

Conservation Significant Fauna Management Plan

Mulga Downs Iron Ore Mine – Western Australia

Hancock Prospecting Pty Ltd
ABN 69 008 676 417

EPBC Assessment Number: 2022/09255
EPA Assessment Number: 2326

29 August 2025

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Revision Register

REV	DATE	DESCRIPTION	PREPARED BY	REVIEWED BY	AUTHORISED BY
0	April 2023	Draft Management Plan for EPA and DCCEEW initial review.	JBS&G Australia	V. Campagna	
1	June 2023	Draft Management Plan for EPA initial review.	JBS&G Australia	V. Campagna	
2	November 2023	Draft Management Plan for HPPL initial review.	JBS&G Australia		
3	December 2024	Revision addressing DCCEEW Review	JBS&G Australia		B McGuire
4	April 2025	Revision addressing BNTAC and DCCEEW Comments	JBS&G Australia	HanRoy	B McGuire
5	29 August 2025	Revision addressing EPA comments and incorporation of Dr. Kyle Armstrong's expertise on bat/cave management.	HanRoy Dr. Kyle Armstrong (SuperSensory Technologies Pty Ltd)	B McGuire	B McGuire

Declaration of Accuracy:

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Full name (please print)

Brett McGuire

Organisation (please print)

HanRoy

Date

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Executive Summary

Hancock Prospecting Pty Ltd (HPPL, the Proponent) is proposing to construct and operate the Mulga Downs Iron Ore Mine (MDIOM, the Proposal), located approximately 210 kilometres (km) south of Port Hedland and 180 km north-west of Newman in the Pilbara Region of Western Australia.

The purpose of this Conservation Significant Fauna Management Plan (CSFMP) is to outline the Proponent's approach to managing potential impacts on conservation significant terrestrial fauna from implementation of the Proposal. This CSFMP addresses terrestrial fauna species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as Matters of National Significance (MNES), fauna species listed under the State *Biodiversity Conservation Act 2016* (BC Act), for assessment under Part IV of the State *Environmental Protection Act 1986* (EP Act) and/or are listed as priority species by the Department of Biodiversity, Conservation and Attractions (DBCA).

Table E- 1: Conservation Significant Fauna Management Plan Summary

Proposal Name	Mulga Downs Iron Ore Mine (MDIOM, the Proposal)
Proponent Name	Hancock Prospecting Pty Ltd (HPPL, the Proponent)
Short Description	<p>The Proposal is for the development of the MDIOM, located 210 km south of Port Hedland and 180 km north west of Newman in the Pilbara Region of Western Australia. The Proposal includes but is not limited to the following:</p> <ul style="list-style-type: none">• The development of a series of above and below water table mine pits;• Dry ore crushing and screening plant(s);• Groundwater abstraction for water supply (for the mine and all associated infrastructure) and for the dewatering to facilitate the recovery of ore below water table in the mine pits;• Surplus water management via managed aquifer recharge (MAR) and/or in pit infiltration;• Waste rock dumps (WRD);• Infrastructure to manage surface water (diversion of creeks and surface water flows);• Linear infrastructure (haul roads, powerlines, pipelines and conveyor corridors);• Mine associated infrastructure and support facilities (including, but not limited to accommodation camp, energy supply infrastructure, airstrip; wastewater treatment plant; landfill, offices, workshops, laydown areas, etc.); and• Transport of the ore via the Great Northern Highway to Port Hedland or via road to a siding along the existing Roy Hill railway and then via that railway to Port Hedland for export. Future transport options (e.g. rail) will be subject to a separate referral.
Ministerial Statement Number	To be determined <i>Note: This document has been prepared to support the EPA's and the Commonwealth DCCEEW's assessment of the Proposal.</i>
EP Act Assessment No.	2326
EPBC Reference No.	2022/09255
Purpose of CSFMP	To provide a management framework for conservation significant vertebrate fauna and their habitats to avoid, minimise and mitigate potential adverse impacts associated with the implementation of the Proposal.

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Key environmental factor/s and objectives relevant to this CSFMP	<p>Terrestrial Fauna: <i>“To protect terrestrial fauna so that biological diversity and ecological integrity are maintained”</i></p> <p>Flora and Vegetation: <i>“To protect flora and vegetation so that biological diversity and ecological integrity are maintained”.</i></p>
Controlling Provisions - MNES	<ul style="list-style-type: none"> • Threatened species and communities (s.18 & s.18A) • Migratory Species (s.20 & s.20A)
Condition clauses	<p>This CSFMP satisfies item 10 of the Environmental Scoping Document (ESD) for the Proposal under EP Act Assessment No. 2326.</p> <p>Given the Proposal is under assessment (Part IV of EP Act) and is a Controlled Action under EPBC Act, approval conditions are yet to be issued.</p>
Key components in the CSFMP	<p>An outcome and objective-based management plan addressing the following:</p> <ul style="list-style-type: none"> • Establishing limits of clearing of conservation significant fauna habitat. • Protection of retained Category 4 caves for conservation significant bat species. • Establishing a Fauna Habitat Exclusion Zone (FHEZ) and FHEZ Corridor. • Minimising the degradation of significant fauna habitat from implementation, related to: <ul style="list-style-type: none"> ○ dust emissions; ○ altered fire regimes; ○ weed invasion; ○ altered hydrological changes. • Minimising disturbance to native fauna from noise, vibration and lighting during Proposal implementation. • Minimising population decline of conservation significant fauna due to predation from introduced fauna (including cane toads) as a result of the Proposal. • Minimising incidental mortality or injury of conservation significant terrestrial fauna from clearing activities, vehicle strike or mining related activities resulting from the Proposal. • Minimising conservation significant terrestrial fauna population decline due to entrapment within mine infrastructure and equipment, as a result of the Proposal. <p><i>Note this CSFMP is to move towards outcome based as the residual impacts are finalised.</i></p>
Proposed construction date	Construction of the Proposal is anticipated to commence in FY2026 (subject to approvals) and is forecast to take approximately two years.
CSFMP required pre-construction?	Yes

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1 Introduction

1.1 Proposal Background

HPPL is proposing to construct and operate the Mulga Downs Iron Ore Mine (MDIOM, the Proposal), a greenfield iron ore mine at Mulga Downs, located on the southern flanks of the Chichester Range. The Proposal is approximately 210 km south of Port Hedland and 180 km north-west of Newman, in the Pilbara Region of Western Australia (Figure 1-1).

The Proposal involves the construction and operation of an iron ore mine and associated infrastructure. Once operational, the Proposal will involve mining of up to 12 million tonnes per annum (Mtpa) of iron ore from above and below the water table using conventional drill and blast, load and haul techniques. Operations will be continuous throughout the year, running 24 hours a day, seven days a week, over an 18 year mine life.

Table 1-1 provides a summarised description of the Proposal. Figure 1-1 shows the regional location of the Proposal.

Table 1-1: Proposal Summary

Proposal title	Mulga Downs Iron Ore Mine (Proposal)
Proponent name	Hancock Prospecting Pty Ltd (HPPL)
Short description	<p>The Proposal is for the development of the Mulga Downs Iron Ore Mine (MDIOM) located approximately 210 km south of Port Hedland and 180 km north-west of Newman in the Pilbara Region of Western Australia. The Proposal includes but is not limited to the following:</p> <ul style="list-style-type: none">• The development of a series of above and below water table mine pits;• Dry ore crushing and screening plant(s);• Groundwater abstraction for water supply (for the mine and all associated infrastructure) and for the dewatering to facilitate the recovery of ore below water table in the mine pits;• Surplus water management via managed aquifer recharge (MAR) and/or in pit infiltration;• Waste rock dumps (WRD);• Infrastructure to manage surface water (diversion of creeks and surface water flows);• Linear infrastructure (haul roads, powerlines, pipelines and conveyor corridors);• Mine associated infrastructure and support facilities (including, but not limited to accommodation camp, energy supply infrastructure, airstrip; wastewater treatment plant; landfill, offices, workshops, laydown areas, etc.); and• Transport of the ore via the Great Northern Highway to Port Hedland or via road to a siding along the existing Roy Hill railway and then via that railway to Port Hedland for export. Future transport options (e.g. rail) will be subject to a separate referral.

1.2 Purpose and Scope

The purpose of this Conservation Significant Fauna Management Plan (CSFMP) is to outline the Proponent's approach to managing potential impacts on conservation significant terrestrial fauna and supports the assessment of the Proposal under both the *Environmental Protection Act 1986* (EP Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

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This CSFMP applies to potential direct and indirect impacts resulting from the implementation of the Proposal on terrestrial fauna and their habitat. The objective of this CSFMP is to:

- Identify the key aspects and activities of the Proposal with the potential to directly or indirectly impact conservation significant fauna and / or their habitat;
- Describe mitigation measures that will be implemented to avoid or minimise the adverse impacts on the conservation significant fauna and their habitat;
- Describe the outcomes, consistent with relevant legislation, policies and guidance; and
- Provide the rationale and approach undertaken to enable compliance criteria to be met.

This CSFMP applies to all phases of the proposed MDIOM, including construction, operation, closure and rehabilitation. The provisions for management of impacts to conservation significant fauna from management of excess water from dewatering, managed aquifer recharge, aquifer injection and pit infiltration (as defined below) will be provided in an updated version of this plan or within a separated Water Management Plan.

Excess water - Mine dewater that is not required for operational, construction or consumption requirements.

Dewatering - The process by which excess groundwater is removed via groundwater bores, or in-pit sumps, with the primary intent to provide access to below natural water table ore bodies.

Managed Aquifer Recharge (MAR) - The practice of recharging groundwater systems for purpose of environmental management or storage and future reuse, methods of MAR can include Aquifer Injection and Pit/sump Infiltration.

Aquifer Injection - The process by which excess dewatering is returned to the groundwater system via bores that intersect the aquifer, to replenish and maintain water levels.

Pit Infiltration - The process by which excess dewatering is returned back to the groundwater system via mine pits that intersect the aquifer, to replenish and maintain water levels.

Groundwater abstraction will be permitted to meet water requirements for construction and operations.

Abstraction - Process of removing ground water via bores to support construction and operation requirements.

The Proposal is subject to separate assessments under the EP Act and the EPBC Act due to a difference in the clearing of native vegetation within the Proposal extent (Development Envelope / Proposed Action Area) under assessment within each jurisdiction. This CSFMP has therefore been prepared in accordance with:

- *'Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans'* (EPA, 2020), as stated in the ESD, and addresses any specific work additional work required for assessment of the Proposal under the EP Act; and
- Information required under the *'Environmental Management Plan Guidelines'* (DoE, 2014) and supports the Public Environmental Report (PER) for the Proposal.

For ease of reference, the term Proposal is referred to throughout this document. However, given the difference between the Proposed Action Area and Development Envelope, reference is made to either or both where relevant in this document.

