Report and recommendations of the Environmental Protection Authority

Corunna Downs Project

Atlas Iron Pty Ltd

Report 1665
January 2020
# Environmental impact assessment process timelines

<table>
<thead>
<tr>
<th>Date</th>
<th>Progress stages</th>
<th>Time (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/08/2019</td>
<td>EPA decides to assess – level of assessment set</td>
<td></td>
</tr>
<tr>
<td>13/09/2019</td>
<td>EPA received final information for assessment</td>
<td>5</td>
</tr>
<tr>
<td>21/11/2019</td>
<td>EPA board considered assessment</td>
<td>10</td>
</tr>
<tr>
<td>08/01/2020</td>
<td>EPA provided report to the Minister for Environment</td>
<td>7</td>
</tr>
<tr>
<td>13/01/2020</td>
<td>EPA report published</td>
<td>3 days</td>
</tr>
<tr>
<td>28/01/2020</td>
<td>Close of appeals period</td>
<td>2</td>
</tr>
</tbody>
</table>

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority did not meet its timeline objective to complete its assessment and provide a report to the Minister.

Dr Tom Hatton  
Chairman  
6 January 2020  

ISSN 1836-0483 (Print)  
ISSN 1836-0491 (Online)  
Assessment No. 2218
Summary

The Corunna Downs Project (the proposal) was referred to the Environmental Protection Authority (EPA) by Atlas Iron Pty Ltd (the proponent) in May 2019. The proposal is to develop the Corrunna Downs Project, located approximately 33 kilometres south of Marble Bar, in the Pilbara region of Western Australia.

The proposal includes the development of five open mining pits using conventional drill and blast, load and haul methods, with operations above the watertable, to mine approximately 23.3 million tonnes of iron ore over six years.

Other associated infrastructure for the proposal includes waste rock dumps, a mine operation centre, borefield and accommodation camp.

The EPA assessed the proposal at the level of Assessment on Referral Information with no public comment period and has recommended that the proposal may be implemented, subject to conditions.

In the course of the assessment, the EPA examined potential impacts on the key environmental factors of Terrestrial Fauna, Flora and Vegetation and Inland Waters.

The EPA has recommended conditions (Appendix 3) including the avoidance where possible, and minimisation of direct and indirect impacts on vegetation, Priority flora, caves, permanent pools and fauna listed under the Biodiversity Conservation Act 2016.

The proposal was approved under the Environment Protection and Biodiversity Conservation Act 1999 on 23 February 2018 (2017/7861), which included conditions to minimise impacts on the Pilbara leaf-nosed bat through the implementation of buffers and monitoring of a pool used by the species.
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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA’s environmental impact assessment of the proposal by Atlas Iron Pty Ltd. The proposal is to mine about 23.3 million tonnes of iron ore using conventional drill and blast, load, and haul methods, with operations above the watertable, over a six year timeframe.

The EPA has prepared this report in accordance with s. 44 of the Environmental Protection Act 1986 (EP Act). This section of the Act requires the EPA to prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified during the assessment
- the EPA’s recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 29 May 2019. On 7 August 2019, the EPA decided to assess the proposal and set the level of assessment at Referral Information. On 26 August 2019 further information was requested from Atlas Iron Pty Ltd which was received on 13 September 2019. The EPA considered the proposal on 21 November 2019.

The proposal was approved under the Environment Protection and Biodiversity Conservation Act on 23 February 2018 (2017/7861).

1.1 EPA procedures

2. The proposal

2.1 Proposal summary

The proponent, Atlas Iron Pty Ltd, proposes to develop the Corunna Downs Project (the proposal), which is an iron ore mine located in the Pilbara region of Western Australia, located 33 kilometres (km) south of Marble Bar in the Shire of East Pilbara (Figure 1). The proposal consists of five open pits, three waste rock dumps, mine operation centre, borefield and accommodation camp. The proponent anticipates 23.3 million tonnes of iron ore will be mined above the groundwater table over six years. Within the 2,257 hectares (ha) development envelope, no more than 423.11 ha of native vegetation is proposed to be cleared (Figure 2).

The proponent will truck the ore via the Hillside-Marble Bar Road route to Utah Point Bulk Commodities Berth at Port Hedland for export.

The key characteristics of the proposal are summarised in Tables 1 and 2 below. A detailed description of the proposal is provided in section 2 of the Corunna Downs Project Supplementary Report (Atlas Iron 2019).

Table 1: Summary of the proposal

<table>
<thead>
<tr>
<th>Proposal title</th>
<th>Corunna Downs Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short description</strong></td>
<td>Develop and operate an open cut, above the watertable, iron ore mine and associated mining infrastructure including waste rock dumps, borefields and accommodation camp within the Corunna Downs Project area, located 241 km south east of Port Hedland and 33 km south of Marble Bar. The proposal involves the mining of five open pits, namely; Split Rock, Razorback, Shark Gully, Runway North and Runway South.</td>
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</table>

Table 2: Location and proposed extent of physical and operational elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Location</th>
<th>Proposed extent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical elements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mine and associated infrastructure</td>
<td>Figure 2</td>
<td>Clearing no more than 423.11 ha of native vegetation within the 2,257.6 ha development envelope.</td>
</tr>
<tr>
<td><strong>Operational elements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundwater abstraction</td>
<td>Figure 2</td>
<td>No more than 1.1 gigalitres per annum from borefields.</td>
</tr>
</tbody>
</table>
Figure 1: Regional location
Figure 2: Corunna Downs Project development envelope and disturbance footprint
2.2 Context

The Corunna Downs Project is located within the Chichester sub-region of the Pilbara bioregion of Western Australia (Kendrick and McKenzie 2001). The Chichester subregion has 6.6 per cent of its land surface reserved under some form of conservation tenure, including the Abydos-Woodstock reserve (60 km west of the proposal), Millstream-Chichester National Park (190 km west of the proposal), Mungarooona Range Nature Reserve (116 km southwest of the proposal) and Meentheena ex-pastoral lease (54 km east of the proposal).

The development envelope lies wholly within the Njamal (WC1999/008) registered Native Title claim. The proponent has an agreement with Njamal and has conducted exploration activities on site in accordance with this agreement and in regular consultation with the Njamal people and their representatives.

This region also has some nearby mines including the proponent’s Mt Webber iron ore mine, which is approximately 40 km to the south-west of the proposal, and Pilgangoora Lithium mine which is approximately 90 km to the north-west.

The proposal was approved under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) on 23 February 2018 (2017/7861) with conditions applied that require avoidance of impacts on certain caves used by the Pilbara leaf-nosed bat.
3. Consultation

The EPA advertised the referral information for the proposal for public comment in June 2019 and received one submission. The submission requested ‘Assess – Public Environmental review’ and raised the importance of maintaining public access to the historic airfield to the east of the site.

