



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4945/1
Permit Holder:	Atlas Iron Limited
Duration of Permit:	23 June 2012- 23 June 2022

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 purpose of preliminary geotechnical and hydrological investigations including access tracks, drill pads and test pits.

2. Land on which clearing is to be done

Licence number 218-2011/A1441667 located within the following properties:

- Lot 209 on Plan 238236 (Marble Bar 6760)
- Lot 228 on Plan 238638 (Marble Bar 6760)
- Lot 208 on Plan 238219 (Indee 6721)
- Lot 203 on Plan 220594 (Boodarie 6722)
- Crown Reserve 10303 (Marble Bar 6760)
- Crown Reserve 12069 (Marble Bar 6760)
- Lot 273 on Plan 219540 (Boodarie 6722)
- Lot 324 on Plan 220768 (Boodarie 6722)
- Lot 282 on Plan 193734 (Boodarie 6722)
- Lot 1203 on Plan 70562 (Boodarie 6722)
- Lot 1280 on Plan 70562 (Boodarie 6722)
- Lot 1279 on Plan 70562 (Boodarie 6722)
- Lot 1283 on Plan 70562 (Boodarie 6722)
- Lot 1282 on Plan 70562 (Boodarie 6722)
- Lot 1281 on Plan 70562 (Boodarie 6722)
- Lot 323 on Plan 220768 (Boodarie 6722)
- Lot 299 on Plan 221428 (Boodarie 6722)
- Lot 90 on Plan 211104 (Mundabullangana 6721)
- Lot 164 on Plan 183379 (Boodarie 6722)
- Great Northern Highway Road Reserve (Pin 11734366) (Boodarie 6722)
- Unnamed Road Reserve (Pin 171051) (Marble Bar 6760)
- Lot 341 on Plan 217391 (Marble Bar 6760)
- Port Hedland-Wittenoom Road Reserve (Pin 11734400) (Marble Bar 6760)
- Unnamed Road Reserve (Pin 11734388) (Marble Bar 6760)
- Crown Reserve 13886 (Marble Bar 6760)
- Unnamed Road Reserve (Pin 11735087) (Marble Bar 6760)

3. Area of Clearing

The Permit Holder must not clear more than 150 hectares of native vegetation within the area shaded yellow on attached Plan 4945/1.

4. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 22 June 2017.

5. 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.

6. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Land Administration Act 1997* or any other written law.

7. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

8. 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:

- (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.

9. Weed control

(a) 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*:

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

(b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

10. Vegetation management

(a) Where practicable the Permit Holder shall avoid clearing riparian vegetation.

(b) Where a watercourse is to be impacted by clearing, the Permit Holder shall maintain the existing surface flow by use of culverts.

11. Flora management

Where *priority* or *undescribed flora* has been identified and their written location(s) provided to the CEO, the Permit Holder shall ensure that:

- (a) no clearing of identified *priority* or *undescribed flora* occurs; and
- (b) no clearing occurs within 10 metres of identified *priority* or *undescribed flora*, unless approved by the CEO.

12. Fauna management

- (a) Prior to undertaking any clearing authorised under this Permit, the area(s) shall be inspected by a *fauna specialist* for the presence of Western Pebble-mound Mouse (*Pseudomys chapmani*) mounds, Australian Bustard (*Ardeotis australis*) nests and Greater Bilby (*Macrotis lagotis*) burrows.
- (b) Where Western Pebble-mound Mouse (*Pseudomys chapmani*) mounds are identified in relation to condition 12(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 20 metres of the identified Western Pebble-mound Mouse (*Pseudomys chapmani*) mounds unless approved by the CEO.
- (c) Where Australian Bustard (*Ardeotis australis*) nests are identified in relation to condition 12(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of the identified Australian Bustard (*Ardeotis australis*) nests, unless approved by the CEO.
- (d) Where active Greater Bilby (*Macrotis lagotis*) burrows are identified in relation to condition 12(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 meters of the identified active Greater Bilby (*Macrotis lagotis*) burrows, unless approved by the CEO.

