetation* of any *watercourse* or *wetland* within the area cross-hatched yellow on attached Plan 7447/1a for the purpose of temporary construction areas, water infrastructure or extraction of borrow material, with the exception of minor access tracks to these areas.

**9. Flora management**

The Permit Holder shall ensure that no clearing of native vegetation within 10 metres of *Swainsona thompsoniana* occurs.

**10. Retain and spread vegetative material and topsoil**

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) by 31 January 2019, *revegetate* and *rehabilitate* the areas that are no longer required for the purpose for which they were cleared under this Permit by:
  - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land;
  - (ii) ripping the ground on the contour to remove soil compaction; and
  - (iii) laying the vegetative material and topsoil retained under Condition 10(a) on the cleared area.

**PART III - RECORD KEEPING AND REPORTING**

**11. Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
  - (i) the species composition, structure and density of the cleared area;
  - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
  - (iii) the date that the area was cleared; and
  - (iv) the size of the area cleared (in hectares).
- (b) In relation to the revegetation and rehabilitation of areas pursuant to condition 10 of this Permit:
  - (i) the location of any areas revegetated and rehabilitated, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (ii) a description of the revegetation and rehabilitation activities undertaken; and
  - (iii) the size of the area revegetated and rehabilitated (in hectares).

## 12. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
- (i) of records required under condition 11 of this Permit; and
  - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.
- (c) Prior to 31 October 2018, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(a) of this Permit.

## DEFINITIONS

The following meanings are given to terms used in this Permit:

*fill* means material used to increase the ground level, or fill a hollow;

*mulch* means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

*rehabilitate/ed/ion* means actively managing an area containing native vegetation in order to improve the ecological function of that area;

*revegetate/ed/ion* means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.

*riparian vegetation* has the meaning given to it in Regulation 3 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004;

*watercourse* has the meaning given to it in section 3 of the Rights in Water and Irrigation Act 1914; *wetland/s* means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

*weed/s* means any plant -

- (a) that is a declared pest under section 22 of the Biosecurity and Agriculture Management Act 2007; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

*wetland/s* means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.



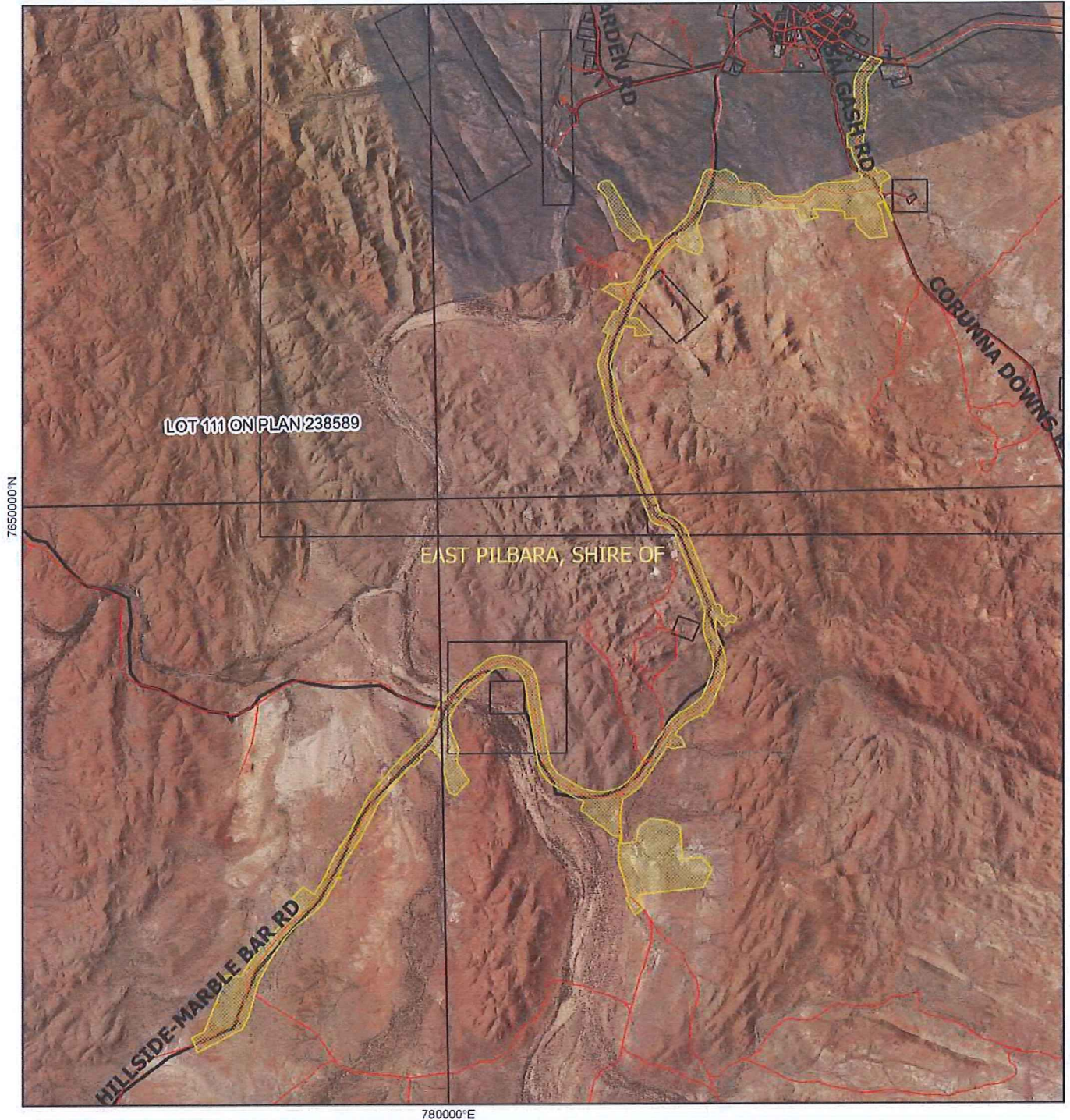
Mathew Gannaway  
MANAGER  
CLEARING REGULATION

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

16 August 2017



# Plan 7447/1a



## Legend

-  Areas approved to clear
-  Roads
-  LGA
-  Cadastre
- Virtual Mosaic (LGATE-V001)
- 