The proponent consulted with government agencies and key stakeholders during the preparation of the supplementary report provided with the referral. The agencies and stakeholders consulted, the issues raised and the proponent’s response are detailed in Table 3.1 of the proponent’s supplementary report (Atlas Iron 2019).

In September 2019, the proponent provided the EPA with a revised Supplementary Report including updated appendices which contained additional information to better assess impacts and mitigation measures of several factors.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders about the proposed development. Relevant significant environmental issues identified from this process were taken into account by the EPA during its assessment of the proposal.
4. Key environmental factors

In undertaking its assessment of this proposal and preparing this report, the EPA had regard for the object and principles contained in s. 4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- the proponent’s referral information and supplementary reports
- public comments received on the referral and stakeholder comments received during the preparation of the proponent’s documentation
- the EPA’s own inquiries
- the EPA’s Statement of environmental principles, factors and objectives (EPA 2018a)
- the relevant principles, policy and guidance referred to in the assessment of each key environmental factor in sections 4.1 to 4.3.

Having regard to the above information, the EPA identified the following key environmental factors during the course of its assessment of the proposal:

- **Inland Waters** – potential impacts on surface water hydrology and groundwater level.
- **Flora and Vegetation** – potential impacts from clearing native vegetation and groundwater abstraction on groundwater dependent ecosystems.
- **Terrestrial Fauna** – impacts to conservation significant fauna, including bats, Pilbara olive pythons and northern quolls.

The EPA considered other environmental factors during the course of its assessment of the proposal. These factors, which were not identified as key environmental factors, are discussed in the proponent’s referral documentation (Atlas Iron 2019). Appendix 3 contains an evaluation of why these other environmental factors were not identified as key environmental factors.

Having regard to the EP Act principles, the EPA considered that the following principles were particularly relevant to its assessment of the proposal:

1. **The precautionary principle** – investigations on the biological and physical environment undertaken by the proponent have provided sufficient certainty to assess risks and identify measures to avoid or minimise impacts.

2. **The principle of intergenerational equity** – the EPA notes that the proponent has taken measures to avoid and minimise impacts, and together with the recommended conditions, will ensure the environment is maintained for future generations.

3. **The principle of the conservation of biological diversity and ecological integrity** – the EPA has concluded that provided the recommended conditions are implemented, the proposal will not compromise the biological diversity and ecological integrity of the affected areas.
4. **The principle of waste minimisation** – the EPA notes that the proponent will apply the waste hierarchy to operations.

Appendix 1 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA’s assessment of the proposal’s impacts on the key environmental factors is provided in sections 4.1 – 4.3. These sections outline whether or not the EPA considers that the impacts on each factor are manageable. Section 6 provides the EPA’s conclusion as to whether or not the proposal may be implemented.

### 4.1 Inland Waters

**EPA objective**

The EPA’s environmental objective for this factor is *to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.*

**Relevant policy and guidance**

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Inland Waters* (EPA 2018b)
- WA Environmental Offsets Policy (Government of Western Australia 2011)
- WA Environmental Offsets Guidelines (Government of Western Australia 2014).

The considerations for environmental impact assessment for this factor are outlined in *Environmental Factor Guideline – Inland Waters* (EPA 2018b).

In addition to the current relevant policy and guidance above, the EPA gave regard to the Guidelines for Preparing Mine Closure Plans (DMP and EPA 2015), to ensure the proposal is decommissioned and rehabilitated in an appropriate manner.

**EPA assessment**

**Existing environment and potential impacts**

The EPA considers that the information provided by the proponent is adequate to determine the impacts to inland waters.

**Surface Water**

The proposal is located in the upper reaches of a catchment and consequently there will be minimal flows entering the indicative disturbance footprint. Also, the installation of surface water management infrastructure, means the proposal is not anticipated to significantly change levels of runoff.
Eleven important surface water sites were identified as part of the assessment, five of which are perennial. Of the pools that were identified, Pool CO-WS-14 (Figure 3) and associated cave CO-CA-03 (Figure 4) are located in a gorge between two ridge systems. One of the proposed mine pits, Razorback pit, will be located about 70 metres (m) to the southwest of the pool. A catchment analysis determined that the proposed mining of the Razorback pit would remove 18 per cent of the contributing catchment for this pool and cave. Depending on the rate of infiltration, the collection of surface water in the Razorback pit may lead to a transient increase in total dissolved solids due to evaporative concentration. This has the potential to increase salinity in the groundwater seepage into cave CO-CA-03 and/or pool CO-WS-14. The consequent risks to fauna, particularly bats, is considered further in section 4.3.

Shale deposits occur in two of four proposed mine pits. Shale deposits are Potentially Acid Forming (PAF) and have the potential to impact on water quality. It has been found that 22 per cent of the Split Rock pit’s waste rock will be shale. An assessment of the shale from this site indicated that two samples from a total of 20, were classified as PAF, so most of the shale from the Split Rock pit will be non-acid forming, with only discrete point sources being PAF. There is a higher level of uncertainty with the level of PAF rock in the Runway South pit, due to access constraints, but the level of shale is less than the Split Rock pit. Any PAF waste rock that is intersected will be managed via encapsulation in waste rock dumps to mitigate any risk of runoff to surface water pools.

If PAF shale is exposed in final pit walls, a management strategy will be implemented to limit PAF exposure and oxidation, with the intention to prevent deleterious impacts on water quality. Any seepage that occurs will be captured within the pit sump and will largely evaporate, given the pits are above the water table.

The Department of Mines, Industry Regulation and Safety (DMIRS) has advised it can manage issues related to acid and/or metalliferous drainage for this proposal. The EPA considers that long-term risks around PAF and other closure matters that could affect water quality are manageable, under an appropriate mine closure plan.

Management and Mitigation
The EPA notes the proponent has taken steps to mitigate the impacts on surface and groundwater flows including:

- avoiding all pools that were at risk of direct impact from clearing
- designing the proposal to incorporate surface water management throughout the site
- putting in place procedures to encapsulate PAF.

Summary
The EPA has paid particular attention to the:

- relevant principles, guidance and policies
- specific direct and indirect impacts to Inland Waters
- avoidance of direct impacts to pools
- advice from the Department of Water and Environmental Regulation that it can manage groundwater impacts through the *Rights in Water and Irrigation Act 1914* (RIWI Act)
- advice from DMIRS that it can manage potential impacts from PAF.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Inland Waters that the impacts to this factor are manageable and would no longer be significant, provided there is:

- A limit on the area of the surface water catchment and pools to be disturbed and on the annual volume of groundwater to be abstracted through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 3)

In addition, the EPA notes that mine closure can be adequately regulated through the *Mining Act 1978*, rather than require a duplicate condition under Part IV of the EP Act.

### 4.2 Flora and Vegetation

#### EPA objective

The EPA’s environmental objective for this factor is *to protect flora and vegetation so that biological diversity and ecological integrity are maintained*.

#### Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Flora and Vegetation* (EPA 2016a)
- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offsets Guidelines* (Government of Western Australia 2014).

