



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8409/1
Permit Holder:	Atlas Iron Limited
Duration of Permit:	15 June 2019 to 31 January 2021

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 8409/1a.

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 and reduce the impacts and extent of 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:

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

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 8409/1b except for the purpose of minor access tracks.

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 8409/1a except for the purpose of minor access tracks.

9. Flora management

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

10. Retain vegetative material and topsoil, and rehabilitation

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 2021, *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;
 - (iv) the size of the area cleared (in hectares);
 - (v) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of the Permit; and
 - (vi) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 6 of this Permit.

- (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 January 2021, 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.

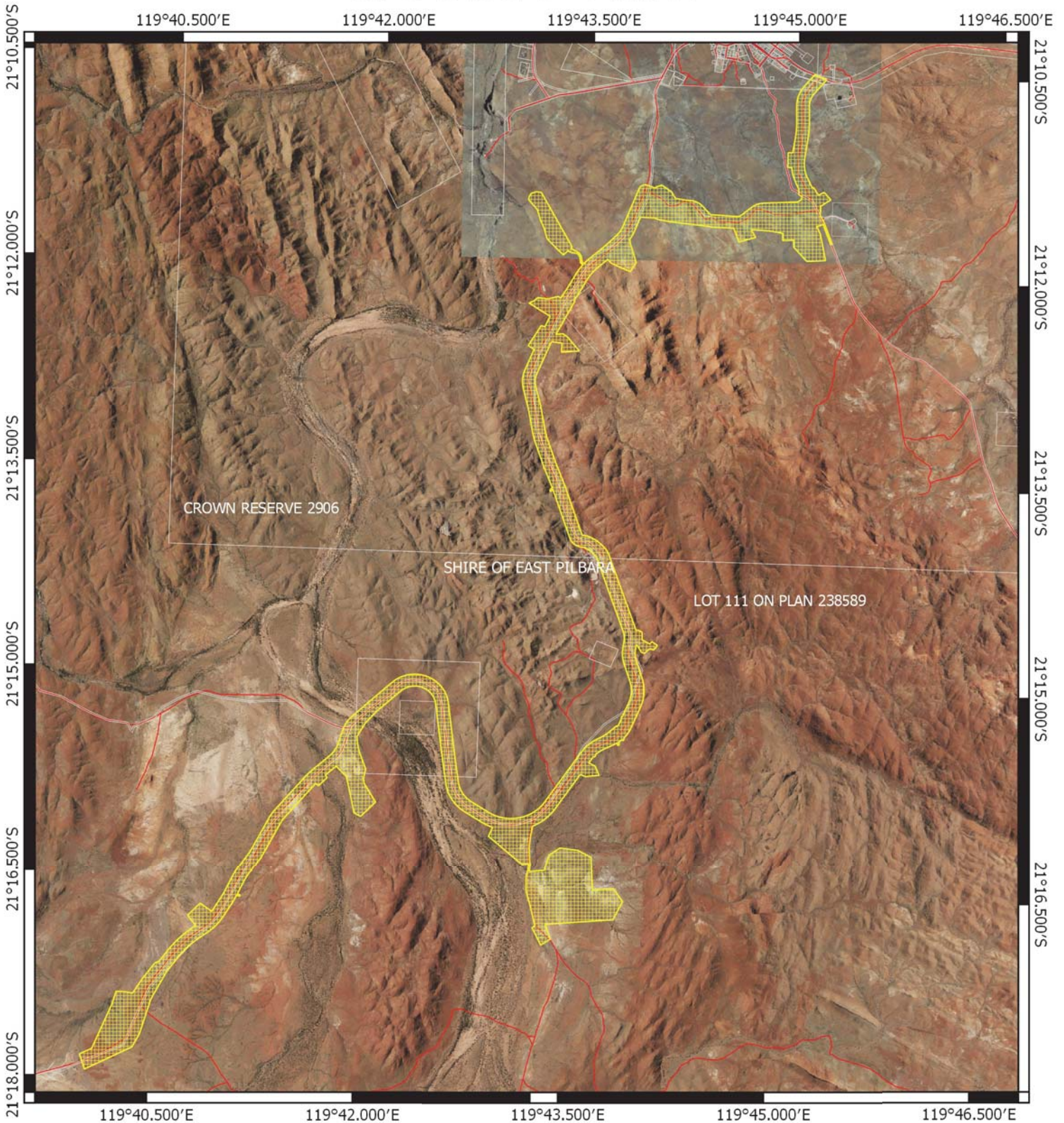
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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION