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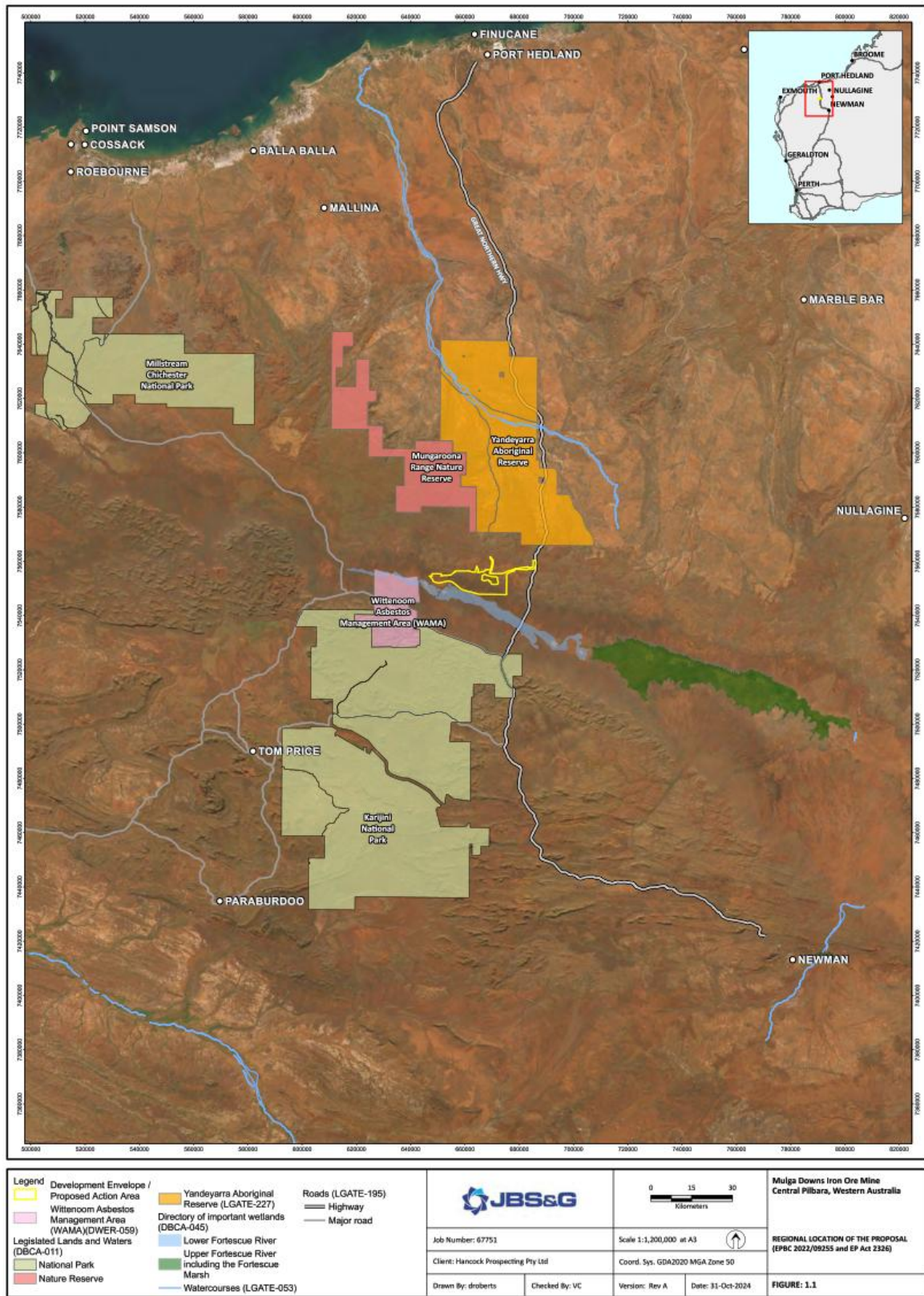


Figure 1-1: Regional Location of the Proposed Action Area (EPBC 2022/09255) / Development Envelope (EP Act 2326)

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1.3 Environmental Impact Assessment

1.3.1 Environmental Protection Act 1986

The Proposal was referred to the WA EPA under Part IV of the EP Act (Assessment No: 2326) in December 2021. The EPA provided notice that the Proposal would be assessed and the level of assessment was set at PER with a 6-week public review period for the Environmental Review Document (ERD).

The Proposal currently under assessment by the EPA under the EP Act will involve the clearing of up to 4,339.16 ha of native vegetation within a Development Envelope of 16,848.83 ha (**Figure 1-2**).

The key environmental factors relevant to the assessment of the Proposal include:

- Flora and Vegetation;
- Subterranean Fauna;
- Terrestrial Environmental Quality;
- Terrestrial Fauna;
- Inland Waters
- Greenhouse Gas Emissions;
- Social Surroundings; and
- Air Quality.

1.3.2 Terrestrial Fauna

This CSFMP specifically addresses the EPA's environmental factor for Terrestrial Fauna. The EPA (EPA, 2016) defines the factor of Terrestrial Fauna as:

“Animals living on land or using land (including aquatic systems) for all or part of their lives. Terrestrial fauna includes vertebrate (birds, mammals including bats, reptiles, amphibians, and freshwater fish) and invertebrate (arachnids, crustaceans, insects, molluscs and worms) groups. It also includes aquatic fauna which occurs in standing, flowing or temporary waters.”

Fauna habitat is also included as part of the terrestrial fauna environmental factor. The EPA (EPA, 2016) defines fauna habitat as:

“The natural environment of an animal or assemblage of animals, including biotic and abiotic elements, that provides a suitable place for them to live (e.g. breed, forage, roost or seek refuge). The scale at which fauna habitat is defined will depend on the ecological requirements of the species considered.”

1.3.3 Condition Requirements

Conditional requirements will be added from the Ministerial Statement once issued.

This CSFMP responds to Item 10 of the ESD prepared for the Proposal.

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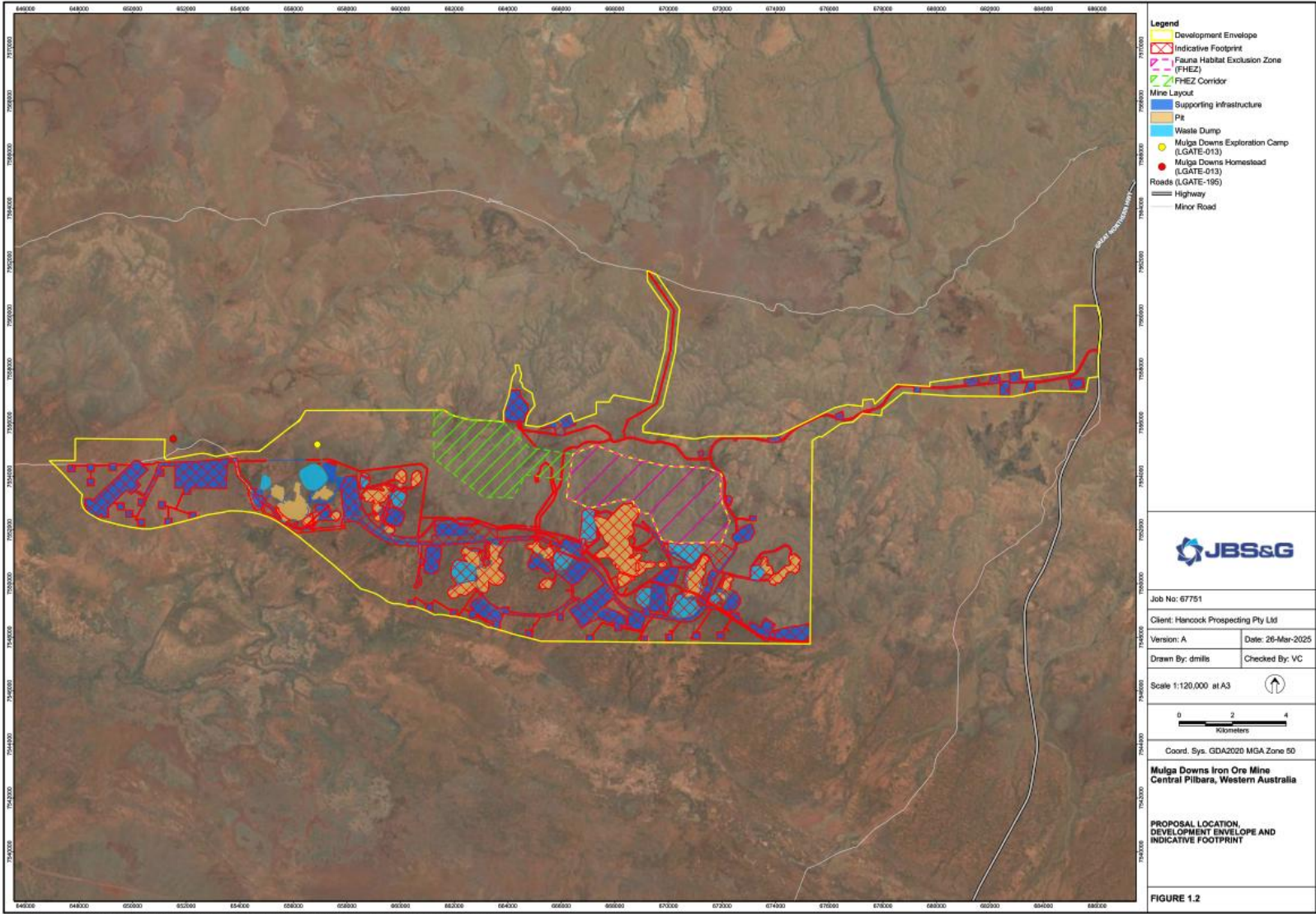


Figure 1-2: Proposal Location, Development Envelope and Indicative Footprint (EP Act – 2326)

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1.3.4 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the Act as Matters of National Environmental Significance (MNES).

The Commonwealth is currently assessing the Proposal via a Public Environmental Report under Assessment Number: EPBC 2022/09255. The MDIOM is not being assessed as an accredited assessment under Section 87 of the EPBC Act as the indicative footprints within the Development Envelope/Proposed Action Areas are different. The Proposal being assessed under the EP Act does not include the Murray’s Hill Project, which is a component of the Proposal being assessed under the EPBC Act. The Proposal for the purpose of EPBC 2022/09255 is displayed on **Figure 1-3**.

The Proposal being assessed under the EPBC Act will involve the clearing of up to 4,733.66 ha of native vegetation within a Proposed Action Area of 16,848.83 ha (**Figure 1-3**). The Proposal has the potential to impact upon the following Matters of National Environmental Significance (MNES):

- Listed Threatened Species and Communities (Sections 18 & 18A); and
- Listed Migratory Species (Sections 20 & 20A).

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) issued Public Environmental Review guidelines to HPPL in October 2022. DCCEEW identified the following MNES as relevant to the assessment of the Proposal:

- Northern Quoll (*Dasyurus hallucatus*) – Endangered;
- Pilbara Leaf-nosed Bat (*Rhinonictoris aurantia*) – Vulnerable;
- Ghost Bat (*Macroderma gigas*) – Vulnerable;
- Pilbara Olive Python (*Liasis olivaceus barroni*) – Vulnerable;
- Greater Bilby (*Macrotis lagotis*) – Vulnerable;
- Night Parrot (*Pezoporus occidentalis*) – Endangered;
- Grey Falcon (*Falco hypoleucos*) – Vulnerable; and
- Blind Cave Eel (*Ophisternon candidum*) – Vulnerable.