The considerations for environmental impact assessment for this factor are outlined in *Environmental Factor Guideline – Flora and Vegetation* (EPA 2016a).

The proponent has undertaken several flora and vegetation surveys relevant to the proposal between 2014 and 2019. The flora and vegetation assessment of the development envelope was undertaken at a level 2 standard, as defined by the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b).

#### EPA assessment

The proposal is to clear a maximum of 423.11 ha of native vegetation within the 2,257.6 ha development envelope.
A number of vegetation surveys have been carried out for this proposal between 2016 and 2019. Surveys indicated that vegetation condition is Good to Excellent.

**Vegetation Impacts**

There were 15 vegetation types identified across the study area, 14 of which will be directly impacted in the disturbance footprint. The area of each vegetation type within the disturbance footprint is relatively small, with the largest being 7.3 per cent.

The proponent is proposing to abstract groundwater from a number of locations in the vicinity of the proposal. As a result, the proposal has the potential to indirectly impact vegetation through groundwater drawdown. Five vegetation types were considered to contain groundwater dependant vegetation (GDV) types, these covered 557 ha or two per cent of the 25,959 ha study area.

Groundwater drawdown related impacts are primarily seen in the two recognised obligate phreatophytes that inhabit primarily riverine environments, these are *Melaleuca argentea* and *Eucalyptus camaldulensis* subsp. *Refulgens*.

Species within areas identified as having GDV include, *Eucalyptus camaldulensis* subsp. *refulgens*. This species can tolerate up to 8 to 10 m of drawdown at rates of up to 5 m/year, before experiencing loss in vigour, or death. The EPA notes that drawdown is expected to remain within these tolerances in both the base case and the maximum pumping case, and that no drawdown impacts to *E. camaldulensis* subsp. *refulgens* are expected.

*Melaleuca argentea* can tolerate up to 0.5 m of drawdown before experiencing loss in vigour. Tree deaths may occur where drawdown exceeds 1 m for extended periods. There are two areas of GDV where drawdown impacts may exceed these tolerances and the risks are discussed below.

There are 56.9 ha of GDV at the northern end of the development envelope that are considered high risk due to their proximity to two production bores (CRD0084 and CRD0085) located near the Coongan River (see Figure 3). The bores are likely to reduce groundwater levels whilst in operation during the road upgrade. However, the duration of abstraction is short (less than one year) and any significant river flow will recharge the aquifer.

A further 55.9 ha in the middle part of the development envelope was considered to be at moderate risk of drawdown impacts from the campsite bores (see Figure 3). These bores will be operating for the life of the mine (six years) and vegetation stress is likely if annual recharge events do not occur.

The remaining 444.5 ha of GDV within the study area are considered to be at low risk from drawdown.

In addition to the GDV, there is 6.7 ha of vegetation at a perched soak that may be at risk from drawdown. This parcel of vegetation is located to the west of the camp and supports dense vegetation, but no obligate phreatophytes were found to be present. The soak is a small pan in the upper reaches of a minor catchment and it has been
assessed as an ephemeral, perched alluvial water bearing unit which is recharged during major rainfall events. There is limited understanding of the level of connectivity of the soak to the underlying bedrock aquifer from which water is being abstracted. If drawdown of the underlying fractured rock aquifer results in a loss of moisture within the soil matrix it is possible that plant stress or death may occur at this site. The proponent has conservatively assumed that the soak is in hydraulic connectivity with the underlying bedrock aquifer and it may experience drawdowns and will monitor and manage it accordingly.

The EPA notes that the clearing of 423.11 ha is within the Chichester Interim Biogeographic Regionalisation for Australia (IBRA) subregion and, to due to the large cumulative impacts to vegetation in this subregion, would therefore constitute an additional significant residual impact. This is dealt in Section 5 of this report.

**Flora Surveys**

Surveys undertaken in the 25,959 ha study area did not identify species considered as high risk within the development envelope. Low levels of introduced flora were recorded. The survey found there would be no impact to Threatened Flora, Threatened Ecological Communities or Priority Ecological Communities.

Eleven classified Priority (P) flora taxa were recorded within the study area. Four of these are within the development envelope and so were considered most likely to be at risk of direct impact. These are:

- *Rothia indica* subsp. *australis* (P1)
- *Eragrostis crateriformis* (P3)
- *Heliotropium murinum* (P3)
- *Swainsona thompsoniana* (P3).

A further five species were considered potentially significant as due to the identification of a taxa having anomalous features (*Abutilon aff. Hannii, Oldenlandia* sp. and *Portulaca* sp.) or representing a range extension or outlier of the main range (*Acrostichum speciosum* and *Eriocaulon pusillum*). Only *Acrostichum speciosum* was found in the development envelope.

Three occurrences of P3 (*Eragrostis crateriformis, Heliotropium murinum* and *Swainsona thompsoniana*) could not be avoided, however the clearing is considered to have a low level of regional impact as they are all well represented outside of the development envelope.

**Mitigation of impacts on significant flora and vegetation**

During the evolution of the proposal the development envelope has been reduced from 2,263 ha to 2,257 ha and has been designed to mitigate direct impacts by excluding known locations of the majority of the priority taxa, inclusive of a 10 m buffer, with the exception three occurrences of P3 (*Eragrostis crateriformis, Heliotropium murinum* and *Swainsona thompsoniana*).
Summary

The EPA has paid particular attention to the:

- relevant principles, guidance and policies
- limited indirect impacts to GDV associated with groundwater drawdown
- design of the proposal to avoid the majority of Priority Flora, other than three P3 species, which are all well represented outside of the clearing area
- significant residual cumulative impact associated with clearing of up to 423.11 ha of native vegetation in good to excellent condition in the Chichester IBRA subregion.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Flora and Vegetation that the impacts to this factor are manageable and would no longer be significant, provided there is:

- Control of the clearing of native vegetation through the authorised extent in Schedule 1 of the Recommended Environmental Conditions (Appendix 3).
- Implementation of offsets (see section 5, condition 8) to counterbalance the significant residual cumulative impact of clearing 423.11 ha of Chichester IBRA subregion vegetation.
Figure 3: Risk assessment of drawdown to groundwater dependent vegetation
4.3 Terrestrial Fauna

EPA objective

The EPA’s environmental objective for this factor is *to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Terrestrial Fauna* (EPA 2016c)
- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offsets Guidelines* (Government of Western Australia 2014).

The considerations for environmental impact assessment for this factor are outlined in *Environmental Factor Guideline – Terrestrial Fauna* (EPA 2016c).

EPA assessment

The proposal involves the clearing of up to 423.11 ha of native vegetation and will result in some loss of fauna habitat. Terrestrial fauna could also be impacted from increased light, noise, and vibration from construction and operational activities.

Eleven broad fauna habitat types were identified and mapped over the study area. All of the broad fauna habitats, excluding Granite Outcrop habitat, intersect the development envelope. Vegetation condition ranged from Good to Excellent.