1:60,000

MGA 94  
Geocentric Datum of Australia 1994

  
Mathew Gannaway

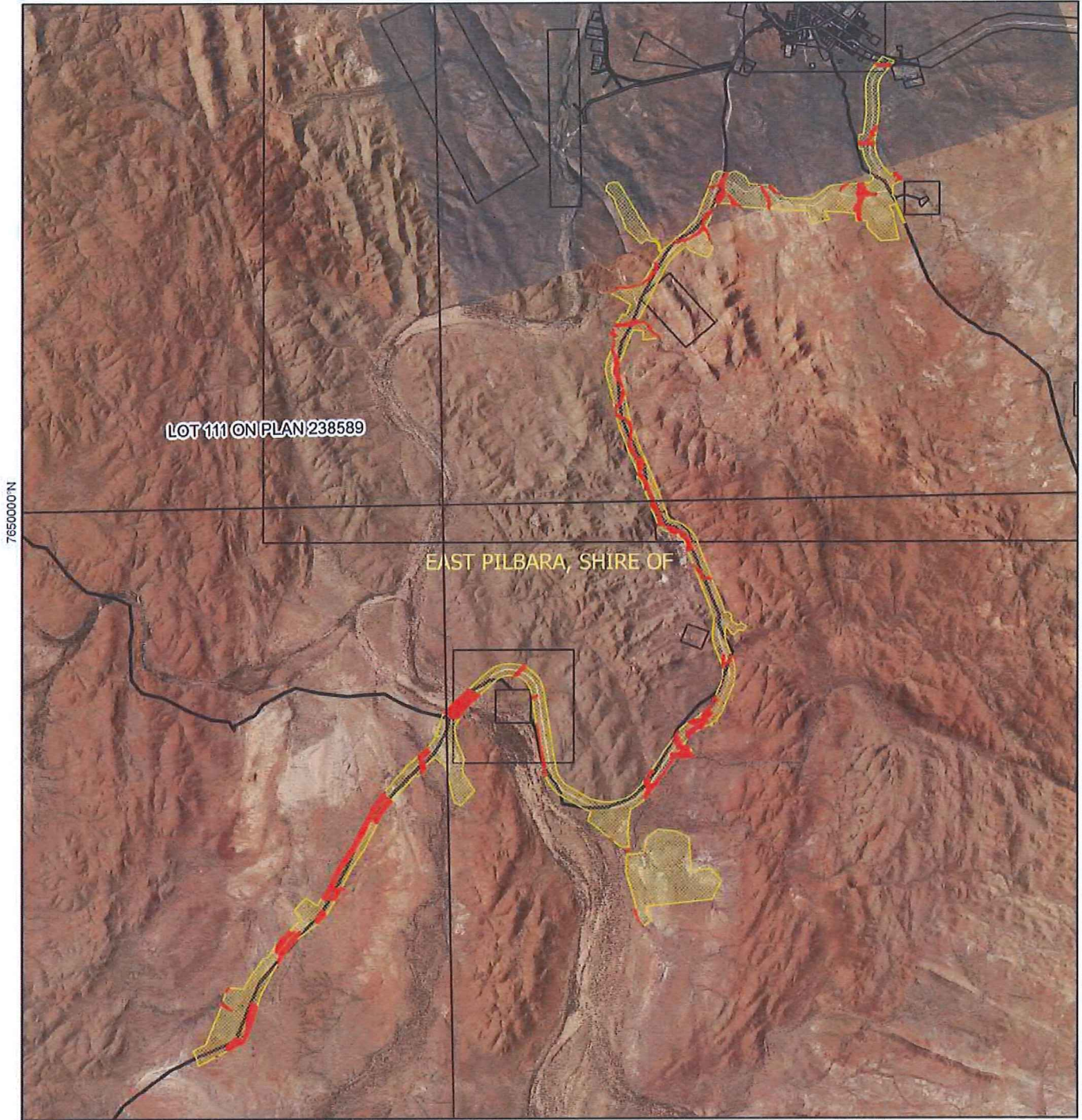
Date: 16/05/2017

Officer with delegated authority under Section 20  
of the Environmental Protection Act 1986





# Plan 7447/1b



## Legend

-  Clearing instruments conditions
-  Areas approved to clear
-  LGA
-  Cadastre
- Virtual Mosaic (LGATE-V001)
- 



1:60,000

MGA 94  
Geocentric Datum of Australia 1994

 Date: 16/08/2017

Officer with delegated authority under Section 20  
of the Environmental Protection Act 1986



GOVERNMENT OF  
WESTERN AUSTRALIA





## 1. Application details

### 1.1. Permit application details

Permit application No.: 7447/1  
Permit type: Purpose Permit

### 1.2. Applicant details

Applicant's name: Atlas Iron Limited

### 1.3. Property details

Property: Corunna Downs Road reserve (PIN 11734822)  
Crown Reserve 13676  
Crown Reserve 2906  
Halse Road reserve (PIN 11412373)  
Hillside - Marble Bar Road reserve (PINs 11734807, 11734808, 11734809, 11734810, 11734811, 11734814)  
Limestone - Marble Bar Road reserve (PIN 11997584)  
Lot 111 on Plan 238589 (Pastoral Lease N049987)  
Lot 266 on Plan 213709 (Crown Reserve 33941)  
Lot 350 on Plan 49438  
Lot 85 on Plan 189228 (Crown Reserve 41179)  
Unallocated Crown Land (PIN 1017726)  
Unallocated Crown Land (PIN 1017731)  
Unnamed Road reserve (PIN 11734489)

Colloquial name: Corunna Downs Public Road Upgrade  
Local Government Authority: Shire of East Pilbara  
DER Region: North West  
LCDC: De Grey  
Localities: Marble Bar

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
142		Mechanical Removal	Road upgrades, geotechnical and water investigations, and water infrastructure

### 1.5. Reasons for Decision

Decision on Permit Application: Grant

Decision Date: 16 August 2017

Reasons for Decision: The clearing permit application was received on 23 January 2017, and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*.

The Delegated Officer determined that the proposed clearing is at variance to Principle (f), may be at variance to Principles (a), (b), (g) (i) and (j), and is not likely to be or is not at variance to the remaining clearing principles.

- The Delegated Officer has granted the clearing permit subject to conditions requiring:
- weed management;
  - the restriction of clearing within significant flora and fauna habitat, and native vegetation associated with a watercourse or wetland, to that for the proposed footprint of a public road, or for the purpose of access tracks;
  - no clearing within 10 metres of the priority flora *Swainsona thompsoniana*; and
  - the revegetation of areas no longer required for the purpose for which they were cleared by 31 January 2019.

In determining to grant a clearing permit, subject to conditions, the Delegated Officer found that the clearing of native vegetation is unlikely to lead to an unacceptable risk to the environment.