The following listed migratory species (sections 20 & 20A) were also identified:

- Common Greenshank (*Tringa nebularia*) – Migratory;
- Wood Sandpiper (*Tringa glareola*) – Migratory;
- Red-necked Stint (*Calidris ruficollis*) – Migratory;
- Glossy Ibis (*Plegadis falcinellus*) – Migratory; and
- Fork Tailed Swift (*Apus pacificus*) – Migratory.

1.3.5 Condition Requirements

Conditional requirements will be added from the EPBC Act Approval once issued.

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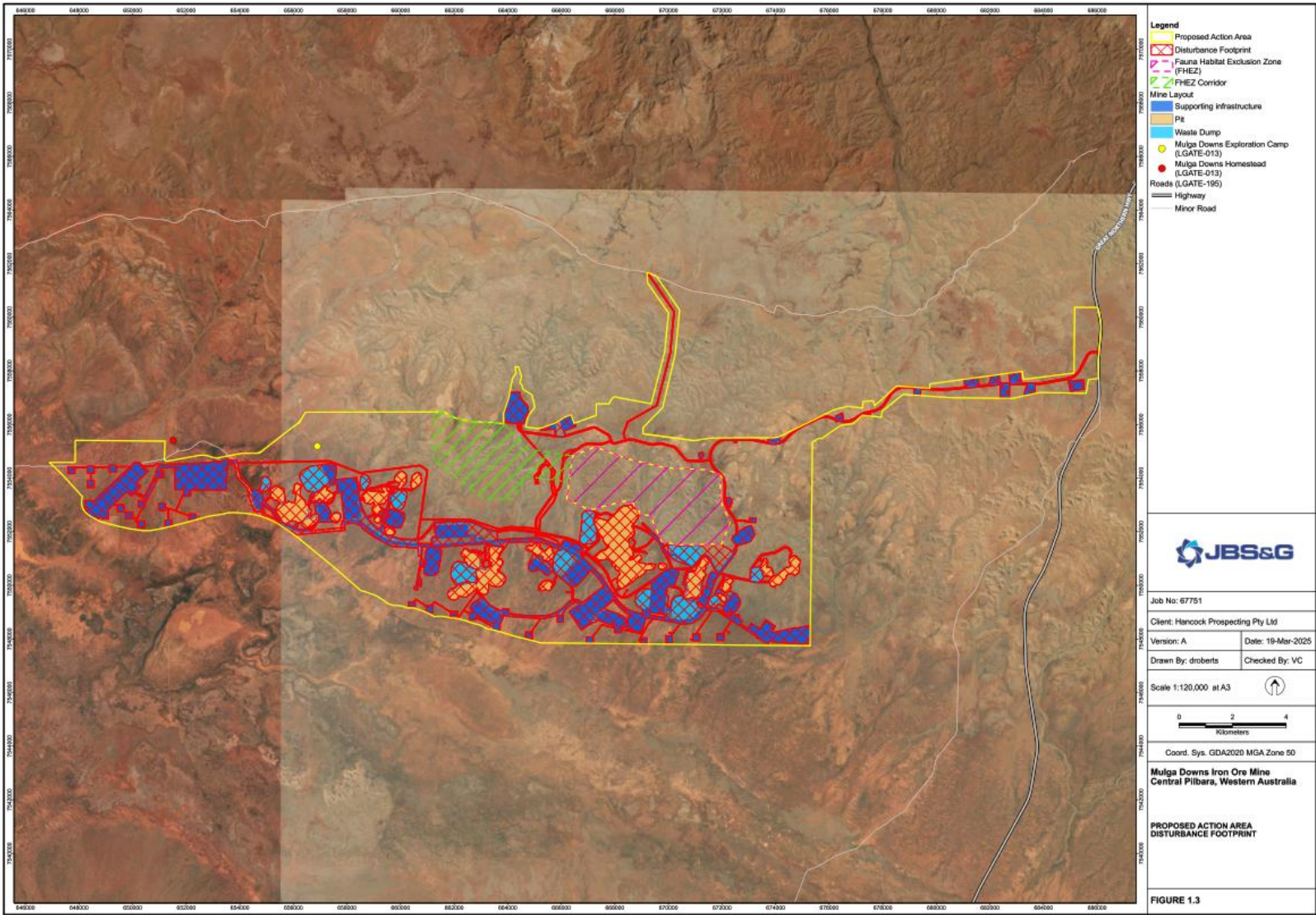


Figure 1-3: Commonwealth Proposed Action Area and Indicative Footprint (EPBC 2022/09255)

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1.4 Potential Impacts

Key aspects of the MDIOM have the potential to directly and/or indirectly impact conservation significant fauna and fauna habitat within or near the Proposed Action Area / Development Envelope during all phases of the proposed MDIOM. The potential direct and indirect impacts of the Proposal have been identified and presented inclusively for all conservation significant fauna in **Table 1-2**.

Table 1-2: Potential Impacts of the Proposal

Impact	Impact Type	Potential Outcome
Clearing activities	Direct	Clearing of native vegetation reduces habitat available to fauna and clearing with heavy machinery can also directly result in injury or mortality of fauna.
Entrapment	Direct	Fauna may become trapped in containers, uncapped drill holes, trenches, excavations or water storage structures resulting in injury or death.
Vehicle strike	Direct	Fauna are at a higher risk of injury or death from vehicle strikes due to increased vehicle usage.
Attraction of feral animals	Indirect	Increase in introduced fauna species which thrive in modified landscapes. Access to additional water sources, food via rubbish tips and increased accessibility due to clearing and increased roads and tracks. Introduced fauna species cause increased competition, habitat degradation and increased predation of native fauna species.
Changed fire regimes	Indirect	Mining activities can cause accidental fire. Accidental fire can also be caused by road accidents, arson or lightning. Large, unplanned bushfires can impact fauna species as they can cause injury or death and have the potential to substantially change habitats.
Dust	Indirect	Increased dust due to excavation, vehicle movement and clearing activities may cause behavioural changes in some fauna species through reduced visibility, navigational ability or disturbance responses. Dust has the potential to modify habitat due to degradation of vegetation or topsoil modification.
Habitat loss or fragmentation	Indirect	Fragmentation of habitat from land clearing can reduce the ability for individuals of a species to move freely across a landscape. This can result in the isolation of populations and reduce gene flow. Habitat fragmentation has the potential to exacerbate other threats, such as predation by feral species, by providing improved access into habitats which were previously difficult to access. Habitat may also be lost due to the use of saline water for dust suppression.,
Hydroecology	Indirect	Interruptions of hydroecological processes can have negative effects due to underpinning primary production in ecosystems. Fauna may be impacted by potential changes to groundwater levels and chemistry and altered flow regime. These changes may alter vegetation across large areas and may lead to habitat degradation or loss. Impacts upon fauna can be widespread. Changes to flow regime across the landscape may alter vegetation and may lead to habitat degradation or loss.
Introduction and spread of weeds	Indirect	Introduction and establishment of weed species may be caused through lack of vehicle hygiene procedures. The introduction of weeds can alter fuel loads and have the potential to increase fire intensity. Weeds can lead to habitat modification by reducing flora diversity and consequently fauna diversity.
Light spill	Indirect	Light spill caused by lighting of the Proposal has the potential to cause disturbance to light sensitive species or cause other behavioural changes, e.g. changes in prey item distribution and aggregation for insectivorous species, resulting in changes to foraging behaviour.
Noise	Indirect	Noise has the potential to cause behavioural changes in fauna, with fauna likely to avoid loud areas. Species using audible cues for breeding such as birds and bats may experience disruption to breeding cycles or reduced breeding success.

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Impact	Impact Type	Potential Outcome
Vibration	Indirect	Vibration has the potential to cause behavioural changes in fauna and their habitat, especially with respect to fauna such as bats. Vibrations from blasting can result in disruption of bats from refuges.

1.5 Rationale and Approach

Results of baseline surveys, assumptions and Proposal uncertainties have been used to inform the management approach that is best suited to meeting the objectives and outcomes of this CSFMP. The identified management actions and targets include a combination of outcome-based and objective-based measures. Monitoring data will be used to evaluate compliance against management targets and will be used as an assessment tool to verify management action effectiveness in meeting the CSFMP objective.

All fauna surveys have been conducted in accordance with the relevant guidance outlined in **Table 1-3**.

Table 1-3: Relevant Policy and Guidance for Terrestrial Fauna

EPA Objective: 'To protect terrestrial fauna so that biological diversity and ecological integrity are maintained' (EPA 2016)	
Author, Year	Title
EP Act (Guidance and Policy)	
EPA, 2016a	Environmental Factor Guideline: Terrestrial Fauna
EPA, 2016b	Technical guidance: Sampling of short-range endemic invertebrate fauna
EPA, 2016c	Technical Guidance: Sampling methods for Terrestrial Vertebrate Fauna
EPA, 2020	Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment
EPA, 2021a	Instructions on how to prepare an Environmental Review Document
EPA, 2021b	Instructions – Environmental outcomes and outcomes-based conditions
EPA, 2021c	Instructions on how to prepare <i>Environmental Protection Act 1986</i> Part IV Environmental Management Plans.
EPBC (Commonwealth Guidance and Policy)	
Commonwealth of Australia, 2017c	Pilbara Conservation Strategy
DBCA 2011b	Survey Guidelines for Australia's Threatened Reptiles
DBCA, 2017a	Guidelines for surveys to detect the presence of bilbies and assess the importance of habitat in Western Australia.
DBCA, n.d.	Cane toad strategy for Western Australia 2021 – 2026
DCCEEW, 2022	Threatened Species Strategy Action Plan 2022–2032
DCCEEW 2023a	Recovery Plan for the Greater Bilby <i>Macrotis lagotis</i> . Department of Climate Change Energy Environment and Water.
DCCEEW 2023b	National Light Pollution Guidelines for Wildlife. Department of Climate Change Energy Environment and Water.
DoEE, 2011a	Survey Guidelines for Australia's Threatened Mammals. Department of Energy and Environment
DoEE (TSSC), 2005	Threatened Species Scientific Committee: Commonwealth Listing Advice on Northern Quoll (<i>Dasyurus hallucatus</i>).