Significant Fauna

Conservation significant fauna includes species listed as:

- Threatened or Specially Protected (includes migratory species) under the *Biodiversity Conservation Act 2016.*
- Priority species listed by the Department of Biodiversity, Conservation and Attractions.

Seven species recorded during the field survey are listed as conservation significant. Based on regional records and habitats identified within the study area, a further 23 conservation significant fauna species have the potential to occur in the study area. Of these, two were considered “likely to occur” and 11 were considered “possible to occur”. The remaining 10 potentially conservation significant species were considered “unlikely to occur.”
Based on the results of surveys and the presence of species *likely to occur*, the EPA considers the potential significant impacts to conservation significant fauna from the proposal are:

- Clearing of 56.39 ha of habitat for the northern quoll.
- Clearing of 44.95 ha of habitat for the Pilbara olive python.
- Clearing of 39.82 ha of habitat and an additional 366.73 ha of foraging and/or dispersal habitat for Pilbara leaf-nosed bat and ghost bat.
- Loss of two nocturnal refuges (caves CO-CA-08 and CO-CA-15), both of which are used by the ghost bat and one is used by the Pilbara leaf-nosed bat.
- Temporary daytime abandonment of the non-permanent breeding roost (cave CO-CA-03) by the Pilbara leaf-nosed bat due to disturbance from blasting operations in the Razorback pit. However, the impact is not considered significant given the availability of the permanent diurnal roost (cave CO-CA-01). It is also probable that the species will continue to use cave CO-CA-03 as a nocturnal refuge and foraging resource during this time and will return to using this cave as a non-permanent breeding roost on cessation of mining.
- While habitats present within the study area are generally recognised as suitable roosting and foraging habitat for the ghost bat, no significant impact to this species is anticipated given it does not appear to be reliant on habitat within the study area (i.e. no significant roosts and only sporadic visitation recorded).

No direct impact to any of the 11 water sources identified as significant microhabitat features.

*Fauna Micro Habitat Features*

A number of important microhabitat features are present within the study area, including caves and permanent/semi-permanent water sources. These features provide important sources of shelter, food and water for the species of conservation significance considered at risk of significant impacts from the proposal.

Many of these microhabitat features were located within the Rocky Ridge and Gorge habitat type and were not commonly recorded in other broad habitat types of the study area (Atlas Iron 2019).
Caves

Within the study area, there are 18 caves known to support the Pilbara leaf-nosed bat and/or ghost bat. The proponent’s referral information details each of the caves, its values and the level of impact/mitigation from the proposal (Atlas Iron 2019).

Figure 4 shows the location of the caves in relation to the proposal.

The development envelope has been designed to mitigate impacts to the majority of the caves by providing a 20 m buffer around most caves. CA-CO-01 has a larger 340 m buffer from the development envelope as it is a Pilbara leaf-nosed bat permanent diurnal roost site. The proposal will however directly impact on two nocturnal refuges (CO-CA-08 and CO-CA-15) as they are to be mined as part of Runway pits (north and south). Both caves are nocturnal refuges for ghost bats and one is a nocturnal refuge for the Pilbara leaf-nosed bat. The loss of these two caves is not anticipated to cause a significant impact on the bat population, because utilisation of all known nocturnal refuges in the study area was low and there are a number of known alternative nocturnal refuges available within the surrounding area.

The remaining 16 caves will not be directly impacted and all but one of these are considered to be at low risk from the proposal. Cave CO-CA-03 is in close proximity to Razorback Pit and is a non-permanent breeding roost cave. Mapping of the cave and pit design has resulted in a proposed 50 m buffer from the development envelope, but this is effectively 68 m from the back of the cave to the proposed pit face. Due to disturbance from blasting operations in the Razorback pit, it is predicted there will be a temporary daytime abandonment of cave CO-CA-03 by the Pilbara leaf-nosed bat. The impact is not considered significant given the availability of the permanent diurnal roost cave CO-CA-01. It is also probable that the species will continue to use cave CO-CA-03 as a nocturnal refuge and foraging resource during operations and will return to using this cave as a non-permanent breeding roost on cessation of mining.
Figure 4: Cave locations and infrastructure layout
The EPA considers that the implementation of a 50 m buffer around cave CO-CA-03 and a 340 m buffer around cave CO-CA-01 are appropriate to avoid direct and indirect impacts to the Pilbara leaf-nosed bat, and this should be formalised through the implementation of condition 6.

The EPA notes that the conditions imposed on the proposal under the EPBC Act require the proponent to maintain the proposed buffers around caves and demonstrate that cave CO-CA-03 remains suitable habitat for the Pilbara leaf-nosed bat during and after mining ceases at the Razorback Pit.

Water Sources

Water sources are important habitat features in the Pilbara region, and semi-permanent and permanent water sources are significant due to their ability to provide resources for ecosystems for the most or all of the year. A total of eleven permanent and/or semi-permanent water sources were recorded within the study area. The impact of operations on these pools are covered in section 4.1, Inland Waters.

As outlined in section 4.1, the EPA notes that there may be some water quality impacts from increased sediment in pool CO-WS-14, which is associated with Cave CO-CA03. The EPA considers that the water quality in this pool should be maintained so that it remains suitable for use by Pilbara leaf-nosed bats at all times. The EPA notes that the Commonwealth EPBC Act approval requires the proponent to maintain this water quality and as a result there is no need recommend a condition under the State EP Act assessment.

Rocky Ridge and Gorge habitat

The EPA notes that these microhabitat features were recorded in the Rocky Ridge and Gorge habitat type. This habitat type is also known to be important habitat for northern quoll and Pilbara olive python in the study area. Habitat mapping has shown this habitat type to extend outside the development envelope. The indicative footprint of the proposal shows predicted impact to be 2.3 per cent of this habitat type within the study area. Given the scale of impacts, the EPA considers it unlikely that the impact to habitat for northern quoll and Pilbara olive python would be significant.

Short Range Endemic (SRE) Fauna

The majority of the development envelope is comprised of habitats with a low potential to support SRE fauna species. However, two habitats found within the development envelope have a medium or high potential to support SRE fauna:

- Rocky Ridge and Gorge – high potential, 250 ha or 14 per cent of the development envelope
- Drainage Lines – medium potential, 56 ha or 2 per cent of the development envelope

Both of these habitats were found within the wider study area and neither is significantly impacted in the disturbance footprint, with about 10 per cent or 40 ha of the 423 ha disturbance footprint being of these two habitat types.
A total of 31 species were collected from the study area, two of which were considered to be confirmed SRE species, three as likely SRE species and 13 as potential SRE species. Of these, two taxa considered likely SRE species and six potential SRE species were recorded within the development envelope.

Given the:
- disturbance footprint and development envelope consists primarily of habitats with a low potential to support SRE species
- habitat of medium to high potential are well represented outside of the development envelope and
- low numbers of SRE species found during surveys,

it is unlikely that any SRE taxa recorded during surveys will be adversely impacted by the proposal.