13. Retain vegetative material and topsoil, revegetation 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) At an optimal time within 12 months following completion of geotechnical investigations, *revegetate* and *rehabilitate* areas not required for future scheduled and approved development, by:
 - (i) ripping the ground on the contour to remove soil compaction; and
 - (ii) laying the vegetative material and topsoil retained under condition 13(a) on the cleared area(s).

PART III - RECORD KEEPING AND REPORTING

14. 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 flora management pursuant to condition 11 of this Permit:
 - (i) the location of each *priority flora* or *undescribed flora* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) the species name of each *priority flora* or *undescribed flora* identified; and
 - (iii) a copy of the botanists flora survey report.
- (c) In relation to fauna management pursuant to condition 12 of this Permit the location of each Western Pebble-mound Mouse (*Pseudomys chapmani*) mound, Australian Bustard (*Ardeotis australis*) nests and active Greater Bilby (*Macrotis lagotis*) burrows; 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
- (d) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 13 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;
- (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
- (iii) the size of the area *revegetated* and *rehabilitated* (in hectares); and
- (iv) the species composition, structure and density of *revegetation* and *rehabilitation*.

15. 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 14 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 23 March 2015, the Permit Holder must provide to the CEO a written report of records required under condition 14 of this Permit where these records have not already been provided under condition 15(a) of this Permit.

DEFINITIONS

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

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

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

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared.

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;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

priority flora means those plant taxa described as priority flora classes 1, 2, 3 or 4 in the *Department's Declared Rare and Priority Flora List for Western Australia* (as amended);

regenerate/ed/ion means *revegetation* that can be established from in situ seed banks contained either within the topsoil or seed-bearing *mulch*;

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 *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

undescribed flora taxa means any flora taxon (either at the generic, species or infraspecies level) that has been discovered, but not yet formally described as per the International Code of Botanical Nomenclature.