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

16 May 2019

CPS 8409/1 - Plan A



Legend

 CPS areas approved to clear base layers

 Cadastre

 Road Centrelines

 Local Government Authorities

Image



MGA 94
Geocentric Datum of Australia 1994

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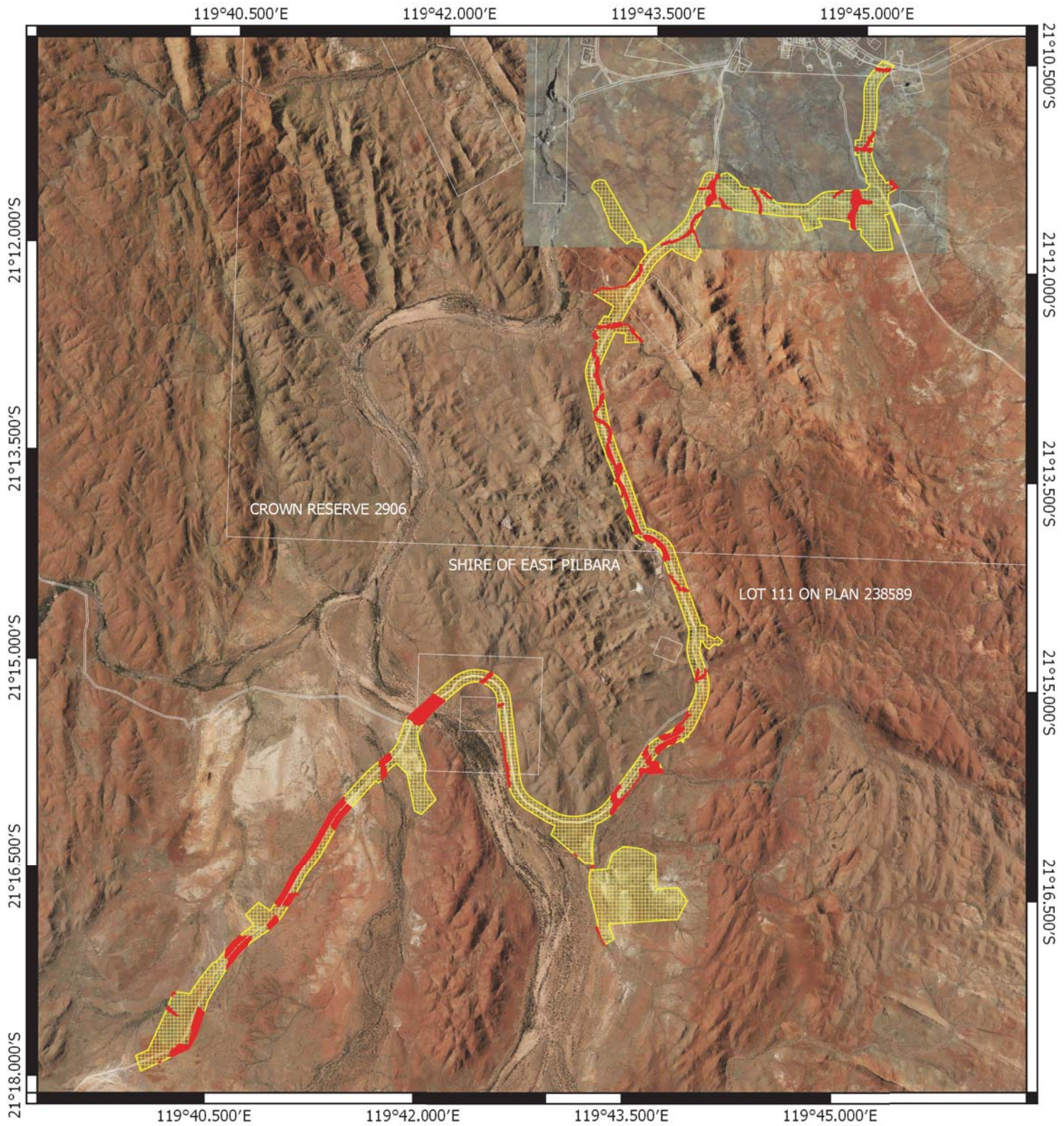


Officer delegated under Section 20 of the
Environmental Protection Act 1986







GOVERNMENT OF
WESTERN AUSTRALIA

CPS 8409/1 - Plan B



Legend

-  Areas subject to condition
 -  CPS areas approved to clear base layers
 -  Cadastre
 -  Local Government Authorities
- Image



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Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 8409/1
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)
Local Government Authority: Shire of East Pilbara
DWER Region: North West
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: Grant

Decision Date: 16 May 2019

Reasons for Decision: The clearing permit application was received on 11 March 2019, 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, 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
- revegetation by 21 January 2021 of areas no longer required for the purpose for which they were cleared.