**Summary**

The EPA has paid particular attention to:
- relevant principles, guidance and policies
- limited indirect impacts to GDV associated with groundwater drawdown
- the application of mitigation hierarchy (avoidance) to the majority of Fauna Micro habitat features, other than two caves which is predicted to have a low level of impact on the availability of cave habitat available to bats; and
- the direct impacts to short range endemic fauna habitat are limited in scale.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Fauna that the impacts to this factor are manageable and would no longer be significant, provided there is:
- control through limiting the area of disturbance in Schedule 1 of the Recommended Environmental Conditions (Appendix 3)
- implementation of Condition 6, which requires buffers around significant caves CO-CA-03 and CO-CA-01
- implementation of offsets (condition 7) to counterbalance the significant residual cumulative impact of clearing 423.11 ha of Chichester IBRA subregion vegetation and the Pilbara leaf nosed bat.

In addition to the recommended conditions of approval, the EPA notes that there is a requirement for the proponent to meet the conditions of approval under the Commonwealth EPBC Act regarding the protection of the Pilbara leaf-nosed bat.
5. Offsets

Relevant policy and guidance

The EPA considers that the following policy and guidance is relevant to its assessment of offsets for the proposal:

- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offset Guidelines* (Government of Western Australia 2014)

The EPA has also considered its strategic advice on *Cumulative environmental impacts of development in the Pilbara Region – Advice of the Environmental Protection Authority to the Minister for Environment under Section 16 (e) of the Environmental Protection Act 1986* (EPA 2014), for the assessment of offsets.

EPA Assessment

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual impacts of a proposal. The EPA may apply environmental offsets where it determines that the residual impacts of a proposal are significant, after avoidance, minimisation and rehabilitation have been pursued.

Mitigation measures are assessed under the relevant environmental factor (see section 4.2 – Flora and Vegetation). In applying the residual impact significance model (Government of Western Australia 2014), the EPA considers that the proposal would have a significant residual cumulative impact from the clearing of 423.11 ha of Chichester IBRA subregion vegetation, which is largely in Good to Excellent condition.

In its advice on the cumulative impacts in the Pilbara (EPA 2014), the EPA considered that without intervention, the increasing cumulative impacts of development and land use in the Pilbara region will significantly impact on biodiversity and environmental values.

The EPA considers that the clearing of native vegetation and impacts on other associated environmental values in the Pilbara IBRA bioregion is significant where the cumulative impact may reach critical levels if not managed.

The proposal is located within the Chichester IBRA subregion. Only four per cent of the Chichester subregion is currently formally reserved for conservation.

Consistent with the Residual Impact Significance Model in the *WA Environmental Offsets Guidelines*, where the cumulative impact may reach critical levels if not managed, the clearing of native vegetation in ‘Good to Excellent’ condition within the Chichester subregion, and impacts to foraging/roosting habitat requires an offset to counterbalance the significant residual impact of the clearing. Consistent with this, the clearing of 423.11 ha of ‘Good to Excellent’ condition native vegetation constitutes a significant residual impact that requires an offset.
Conservation areas in the Pilbara bioregion total approximately eight per cent of the area, with the remainder mostly Crown Land overlain with mining tenements and pastoral leases. The EPA recognises that the opportunity for proponents to undertake individual offsets in the Pilbara Region is constrained by overlapping land tenure arrangements and limited land access to undertake on-ground offset actions. As such, traditional approaches to offsets, namely land acquisition and management offsets, are therefore limited.

In its advice on cumulative impacts in the Pilbara (EPA 2014), the EPA proposed the establishment of a strategic conservation initiative for the Pilbara as a mechanism to pool offset funds to achieve biodiversity conservation outcomes. Such an approach would provide a mechanism to overcome some of the offset implementation constraints. A pooled offset approach is consistent with the *WA Environmental Offsets Policy*, which states that environmental offsets will be focused on longer term strategic outcomes (Principle 6). Strategic approaches, such as the use of a fund, can provide a coordinating mechanism to implement offsets across a range of land tenures (Government of Western Australia 2014).

A contribution to a strategic conservation initiative focused on these or similar types of actions would allow for an outcome that counterbalances the significant residual impacts from this proposal. The EPA considers that there should be a clear target outcome for each offset project supported by the offset funds. A clear link must be drawn between the outcomes and the significant residual impacts of the individual proposal. Funds should be used for landscape scale on-ground actions in the Pilbara IBRA region and indirect actions (such as research) that will directly counterbalance the residual impacts and contribute to conservation outcomes in the region.

The EPA has stated that the type of environmental offsets in the Pilbara that contribute to a strategic conservation initiative will ensure a consistent and transparent approach and contribute to longer term strategic outcomes, with contributions based on an assessment of the significance of environmental impacts.

The EPA’s view is that project funding for offsets should not be used to provide substitute funding for existing government programs or proponent obligations.

Commensurate with other decisions, the EPA recommends that offset should apply in the form of a contribution to a Pilbara strategic conservation initiative for landscape-scale actions to protect Pilbara biodiversity:

The EPA is satisfied that the existing Commonwealth EPBC approval (2017/7861) adequately addresses offsets through condition 5 of that approval and that the recommended State implementations conditions should refer to the Commonwealth approval in order to avoid duplication.

**Summary**

The EPA recommends that an offset condition (condition 7) is imposed to counterbalance the significant residual impacts of the proposal.
6. Conclusion

In conclusion, the EPA has reviewed the assessment and taken a holistic view of the likely residual impacts of the proposal. The EPA has considered the degree of connectivity and inter-relatedness of processes operating across systems and communities that make up the environment.

Application of mitigation hierarchy

Consistent with relevant policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts by:

- designing the development envelope to avoid threatened flora and fauna refugia area where possible and locating infrastructure away from sensitive sites such as watercourses
- providing a buffer and monitoring of Cave CO-CA-01 and CO-CA-03.

Offsets

Clearing of 423.11 ha of Chichester IBRA subregion vegetation and impact to the Pilbara leaf-nosed bat would have required contribution to the Pilbara Environmental Offsets fund to address cumulative impacts but is adequately addressed by EPBC approval 2017/7861.

Conclusion

The EPA has taken the following into account in its assessment of the proposal, including the:

- impacts to all the key environmental factors
- EPA’s confidence in the proponent’s proposed mitigation measures
- relevant EP Act principles and the EPA’s objectives for the key environmental factors
- EPA’s view that the impacts to the key environmental factors are manageable, provided the recommended conditions are imposed.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 3.
7. Other advice

Mining below the water table

The current referral and assessment is for mining operations above normal ground water levels. A future development option may be to extend mining operations below the water table which is not part of this referral or assessment. Extending operations below the water table could have significant impacts on environmental values described in this report and would require a separate referral to the EPA.
8. Recommendations

That the Minister for Environment notes:

1. That the proposal assessed is for the construction and operation of the Corunna Downs Project which would require up to 423.11 ha of clearing within a development envelope of 2,257.6 ha.