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

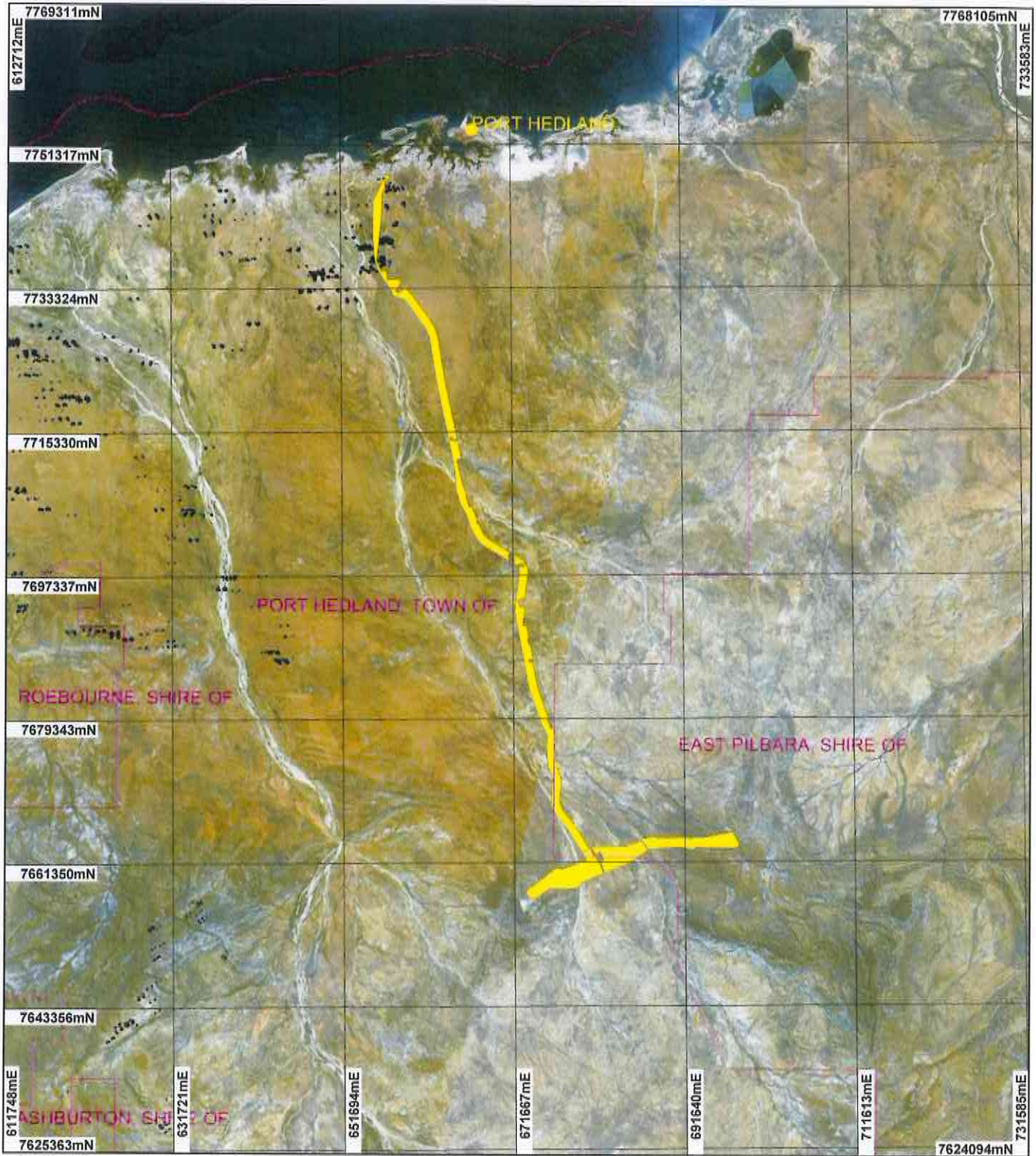


M Warnock
MANAGER, COMPLIANCE AND AUDIT SECTION
NATIVE VEGETATION CONSERVATION BRANCH

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

1 June 2012

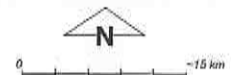
Plan 4945/1



LEGEND

- Towns
- Clearing Instruments
- Areas Approved to Clear
- Local Government Authorities

Western Australia Landsat
Mosaic 25m - AGO 2006



Scale 1:663294

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

M Warnock Date: 1/6/12

M Warnock

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

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of Environment and Conservation

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* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



1. Application details

1.1. Permit application details

Permit application No.: 4945/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Atlas Iron Limited

1.3. Property details

Property:

- LOT 209 ON PLAN 238236 (MARBLE BAR 6760)
- LOT 228 ON PLAN 238638 (MARBLE BAR 6760)
- LOT 208 ON PLAN 238219 (INDEE 6721)
- LOT 203 ON PLAN 220594 (BOODARIE 6722)
- CROWN RESERVE 10303 (MARBLE BAR 6760)
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- LOT 299 ON PLAN 221428 (BOODARIE 6722)
- LOT 164 ON PLAN 183379 (BOODARIE 6722)
- GREAT NORTHERN HIGHWAY ROAD RESERVE (PIN 11734366) (BOODARIE 6722)
- UNNAMED ROAD RESERVE (PIN 171051) (MARBLE BAR 6760)
- LOT 341 ON PLAN 217391 (MARBLE BAR 6760)
- PORT HEDLAND-WITTENOOM ROAD RESERVE (PIN 11734400) (MARBLE BAR 6760)
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- CROWN RESERVE 13886 (MARBLE BAR 6760)
- UNNAMED ROAD RESERVE (PIN 11735087) (MARBLE BAR 6760)

Colloquial name: Section 91 Licence 218-2011/A1441667
Local Government Area: Town of Port Hedland and Shire of East Pilbara

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
150		Mechanical Removal	Geotechnical investigations

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 1 June 2012

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
The vegetation under application is mapped as: Beard Vegetation Association 93 is described as Hummock	The application is for the proposed clearing of 150ha within a footprint area approximately 13, 536ha within the area subject of Section 91 Licence LIC 218-2011/A1441667, for the purpose preliminary investigative works for an off-highway haul road including geotechnical and hydrological investigations,	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive. to	The vegetation condition and description was determined from a Level 2 Flora and Vegetation Survey (Woodman, 2011), photographs supplied by Ninnox Wildlife Consulting (2011) and aerial photography