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EPA Objective: 'To protect terrestrial fauna so that biological diversity and ecological integrity are maintained' (EPA 2016)

Author, Year	Title
DoEE (TSSC), 2008	Threatened Species Scientific Committee: Conservation Advice for <i>Liasis olivaceus barroni</i> (Olive Python- Pilbara subspecies) Canberra: Department of the Environment, Water, Heritage and the Arts.
DOEE, 2014	Environmental Management Plan Guidelines
DoEE (TSSC), 2016a	Threatened Species Scientific Committee: Conservation Advice <i>Pezoporus occidentalis</i> Night Parrot. Canberra: Department of the Environment.
DoEE (TSSC), 2016b	Threatened Species Scientific Committee: Conservation Advice <i>Macroderma gigas</i> Ghost Bat. Canberra: Department of the Environment.
DoEE (TSSC), 2016d	Threatened Species Scientific Committee: Conservation Advice <i>Macrotis lagotis</i> Greater Bilby. Canberra: Department of the Environment.
DoEE (TTSC), 2016c	Threatened Species Scientific Committee: Conservation Advice <i>Rhinonictes aurantia</i> (Pilbara form) (Pilbara Leaf-nosed Bat). Canberra: Department of the Environment.
DoEE, 2017	Wildlife Conservation Plan for Migratory Shorebirds. Canberra, ACT: Department of the Environment.
DSEWPaC, 2010	Survey Guidelines for Australia's Threatened Bats
DSEWPaC, 2016	EPBC Act Referral Guideline for the Endangered Northern Quoll
Hill and Ward, 2010	National Recovery Plan for the Northern Quoll <i>Dasyurus hallucatus</i> . Department of Natural Resources, Environment, The Arts and Sport, Darwin
EPBC Threat Abatement Plans	
DoEE, 2008	Commonwealth of Australia (2008) Threat Abatement Plan for predation by the European red fox. Canberra, ACT: Department of the Environment, Water, Heritage, and the Arts
DoEE, 2011	Commonwealth of Australia (2011) Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads: Department of Sustainability, Environment, Water, Population and Communities.
DSEWPaC 2012	DSEWPC (2012). <i>Threat abatement plan to reduce the impacts on northern Australia's biodiversity by the five listed grasses</i> . Department of Sustainability, Environment, Water, Population and Communities
DoEE, 2015	Commonwealth of Australia (2015) Threat abatement plan for predation by feral cats. Canberra, ACT.
DoEE, 2016e	Commonwealth of Australia (2016) Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT.

1.5.1 Survey Effort

This CSFMP identifies management and monitoring measures to minimise the loss of conservation significant fauna occurring or potentially occurring within the Proposed Action Area / Development Envelope (**Table 1-5**). Numerous basic (level 1), detailed (level 2) and targeted fauna baseline studies have been undertaken across the Proposed Action Area/Development Envelope since 2008 (**Table 1-4**). The results of these surveys adequately describe the terrestrial fauna habitat and values in the Proposed Action Area/Development Envelope, whilst also providing confidence on the presence/absence of conservation significant fauna species.

Table 1-4: Summary of Surveys and Studies

Report Title	Survey Type
Terrestrial Fauna	
Coffey (2008) Level 2 terrestrial vertebrate fauna assessment for the Solomon Project.	Detailed
<i>Ecologia</i> (2009a). Murray's Hill level 1 fauna survey.	Detailed

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Report Title	Survey Type
Coffey (2010) Level 1 vertebrate fauna assessment - Solomon Rail Project.	Basic
<i>Ecologia</i> (2010). Solomon Project: Kings Area vertebrate fauna assessment.	Detailed
Ecoscape (2010a). Solomon Project - Rail camp sites 1, 2 and 3, fauna assessment.	Basic and targeted
Ecoscape (2010b). Solomon Project - Rail realignment fauna assessment.	Basic and targeted
Ecoscape (2010c). Vertebrate fauna and fauna habitat assessment for the Firetail Project.	Detailed
Thompson <i>et al.</i> (2010). Spatial and temporal variations in the trapped terrestrial vertebrate fauna of the Hamersley Range, Western Australia.	Detailed
Coffey (2011) Targeted surveys - Northern Quolls, mulgara and Pilbara Olive Pythons. Solomon Rail Project.	Targeted
Terrestrial Ecosystems (2013). Level 2 fauna assessment for the Mulga Downs Project Area.	Detailed and targeted
Bell <i>et al.</i> (2014). Winter bird assemblages of the Fortescue Marshes and surrounding vegetation, Pilbara Region, Western Australia.	Targeted
<i>ecologia</i> (2014). Investigator Project terrestrial vertebrate fauna assessment.	Detailed
<i>ecologia</i> (2021a) Mulga East Baseline Terrestrial Vertebrate Fauna Assessment. Version 2.	Reconnaissance, detailed and targeted
<i>ecologia</i> (2021) Mulga East Pilbara Leaf-nosed Bat Assessment.	Targeted
Biologic (2022a) Mulga Downs Iron Ore Project: Transport Corridor to Great Northern Hwy Terrestrial Fauna Survey	Detailed and targeted
Biologic (2022b) Mulga East Iron Ore Project: Mulga West Borefield and Mulga East Southern Corridor Terrestrial Fauna Survey	Basic and detailed
Biologic (2022c) Mulga East Iron Ore Project: Mulga West Borefield and Mulga East Corridors Terrestrial Fauna Survey	Basic and detailed
Spectrum (2023a) MDIOM Solar Farm, Haul Road and Pipeline Report	Detailed and targeted
Spectrum (2023b) MDIOM Targeted Grey Falcon Survey Memo	Targeted
Spectrum (2024b) Mulga Downs Iron Ore Mine Supplementary Targeted Fauna Surve	Targeted
Spectrum (2025) Mulga Downs Night Parrot Habitat Mapping	Desktop and Targeted
Flora and Vegetation	
Maia (2021a) Mulga East Iron Ore Project, Mine Study Area Detailed Flora and Vegetation Assessment 2019-2020	Detailed
Maia (2021b) Mulga Downs West Flora and Vegetation Desktop Study	Desktop
Maia (2022) Mulga Downs Iron Ore Project, Mine and Borefield Study Area Detailed Flora and Vegetation Assessment 2019-2022	Detailed

* Report has been superseded by AQ2, 2024d & AQ2, 2024e.

1.5.2 Survey Findings

The terrestrial fauna habitat and values in the Proposed Action Area are well understood with numerous surveys/assessments having been conducted for the Proposal since 2008. The results of the surveys conducted between 2008 and 2024 (Table 1-4) form the basis for this CSFMP.

1.5.2.1 Conservation Significant Terrestrial Vertebrate Fauna

Up to 304 terrestrial fauna species were recorded cumulatively from surveys undertaken within the Development Envelope / Proposed Action Area. Of these, 11 significant fauna species were listed under the

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EPBC Act, BC Act, or the DBCA Priority list, including ten species listed as threatened or migratory MNES. An additional six conservation significant species were also identified as likely to occur within the Proposed Action Area / Development Envelope.

It is important to note that the Proposed Action Area/ Development Envelope has been varied over time from an original 39,207 ha Proposed Action Area and 40,653 ha Development Envelope to its current 16,848.83 ha (for both the Proposed Action Area and Development Envelope). Similarly, the proposed Disturbance Footprint has also been reduced from an original 11,521 ha and 9,628 ha respectively, to its current 4,733.66 ha and 4,339.16 ha. A conservative approach has been taken and the species proposed for management include those identified in any survey over the course of evaluation and refinement of the Proposal. The species listed in Table 1-5 will be managed under this CSFMP.

Table 1-5: Occurrence of Conservation Significant Fauna in the Proposed Action Area/Development Envelope

Species		Conservation Status			Occurrence
Scientific Name	Common Name	EPBC Act Status	BC Act Status ¹	DBCA Status	
Mammals					
<i>Dasyurus hallucatus</i>	Northern Quoll	EN	EN	-	Recorded
<i>Macroderma gigas</i>	Ghost Bat	VU	VU	-	Recorded
<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse	-	-	P4	Recorded
<i>Rhinonicteris aurantia</i> (Pilbara form)	Pilbara Leaf-nosed Bat	VU	VU	-	Recorded
<i>Dasyercus blythi</i>	Brush-tailed Mulgara	-	-	P4	Likely
<i>Leggadina lakedownensis</i>	Northern Short-tailed Mouse	-	-	P4	Likely
<i>Macrotis lagotis</i>	Bilby	VU	VU	-	Likely (Low)
Birds					
<i>Calidris ruficollis</i>	Red-necked Stint	MI	MI	-	Recorded
<i>Falco hypoleucos</i>	Grey Falcon	VU	VU	-	Recorded
<i>Falco peregrinus</i>	Peregrine Falcon	-	OS	-	Recorded
<i>Tringa glareola</i>	Wood Sandpiper	MI	MI	-	Recorded
<i>Tringa nebularia</i>	Common Greenshank	MI	MI	-	Recorded
<i>Pezoporus occidentalis</i>	Night Parrot	EN	CR	-	Likely (Low)
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	-	Likely
Reptiles					
<i>Anilius ganei</i>	Gane's Blind Snake	-	-	P1	Recorded
<i>Liasis olivaceus barroni</i>	Pilbara Olive Python	VU	VU	-	Recorded
<i>Ctenotus uber johnstonei</i>	Spotted Ctenotus	-	-	P2	Likely

1.5.2.2 Introduced Species

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Five introduced predatory fauna species were recorded within the Proposed Action Area / Development Envelope. These include:

- Domestic mouse (*Mus musculus*);
- Feral cat (*Felis catus*);
- Feral dog/dingo (*Canis lupus*);
- Domestic cattle (*Bos Taurus*); and
- European red fox (*Vulpes vulpes*).

Introduced species occur broadly across the Pilbara region and are not restricted to specific habitat types. Cats and foxes are classified as declared pests under the *Biosecurity Agriculture Management Act 2007* (BAM Act).

Within the Proposed Action Area / Development Envelope, 13 introduced flora taxa (weeds) were recorded, none of which are listed as Weeds of National Significance (WoNS), and no weed species declared as a pest in Western Australia were identified. Eight of the introduced flora taxa recorded within the Development Envelope are listed as environmental weeds (**bold text**):

- ***Aerva javanica* (Kapok Bush).**
- *Bidens bipinnata* (Bipinnate Begger's Tick).
- ***Cenchrus ciliaris* (Buffel Grass).**
- ***Cenchrus setiger* (Birdwood Grass).**
- ***Chloris virgata* (Feathertop Rhodes Grass).**
- *Citrullus amarus* (Pie Melon).
- *Citrullus colocynthis* (Colocynth).
- *Flaveria trinervia* (Speedy Weed)
- ***Malvastrum americanum* (Spiked Malvastrum).**
- ***Rumex vesicarius* (Ruby Dock).**
- ***Setaria verticillata* (Whorled Pigeon Grass).**
- *Tribulus terrestris* (Caltrop).
- ***Vachellia farnesiana* (Mimosa Bush).**

The distribution of these weeds for both the Proposed Action Area / Development Envelope can be seen in **Figure 1-4**.