2. The key environmental factors identified by the EPA in the course of its assessment are:
   - Inland Waters
   - Flora and Vegetation
   - Terrestrial Fauna.

3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 3. Matters addresses in the conditions include the following:
   a) limiting the development envelope and indicative development footprint to avoid direct impacts to sensitive areas
   b) an exclusion area and monitoring to manage impacts to Cave CO-CA-03 and CO-CA-01 for the Pilbara Leaf-nosed Bat
   c) offsets via Commonwealth approval EPBC 2017/7861 to counterbalance the significant residual impacts to avoid duplication.
References


DMP and EPA 2015, Guidelines for Preparing Mine Closure Plans, Department of Mines and Petroleum and Environmental Protection Authority, Perth, WA.


EPA 2014, *Cumulative environmental impacts of development in the Pilbara region - Advice of the Environmental Protection Authority to the Minister for Environment under Section 16 (e) of the Environmental Protection Act 1986*, Environmental Protection Authority, Perth, WA.

EPA 2016a, *Environmental Factor Guideline – Flora and Vegetation*, Environmental Protection Authority, Perth, WA.


EPA 2016c, *Environmental Factor Guideline – Terrestrial Fauna*, Environmental Protection Authority, Perth, WA.


EPA 2016e, *Technical Guidance – Sampling of short range endemic invertebrate fauna*, Environmental Protection Authority, Perth, WA.

EPA 2016f, *Environmental Factor Guideline – Air Quality*, Environmental Protection Authority, Perth, WA.

EPA 2018a, *Statement of Environmental Principles, Factors and Objectives*, Environmental Protection Authority, Perth, WA.

EPA 2018b, *Environmental Factor Guideline – Inland Waters*, Environmental Protection Authority, Perth, WA.


Government of Western Australia 2011, *WA Environmental Offsets Policy*, Government of Western Australia, Perth, WA.

## Appendix 1: Consideration of principles

<table>
<thead>
<tr>
<th>EP Act Principle</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. The precautionary principle</strong>&lt;br&gt;&lt;i&gt;Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –&lt;/i&gt;</td>
<td><strong>This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal. In considering this principle, the EPA notes that Flora and Vegetation, Terrestrial Fauna and Inland Waters could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.</strong>&lt;br&gt;&lt;i&gt;Investigations into the biological and physical environment undertaken by the proponent have provided sufficient scientific certainty to assess the risks and identify measures to avoid or minimise impacts. The EPA notes that the proponent has identified measures to avoid or minimise impacts.&lt;/i&gt;&lt;br&gt;&lt;i&gt;The EPA has recommended conditions to ensure these measures are implemented by the proponent.&lt;/i&gt;&lt;br&gt;&lt;i&gt;The EPA notes there may be a threat of serious or irreversible harm given the scale of operations and the residual impacts at bioregional scale. The application of the Pilbara offsets policy addresses this issue.&lt;/i&gt;</td>
</tr>
<tr>
<td><strong>2. The principle of intergenerational equity</strong>&lt;br&gt;&lt;i&gt;The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.&lt;/i&gt;</td>
<td><strong>This principle is a relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factor of Inland Waters.</strong>&lt;br&gt;&lt;i&gt;The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment and has concluded that provided the recommended conditions are imposed on the implementation of the proposal, the environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.&lt;/i&gt;</td>
</tr>
<tr>
<td>EP Act Principle</td>
<td>Consideration</td>
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<tr>
<td>Mine closure can be managed under the <em>Mining Act 1978</em>, as per joint guidance (DMP and EPA 2015), to achieve the DMIR’s objective of a safe, stable, non-polluting landform that is capable of sustaining post mining landuse. This will help ensure future generations are not disadvantaged by the development.</td>
<td></td>
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<tr>
<td>3. The principle of the conservation of biological diversity and ecological integrity</td>
<td>This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Flora and Vegetation, and Terrestrial Fauna.</td>
</tr>
<tr>
<td>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</td>
<td>The EPA notes that the proponent has identified measures to avoid or minimise impacts by avoiding waterways, most caves and most populations of Priority Flora. The EPA has considered these measures during its assessment.</td>
</tr>
<tr>
<td>The EPA notes that cumulative impacts may affect biological diversity and ecological integrity in the Chichester IBRA subregion. The EPA has considered to what extent the potential impacts from the proposal can be ameliorated by recommending conditions, including offsets.</td>
<td></td>
</tr>
<tr>
<td>4. Principles relating to improved valuation, pricing and incentive mechanisms</td>
<td>In considering this principle, the EPA that the proponent will take responsibility for preventing pollution and ensuring the rehabilitation and ongoing management of the proposal.</td>
</tr>
<tr>
<td>(1) Environmental factors should be included in the valuation of assets and services.</td>
<td>The integration of rehabilitation and closure planning into operating mine planning will ensure cost-effective measures and mechanisms to reduce liability and risks with mine closure are identified and implemented.</td>
</tr>
<tr>
<td>(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</td>
<td>The EPA has had regard to this principle during the assessment of the proposal.</td>
</tr>
<tr>
<td>(3) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.</td>
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<tr>
<td>(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which</td>
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<tr>
<td>EP Act Principle</td>
<td>Consideration</td>
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</table>
| *enable those best placed to maximise benefits and/or minimize costs to develop their own solution and responses to environmental problems.* | In considering this principle, the EPA notes that the proponent proposes to apply a waste hierarchy to the project operations. Atlas Iron’s Waste Management Procedure is centred around three key principles:  
  • stewardship (i.e. avoiding unnecessary waste generation through the lifecycle of a product).  
  • waste hierarchy (i.e. avoid, reduce, reuse, recycle).  
  • resource efficiency (i.e. getting the most out of a resource).  
  This procedure ensures waste minimisation and recycling opportunities are explored throughout the lifecycle of products used, appropriate waste management practices are in place, and compliance with relevant legislation and standards.  
  Major waste streams for this proposal include waste rock, waste for landfill (inert and putrescible) treated wastewater and hydrocarbon/hazardous waste.  
  The EPA has had regard to this principle during the assessment of the proposal. |
## Appendix 2: Evaluation of other environmental factors