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

Clearing Description: Atlas Iron Limited (Atlas) 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. The application area is shown in Figure 1.

Vegetation Description: A total of five Beard vegetation associations are mapped within the application area:

- **82:** Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*;
- **93:** Hummock grasslands, shrub steppe; kanji over soft spinifex;

- **171:** Hummock grasslands, low tree steppe; snappy gum over soft spinifex and *Triodia brizoides*;
- **587:** Mosaic: Hummock grasslands, open low tree-steppe; snappy gum over *Triodia wiseana* / Hummock grasslands, shrub-steppe; kanji over *Triodia pungens*; and
- **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 types (VT) 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 *Acacia eriopoda* and *Acacia maitlandii* over low sparse shrubland of mixed species including *Acacia 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 *Acacia trachycarpa* and *Acacia ancistrocarpa* with *Dichrostachys spicata* over Low Hummock Grassland dominated by species including *Triodia wiseana* and *Triodia epactia*, with *Eragrostis eriopoda* on brown sandy loams on plains and drainage lines;
- **VT5:** Mid Sparse Shrubland of mixed *Acacia* species usually dominated by *Acacia synchronicia* over Low Hummock Grassland dominated by various *Triodia* species including *Triodia epactia*, *Triodia wiseana* and *Triodia 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 forbland 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*, *Acacia 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 forbland 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*, *Acacia monticola*, *Acacia tumida* var. *pilbarensis* and *Grevillea wickhamii* over low shrubland to sparse shrubland of mixed species dominated by *Acacia ptychophylla*, *Acacia spondylophylla*, *Goodenia stobbsiana*, *Dampiera candicans* and *Ptilotus calostachyus* over low hummock grassland dominated by *Triodia epactia* and occasionally *Triodia 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 *Triodia 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 *Triodia angusta* or *Triodia 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*, *Acacia trachycarpa*, *Acacia pyrifolia* var. *pyrifolia*, *Acacia 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*, *Triodia epactia*, *Chrysopogon fallax* and *Cyperus vaginatus* on red to brown sand to sandy loam with river stones in minor to medium drainage lines; and

- **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 *Acacia 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.

*denotes a weed species.

Vegetation Condition: 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).

Soil and Landform Type: The application area is mapped within the Rocklea, Capricorn, River, Macroy and Satirist Rangeland Land Systems (van Vreeswyk et al., 2004).

Comment: This clearing permit application is to replace an expired permit CPS 7447/1 (Atlas, 2019a). Atlas confirmed that the project has not commenced and no clearing was conducted under CPS 7447/1, therefore the amount of clearing and the application area applied for under CPS 8409/1 remains the same as CPS 7447/1 (Atlas, 2019b). Given no clearing has commenced, and the relatively recent provision of supporting documents and advice received for CPS 7447/1 by Atlas and other external agencies in 2017, the information supporting the grant of clearing permit CPS 7447/1 has been considered as remaining relevant for the assessment of clearing permit application CPS 8409/1.

Vegetation condition within the application area was determined during the flora and vegetation 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).

The local area referred to in this assessment is defined as the area within a 20 kilometre radius of the application area. Aerial imagery indicates that the local area retains over 95 per cent native vegetation cover.

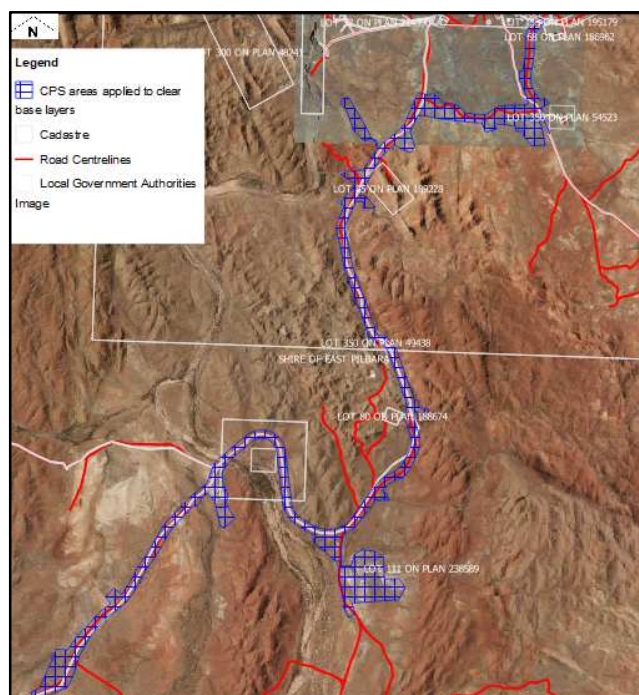


Figure 1: Map of application area

3. Assessment of application against clearing principles

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

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 and vegetation 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 survey advised that the study area is considered to be of moderate floristic diversity (Woodman, 2016).