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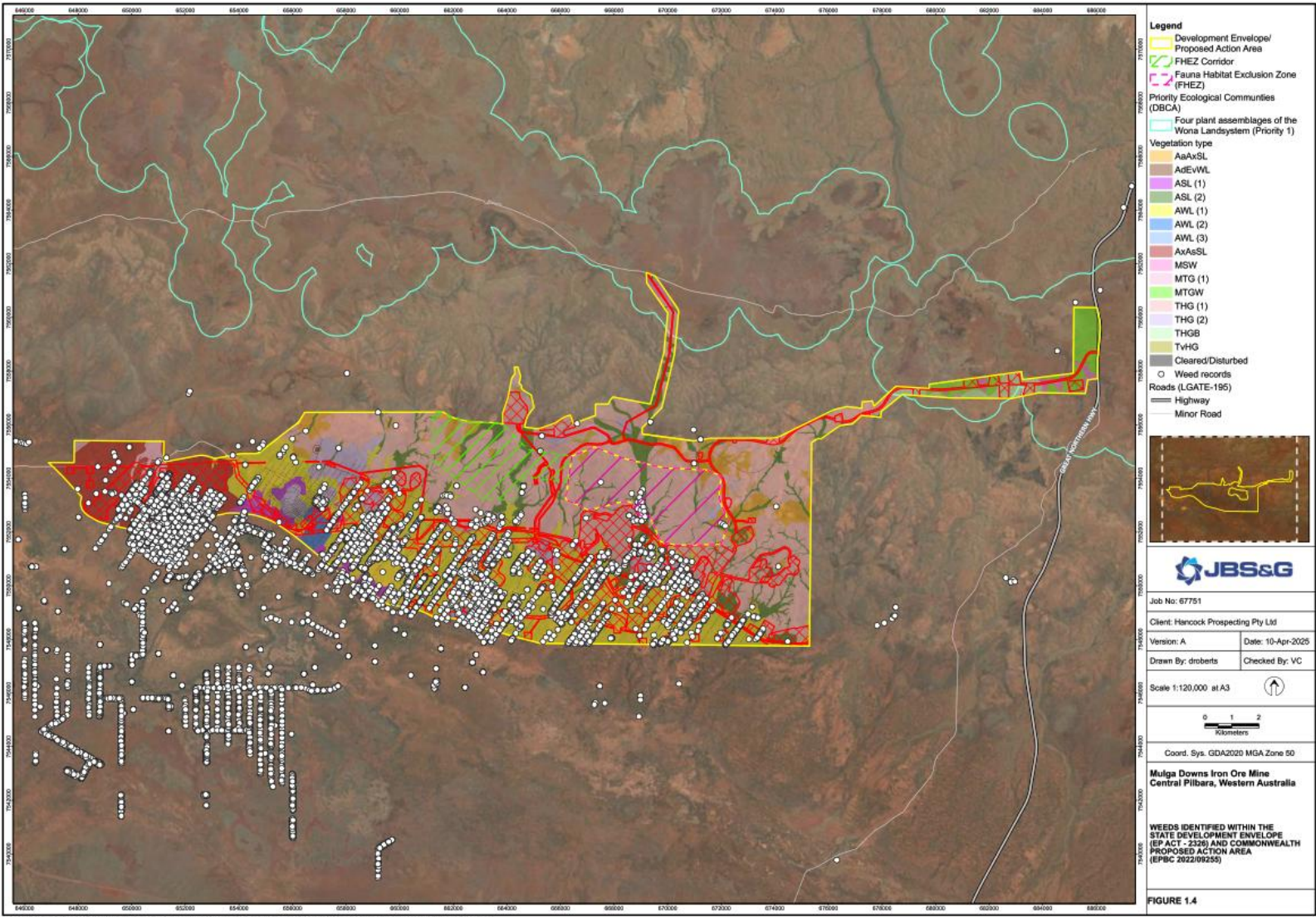


Figure 1-4: Weeds Identified within the State Development Envelope (EP Act 2326) and Commonwealth Proposed Action Area (EPBC2022/09255)

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1.5.2.3 Conservation Significant Fauna Habitat

Nine broad fauna habitat types have been identified within the Proposed Action Area / Development Envelope of which eight will be impacted by the Proposal (**Table 1-6**). The condition of fauna habitats identified within the Proposed Action Area / Development Envelope range from 'Good' to 'Excellent'.

Mulga Downs Station has been an operational pastoral lease for over 100 years which has resulted in long-term impacts such as overgrazing, trampling, and spreading weeds by cattle (*Bos taurus*). The cleared exploration drill lines and disturbance associated with exploration activities within the Mulga Woodland also contributed to a lower habitat condition rating (*ecologia 2021*).

Table 1-6: Fauna Habitats within the Proposed Action Area / Development Envelope

Habitat Type	Habitat Description	Potential to Support Conservation Significant Vertebrate Fauna
Drainage Line/Floodplain	The banks provide shallow burrowing substrates while trees and shrub species provide habitat for birds.	<p>Moderate to High: Drainage lines are of moderate conservation value as they provide foraging and dispersal habitat for fauna. They are considered high value when they are within the home range for the Northern Quoll breeding habitat.</p> <p>Conservation significant species known to utilise drainage lines include:</p> <ul style="list-style-type: none"> Northern Quoll – Dispersal and foraging habitat. Ghost Bat - Foraging habitat. Pilbara Leaf-nosed Bat - Priority 4 foraging habitat. Peregrine Falcon - Potential foraging habitat. Greater Bilby – Critical foraging habitat. Grey Falcon – Potential nesting habitat. Pilbara Olive Python – Potential foraging habitat.
Rocky Hills	The Rocky Hills provides quality refugia, shelter and caves for conservation significant species. Ridgelines, boulders, crevices and caves provide shelter, denning and roosting habitat for species including Northern Quolls (Endangered), Pilbara Leaf-nosed Bat (Vulnerable), Ghost Bat (Vulnerable), Pilbara Olive Python (Vulnerable) Rocky Hills are considered common and widespread throughout the Pilbara.	<p>High: The Pilbara Leaf-nosed Bat and Northern Quoll were recorded within this habitat type within and outside of the Development Envelope.</p> <p>Provides shelter, denning and roosting habitat for species including:</p> <ul style="list-style-type: none"> Northern Quolls – Critical habitat. Pilbara Leaf-nosed Bat - Priority 2 and 3 foraging habitats. Ghost Bat - Foraging habitat. Pilbara Olive Python - Potential foraging habitat. Gane's Blind Snake. Peregrine Falcon - Potential foraging habitat. Western Pebble-mound Mouse.
Mulga Woodland	Compacted alluvial loamy clay soils with occasional surface stones are generally not favourable for burrowing species with few burrows recorded during the surveys. Dead wood, peeling bark, stumps and leaf litter provide shelter. The Mulga	<p>Low: Considered generally of low value to conservation significant fauna.</p> <p>Fauna recorded:</p>

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Habitat Type	Habitat Description	Potential to Support Conservation Significant Vertebrate Fauna
	Woodland has been disturbed by exploration activities (clearing tracks and drill pads) and evidence of grazing by cattle is present. Regionally this habitat type is generally well represented.	<ul style="list-style-type: none"> Gane's Blind Snake; was recorded within this habitat in the Development Envelope. <p>This habitat type is foraging habitat for:</p> <ul style="list-style-type: none"> Pilbara Leaf-nosed Bat - Priority 5 foraging habitat. Bilby (not burrowing). Peregrine Falcon. Spotted Ctenotus; and Northern Short-tailed Mouse.
Chenopod/Cracking Clay Floodplain	This habitat type exhibits little to no leaf litter and woody debris providing few niches for trappable fauna such as marsupials and reptiles. Due to the condition of this habitat type it is considered low value to species of conservation significance. This habitat type is not considered widespread in the Pilbara.	<p>Low: Due to the condition of this habitat type within the Development Envelope, it is considered low value to species of conservation significance.</p> <ul style="list-style-type: none"> Pilbara Leaf-nosed Bat - Priority 5 foraging habitat. Night Parrot – Foraging habitat, in proximity to mature unburnt spinifex only. Peregrine Falcon - Foraging
Stony Spinifex Plains and Hillslopes	Coarse stony red clay soils provide habitat for the Western Pebble-mound Mouse (P4) which has been recorded multiple times during surveys conducted within the Proposed Action Area. The substrates and vegetation present support termitaria which are a known refuge for vertebrate fauna. Stony Spinifex Plains and Hillslopes are considered as low value offering minimal refugia to species of conservation significance. Stony Spinifex Plains and Hillslopes are considered common and widespread in local and regional scale.	<p>Moderate: Stony Spinifex Plains and Hillslopes are considered as low value generally offering minimal refugia to species of conservation significance; however, where they are adjacent to high value breeding habitat they are a supporting habitat.</p> <p>The following conservation significant species are known to forage within this habitat type:</p> <ul style="list-style-type: none"> Northern Quoll Pilbara Leaf-nosed Bat - Priority 5 foraging habitat Ghost Bat Pilbara Olive Python Night Parrot – Potential foraging habitat, in proximity to unburnt samphire only Western Pebble-mound Mouse Peregrine Falcon Spotted Ctenotus
Gibber Cracking Clay	This habitat was previously known as the 'Cracking clays of the Chichester and Mungaroo Range' (P1) Priority Ecological Community (PEC). This PEC is a stony gibber community occurring on the tablelands and forms one of the plant assemblages of the 'Four plant assemblages of the Wona Land System' P1 PEC. While sporadic in nature, this habitat is considered widespread in the Pilbara.	<p>Moderate: This habitat type is known to be breeding, foraging and dispersal habitat for:</p> <ul style="list-style-type: none"> Short-tailed Mouse Western Pebble-mound Mouse <p>This habitat also supports non-critical foraging habitat for the following species:</p> <ul style="list-style-type: none"> Ghost Bat Peregrine Falcon
Cracking Clay	Cracking Clay habitat overlaps the 'Four plant Assemblages of the Wona Land System' Priority Ecological Community	<p>Low: This habitat type exhibits little to no leaf litter and woody debris providing few niches for trappable fauna such as marsupials and reptiles. Due to the condition of</p>

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Habitat Type	Habitat Description	Potential to Support Conservation Significant Vertebrate Fauna
	<p>(PEC) (Priority 1). The land system consists of cracking clays with little vegetation cover during the dry season.</p> <p>With the onset of the wet season numerous ephemerals/annuals and short-lived perennials emerge.</p> <p>Vegetation type: Sparse chenopod shrubland of <i>Sclerolaena trigona</i>, <i>S. bicornis</i>, <i>S. densiflora</i> over low tussock grasses of <i>Eragrostis xerophila</i> on a substrate of cracking clays.</p> <p>Vegetation is generally very sparse with patches of scattered Snakewood (<i>Acacia xiphophylla</i>) and occasional Mulga over Buffel and scattered native grasses. Leaf and wood litter was sparse or absent due to lack of vegetation; however, basalt rock cover was found to be abundant.</p> <p>While sporadic in nature, this habitat is considered widespread in the Pilbara.</p>	<p>this habitat type it is considered low value to species of conservation significance. Marginally suitable as foraging habitat for the Night Parrot.</p> <p>This habitat type has the potential to provide foraging habitat for the following species:</p> <ul style="list-style-type: none"> • Short-tailed mouse • Grey Falcon • Marginally suitable as foraging habitat for the Night Parrot, and • Greater Bilby
Snakewood	<p>Vegetation type: Vegetation dominated by discrete patches of Snakewood (<i>Acacia xiphophylla</i>).</p> <p>The Snakewood (<i>Acacia xiphophylla</i>) habitat is restricted to scattered patches within the cracking clay habitat type. Other vegetation recorded in this habitat type included <i>Acacia inaequilatera</i> and scattered Mulga and Mesquite over Buffel grass. Leaf and wood litter was very sparse and basalt rock cover was abundant.</p> <p>This habitat occurs within the 'Four plant Assemblages of the Wona Land System' PEC (Priority 1) in association with the Cracking Clay habitat and support the same MNES species.</p>	<p>Low: Provides potential foraging for fauna which occur on Cracking Clay habitat.</p> <p>This habitat type has the potential to provide foraging habitat for the following species:</p> <ul style="list-style-type: none"> • Short-tailed mouse • Grey Falcon • Marginally suitable as foraging habitat for the Night Parrot, and • Greater Bilby