<table>
<thead>
<tr>
<th>Environmental factor</th>
<th>Description of the proposal’s likely impacts on the environmental factor</th>
<th>Government agency and public comments</th>
<th>Evaluation of why the factor is not a key environmental factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAND</strong></td>
<td><strong>Subterranean Fauna</strong></td>
<td><strong>Agency comments</strong></td>
<td>Subterranean Fauna was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal.</td>
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<tr>
<td></td>
<td>Potential impacts include:</td>
<td>The Department of Water and Environmental Regulation advised that surveys met the minimum requirements, but noted unexplained variation in survey results.</td>
<td>Having regard to:</td>
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<tr>
<td></td>
<td>• direct disturbance of habitat through mining</td>
<td></td>
<td>• Surveys finding no stygofauna and low numbers of troglofauna. Thirteen troglofauna taxa were found, eight of which are not considered to be of conservation concern. For the remaining five taxa, the proposed mining activities (pit excavation and/or groundwater drawdown) are considered to represent a low risk to their long term conservation.</td>
</tr>
<tr>
<td></td>
<td>• dewatering of habitat</td>
<td></td>
<td>• Geological habitat assessment being consistent with the broader distributions of the overall troglofauna assemblage that demonstrated troglofauna habitat is largely contiguous along the main ironstone ridge system and extends to a neighbouring ridge systems.</td>
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<tr>
<td></td>
<td>• pollution of habitat.</td>
<td></td>
<td>• The significance considerations in the <em>Statement of Environmental Principles, Factors and Objectives</em> (EPA 2018a),</td>
</tr>
<tr>
<td>Environmental factor</td>
<td>Description of the proposal’s likely impacts on the environmental factor</td>
<td>Government agency and public comments</td>
<td>Evaluation of why the factor is not a key environmental factor</td>
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</table>
| Terrestrial Environmental Quality | Potential impacts include:  
  • spills and accidental discharges  
  • level of heavy metals in overburden  
  • overburden is Potentially Acid Forming (PAF) at two of the four pits  
  • erosion from vegetation clearing. | The proponent has designed the proposal, and intends to operate the proposal, to minimise risk of impacts to Terrestrial Environmental Quality. Conventional drill and blast, load, and haul operations are low risk to the environment. DMIRS requested further investigation around the extent of PAF material at Split Rock and Runway South pits. Follow up investigations for Split Rock have indicated low risk but no investigations for Runway South. | the EPA considers it is unlikely that the proposal would have a significant impact on Subterranean Fauna and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Subterranean Fauna to be a key environmental factor** at the conclusion of its assessment. |

Terrestrial Environmental Quality was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to:  
  • Development envelop being located away from watercourses and high environmental value assets.  
  • Some shale from Split Rock and Runway South pits having elevated mercury levels. Levels of up to 5,400 ug/Kg were recorded in some samples (recommended threshold is 1,000 ug/kg). The number of samples with elevated readings was low and solubility of the Hg was low under a variety of pH conditions. It is proposed as part of the proponent's Waste Management Strategy any shale material will be buried 10 metres below final surface of profiled landform (i.e. below the rooting zone of most vegetation) to prevent absorption by plants.  
  • The waste rock characterisation assessment confirming only limited presence of PAF shale. Approximately two per cent of waste rock from
<table>
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<th>Evaluation of why the factor is not a key environmental factor</th>
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</thead>
<tbody>
<tr>
<td>AIR</td>
<td></td>
<td></td>
<td>Split Rock pit has been classified as PAF. Runway South pit has had limited drilling to estimate PAF levels, but level containment measures have been developed for storing PAF waste rock if intersected as per the proposed Waste Management Strategy.</td>
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<td>• Shale making up less than 15 per cent (658 kBCM) of the proposal’s total waste rock volume.</td>
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<td>• Water quality being typically turbid after heavy rainfall events so any impact from clearing will be hard to identify. Application of buffers from watercourses, contouring and drainage controls will help mitigate impacts.</td>
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<td>• The significance considerations in the <em>Statement of Environmental Principles, Factors and Objectives</em> (EPA 2018a), the EPA considers it is unlikely that the proposal would have a significant impact on Terrestrial Environmental Quality and the impacts to this factor are manageable via rehabilitation and closure management processes.</td>
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<td></td>
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<td></td>
<td>Accordingly, the <strong>EPA did not consider Terrestrial Environmental Quality to be a key environmental factor</strong> at the conclusion of its assessment.</td>
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<tr>
<td>AIR</td>
<td>Dust deposition on vegetation and sensitive receptors such as the mine camp, neighbouring gold mine and public road area</td>
<td>There were no agency or public comments on greenhouse gases</td>
<td>Air Quality was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal.</td>
</tr>
<tr>
<td>Environmental factor</td>
<td>Description of the proposal’s likely impacts on the environmental factor</td>
<td>Government agency and public comments</td>
<td>Evaluation of why the factor is not a key environmental factor</td>
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<tr>
<td>Air quality</td>
<td>Air quality has the potential to be impacted through increased emissions of Greenhouse gases</td>
<td></td>
<td>Having regard to:</td>
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<td>- Air quality impacts that were modelled by assessing dust concentrations and comparing these to ambient air quality assessment criteria in order to determine the potential impact to the region and key sensitive receptor locations. With standard dust mitigation actions in place, the proposal will have no significant impact on the air quality in the region or at receptor locations.</td>
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<td></td>
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<td></td>
<td>- The proposal is estimated to produce less than 25,000t CO2-e annually. As stated in the EPA’s Environmental Factor Guideline – Air Quality (EPA 2016f), the EPA may decide to assess emissions if they are deemed to be significant by increasing the State’s greenhouse gas emissions. Given the small scale and short term nature of the mine, it is unlikely the proposal would have a significant impact on greenhouse gas emissions and that the impacts to this factor are manageable.</td>
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<td></td>
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<td>- The significance considerations in the Statement of Environmental Principles, Factors and Objectives (EPA 2018a), the EPA considers it is unlikely that the proposal would have a significant impact on Air Quality and that the impacts to this factor are manageable.</td>
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<tr>
<td>Environmental factor</td>
<td>Description of the proposal’s likely impacts on the environmental factor</td>
<td>Government agency and public comments</td>
<td>Evaluation of why the factor is not a key environmental factor</td>
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<td></td>
<td>Accordingly, the EPA did not consider Air Quality to be a key environmental factor at the conclusion of its assessment.</td>
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<tr>
<td><strong>PEOPLE</strong></td>
<td></td>
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<tr>
<td>Social Surroundings</td>
<td>Potential impact to Aboriginal heritage sites.</td>
<td>There are no registered heritage sites.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trucking impacts on the region</td>
<td>Noise impacts on sensitive receptors such as Marble Bar town site and two residences located along trucking route</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corunna Down WWII airstrip</td>
<td>Public comment: Historic value of the site and ensure public access to the site is maintained</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Social Surroundings was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to:</td>
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<td></td>
<td>- There being no registered Aboriginal sites or other heritage places located within the development envelope and ongoing consultation and involvement with the Njamal Traditional Owners.</td>
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<td></td>
<td></td>
<td></td>
<td>- The remoteness of the site.</td>
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<td></td>
<td></td>
<td></td>
<td>- Mitigation measures for trucking activities close to residential areas. A 20 kilometre per hour slow zone at two roadside residences will keep modelled sound levels at less than 50 decibels. Speed limits were developed in consultation with the two residences.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Public comment on the proposal regarding the WWII airstrip which is 10 km to the east of the mine site. This site has historical values but has a low visitation rate. Sound contouring indicates noise levels 10 km from the site would be low (10 to 20 decibels). Primary access is via Salgash Road and Corunna Downs Station tracks which runs to the east of the mine site.</td>
</tr>
<tr>
<td>Environmental factor</td>
<td>Description of the proposal's likely impacts on the environmental factor</td>
<td>Government agency and public comments</td>
<td>Evaluation of why the factor is not a key environmental factor</td>
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<td></td>
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<td></td>
<td>• The significance considerations in the <em>Statement of Environmental Principles, Factors and Objectives</em> (EPA 2018a), the EPA considers it is unlikely that the proposal would have a significant impact on Social Surroundings and that the impacts to this factor are manageable. Accordingly, the <strong>EPA did not consider Social Surroundings to be a key environmental factor</strong> at the conclusion of its assessment.</td>
</tr>
</tbody>
</table>
Appendix 3: Identified Decision-Making Authorities and Recommended Environmental Conditions