grasslands, shrub steppe; kanji over soft spinifex.	access tracks, drill pads and test pits.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994)	supplied by the applicant (Bayley Environmental, 2011).
Beard Vegetation Association 647 is described as Hummock grasslands, dwarf-shrub steppe; <i>Acacia translucens</i> over soft spinifex	Level 2 flora and vegetation surveys conducted from May to August 2010 identified nineteen floristic community types (FCTs) and one FCT mosaic were identified and mapped within the Project area (Woodman, 2011).		
(Commonwealth of Australia, 2011).	The dominant FCT's are as follows, in descending order of size (ha):		
Beard Vegetation Association 647 is described as Hummock grasslands, dwarf-shrub steppe; <i>Acacia translucens</i> over soft spinifex 9Commonwealth of Australia, 2011).	FCT 7: Low isolated trees of <i>Corymbia hamersleyana</i> over tall sparse shrubland of mixed species including <i>Acacia ancistrocarpa</i> , <i>A. acradenia</i> , <i>A. tumida</i> var. <i>pilbarensis</i> and <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> over low hummock grassland dominated by <i>Triodia lanigera</i> or occasionally <i>T. epactia</i> or <i>T. wiseana</i> on red-brown sandy and clay loams, often with ironstone or quartz pebbles, on undulating plains (3119ha).		
	FCT 13: Tall sparse shrubland of mixed <i>Acacia</i> species dominated by <i>A. tumida</i> var. <i>pilbarensis</i> and <i>A. inaequilatera</i> over low open shrubland dominated by <i>A. stellaticeps</i> over low hummock grassland dominated by <i>T. epactia</i> on red-brown sandy loams on plains and flats (2185ha).		
	FCT 12: Tall sparse to open shrubland of mixed <i>Acacia</i> species dominated by <i>A. ancistrocarpa</i> and <i>A. bivenosa</i> over low sparse shrubland dominated by <i>A. stellaticeps</i> over low hummock grassland dominated by <i>Triodia angusta</i> on red-brown and brown sandy and clay loams, frequently with ironstone or calcrete pebbles, on flats and undulating plains (1335ha).		

3. Assessment of application against clearing principles

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

Comments **Proposal may be at variance to this Principle**

The application is for the proposed clearing of 150ha within a 13, 536ha footprint area. The purpose of clearing is preliminary investigative works for an off-highway haul road including geotechnical and hydrological investigations, access tracks, drill pads and test pits. The application footprint area is a large area within which the applicant is proposing to clear 150ha of native vegetation. As the footprint transverses a large area within the Pilbara Region it encompasses many nature conservation values.

A Level 2 fauna survey identified 27 species that are likely to occur within the application area, six of them are of conservation significance.

Eleven species of conservation significant flora are known from within the application area.

These are:

1. *Abutilon pritzelianum* ms (Priority 1).
2. *Heliotropium muticum* (Priority 1).
3. *Rothia indica* subsp *australis* (Priority 1).
4. *Tephrosia rosea* var. *venulosa* (Priority 1).
5. *Eriachne* aff. *festucacea* (undescribed taxon).
6. *Euphorbia clementii* (Priority 2).
7. *Stylidium weeliwolli* (Priority 2).
8. *Eragrostis crateriformis* (Priority 3).
9. *Gymnanthera cunninghamii* (Priority 3).
10. *Bulbostylis burbridgeae* (Priority 4).
11. *Goodenia nuda* (Priority 4).

Of these species, all but *Goodenia nuda* were recorded in the Level 2 Flora and Vegetation Survey which was conducted in May- August 2010.

Eriachne affin. festucacea is a potentially new taxon known from 15 locations within the Flora and Vegetation Survey area, of which most were recorded during the flora survey. Two of these records are within the application area (Woodman, 2011). The habitat for this potentially new taxon is predominantly creeks and drainage lines (Coffey Environments, 2012). The flora survey also identified *Abutilon pritzelianum* ms (P1) at two locations within the application area, however this genus is currently being revised and an undescribed species, distinct from *Abutilon pritzelianum* ms, may yet to be identified (Coffey Environments, 2012).

There is the potential for several other priority species to occur within and around the application area. Of note are two species which could potentially occur but were not found during the initial flora surveys, these are *Cochlospermum* sp. Pilbara and *Acacia Leeuweniana* (DEC, 2012).