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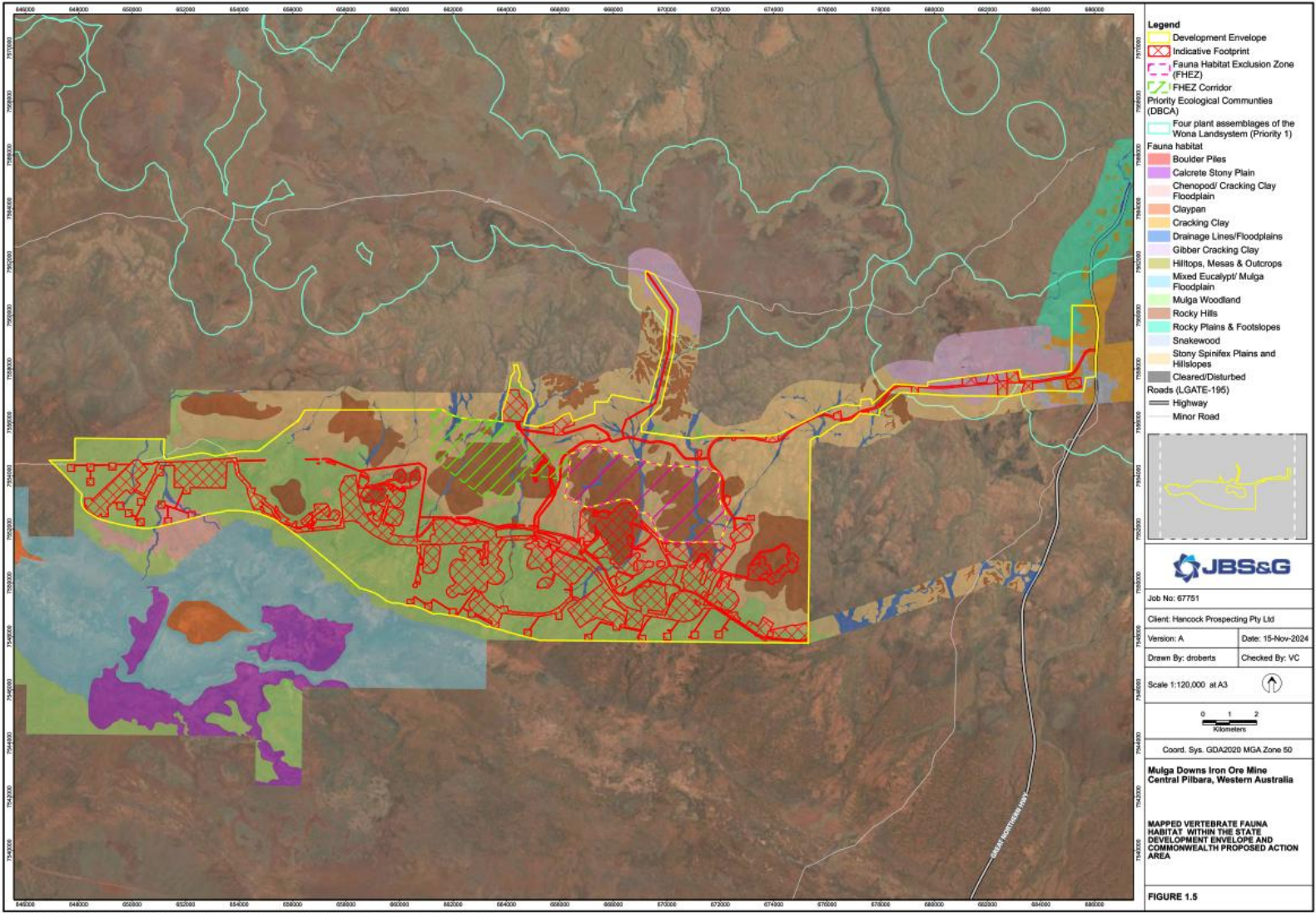


Figure 1-5: Mapped Vertebrate Fauna Habitats within the State Development Envelope (EP Act 2326) and Commonwealth Proposed Action Area (EPBC 2022/09255)

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1.5.2.4 Night Parrot Habitat

The Proposal is located within in an area that contains habitat considered suitable for the Night Parrot as follows:

- Unburnt spinifex. These areas were confined to the north-eastern portion of the Development Envelope (ecologia 2021);
- Rocky Hills habitat includes vegetation complexes of sparse hummock grasslands of *Triodia* spp. and sparse chenopod – both which have been identified as suitable for the Night Parrot; and
- The Stony Spinifex Plains and Hillslopes occur interspersed between the Rocky Hills habitat may contain habitat which may be critical or supporting. Burbridge (2020) identifies breeding and roosting habitat which includes old dense spinifex surrounded by rocky ridges.

Supplementary to the detailed surveys undertaken by ecologia (2021) and Biologic (2022a and 2022b), HPPL undertook a targeted fauna survey to determine the occurrence or likely occurrence of the Night Parrot at the Proposal (Spectrum 2024b). The survey was conducted in accordance with the Interim guideline for preliminary surveys of night parrot (DPAW, 2017), which was current at the time of the survey.

During the survey, 18 Song Meter Mini passive acoustic recorders (PARs) were deployed for up to eight nights within the potential habitat types with a total of 131 recording nights and 1,572 hours of recordings. Some areas of the Claypan habitat could not be accessed due to flooding and heritage site access restrictions. No calls belonging to the Night Parrot were recorded from the 1,572 hours of acoustic recording.

Long unburnt spinifex is sparse in the Development Envelope, with one location existing within an access road corridor towards the north within Stony Spinifex Plains and Hillslopes. The remaining identified patches were restricted to the south of, and outside the Development Envelope, towards the Fortescue Valley.

The Proposal will not undertake any clearing within areas identified as potential habitat to the Night Parrot (areas as identified in Spectrum 2025, Appendix 4) without first undertaking a targeted pre-clearance survey. This is in line with the recommendation provided by Spectrum (2025). The potential for indirect impacts to Night Parrot habitat as a result of the Proposal is considered low/negligible. HPPL are not proposing to undertake any targeted Night Parrot habitat or occurrence monitoring unless directly impacting on Spectrum (2025) mapped habitat.

1.5.2.5 Fauna Habitat Exclusion Zone

The Proposal design has been modified to avoid direct impacts and to minimise indirect impacts to key environmental values. Since referral of the Proposal, the Development Envelope has been amended to exclude a 1,320.82 ha area that is referred to as the Fauna Habitat Exclusion Zone (FHEZ). Habitats mapped within the FHEZ corridor comprise (Figure 1-5):

- Rocky Hills (950.81 ha);
- Drainage Line/Floodplain (107.62 ha); and
- Stony Spinifex Plains and Hillslopes (262.39 ha).

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This area supports 36 Category 4 caves¹. The FHEZ will not be developed and contains habitat considered high value to the Pilbara Leaf-nosed and Ghost Bat, as well as the Northern Quoll and Pilbara Olive Python.

Connectivity of the FHEZ shall be maintained through the establishment of a FHEZ corridor to the west of the FHEZ, that will provide connectivity of critical habitat (primarily Rocky Hills habitat), from the FHEZ to the northern boundary of the Development Envelope. Preservation of riparian corridors along drainage lines will also be prioritised within and external to the FHEZ and FHEZ Corridor. This is shown in Figure 1-5.

Where haulage routes intersect drainage lines or run adjacent to the FHEZ or FHEZ Corridor, fauna friendly underpasses shall be installed. These underpasses are likely to be drainage culverts with diameter greater than 600 mm as these can also act as fauna culverts (ecological, 2011). As per recommendations from Roy Hill Fauna Friendly Culvert Audit Report (Roy Hill, 2016), culverts shall be installed flush with natural ground level (i.e. rock protection areas or concrete footings underlying culvert should be below ground level to avoid obstructing access by fauna).

Where the main haul/access road intersects the Rocky Hills habitat that extends eastward from the FHEZ, this section of road will be identified as the Northern Haul Road FHEZ Restriction Zone. This managed speed area will extend for 500 m either side of the intersect of the Rocky Hills habitat. Speed management is described in Table 2-2, Provision 5.

1.5.2.6 Fauna Habitat Exclusion Zone Corridor

In addition to the establishment of the FHEZ, a FHEZ Corridor has been created to further protect and enhance movement and ecological connectivity of local wildlife. This corridor is designed to facilitate the safe passage of species, ensuring critical habitat for conservation significant species is preserved and protected from disturbance.

The creation of the corridor supports the preservation of critical habitat, helping to safeguard biodiversity and providing essential support for the long term survival and resilience of conservation significant species in the region.

The FHEZ corridor is 991.45 ha (in addition to the 1,320.82 ha FHEZ) and will retain connectivity between the FHEZ and habitats both within and outside the Development Envelope / Proposed Action Area. Habitats mapped within the FHEZ corridor comprise:

- Drainage Lines/Floodplains (75.10 ha)
- Mulga Woodland (36.99 ha)
- Rocky Hills (577.94 ha)
- Stony Spinifex Plains and Hillslopes (301.42 ha)

An additional six Category 4 caves are also located within the FHEZ corridor, of which five were found suitable for Ghost Bat and six were found suitable for Pilbara Leaf-nosed Bat.

¹ The additional 20 caves recorded within the FHEZ were assessed as not suitable for either Pilbara Leaf-nosed Bat or Ghost Bat.

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Disturbance within the FHEZ corridor will be limited to no more than 5 ha following approval of the Hub and Spur Proposal.

1.5.2.7 Caves – Category 4 caves

The Proposal is located within an area that contains rocky outcrops with numerous caves, which might provide habitat for fauna, specifically Pilbara Leaf-nosed Bats and Ghost Bats. A total of 82 caves were assessed for characteristics required for bat roosts. Of these 82 cave assessments, 51 were determined as having characteristics of a Category 4 cave (nocturnal refuges; not considered critical habitat) (*ecologia* 2023a). The remaining 31 caves were found not suitable for Pilbara Leaf-nosed Bats nor Ghost Bats. Recorded Category 4 caves are shown in **Figure 1-6** below. Note that the specific terminology for this type of structure in the Conservation Advice for the Pilbara Leaf-nosed Bat is 'nocturnal refuge (Priority 4)' (TSSC 2016); and for the Ghost Bat, Cramer et al. (2022) uses 'Category 4 nocturnal feeding roost'. These are equivalent and the general term 'Category 4' is used throughout this document to refer to this type of structure—one that is visited at night, but is not the focus of diurnal roosting for either species.