Identified Decision-making Authorities

Section 44(2) of EP Act specifies that the EPA’s report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA’s recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities (DMAs), and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified:

<table>
<thead>
<tr>
<th>Decision-making Authority</th>
<th>Legislation (and Approval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minister for Environment</td>
<td>Biodiversity Conservation Act 2016 (Taking of flora and fauna)</td>
</tr>
<tr>
<td>2. Minister for Water</td>
<td>Rights in Water and Irrigation Act 1914 (Water abstraction licence)</td>
</tr>
<tr>
<td>3. Minister for Aboriginal Affairs</td>
<td>Aboriginal Heritage Act 1972 (Section 18 clearances)</td>
</tr>
<tr>
<td>5. Chief Executive Officer, Department of Water and Environment Regulation</td>
<td>Environmental Protection Act 1986 (Works Approval and Licence)</td>
</tr>
<tr>
<td>6. Department of Mines Industry Regulation and Safety Exec Director, Resource and Environmental Compliance Division</td>
<td>Mining Act 1978 (Mining proposal)</td>
</tr>
<tr>
<td>Mining Registrar</td>
<td>Mining Act 1978 (Miscellaneous licences)</td>
</tr>
<tr>
<td>State Mining Engineer</td>
<td>Mines Safety and Inspection Act 1994 (Mine safety)</td>
</tr>
<tr>
<td>Chief Dangerous Goods Officer</td>
<td>Dangerous Goods Safety Act 2004 (Dangerous goods)</td>
</tr>
<tr>
<td>7. Chief Health Officer, Department of Health</td>
<td>Health Act 1911 and Health (Treatment of Sewage and Disposal of Effluent and Liquid waste) Regulations 1974 (Sewage treatment permit)</td>
</tr>
<tr>
<td>8. Chief Executive Officer, Shire of East Pilbara</td>
<td>Building Act 2011 Planning and Development Act 2005</td>
</tr>
</tbody>
</table>

Note: In this instance, agreement is only required with DMA 1-4 since these DMAs are Ministers.
RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED

(Environmental Protection Act 1986)

CORUNNA DOWNS PROJECT

Proposal: Develop and operate an open cut above watertable iron ore mine and associated mining infrastructure, waste rock dumps, borefield, and accommodation camp within the Corunna Downs Project area, located 241 kilometres south east of Port Hedland and 33 kilometres south of Marble Bar

Proponent: Atlas Iron Pty Ltd
Australian Company Number 110 396 168

Proponent Address: Level 17, Raine Square, 300 Murray St
Perth WA 6000

Assessment Number: 2218

Report of the Environmental Protection Authority: 1665

Pursuant to section 45 of the Environmental Protection Act 1986, it has been agreed that the proposal described and documented in Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.
3 **Time Limit for Proposal Implementation**

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date of this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 **Compliance Reporting**

4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then
annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent’s Chief Executive Officer or a person delegated to sign on the Chief Executive Officer’s behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Pilbara Leaf-Nosed Bat

6-1 The proponent must design and implement the proposal to meet the following environmental outcomes to minimise impacts on the Pilbara leaf-nosed bat:

(1) maintain a 50-metre buffer around the lateral extent of cave CO-CA-03 as shown in Figure 3 of Schedule 1; and
(2) maintain a 340-metre buffer around the lateral extent of cave CO-CA-01 as shown in Figure 4 of Schedule 1.

6-2 The proponent shall provide the CEO with copies of all reports and data relating to the Pilbara leaf-nosed bat required under conditions 1, 2, 3 and 4 of the Final Approved Decision Notice 2017/7861 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 within one (1) month of their provision to the Commonwealth Government.

7 Offsets

7-1 The proponent shall provide the CEO with copies of all reports, data and proof of money paid into a conservation offset fund, relating to the Pilbara leaf-nosed bat required under condition 5 of the Final Approved Decision Notice 2017/7861 under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 within one (1) month of their provision to or receipt from the Commonwealth Government.
Table 1: Summary of the proposal

<table>
<thead>
<tr>
<th>Proposal Title</th>
<th>Corunna Downs Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Description</td>
<td>Develop and operate an open cut, above the water table iron ore mine and associated mining infrastructure, including waste rock dumps, borefields and accommodation camp within the Corunna Downs Project area located 241 km south east of Port Hedland and 33 km south of Marble Bar. The proposal involves the mining of five open pits, namely; Split Rock, Razorback, Shark Gully, Runway North and Runway South.</td>
</tr>
</tbody>
</table>

Table 2: Location and authorised extent of physical and operational elements

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element</td>
<td>Location</td>
<td>Authorised Extent</td>
</tr>
<tr>
<td>Mine and associated infrastructure</td>
<td>Figure 2</td>
<td>Clearing no more than 423.11 ha of native vegetation within the 2,257.6 ha development envelope</td>
</tr>
<tr>
<td>Groundwater abstraction</td>
<td>Figure 2</td>
<td>No more than 1.1 gigalitres per annum from borefields</td>
</tr>
</tbody>
</table>

Table 3: Abbreviations and Definitions

<table>
<thead>
<tr>
<th>Acronym or Abbreviation</th>
<th>Definition or Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO</td>
<td>The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the Environmental Protection Act 1986, or his delegate.</td>
</tr>
<tr>
<td>EP Act</td>
<td>Environmental Protection Act 1986</td>
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<td>Hectare</td>
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</tbody>
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Figures (attached)

Figure 1: Regional Location
Figure 2: Corunna Downs Project development envelope and disturbance footprint
Figure 3: Location of cave CO-CA-03, and pool CO-WS-14
Figure 4: Location of cave CO-CA-01
Figure 1: Regional location
Figure 2: Corunna Downs Project development envelope and disturbance footprint
Figure 3: Location of cave CO-CA-03 and pool CO-WS-14
Figure 4: Location of cave CO-CA-01
Spatial coordinates for the boundaries of the proposal (MGA Zone 50).

Coordinates defining the boundaries shown in Figure 2, 3 and 4 are held by the Department of Water Environmental Regulation, Reference Number DWERDT217945.