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
A total of five Beard vegetation associations are mapped within the application area (Shepherd et al., 2001):  Beard vegetation association 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> ;  Beard vegetation association 93: Hummock grasslands, shrub steppe; kanji over soft spinifex;  Beard vegetation association 171: Hummock grasslands, low tree steppe; snappy gum over soft spinifex and <i>Triodia brizoides</i> ;	The applicant proposes to clear up to 142 hectares of native vegetation within a footprint of 642.6 hectares for the purpose of road upgrades, geotechnical and water investigations, and water infrastructure.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);  To:  Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	Vegetation condition within the application area was categorised during the flora survey by adapting Keighery (1994) for the Pilbara Biological Survey (McKenzie et al., 2009) (Woodman, 2016). Vegetation condition has been converted to the Keighery scale for the purpose of this assessment.  The majority of the application area is in excellent (Keighery, 1994) condition (Woodman, 2016).  Approximately 72 hectares within the application area has been previously cleared (Woodman, 2017).

#### Vegetation Description (continued)

Beard vegetation association 587: Mosaic: Hummock grasslands, open low tree-steppe; snappy gum over *Triodia wiseana* / Hummock grasslands, shrub-steppe; kanji over *Triodia pungens*; and

Beard vegetation association 619: Medium woodland; river gum (*Eucalyptus camaldulensis*).

A Level 2 flora and vegetation survey was conducted by Woodman Environmental Consulting Pty Ltd (Woodman) in 2016 (Woodman, 2016). A total of 12 vegetation communities were recorded within the application area, including:

VT1: Mid sparse shrubland dominated by mixed *Acacia* species over low sparse shrubland of mixed species including *Acacia stellaticeps*, *Pluchea tetranthera* and *Eremophila latrobei* subsp. *glabra* over low hummock grassland dominated by *Triodia epactia* on grey to brown sand to clay loam with occasional granite outcropping, on stony plains, low hills or sandy dunes.

VT2: Tall to mid open shrubland dominated by mixed *Acacia* species including *A. eriopoda* and *A. maitlandii* over low sparse shrubland of mixed species including *A. stellaticeps*, *Corchorus parviflorus* and *Corchorus laniflorus* over low hummock grassland dominated mainly by *Triodia epactia* on red-brown sandy clay to clay loam, on granite outcrops to stony plains and drainage lines with exposed granite.

VT4: Low Open Woodland usually dominated by *Corymbia hamersleyana* over Tall Sparse Shrubland dominated by mixed *Acacia* species including *A. trachycarpa* and *A. ancistrocarpa* with *Dichrostachys spicata* over Low Hummock Grassland dominated by species including *Triodia wiseana* and *T. epactia*, with *Eragrostis eriopoda* on brown sandy loams on plains and drainage lines.

VT5: Mid Sparse Shrubland of mixed *Acacia* species usually dominated by *A. synchronicia* over Low Hummock Grassland dominated by various *Triodia* species including *T. epactia*, *T. wiseana* and *T. longiceps* on brown clay loams on stony plains and base of low hills.

VT6: Tall hummock grassland dominated by *Triodia longiceps* with tall isolated shrubs of *Acacia synchronicia* on red or brown sandy to clay loams on stony plains, interspersed with low sparse formland of mixed species including *Sida fibulifera*, *Rhynchosia minima*, *Tephrosia* sp. clay soils (S. van Leeuwen et al. PBS 0273), *Crotalaria dissitiflora* subsp. *benthamiana*, *Cullen graveolens* and *Eriachne flaccida* on brown cracking clay in clay pans.

VT7: Tall sparse shrubland dominated by species including *Acacia bivenosa*, *A. synchronicia* and *Dichrostachys spicata* over mid hummock grassland dominated by *Triodia longiceps* over sparse tussock grassland and chenopod shrubland dominated by *\*Cenchrus ciliaris* and *Sclerolaena hostilis* on brown clay loam on flats and in open depressions.

VT8: Low isolated shrubs dominated by *Melaleuca glomerata* over mid hummock grassland dominated by *Triodia longiceps* over low mixed sedgeland, grassland and formland of mixed species including *Schoenus falcatus*, *Trianthema cussackiana* and *Stemodia grossa* on white to brown clay to clayey sand with occasional calcrete and dolerite stones, at the head of drainage lines.

VT9: Low open woodland to isolated trees to *Eucalyptus leucophloia* subsp. *leucophloia* and/or *Corymbia hamersleyana* over tall sparse shrubland of mixed species usually dominated by *Acacia orthocarpa*, *A. monticola*, *A. tumida* var. *pilbarensis* and *Grevillea wickhamii* over low shrubland to sparse shrubland of mixed species dominated by *A. Ptychophylla*, *A. spondylophylla*, *Goodenia stobbsiana*, *Dampiera candidans* and *Ptilotus calostachyus* over low hummock grassland dominated by *Triodia*

*epactia* and occasionally *T. brizoides* on red to brown clay loam usually over ironstone or metamorphosed granite outcropping.

VT11: Low isolated trees of *Corymbia hamersleyana* over tall sparse shrubland dominated by *Acacia inaequilatera* and often *Grevillea pyramidalis* subsp. *leucadendron* over low sparse shrubland dominated by *Corchorus parviflorus*, *Indigofera monophylla* and *Senna glutinosa* subsp. *glutinosa* over low hummock grassland dominated by *Triodia wiseana* and/or *T. epactia* on red to brown clay loam often with dolerite or occasionally quartz or metamorphosed granite outcropping, on low hills, ridges and occasionally undulating plains.

VT12: Low open woodland of *Corymbia hamersleyana* over mid sparse shrubland dominated by *Acacia bivenosa* over low sparse shrubland of mixed species including *Corchorus parviflorus*, *Heliotropium cunninghamii*, *Indigofera monophylla* and *Pluchea ferdinandi-muelleri* over low hummock grassland dominated by *Triodia wiseana* and/or *T. angusta* or *T. longiceps* on brown clay loam on stony undulating plains and low rises often with calcrete outcropping.

VT14: Mid open woodland of mixed species including *Eucalyptus victrix* and *Corymbia hamersleyana* over tall open to sparse shrubland of mixed species including *Acacia coriacea* subsp. *pendens*, *A. trachycarpa*, *A. pyrifolia* var. *pyrifolia*, *A. tumida* var. *pilbarensis* and *Melaleuca glomerata* over low sparse shrubland of mixed species including *Pluchea ferdinandi-muelleri*, *Cajanus pubescens* and *Stemodia grossa* over mid open grassland and sedgeland of mixed species dominated by *Cenchrus ciliaris*, *Triodia longiceps*, *T. epactia*, *Chrysopogon fallax* and *Cyperus vaginatus* on red to brown sand to sandy loam with river stones in minor to medium drainage lines.