All of the 51 Category 4 caves were found suitable for the Pilbara Leaf-nosed Bat, whereas 20 of the 51 were found suitable for the Ghost Bat. A total of 15 Category 4 caves are located within the Development Envelope, and the remaining 36 caves are located outside the Development Envelope within the FHEZ (36 assessed as suitable for Pilbara Leaf-nosed Bat and 15 found suitable for Ghost Bat). From the 51 Category 4 caves, 42 will be retained within the FHEZ and FHEZ corridor, with 9 caves having the potential to be disturbed. Appendix 2 provides the location of 51 Category 4 caves, including the latitude and longitude of each cave, and indicating whether each is located within the FHEZ, FHEZ corridor, proposed action area, or disturbance footprint, as well as which caves will be retained.

Of the 15 Category 4 caves located inside the Development Envelope, six are located within the FHEZ corridor and will be retained. Of these, five were found suitable for Ghost Bat and all six were found suitable for Pilbara Leaf-nosed Bat.

Potential indirect impacts to retained Category 4 caves, such as structural damage from blasting and vibration, have been identified following the completion of geotechnical stability analysis (PSM, 2024) and are identified in Figure 1-6 below. Caves that are 200 m or less to the nearest pit edge will be considered as monitoring sites.

The available evidence from field surveys suggests that no diurnal roosts are present within the MDIOM. This means that all visitations are made while bats are out foraging at night. These bats must therefore roost outside the MDIOM. In addition to the small geographic scale of the MDIOM (see comments by Biota 2024), consideration of these caves as a critical link for gene flow in the region is not applicable because the Category 4 nocturnal refuges cannot by definition (see TSSC 2016) provide the opportunity for saltation across the landscape—gene flow occurs via movement of individuals amongst diurnal roosts. Therefore, the management of Category 4 caves focusses on maintaining their structural integrity and documenting the continued visitation of bats.

Monitoring habitat quality and visitation rates of a target species of conservation significance is usually subject to the application of thresholds for determining possible impacts of nearby mining-related activity, as well as triggered mitigative actions in response to exceeding thresholds. In this case, the location of the closest diurnal roosts that provide the source of visitations in the MDIOM is currently unknown and therefore the possible

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encroachments on those colonies that might cause colony size to diminish is also unknown. The level of activity of bats at Category 4 nocturnal refuges in the MDIOM is therefore subject to at least two possible factors simultaneously: 1. potential effects from nearby mining-related activity in the MDIOM; and 2. possible encroachments on nearby but undiscovered diurnal source roosts from sources unrelated to the project.

The CSFMP provides management actions that are focussed on the protecting the cave (via the FHEZ and FHEZ corridor), maintaining the structural integrity of the habitat, and minimising the influence of nearby activities so that they continue to be used by bats of conservation significance to support their foraging activity. The guiding notion behind the management actions is that nocturnal refuges can continue to be used after the completion of mining if they are intact, even if nearby activity causes a reduction in visitation. The key measure of influence from nearby activity is vibration, since elevated levels have the potential to affect the structural integrity of rocky formations. Noise levels from blasts is of minimal relevance because bats will not be present during the day when blasts are conducted.

The caves to be retained within the FHEZ located closest to pits were selected for the assessment as these are considered most susceptible to vibration impacts. Caves located further away from the pits would be expected to experience reduced vibration levels.

The assessed caves are hosted within outcropping bedrock escarpments of the Marra Mamba Iron Formation. The flat-lying orientation of these lithologies at Mulga Downs results in cave profiles that are generally relatively low and wide. They are commonly highly weathered and hydrated, with pervasive overprinting of the original rock fabric. The exposed escarpments themselves are typically 10-15 m in height.

The purpose of the geotechnical assessment (PSM, 2024) was to assess the geotechnical stability of the caves in consideration of impacts from blasting and operational vibration, and to recommend maximum blast and operational vibration limits that should be achieved at the cave entrances to reduce the likelihood of collapse.

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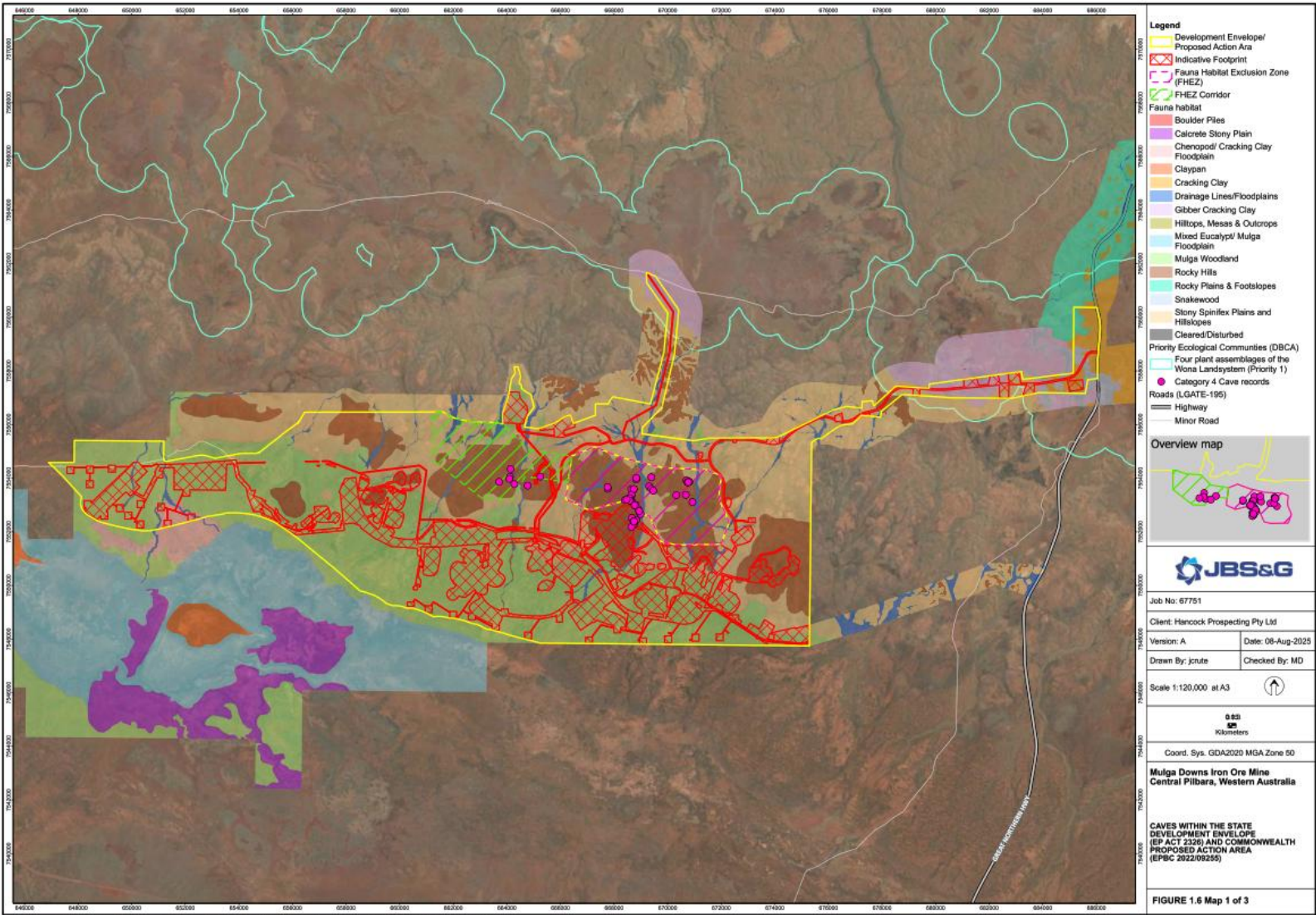


Figure 1-6: Caves within the State Development Envelope (EP Act 2326) and Commonwealth Proposed Action Area (EPBC 2022/09255)

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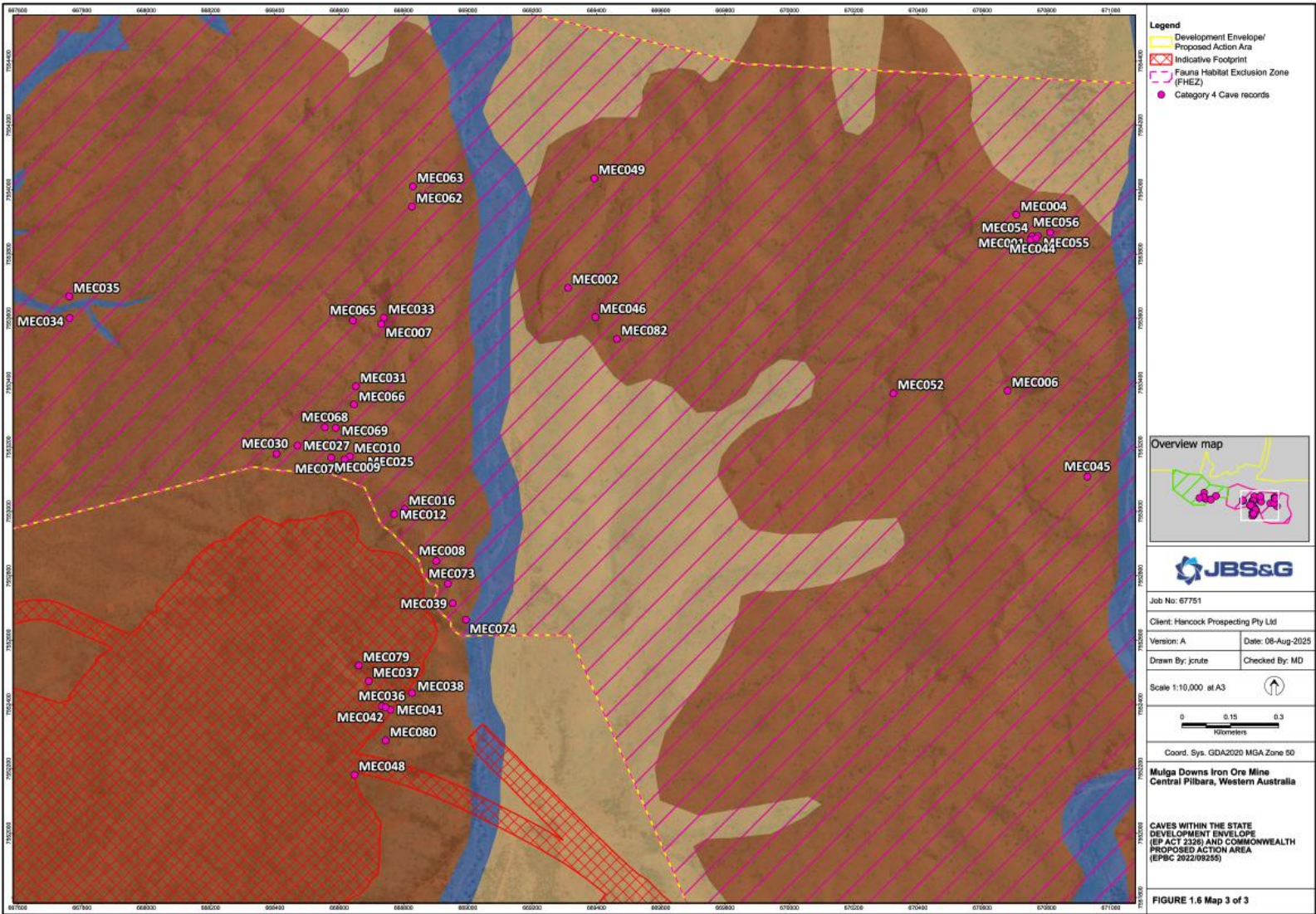
File Name: C:\Users\jcrute\JBS&G Australia\JBS&G - DCI - Internal - Documents\Projects\IronOre\Prospecting\01_Mines\PRC32_Maps\Project\4450_MDM_EPBC_150a_P1R_S01_Rev0.aprx
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An unconstrained blast size may be up to 530 kg in some cases – this value has been highlighted in **Table 1-7** for reference. The outcome is that such a blast is suitable if a maximum vibration velocity of 25mm/s is achieved to preserve nocturnal refuges structures sites at least 150m away.