Populations of *Acacia Leeuweniana* (P1) have been found by other companies (records are yet to be entered onto DEC databases) to the south of this clearing application (DEC, 2012). There is the potential for this species to occur within the application area as it is found in sandy loams amongst rocky outcrops and boulders, which may be consistent with habitat described by FCT 16 (DEC, 2012).

Cochlospermum sp. Pilbara is a new species found from very few records, populations of this species were found south of this application along the Roy Hill railway (DEC, 2012).

A Level 2 flora and vegetation surveys conducted from May to August in 2010 identified nineteen floristic community types (FCTs) and one FCT mosaic within the application area (Woodman, 2011). Two of FCT's are locally significant due to their local restriction; FCT 2 (58ha within the application area) and FCT 16 (152ha within the application area) (Woodman, 2011). FCT 2 has only been mapped within the application area (Woodman, 2011). FCT 16 contains habitat for the priority 4 *Bulbostylis burbridgeae* which is only known to occur within this community and is highly unlikely to occur in any other FCT (Woodman, 2011).

FCT 2 is described as Low isolated trees of *Eucalyptus victrix* over tall open shrubland dominated by *Acacia ampliceps* and *Acacia trachycarpa* over low sparse shrubland of mixed species including *Pluchea ferdinandimuellieri*, *Acacia stellaticeps* and *Stemodia grossa* over mixed low open grassland dominated by *Triodia epactia* on brown and red sands and loams in slightly saline minor creeks, drainage lines and claypans usually associated with floodplains;

FCT 16 is described as Low isolated trees of *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland dominated by *Acacia tumida* var. *pilbarensis* and/or *A. pruinocarpa* with *Terminalia canescens* and *Ficus brachypoda* also common over mid to low isolated shrubs including *Hibiscus* species, *Tephrosia* sp. B Kimberley Flora (C. A. Gardner 7300) and *Triumfetta maconochieana* over low grassland dominated by *Triodia epactia*, with *Cymbopogon ambiguus*, *Eriachne mucronata* and *Cyperus cunninghamii* subsp. *cunninghamii* also common, on skeletal red to brown sands and sandy and clay loams over massive granite or ironstone (or rarely quartz) on steep to gentle crests, ridges, cliffs and outcrops.

It is noted that 25 per cent of the application area has not been surveyed and there may be other occurrences of flora and fauna that are yet to be recorded. Surveying the areas that have not been surveyed for threatened and priority flora, as shown in Figure 1.1 'Locality map of 'Native Vegetation Clearing Permit Application: Supporting Information' (Coffey Environments (2012), and avoid clearing any further priority species found to occur, will assist in mitigating potential impacts.

Given the above, the proposed clearing footprint area comprises a high level of biodiversity and may be at variance to Principle (a). Flora management practices will mitigate identified impacts on conservation significant flora.

The applicant has advised they will minimise the clearing of locally significant vegetation communities to the minimum amount practicable and will avoid areas of ecological value where possible. The applicant has also advised they will not clear within 50m of known locations of priority flora and they will avoid clearing within major drainage lines.

Methodology Coffey Environments (2012)

GIS Databases:

- Pre-European vegetation
- SAC Biodatasets (Accessed 29 March, 2012)

(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 **Proposal may be at variance to this Principle**

A Level 2 fauna survey covering approximately 75 percent of the applicanton area identified 27 species that are likely to occur within the application area (Coffey Environments, 2012). Six of these species are protected under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the state Wildlife Conservation Act 1950 (WC Act), and 17 species are listed as Priority Fauna (DEC, 2007-). Of these 23 conservation significant species, six of these were recorded within the application area and two within the

adjacent survey area and are very likely to occur within the application area.