VT15: Mid open forest to woodland dominated by *Eucalyptus camaldulensis* subsp. *refulgens* and occasionally *Eucalyptus victrix* over tall open shrubland dominated by species including *Acacia ampliceps*, *Melaleuca glomerata* and *A. pyrifolia* var. *pyrifolia* over mixed mid open grassland and sedgeland dominated by *Cenchrus ciliaris*, *Cyperus vaginatus* and *Triodia longiceps* on red to brown sandy to clay loam with river stone in major drainage lines.

### 3. Assessment of application against clearing principles

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

##### Comments

##### Proposed clearing may be at variance to this Principle

The application area is located within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion and Chichester subregion. The plains of the Chichester subregion contain a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, with *Eucalyptus leucophloia* tree steppes on the ranges (Kendrick and McKenzie, 2001).

A level 2 flora survey conducted within the application area and adjacent vegetation within the proposed mining footprint (referred to as the 'study area') recorded 413 vascular flora taxa from 63 families and 177 genera (Woodman, 2016). Two priority 3 flora, *Rostellularia adscendens* var. *latifolia* and *Swainsona thompsoniana*, were recorded within the application area (Woodman, 2016). The flora survey advised that the study area is considered to be of moderate floristic diversity (Woodman, 2016).

The flora survey noted that not all potential habitat for conservation significant flora was subject to a targeted survey, and that none of the significant flora taxa are considered to have been comprehensively surveyed for in the study area (Woodman, 2016). The former Department of Parks and Wildlife (Parks and Wildlife) provided advice on the adequacy of the flora survey, noting that while a track log of the survey shows that the length of the application area was traversed, potential habitat for conservation significant flora was not thoroughly searched and there is the potential that additional locations of priority flora could occur within the application area (Parks and Wildlife, 2017a). Parks and Wildlife advised that "the survey undertaken does not appear to have been adequate in locating the presence of all locations of threatened and priority flora in the [application area]" (Parks and Wildlife, 2017a).

Parks and Wildlife advised that "given that not all the potential habitat of the priority flora found in the survey has been searched there is the potential they may occur elsewhere in the application area. Conservation listed species of particular concern if present are *Cochlospermum macnamarae* (priority 1), *Schoenus* sp. Marble Bar (D. Coultas & S. Coultas DCSC-Opp 07) (priority 1), and *Swainsona thompsoniana* (priority 3). Two undescribed species which potentially represent new taxa *Portulaca* sp. and *Oldenlandia* sp. are also of concern if present in the application area...Impacts to these species have the potential to be of significance..., as they are either known from only a few locations or are range extensions" (Parks and Wildlife, 2017a).

*Cochlospermum macnamarae* was recorded in the study area within the vegetation community VT2, approximately 30 kilometres south of the application area (Parks and Wildlife, 2017a). While there is only 1.6 hectares of VT2 mapped within the application footprint, Parks and Wildlife advised that suitable habitat for this species (granite outcrops) also occurs within VTs 1, 3, 9 and 11 (Parks and Wildlife, 2017a). These vegetation types, including VT2, have a combined area of 240.1 hectares within the application area (Woodman, 2017).

*Schoenus* sp. Marble Bar (D. Coultas & S. Coultas DCSC-Opp 07) was recorded approximately 16 kilometres south-west of the application area, in a granitic seepage area within VT1 (Woodman, 2016; Parks and Wildlife, 2017a). This is the only known record of this recently described species in Australia, with 50 individuals recorded at this location (Woodman, 2016). There is 0.6 hectares of VT1 mapped within the application area, however the flora survey notes that seepage areas, while uncommon in the region, are not restricted to VT1 (Woodman, 2016). Parks and Wildlife advised that potential impacts to *Schoenus* sp. Marble Bar (D. Coultas & S. Coultas DCSC-Opp 07) would be minimised by avoiding clearing of granitic seepage areas or conducting a targeted flora survey for *Schoenus* sp. Marble Bar (D. Coultas & S. Coultas DCSC-Opp 07). The applicant



advised that following further communication with Woodman Environmental Consulting Pty Ltd, it has been determined that areas likely to support granitic seepage areas (potential habitat for *Schoenus* sp. Marble Bar (D. Coultas & S. Coultas DCSC-Opp 07) occur west and south-west of the application area (Atlas, 2017c).

Individual plants of *Swainsona thompsoniana* were recorded at three locations within the study area in VT6, including one location within the application area (Woodman, 2016). Parks and Wildlife advised that these records represent an extension in the known range of this species (Parks and Wildlife, 2017a). The applicant has advised that no clearing will occur within 10 metres of *Swainsona thompsoniana* (Atlas, 2017c).

A single plant of *Portulaca* sp. (potential new species) was collected along a minor, slightly rocky drainage line within VT14, of which 43 hectares is mapped within the application area (Woodman, 2017). A single plant of *Oldenlandia* sp. (potential new species) was collected from a drainage line within VT15, of which 11.3 hectares is mapped within the application area (Woodman, 2017).

None of the 12 VTs mapped within the application area represent a priority ecological community or threatened ecological community (TEC) (Woodman, 2016). The flora survey notes that VTs 6, 7 and 8 are considered to be of potential regional significance due to the lack of knowledge of the regional distribution of these vegetation types, and the types of landforms on which they occur (Woodman, 2017). It is noted that the proposed clearing of 142 hectares within the application footprint is proposed to impact less than 10 per cent of the mapped extent on each of these vegetation types, and is not likely to impact their persistence in the region (Woodman, 2017).

Two weed species were recorded during the flora survey, including \**Aerva javanica* (kapok) and \**Cenchrus ciliaris* (buffel grass) (Woodman, 2017). Mechanical clearing increases the risk of spreading weeds into native vegetation adjacent to the application area. Weeds can decrease the biodiversity value of an area as they out-compete native vegetation for available resources, contribute to land degradation and increase the frequency and intensity of fires (Department of Environment and Conservation, 2011). Potential impacts to biodiversity both outside the application area and within temporarily cleared areas as a result of the proposed clearing may be minimised by the implementation of weed management practices.

As discussed in Principle (b), two conservation significant (specially protected under the *Wildlife Conservation Act 1950* [WC Act] or priority species) fauna species were confirmed to occur within the application area, two are very likely to occur, three are likely to occur, and 12 may possibly occur within the application area (MWH, 2017). The application area may also provide habitat for three short range endemic (SRE) fauna species (MWH, 2017). As discussed in Principle (b), drainage line and riverine habitat types within the application area are considered to be most likely to support conservation significant fauna.

Given the vegetation, floristic and faunal diversity present, the proposed clearing may be at variance to this Principle.