The 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). During the assessment of the previously granted permit CPS 7447/1, advice was received by the Department of Biodiversity, Conservation and Attractions (formerly known as the Department of Parks and Wildlife) regarding the adequacy of the flora survey. DBCA noted 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 (DBCA, 2017a). DBCA 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]" (DBCA, 2017a).

DBCA 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" (DBCA, 2017a).

Cochlospermum macnamarae was recorded in the study area within the vegetation community VT2, approximately 30 kilometres south of the application area (DBCA, 2017a). While there is only 1.6 hectares of VT2 mapped within the application footprint, DBCA advised that suitable habitat for this species (granite outcrops) also occurs within VTs 1, 3, 9 and 11 (DBCA, 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; DBCA, 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). DBCA 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, 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, 2017b).

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). DBCA advised that these records represent an extension in the known range of this species (DBCA, 2017a). The applicant has advised that no clearing will occur within 10 metres of *Swainsona thompsoniana* (Atlas, 2017b; Atlas, 2019c). *Rostellularia adscendens* var. *latifolia* was recorded at two locations within the study area in VT10 and VT15, including one location comprising one individual from within the application area (Woodman, 2016). DBCA advised that whilst there is potential for impacts to these populations located within the application area, these would not be considered to have a significant impact on the conservation of these species (DBCA, 2017a).

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). Records of both *Portulaca* sp. and *Oldenlandia* sp. were from outside of the application area (Woodman, 2017).

None of the 12 VTs mapped within the application area represent a priority ecological community (PEC) or threatened ecological community (TEC) (Woodman, 2016). The flora and vegetation 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 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 Kapok (*Aerva javanica*) and Buffel Grass (*Cenchrus ciliaris*) (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.

Two conservation significant fauna species were confirmed to occur within the application area, two are considered to 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). The 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 (Atlas, 2017b; Atlas, 2019c):

- impacts to watercourses away from the road footprint will be limited to access tracks;
- 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; and
- areas cleared for temporary infrastructure will be progressively revegetated.

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

(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.

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*; Endangered), Pilbara Leaf-nosed Bat (*Rhinoicteris aurantia*; Vulnerable) and Pilbara Olive Python (*Liasis olivaceus barroni*; Vulnerable) (MWH, 2017).

Conservation significant fauna

The western pebble-mound mouse (*Pseudomys chapmani*; priority 4) was recorded within the application area. This species is considered to be widespread in the region, and the proposed clearing is not likely to impact the conservation of this species.

The Ghost Bat (*Macroderma gigas*; Vulnerable) and Pilbara Leaf-nosed Bat were both considered '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', due 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).

A survey of the Comet Mine and nearby Alexander Mine roosts conducted by Bat Call WA between 6 and 11 May 2017 confirmed that the Comet Mine was 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).

DBCA 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 (DBCA, 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 twelve conservation significant fauna species considered ‘possible’ to occur within the application area (MWH, 2017). Of these, six species 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 considered to possibly occur within the application area, *Ctenotus nigrilineatus* (Priority 1) and *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 also 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 the drainage line and riverine habitat types for foraging and dispersal (MWH, 2017). Approximately 6.2 hectares of the drainage line habitat and 2.8 hectares of the 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) 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) 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) (MWH, 2017). The application area is not likely to represent significant habitat for either species.

The application area may also provide habitat for three short-range endemic (SRE) invertebrate 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). DBCA advised that impacts to SRE fauna may be minimised by avoiding or minimising impacts to drainage line and riverine habitat (DBCA, 2017a).

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 (Atlas, 2017b; Atlas, 2019c):

- 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.

The applicant will capture and relocate any Pilbara Olive Pythons found during clearing activities (Atlas, 2017b; Atlas, 2019c).

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, 2017b). 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, 2017b; Atlas, 2019c). 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.

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

Proposed clearing is not likely to be at variance to this Principle

According to available databases, no threatened flora species have been recorded within 20 kilometres of the application area.

A level 2 flora survey that included a targeted search for threatened flora was conducted within the application area in 2016. No threatened flora species 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.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, no TECs have been recorded within 20 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 were considered to represent a TEC (Woodman, 2016).

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

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not at variance to this Principle

The application area falls within the IBRA Pilbara Bioregion, located in within the Shire of East Pilbara. Approximately 99 per cent of the pre-European vegetation still exists in the IBRA Pilbara Bioregion (Government of Western Australia, 2019). 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 and State level (Government of Western Australia, 2019).