These are:

1. Northern quoll (*Dasyurus hallucatus*), listed as Endangered under EPBC Act and rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act)
2. Pilbara leaf-nosed bat (*Rhinonicteris aurantia*), listed as Vulnerable under the EPBC Act and rare or likely to become extinct under the WC Act
3. Rainbow bee-eater (*Merops ornatus*), listed as Migratory under the EPBC Act
4. Pilbara pebble-mound mouse (*Pseudomys chapmani*), Priority 4
5. Ghost bat (*Macroderma gigas*), Priority 4
6. Australian bustard (*Ardeotis australis*), Priority 4
7. Bush stone-curlew (*Burhinus grallarius*), Priority 4
8. Spectacled hare-wallaby (*Lagorchestes conspicillatus*) Priority 3
9. Brush-tailed mulgara (*Dasyercus blythi*)- Priority 4

Of these nine species, all but the Northern quoll (*Dasyurus hallucatus*) and the Brush-tailed mulgara (*Dasyercus blythi*) have been recorded in the application area. Northern quoll are both arboreal and terrestrial, inhabiting ironstone ridges, scree slopes of sandstone or ironstone and granite boulders and outcrops. Northern quoll also inhabits drainage lines and riverine habitats where it utilises tree hollows as den sites (Coffey Environments, 2012). Multiple Northern quolls were recorded within Granite Outcrop and Riverine habitat in the adjacent study area in habitat that is also found within the application area (Coffey Environments, 2012). This habitat occurs within the application area and this species is very likely to occur within the adjacent application area. The applicant has advised they will not clear any granite outcrops terrestrial fauna habitat.

The Brush-tailed mulgara (*Dasyercus blythi*) was recorded adjacent to the application area and is very likely to occur within the application area in the habitat types defined as 'Spinifex Sandplain' and 'Acacia and Spinifex on Sandplain' (Coffey Environments, 2012). The Brush-tailed mulgara prefers mature Spinifex grasslands on sandy soils, constructing burrows on the flats between sand dunes (Coffey Environments, 2012). However, given the extent of similar habitat in the local area and the mobile nature of this species is unlikely to be significantly impacted upon. The applicant has committed to minimising clearing of 'Spinifex Sandplain' habitat especially where mature (tall and dense) stands of Spinifex exist.

Numerous Pilbara pebble-mound mouse (*Pseudomys chapmani*) mounds have been recorded in the application area in Stony Rise and Spinifex Stony Plain habitat during the surveys. Avoiding clearing within 20m of Western Pebble-Mound Mouse mounds will assist in mitigating potential impacts to this priority species.

The Australian Bustard (*Ardeotis australis*) is uncommon, occurs in open or lightly wooded grasslands and nests on the ground, laying one or two eggs (DEC, 2007). This species was recorded at several sites within and adjacent to the application area. Bustards are known to readily desert nests in response to disturbance by humans, sheep or cattle (Burbidge, 2004). Avoiding clearing within 50m of known Australian Bustard nests will assist in mitigating impacts to this species.

The Pilbara leaf-nosed bat was recorded foraging at four locations within the Project area. Riparian vegetation, pools and caves are thought to be their most important habitats. Avoiding clearing of riparian vegetation will assist in mitigating potential impacts to this threatened species.

The remaining species of conservation significance were recorded at multiple sites within the application area. Given the highly mobile nature of these species and similar habitat in the local area, impacts on these species are likely to be low.

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

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

- They will not clear any granite outcrops terrestrial fauna habitat or granite outcrops SRE habitat
- Clearing and disturbance of granite outcrop landforms within the spinifex sandplain/granite outcrops habitat mosaic will be avoided where possible
- Clearing of sensitive habitats will be kept to the minimum necessary for the safe construction and operation of the hydrological and geotechnical investigations
- No clearing within 20m of Western Pebble-Mound Mouse mounds and 50m of SRE records (Coffey Environments, 2012).

Methodology

References:

Coffey Environments (2012)
DEC (2007-)

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

Comments **Proposal is not likely to be at variance to this Principle**
 No recorded rare flora (DRF) are known to occur within a 50km radius of the proposed clearing.

The closest known record of DRF is *Lepidium catapycnon*, located 152 km south of the proposed clearing area, which is recorded on a different soil and vegetation type. Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Databases:
 - SAC Biodatasets (Accessed 29 March, 2012)

(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 **Proposal is not likely to be at variance to this Principle**
 No threatened ecological communities (TEC) are known to occur within a 50km radius of the proposed clearing. The closest known TEC is recorded 145kms southwest of the application area, the Themeda Grasslands.

Given the distance to the closest TEC the proposed clearing is unlikely to be at variance to this Principle.