The applicant has advised that the following management measures will be implemented:

- impacts to watercourses away from the road footprint will be limited to access tracks (Atlas, 2017b);
- secondary infrastructure (temporary laydown areas, water infrastructure), borrow pits, and geotechnical and water investigations will occur outside of VTs 1, 2, 6, 14 and 15, and fauna habitat types considered to provide habitat for conservation significant and SRE fauna species, with clearing within these VTs and fauna habitat types restricted to access tracks (Atlas, 2017c); and
- areas cleared for temporary infrastructure will be progressively revegetated (Atlas, 2017c).

Advice received from Parks and Wildlife indicates that the management measures proposed by the applicant are sufficient to manage potential impacts to floristic and faunal diversity (Parks and Wildlife, 2017a; 2017b).

**Methodology**      References:  
Atlas (2017b)  
Atlas (2017c)  
Department of Environment and Conservation (2011)  
Kendrick and McKenzie (2001)  
MWH (2017)  
Parks and Wildlife (2017a)  
Parks and Wildlife (2017b)  
Woodman (2016)  
Woodman (2017)

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

**Comments**      **Proposed clearing may be at variance to this Principle**

Fauna habitat types

A Level 1 fauna survey was conducted within the application area by MWH in 2016. Six fauna habitats were identified within the application area, as below (MWH, 2017):

- Spinifex stony plain (282 hectares);
- Calcrete (153 hectares);
- Stony Rises (84 hectares);
- Drainage line (38 hectares);

- Riverine (16 hectares); and
- Rocky foothills (nine hectares).

Drainage and riverine habitat types were noted to have the highest significance for fauna given their capacity to provide foraging and dispersal habitat for the northern quoll (*Dasyurus hallucatus*; specially protected under the WC Act), Pilbara leaf-nosed bat (*Rhinonictis aurantia*; specially protected under the WC Act) and Pilbara olive python (*Liasis olivaceus barroni*; specially protected under the WC Act) (MWH, 2017).

#### Conservation significant fauna

Both the western pebble-mound mouse (*Pseudomys chapmani*; priority 4) and rainbow bee-eater (*Merops ornatus*; specially protected under the WC Act) were recorded within the application area. Both species are considered to be widespread in the region, and the proposed clearing is not likely to impact the conservation of either species.

The ghost bat (*Macroderma gigas*; specially protected under the WC Act) and Pilbara leaf-nosed bat were both considered to be 'very likely' to occur within the application area, with known diurnal roosts for these species located in the disused Comet Mine located 80 metres from the application area (MWH, 2017). In particular, surveys from 2000 and 2001 indicate that the Comet Mine is used as a maternity roost for the ghost bat and a transitory diurnal roost or nocturnal refuge for the Pilbara leaf-nosed bat (MWH, 2017).

The fauna survey states that the level of impact to the ghost bat and Pilbara leaf-nosed bat is not considered to be significant, however the localised impact is considered to be 'moderate' with the report later stating that "impacts of the Project on fauna of conservation significance, at the local scale, are expected to be greatest for the ghost bat and Pilbara leaf-nosed bat. The localised impact on each of these species is expected to be moderate. This is due namely to the proximity of the application area to a known roost of the ghost bat and (likely) Pilbara leaf-nosed bat" (MWH, 2017).

The fauna survey states that all habitat types may be used by the ghost bat for foraging, however the "habitats within the application area do not represent particularly important foraging or roosting habitat for the species" (MWH, 2017). Drainage line and riverine habitat types are considered likely to provide foraging and dispersal habitat for the Pilbara leaf-nosed bat, connecting adjoining populations (MWH, 2017). The fauna survey notes that if foraging habitat for the Pilbara leaf-nosed bat is removed, "it is possible that it will cause a small decline in the population as a consequence of disruption to an established foraging pattern however this is not expected to be substantial as all habitats within the application area are extensive outside the application area" (MWH, 2017).

The applicant submitted a survey of Comet Mine and nearby Alexander Mine roosts conducted by Bat Call WA between 6 and 11 May 2017 (Bat Call WA, 2017). The Comet Mine was confirmed to be a permanent and maternal roost for the ghost bat, with an estimated population size of 130 individuals (Bat Call WA, 2017). The survey found no evidence of roosting Pilbara leaf-nosed bats at the Comet Mine, but confirmed the area surrounding Comet Mine as a foraging location for this species (Bat Call WA, 2017). The nearest Comet mine roost exit is 130 metres from the application area. Ghost bats exiting these roosts were observed to fly west or south, away from the road footprint (Bat Call WA, 2017). Alexander Mine (located approximately 200 metres from the application area) was confirmed to be a preferred foraging location and possible diurnal roost for ghost bats, with the nearest roost exit 200 metres from the application area (Bat Call WA, 2017).

Pilbara leaf-nosed bats were recorded foraging at Comet Mine, but were not considered to be using this site as a roost (Bat Call WA, 2017). Potential roost sites suggested by the survey authors were known roost sites at Corunna Downs and Klondyke Queen, south of Comet Mine (Bat Call WA, 2017). Foraging activity was suggested to be higher on the western site of Comet Mine, away from the application area, however nine Pilbara-leaf nosed bat calls were recorded 50 metres from the existing road (Bat Call WA, 2017). The survey report suggests that "the road verge away from drainage lines is not a preferred foraging area for the [Pilbara leaf-nosed bat], and therefore not critical to its continued presence" (Bat Call WA, 2017).

The survey notes that the application area is not likely to be preferred foraging habitat for either species, but that they may use this area sporadically (Bat Call WA, 2017).

Parks and Wildlife advised that the proposed land use is likely to have a more significant impact to the ghost bat and Pilbara leaf-nosed bat than the proposed clearing (Parks and Wildlife, 2017b).

The spectacled hare-wallaby (*Lagorchestes conspicillatus leichardti*; priority 3), long-tailed dunnart (*Sminthopsis longicaudata*; priority 4) and eastern great egret (*Ardea modesta*; migratory) are considered 'likely' to occur in the application area (MWH, 2017). Of these, the proposed clearing may impact habitat for the eastern great egret, should the proposed clearing impact the quality and availability of water within adjacent drainage line and riverine habitat.

The 12 conservation significant fauna species considered 'possible' to occur within the application area include 10 fauna specially protected under the WC Act and two priority fauna species (MWH, 2017). Six specially protected fauna are migratory birds protected under an international agreement, and are not likely to be dependent on any of the habitat types within the application area. Migratory birds are likely to occur as irregular visitors to pools within riverine and drainage line habitat types (MWH, 2017). Little is known of the habitat requirements of the two priority fauna (*Ctenotus nigrilineatus*, priority 1; *Ctenotus uber johnstonei*, priority 2). The fauna survey notes that *Ctenotus nigrilineatus* may occur within the spinifex stony plains habitat within the

application area and *Ctenotus uber johnstonei* may occur based on a nearby record approximately 20 kilometres south of the application area (MWH, 2017).