Based on aerial imagery, the local area (defined as a 20 kilometre radius around the application area) also retains approximately 99 per cent of vegetation.

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).

On the basis that approximately 99 per cent of the pre-European extent of each of these vegetation associations remains uncleared at both the bioregional and State level (Government of Western Australia, 2019), 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.

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)*	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA bioregion:					
Pilbara	17,808,657	17,731,764	99.57	1,801,714	10.12
Beard vegetation association:					
82	2,565,901	2,553,206	99.51	295,377	11.51
93	3,044,293	3,040,639	99.88	59,536	1.96
171	331,951	330,643	99.61	36,093	10.87
587	580,728	580,696	99.99	123,367	21.24
619	119,074	118,167	99.24	263	0.2
Beard vegetation association in IBRA bioregion:					
82 (Pilbara)	2,563,583	2,550,888	99.50	295,377	11.52
93 (Pilbara)	3,042,114	3,038,471	99.88	59,536	1.96
171 (Pilbara)	331,307	330,260	99.61	36,093	10.89
587 (Pilbara)	580,728	580,696	99.99	123,367	21.24
619 (Pilbara)	118,920	118,116	99.32	236	0.2

*(Government of Western Australia, 2019).

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

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

Proposed clearing is 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; Atlas, 2019c).

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

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).

Land system	Description	Extent in application area
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)

Four landform associations have been identified within the application area, being 'calcrete', 'drainage lines', 'scree slopes' and 'undulating hills and valleys'; with the 'undulating hills and valleys' and 'calcrete' landforms dominating 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.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance 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 likely to be at variance to this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing 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 is unlikely to be impacted by the proposed clearing.

The applicant has advised that impacts to watercourses away from the road footprint will be limited to access tracks, and all secondary infrastructure, borrow pits, geotechnical and water investigations will be outside of vegetation associated with drainage features including creeks and rivers (Atlas, 2017; Atlas 2019c).

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 moderate to extremely saline (Atlas, 2017a). The clearing of 142 hectares of native vegetation within a footprint of 642.6 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).

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

Proposed clearing 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, 2017; Atlas, 2019c).

Planning instruments and other relevant matters.

The clearing permit application was advertised by the Department of Water and Environmental Regulation on 4 April 2019 for a 21 submission period. No submissions were received in relation to this clearing permit application.

The applicant obtained a Licence to Occupy Crown Land under Section 91 of the *Land Administration Act 1997* on 21 February 2017. The licence expired on 31 January 2019, and whilst the applicant was awaiting on the grant of the new licence, clearing permit CPS 7447/1 expired and could not be amended. The applicant has obtained a new licence under Section 91 of the *Land Administration Act 1997*, and this clearing permit application will be permitted to be aligned with the duration of this licence (expires on 31 January 2021).

The Shire of East Pilbara confirmed that they have no objections to the proposed clearing and no Shire planning approvals will be required (Shire of East Pilbara, 2019).

This clearing permit application is related to clearing permit application CPS 7456/1, for the Corunna Downs Mine, which is still currently under assessment with the Department of Mines, Industry Regulation and Safety (DMIRS). 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 following advice from DBCA was received on 21 March 2017 in relation to the initial assessment of the application area (under CPS 7447/1). As no clearing has commenced, the advice remains applicable:

- Regarding impacts to fauna, DBCA 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 Leaf-nosed Bat and the Northern Quoll" (DBCA, 2017a).

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). DBCA advised that the survey report is adequate in addressing potential impacts to the Ghost Bat and Pilbara Leaf-nosed Bat (DBCA, 2017b).

The applicant advised that the following management measures relating to the land use following clearing will be implemented (Atlas, 2017; Atlas, 2019c):

- 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.

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 requiring the relocation of fauna require fauna licences pursuant to the *Biodiversity Conservation Regulations 2018*. Any taking of threatened fauna or flora species will require Ministerial authorisation under section 40 of the BC Act.

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 Department of Water (now Department of Water and Environmental Regulation) Land Use Planning section advised that all activities associated with the clearing including infrastructure, laydown areas, refuelling and topsoil storage should be compatible with the Land Use Compatibility Tables in the Water Quality Protection Note No. 25. All 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 and licence to take water under the *Rights in Water and Irrigation Act 1914* with the initial clearing permit application. The duration of both the permit and licence has been extended to 2029.

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.

The DWER Land Use Planning (formerly 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).

4. References

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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 (DWER Ref: A1770859).

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GIS Datasets

- Hydrography, linear
- DPaw tenure
- Sac bio dataset