Methodology GIS Databases:
 - SAC Biodatasets (Accessed 29 March, 2012)

(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 **Proposal is not at variance to this Principle**
 The application falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. Government of Western Australia (2011) reports that approximately 100% of the pre-European vegetation remains in this bioregion.

Both of the Beard vegetation types mapped within the area under application are well represented in the bioregion and locally with 97.9 per cent to 99.9 per cent remaining.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Pilbara	17,804,427	17,729,352	99.6	8.4
Shire*				
Town of Port Hedland	1,847,402	1,818,670	98.4	0.00
Shire of East Pilbara	37,183,051	37,155,255	99.9	4.0
Beard Vegetation Association in Bioregion*				
93	3,042,114	3,038,471	99.9	1.9
647	195,859	191,710	97.9	0.00

*Government of Western Australia (2011)

Methodology References:
 Government of Western Australia (2011)
 Shepherd (2001)

GIS Databases:
 - Interim Biogeographic Regionalisation of Australia
 - 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 **Proposal is at variance to this Principle**
 The Turner River, Turner River East, Turner River West, Cinnamon Creek and multiple other minor watercourses lie within the area in which clearing is proposed.

There will be some disturbance to vegetation associated with these watercourses, including woodlands of *Eucalyptus camaldulensis*, *E. victrix*, *Melaleuca argentea* and *M. glomerata* over low scrub and spinifex (Woodman, 2011). However the applicant has advised river crossings will be avoided where possible. However where tracks are required to cross ephemeral rivers and creeks, clearing will be restricted to a 3-4m wide corridor (Coffey Environments, 2012).

Due to the potential for riparian vegetation to be cleared if tracks are required to cross a watercourse, the proposed clearing is at variance to Principle (f).

Methodology References:
Coffey Environments (2012)
Woodman (2011).

GIS Databases:
- Pre-European vegetation
- Hydrogeology, statewide
- Hydrography, linear
- SAC Biodatasets
- Hydrography linear

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

Comments **Proposal is not likely to be at variance to this Principle**

Atlas Iron proposes to clear up to 150 hectares for preliminary investigative works for an off-highway haul road including geotechnical and hydrological investigations, access tracks, drill pads and test pits.

The soils within the application area range from single-grained sandy soils to shallow, skeletal rocky soils with solid and partially weathered rock outcrops being common (Coffey Environments, 2012).

Given that the proposed clearing is 150ha over a long and linear area (approximately 92 km in length and 13, 536ha in area), it is not likely to cause appreciable land degradation on a broader scale although short-term localised erosion, loss of topsoil and subsoil compaction is likely to occur.

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

The requirement to rehabilitate the areas disturbed by this proposed clearing and implement weed control measures will minimise the risk of introduction of invasive species into the surrounding vegetation and mitigate potential land degradation impacts.

The applicant has committed to minimise the area of land disturbance and vegetation clearance to the smallest area required to safely complete their investigations, including the use of existing roads and tracks where possible (Coffey Environments, 2012).

Methodology References:
Coffey Environments (2012)

(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 **Proposal is not likely to be at variance to this Principle**

The application area is located within the proclaimed Pilbara groundwater area and surfacewater area.

The application area is located within the Turner River Water Reserve, a priority not assigned Public Drinking Water Source Area.

According to available GIS databases, the groundwater salinity of the application area is mapped as medium-500-1000 to 1000-3000 milligrams/Litre.

Numerous small non perennial watercourses/ drainage lines cross through the application area. The proposed clearing may cause temporary sedimentation of surface water of drainage lines that occur within the application area during periods of rainfall.

However, given that the proposed clearing is 150ha over a long and linear area (approximately 92 km in length and 13, 536ha in area), it is not likely to cause deterioration in surface or underground water and is not likely to be at variance to this clearing principle.

Methodology GIS Databases:

- Groundwater Salinity, Statewide
- PDWSA
- RIWI Groundwater Areas
- RIWI Surfacewater Areas

(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 Proposal is not likely to be at variance to this Principle

The application area is located within the proclaimed Pilbara groundwater area and surfacewater area.

The application area is located within the Turner River Water Reserve, a priority, not assigned, Public Drinking Water Source Area.