The Pilbara olive python and northern quoll were both listed as 'possible' to occur within the application area, however both were recorded within the Corunna Downs Project Area (the proposed mine adjacent to the application area), with four records of the Pilbara olive python and the northern quoll recorded "extensively throughout the Corunna Downs Project Area" (MWH, 2017). Given this, it is likely that these species utilise habitat within the application area. The Pilbara olive python and northern quoll are most likely to utilise drainage line and riverine habitat types for foraging and dispersal (MWH, 2017). Approximately 6.2 hectares of drainage line habitat and 2.8 hectares of riverine habitat are currently proposed to be cleared, with 38 and 16 hectares of these habitat types mapped within the application area, respectively (MWH, 2017).

The grey falcon (*Falco hypoleucos*; rare or likely to become extinct under the WC Act) has three records within 60 kilometres of the application area, with the most recent occurrence recorded in 2005 (MWH, 2017). If this species occurs within the application area, the fauna survey notes that it is likely to forage and nest within drainage line and riverine habitat types (MWH, 2017). The peregrine falcon (*Falco peregrinus*; other specially protected fauna under the WC Act) may forage within drainage line and riverine habitat types (MWH, 2017). The fauna survey notes that suitable foraging and nesting habitat for both species is widespread across the Pilbara region, and given the species is highly mobile, adults are expected to disperse ahead of clearing if conducted outside the breeding season (July- August to November) (BirdLife International, 2016; MWH, 2017). The application area is not likely to represent significant habitat for either species.

The application area may also provide habitat for three SRE fauna species, identified as a species of millipede (*Antichiropus* 'DIP034'), snail (*Rhagada* 'cf. *richardsonii*'), and a species of slater (*Buddelundia* '86') (MWH, 2017). All species may occur within drainage line and riverine habitat types (MWH, 2017). Parks and Wildlife advised that impacts to SRE fauna may be minimised by avoiding or minimising impacts to drainage line and riverine habitat (Parks and Wildlife, 2017b).

The fauna survey includes recommendations to mitigate impacts to fauna, including (amongst others) the avoidance and minimisation of drainage line, riverine and spinifex stony plain habitat types, minimising impacts to natural surface hydrology to maintain drainage line and riverine habitat, retain corridors or linkages so fauna can move between remaining habitat patches, and timing clearing to avoid impacts to nesting birds and northern quolls during their respective breeding seasons (MWH, 2017).

The fauna survey also noted that the clearing of access tracks may facilitate an increase in native fauna predation by feral species such as cats and foxes (MWH, 2017). These impacts may be minimised by revegetating areas immediately after they are no longer required, including access tracks, borrow pits, areas cleared for geotechnical and water investigations, and water infrastructure.

The applicant has advised that impacts to fauna habitat will be minimised by:

- restricting disturbance within drainage line and riverine habitat types to clearing for the Corunna Downs public road footprint and access tracks;
- Management measures to minimise indirect impacts to riverine and drainage line habitat, including the requirement for topsoil stripping to be conducted in dry conditions; and
- progressively revegetating areas cleared for temporary infrastructure (Atlas, 2017c).

The applicant will capture and relocate any Pilbara olive pythons found during clearing activities (Atlas, 2017c).

The applicant has advised that it is not feasible to also restrict clearing to outside of the breeding season for the northern quoll (May to November) (Atlas, 2017c). The fauna survey recorded foraging and dispersal habitat for the northern quoll within the application area (MWH, 2017). The applicant has advised that clearing will be conducted during daylight hours only (Atlas, 2017c). This may minimise impacts to northern quolls using riverine and drainage line habitat types for foraging and dispersal activities.

Given the above, the proposed clearing may be at variance to this Principle.

**Methodology**    References:  
Atlas (2017b)  
Atlas (2017c)  
Bat Call WA (2017)  
BirdLife International (2016)  
MWH (2017)  
Parks and Wildlife (2017b)

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

**Comments**        **Proposed clearing is not likely to be at variance to this Principle**  
According to available databases, no rare flora species have been recorded within 40 kilometres of the application area.

A level 2 flora survey that included a targeted search for rare flora was conducted within the application area in 2016. No rare flora were recorded within the study area (application area and adjacent mine footprint)



(Woodman, 2016).

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

**Methodology** References:  
Woodman (2016)

GIS Database:  
- SAC bio datasets (accessed April 2017)

**(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.**

**Comments** **Proposed clearing is not likely to be at variance to this Principle**  
According to available databases, no TECs have been recorded within 40 kilometres of the application area.

A level 2 flora survey was conducted within the application area in 2016, identifying 12 VTs. None of the VTs recorded represent a TEC (Woodman, 2016).

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

**Methodology** References:  
Woodman (2016)

GIS Database:  
- SAC bio datasets (accessed April 2017)

**(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.**

**Comments** **Proposed clearing is not at variance to this Principle**  
The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750 (Commonwealth of Australia, 2001).

The application area is located within the Pilbara IBRA bioregion, in which approximately 99 per cent of pre-European vegetation remains (Government of Western Australia, 2016).

The vegetation within the application area is mapped as Beard vegetation associations 82, 93, 171, 587 and 619, of which approximately 99 per cent remain at a bioregional level (Government of Western Australia, 2016).

The application area is located within the Shire of East Pilbara, which contains approximately 99 per cent of its pre-European vegetation (Government of Western Australia, 2016).

Based on aerial imagery, the local area (defined as a 40 kilometre radius around the application area) is well vegetated.

On the basis that 99 per cent of the mapped Beard vegetation associations remain within the Shire, the IBRA region and the local area, it is considered that the vegetation within the application area is not significant as a remnant of native vegetation within an area that has been extensively cleared.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
<b>IBRA Bioregion* - Pilbara</b>	17,808,657	17,733,583	99	10
<b>Shire* - Shire of East Pilbara</b>	37,183,060	37,155,265	99	5
<b>Beard Vegetation Association in Bioregion*</b>				
82	2,563,583	2,550,899	99	12
93	3,042,114	3,038,472	99	2
171	331,307	330,026	99	11
587	580,729	580,697	99	21
619	118,920	118,117	99	0.2

**Methodology** References:  
Commonwealth of Australia (2001)

GIS Database:

- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

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

**Comments Proposed clearing is at variance to this Principle**

According to available databases, a total of 20 watercourses cross the application area comprising both minor and major seasonal watercourses.

As discussed in Principle (b), drainage line and riverine habitat is significant fauna habitat and the proposed clearing may impact fauna via both habitat loss and off-site impacts if surface water hydrology is impacted.

Given the presence of watercourses within the application area, the proposed clearing will impact vegetation growing in, or in association with, an environment associated with a watercourse or wetland and the proposed clearing is at variance to this Principle.

Impacts to vegetation associated with a watercourse or wetland may be minimised by avoiding the clearing of riparian vegetation where practicable, and maintaining the existing surface flow where watercourses are impacted by clearing.

The applicant has advised that impacts to watercourses away from the road footprint for the purposes of extracting borrow material, geotechnical and water investigations, and water infrastructure will be limited to access tracks (Atlas, 2017b).

**Methodology** References:  
Atlas (2017b)

GIS Database:  
- Hydrography, linear

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

**Comments Proposed clearing may be at variance to this Principle**

Five land systems have been mapped within the application area (see table; Van Vreeswyk et al., 2004; Atlas, 2017a).

Land system	Description	Extent in Application footprint
Rocklea	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard (and occasionally soft spinifex) grasslands	452 hectares (69 per cent)
Satirist	Stony plains and low rises supporting hard spinifex grasslands, and gilgai plains supporting tussock grasslands	103 hectares (16 per cent)
Macroy	Sandy/stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands	51 hectares (eight per cent)
River	Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex	28 hectares (four per cent)
Capricorn	Hills and ridges and sandstone and dolomite supporting low shrublands or shrubby spinifex grasslands	21 hectares (three per cent)

Supporting information submitted with the clearing permit application states that four landform associations have been identified within the application area, being 'calcrete', 'drainage lines', 'scree slopes' and 'undulating hills and valleys' (Atlas, 2017a). Undulating hills and valleys and calcrete dominate the application area (Atlas, 2017a).

Susceptibility to erosion is high or very high if vegetative cover is removed within the River land system (Van Vreeswyk et al., 2004). Flood plains and lower terraces flanking major rivers and some stony plains within the River system are also subject to flooding (Van Vreeswyk et al., 2004).

Other land systems are not associated with a high risk of soil erosion following the removal of vegetation (Van Vreeswyk et al., 2004).

Some areas within the application footprint (including low lying areas or areas associated with watercourses) are naturally susceptible to temporary, localised flooding following heavy rainfall (Van Vreeswyk, 2004). While the proposed clearing for the purpose of road upgrades, geotechnical and water investigations, and water infrastructure may cause a minor increase in the extent of localised flooding following rainfall, it is not likely to cause appreciable land degradation via waterlogging.

Given the soil and vegetation types present, the proposed clearing is not likely to cause land degradation via salinity.

Given the above, the proposed clearing may cause appreciable land degradation in the form of soil erosion, particularly within the River land system, and may be at variance to this Principle. The applicant has advised that progressive rehabilitation activities in areas that are temporarily cleared will address the risk of land degradation within the application area.

**Methodology**   References:  
Atlas (2017a)  
Van Vreeswyk et al. (2004)

**(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.**

**Comments**       **Proposed clearing is not at variance to this Principle**

The nearest conservation area is located 38 kilometres north-east of the application area, and is a former leasehold within Unallocated Crown Land proposed for conservation. The application area does not form a linkage to this property. From this distance, the proposed clearing is not likely to have an impact on the environmental values of any conservation area.

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

**Methodology**   GIS Databases:  
- Parks and Wildlife tenure

**(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.**

**Comments**       **Proposed clearing may be at variance to this Principle**

As discussed in Principle (f), the application area intersects minor and major seasonal watercourses. A surface water assessment conducted by MWH notes that the proposed roads upgrade crosses the Coongan River once and a tributary of the Coongan River twice (MWH, 2015). While the Coongan River does contain pools which are inundated throughout the year, they are located upstream of the proposed road upgrades and will not be impacted by the proposed clearing (Atlas, 2017a).

The applicant has advised that impacts to watercourses away from the road footprint for the purposes of extracting borrow material, geotechnical and water investigations, and water infrastructure will be limited to access tracks (Atlas, 2017b).

Clearing activities within watercourses are likely to increase the level of sedimentation during periods of inundation, and may alter the flow of watercourses.

Groundwater salinity within the application area is 500 to 10,000 milligrams per litre total dissolved solids, which is considered to be a marginal level of salinity. Atlas advises that soils within the application area are moderately to extremely saline (Atlas, 2017a). The clearing of 147 hectares of native vegetation within a footprint of 643 hectares is not likely to impact the quality of groundwater.

Given the potential impacts to surface water, the proposed clearing may be at variance to this Principle. Impacts to surface water may be minimised by avoiding the clearing of riparian vegetation where practicable, and maintaining the existing surface flow where watercourses are impacted by clearing.

The surface water assessment conducted by MWH advises that "the general intent of the roadway design is to pass flows across the roadway by means of floodways, culverts or a combination of both. The presence of these floodways / culverts will ensure that there are minimal impacts to the upstream and downstream flow regimes of these drainage lines" (MWH, 2015).

**Methodology**   References:  
Atlas (2017a)  
Atlas (2017b)  
MWH (2015)  
  
GIS Databases:  
- Hydrography, linear

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

**Comments**       **Proposed clearing may be at variance to this Principle**

As discussed in Principle (g), some areas within the application footprint are likely to flood following heavy rainfall. The proposed clearing may cause a minor increase in the intensity of flooding, however these effects are likely to be temporary and highly localised.



Given the above, the proposed clearing may be at variance to this Principle. Any increase in localised flooding that occurs is not likely to cause any significant environmental impacts.

The applicant has advised that surface water drainage control devices will be installed as part of the proposed road upgrades, which are expected to mitigate flooding events (Atlas, 2017a).

Methodology    References:  
Atlas (2017a)

### Planning instruments and other relevant matters.

Comments      This clearing permit application is related to clearing permit application CPS 7456/1, currently under assessment with the former Department of Mines and Petroleum for the proposed Corunna Downs mine. Proposed actions associated with the Corunna Downs mine have been referred to the Commonwealth Department of the Environment and Energy under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Ref 2017/7861), and were determined to be a controlled action on 6 March 2017.

The applicant has advised that clearing for the Corunna Downs Public Road upgrade will not commence until all approvals for the associated Corunna Downs mine have been obtained (Atlas, 2017c).

Regarding impacts to fauna, Parks and Wildlife advised that "the road use as a haul road for the proposed Corunna Downs Project (mine) will be a significant increase in the volume and frequency of traffic and artificial light. It is possible that the construction and use of the road may have a significant impact to the bat species [ghost bat and Pilbara leaf-nosed bat] at a local, regional and species level scale, depending on the importance of the Comet Mine, especially if it is confirmed as a maternity roost site....The most significant impact to the fauna is from the road use after construction. In particular vehicle collision, artificial light, noise and vibration may have a significant impact on the threatened species that occur in the vicinity, such as the ghost bat, Pilbara lead-nosed bat and the northern quoll" (Parks and Wildlife, 2017b).