According to available GIS databases, the groundwater salinity of the application area is mapped as medium-500-1000 to 1000-3000 milligrams/Litre.

Numerous small non perennial watercourses/ drainage lines cross through the application area. The proposed clearing may cause temporary sedimentation of surface water of drainage lines that occur within the application area during periods of rainfall.

However, given that the proposed clearing is 150ha over a long and linear area (approximately 92 km in length and 13, 536ha in area), it is not likely to cause deterioration in surface or underground water and is not likely to be at variance to this clearing principle.

Methodology GIS Databases:

- Groundwater Salinity, Statewide
- PDWSA
- RIWI Groundwater Areas
- RIWI Surfacewater Areas

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

Comments Proposal is not likely to be at variance to this Principle

Given that the proposed clearing is 150ha over a long and linear area (approximately 92 km in length and 13, 536ha in area) it is not considered for the clearing to exacerbate or increase the intensity of flooding.

The applicant has advised that any drainage structures created during the proposed clearing will be designed to maintain natural drainage patterns.

Methodology GIS Databases:

- Hydrogeology, statewide
- Hydrography, linear

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

Atlas Iron Limited holds a current Section 91 Licence 218-2011/A1441667 under the Land Administration Act 1997 which covers the area under application and permits the applicant to conduct preliminary investigation works, specific to road construction, for a period of two years from 1 January 2012 to 31 December 2013 (Coffey Environments, 2012). This includes 'supporting works' such as the creation of access tracks, drill pads and test pits (Coffey Environments, 2012). This Section 91 Licence expires on 1 January 2014.

Coffey Environments (2012) have conducted a 'residual risk assessment' in accordance with Standards Australia's environmental risk management principles and processes. A 'moderate' residual risk was identified of the loss of conservation significant flora populations, but as the exact sites of clearing are flexible, this is able to be managed by a 50m clearing buffer around all identified conservation significant flora species (Coffey Environments, 2012).

In addition, the applicant has committed to the following mitigation measures:

- ' Minimise the area of land disturbance and vegetation clearance to the smallest area required to safely complete hydrological and geotechnical investigations.
- ' Clearing will be avoided within 50 m of known locations of conservation significance flora species.
- ' Clearing and disturbance of locally significant FCT 2 and FCT 16 will be kept to the minimum due to the local significance of these communities.
- ' Clearing of vegetation in major drainage lines will be avoided where practicable.

Existing roads and tracks will be used where possible to reduce the amount of clearing.

Rehabilitation of disturbed areas will be undertaken in accordance with Atlas' Section 91 conditions.

Vehicles will be prohibited from driving off the access tracks, unless authorised by senior management, to minimise unnecessary disturbance to flora and vegetation communities.

Areas designated for clearing will be clearly delineated on the ground, along with the designated areas for cleared vegetation and topsoil stockpiling.

Vegetation clearing will be undertaken in accordance with Atlas's Ground Disturbance and Topsoil Management Standard Operating Procedure.

Multiple Aboriginal Sites of Significance have been mapped in the local area. The applicant has been advised to liaise with the Department of Indigenous Affairs regarding obligations under the Aboriginal Heritage Act 1972.

This application was referred to the Yamatji Marlpa Aboriginal Corporation and the Kariyarri and Njamal Native claimants on 29 March 2012. No submissions have been received.

Methodology

References:

Coffey Environments (2012)

GIS Databases:

- Aboriginal Sites of Significance
- Claims Registered with the NTT

4. References

- Coffey Environments (2012) Native Vegetation Clearing Permit Application: Supporting Information for Boodarie Link Project- Preliminary Investigations, March 2012, Coffey Environments Australia Pty Ltd, Burswood, WA.
- DEC (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>. Accessed 9/5/2012.
- DEC (2012) Site Inspection Report for Clearing Permit Application CPS 4945/1, Section 91 Licence, Received 29 May 2012. Department of Environment and Conservation, Western Australia (DEC REF A509734).
- Government of Western Australia (2011); 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, 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.
- Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Woodman (2011) Atlas Iron Turner River Hub Project: Flora. Vegetation and Mangal Studies, Woodman Environmental Consulting Pty Ltd, WA.

5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)