The applicant submitted a survey of Comet Mine and nearby Alexander Mine roosts conducted by Bat Call WA between 6 and 11 May 2017 (Bat Call, 2017). As discussed in Principle (b), the Comet Mine was confirmed to be a permanent and maternal roost for the ghost bat, and a foraging location for the Pilbara leaf-nosed bat (Bat Call, 2017). The survey indicates that the proposed land use is not likely to impact the continued presence of either species (Bat Call, 2017). Parks and Wildlife advised that the survey report is adequate in addressing potential impacts to the ghost bat and Pilbara leaf-nosed bat (Parks and Wildlife, 2017c).

The applicant advised that the following management measures relating to the land use following clearing will be implemented:

- Activities related to the project will be undertaken during daylight hours only;
- Borrow pits will be constructed to allow the egress of fauna;
- Turkey nests will be fenced to limit fauna access- fencing will be one-lined to avoid bat entanglement; and
- The speed limit within Corunna Downs Road in areas adjacent to Alexander and Comet mines will be restricted to 40 kilometres per hour (Atlas, 2017c).

The northern quoll, Pilbara olive python, ghost bat and Pilbara leaf-nosed bat are protected under the EPBC Act. As a matter of national environmental significance, any action that has, or will have, or is likely to have a significant impact on these species will require approval under the EPBC Act.

Any activities with a likelihood of impacting fauna specially protected under the WC Act (including clearing activities) and the relocation of fauna require a fauna licence pursuant to Regulation 15 of the *Wildlife Conservation Regulations 1970*.

The application area is located within a Priority 1 area of the Marble Bar Reserve Water Reserve proclaimed under the *Country Areas Water Supply Act 1947*. The former Department of Water (DoW) advised that all activities associated with the clearing including infrastructure, laydown areas, refuelling and topsoil storage should be compatible with DoW's Land Use Compatibility Tables, but notes that acceptable activities should be managed using current best practices, and care should be taken to ensure clearing activities do not result in increased turbidity in surface water during flow events (DoW, 2017).

The applicant obtained a bed and banks permit under the *Rights in Water and Irrigation Act 1914* on 18 May 2017. The permit expires on 31 January 2019.

The applicant has advised that geotechnical and water investigations will be used to inform an application for a licence to take groundwater (Atlas, 2017d).

There is one Aboriginal Site of Significance mapped within the application area. 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.

DoW advised that Marble Bar Pool (PO5721), an Aboriginal Site of Significance, is downstream of the proposed activities and care should be taken to ensure clearing does not impact on this site (DoW, 2017).

The applicant obtained a Licence to Occupy Crown Land under Section 91 of the *Land Administration Act 1997* on 21 February 2017 (Ref: A1410386). This licence expires on 31 January 2019. Prior to granting the Licence to Occupy Crown Land, the former Department of Lands required that the Shire of East Pilbara accept the dedication of Marble Bar Bypass Road (a portion of the application area) as a public road. This occurred on 3 February 2017 (Ref: A1410203). No requirement for further approval from the Shire of East Pilbara has been indicated.

**Methodology**   References:  
Atlas (2017c)  
Atlas (2017d)  
Bat Call (2017)  
DoW (2017)  
Parks and Wildlife (2017b)  
Parks and Wildlife (2017c)

#### 4. References

- Atlas Iron Limited (Atlas) (2017a) Native vegetation clearing permit application, Corunna Downs Public Road Upgrade. Atlas Iron Limited (DER REF: A1363151).
- Atlas Iron Limited (Atlas) (2017b) Further information provided by the applicant on 29 March 2017 (DER REF: A1410261).
- Atlas Iron Limited (Atlas) (2017c) Further information provided by the applicant on 5 July 2017 (DWER REF: A1476011).
- Atlas Iron Limited (Atlas) (2017d) Further information provided by the applicant on 23 February 2017 (DER REF: A1410203).
- Bat Call WA Pty Ltd (2017) Comet and Alexander historical mines, assessment of Pilbara leaf-nosed and Ghost bat presence and activity, May 2017. Unpublished report prepared for Atlas Iron Limited, Western Australia (DER REF: A1438270).
- BirdLife International (2016) *Falco hypoleucos*. The IUCN Red List of Threatened Species 2016: e.T22696479A93566768. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22696479A93566768.en> (accessed April 2017)
- Department of Environment and Conservation (2011) Invasive Plant Prioritisation, Department of Environment and Conservation, Perth.
- Department of Parks and Wildlife (Parks and Wildlife) (2017a) Flora advice received on 21 March 2017. Department of Parks and Wildlife (DER REF: A1410267).
- Department of Parks and Wildlife (Parks and Wildlife) (2017b) Fauna advice received on 21 March 2017. Department of Parks and Wildlife (DER REF: A1410267).
- Department of Parks and Wildlife (Parks and Wildlife) (2017c) Fauna advice received on 12 June 2017. Department of Parks and Wildlife (DER REF: A1496555).
- Department of Water (DoW) Advice received from the Department of Water on 15 March 2017 (DER REF: A1394534).
- Government of Western Australia (2016) 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2016. WA Department of Parks and Wildlife, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P. and McKenzie, N. L. (2001) Pilbara 1 (PIL1 - Chichester subregion). In: *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002*. Department of Conservation and Land Management, Kensington, WA., pp 547-558.
- McKenzie, N.L., van Leeuwen, S. and Pinder, A.M. (2009) *Introduction to the Pilbara Biodiversity Survey, 2002-2007*. Records of the Western Australian Museum, Supplement 78: 3-89.
- MWH (2015) Corunna Downs Desktop Surface Water Assessment. Unpublished report prepared for Atlas Iron Ltd (DER REF: A1363151).
- MWH (2017) Corunna Downs Project Public Road Upgrade: Level 1 Fauna Assessment. Unpublished report prepared by MWH for Atlas Iron Limited dated February 2017 (DER REF: A1409986).
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Van Vreeswyk, A. M. E., Payne, A. L., Leighton, K. A. and Hennig, P. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia Department of Agriculture, Technical Bulletin No. 92, Perth, Western Australia.
- Woodman Environmental Consulting Pty Ltd (Woodman) (2016) Corunna Downs Project Level 2 Flora and Vegetation Assessment. Unpublished report prepared by Woodman Environmental for Atlas Iron Limited (DER REF: A1409986).
- Woodman Environmental Consulting Pty Ltd (Woodman) (2017) Corunna Downs Project, Hillside-Marble Bar Public Road Upgrade, Flora and Vegetation Impact Assessment. Unpublished report prepared by Woodman Environmental for Atlas Iron Limited (DER REF: A1409986).