It is helpful to articulate the meaning of Peak Particle Velocity (PPV) when considering the implications of various thresholds for vibration that might be measured at Category 4 caves, especially because there is no current standard applicable to avoid disturbance to bats that is supported by robust peer-reviewed science. Peak Particle Velocity refers specifically to the ‘velocity amplitude’, which is the maximum speed of that movement through the ground. How much the ground moves is indicated by a derivative measure called ‘displacement amplitude—the maximum distance a particle moves from rest. In the absence of information about the responses of bats within roosts during the day to the vibration from nearby blasts, it can be helpful to understand the magnitude of an effect in terms of ground displacement for a given PPV. A PPV value of 25 mm/sec does not mean that the ground moves 2.5 cm following a blast; rather we need to apply a formula (assuming a typical frequency of vibration of 20 Hz for an open cut iron mine):

$$\text{Displacement Amplitude} = \text{Velocity Amplitude} / 2 * \text{Pi} * \text{frequency of vibration}$$

In the case of the two threshold values used in this CSFMP:

- PPV of 25 mm/sec gives a Displacement Amplitude of 0.199 mm.
- PPV of 75 mm/sec gives a Displacement Amplitude of 0.596 mm.

Table 1-7: Permitted Charge Mass per Delay (kg) for Various Vibration Velocities (LGA, 2024)

Distance to Receptor	Charge Mass per Hole (kg) to Achieve Peak Ground Vibration Velocity Level (mm/s)								
	Free Face – Hard / Highly Structured Rock			Free Face – Average Rock			Heavily Confined		
	25 mm/s	50 mm/s	75 mm/s	25 mm/s	50 mm/s	75 mm/s	25 mm/s	50 mm/s	75 mm/s
100m	240	565	940	85	204	335	14	32	53
150m	530	1280	3000	190	460	1080	30	72	170
200m	950	2270	3750	340	810	1350	54	126	210

Blast impacts can be managed and mitigated using a variety of blast design parameters within HPPL’s control such as hole diameter, charge size per hole, composition of holes and firing/timing pattern. Other fixed parameters (i.e. physical environmental characteristics) are also factored in, such as distance of a receptor from a proposed blast and the rock mass characteristics. Blast modelling and design will be used to ensure that proposed blast vibration limits will be achieved during all blasting events in proximity to the FHEZ.

Table 1-8 is provided as a guideline for planning blasting activities at known distances. The table highlights complying with a 125 dBL_{in} Peak limit level.

Table 1-8: Potential Airblast Impact Levels (Confined Blast) (LGA, 2024)

Charge Mass per Hole (kg)	Airblast Level (dB Linear peak) at Distance (metres)				
	50m	100m	200m	300m	500m
1	124	116	107	102	96

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Charge Mass per Hole (kg)	Airblast Level (dB Linear peak) at Distance (metres)				
	50m	100m	200m	300m	500m
5	130	123	114	109	102
10	134	126	119	112	105
20	137	129	120	114	108
30	139	130	122	116	110
40	140	131	123	117	111
50	141	132	124	118	112
60	142	133	124	119	113
70	143	134	125	120	114
80	143	134	126	120	114
90	144	135	126	121	115
100	144	135	127	121	115
110	144	136	127	121	115
120	145	136	127	121	116

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1.5.3 Management Approach

HPPL’s Environmental Management System (EMS) Framework provides a basis for achieving the key environmental management objectives during the construction and operational phases of the Mine. The framework is illustrated in Figure 1-7. Implementation of the EMS Framework ensures environmental performance is achieved through environmental management practices that are consistent with HPPL’s Environmental Policy and objectives.

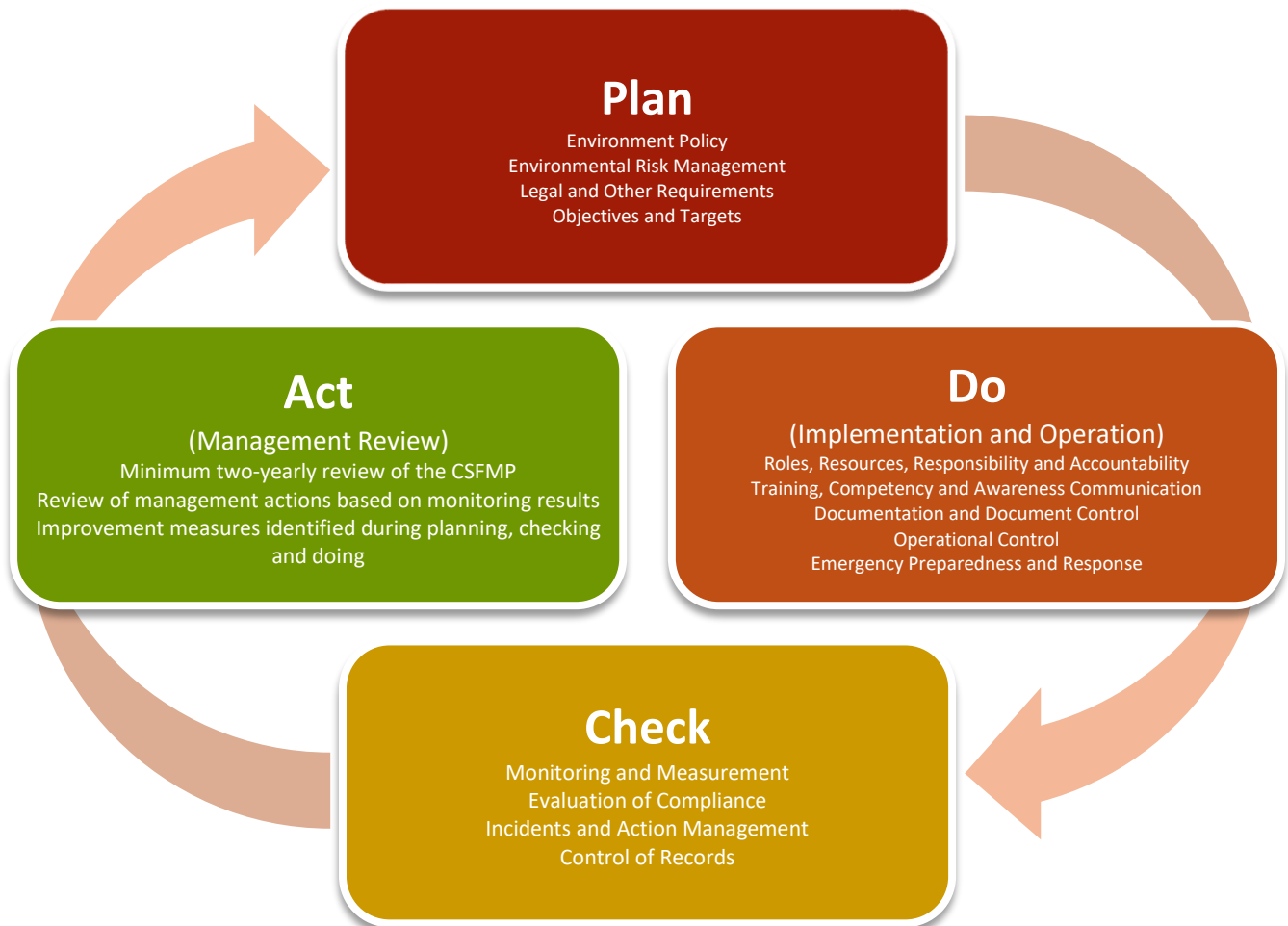


Figure 1-7: Environmental Management System Framework

1.5.4 Key Assumptions and Uncertainties

The CSFMP relies on the accuracy of field surveys and baseline investigation information (Table 1-4). The field surveys and baseline investigations have been completed in compliance with EPA and DCCEE requirements. Where requirements for both agency requirements do not align, the compliance with the agency, to which the impact is greater has been used. This CSFMP has been prepared based on the assumptions below.

The key assumptions specifically regarding conservation significant fauna include:

- The field surveys, undertaken by suitably qualified organisations and individuals with experience in the fauna taxa likely to be encountered, provide sufficient information to confirm the presence and abundance of significant fauna taxa with the potential to occur within the area of the Proposal and surrounds;

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- The conservation significant fauna species identified are highly mobile with notably large home ranges, such that point location records for individuals represent the usage of available foraging/breeding habitat (rather than fixed permanent locations of individuals);
- Point locations for nesting represent the current/historical usage of the available breeding habitat, rather than fixed permanent locations of breeding (as specific nesting locations may change from year to year);
- Based upon local and regional records of the conservation significant fauna species identified, the extent of potentially suitable breeding/foraging habitat is expected to extend beyond the fixed area of the field surveys; and
- Where practicable, rehabilitation of disturbed areas will take place following completion of construction to minimise the timeframe of habitat disturbance.

The key assumptions regarding the mitigation of impacts to Category 4 caves within the Proposed Action Area / Development Envelope and FHEZ:

- All caves within the Proposed Action Area / Development Envelope and FHEZ have been assessed. Fifty-one caves within the Proposed Action Area / Development Envelope and FHEZ have been identified as Category 4 caves. No permanent water source exists with the 10 km of the Proposed Action Area / Development Envelope (Bullen, 2021); and
- Blast design, blast monitoring, cave inspections and cave monitoring are proposed to ensure no indirect impacts from blasting to the structural integrity of the retained caves.

The key assumptions regarding dust and increased predation have been made:

- Dust suppression techniques will effectively minimise dust and associated degradation of habitat; and
- Feral predators cannot be fully eradicated from areas surrounding the Proposed Action Area / Development Envelope, as feral predators will migrate from adjacent areas.

1.5.5 Risk Based Management Approach

Construction will be completed over approximately two years, and the Proposal will operate for a further 18 years.

Management and mitigation measures will apply for the duration of construction, operation and closure. Management targets and associated actions have been developed through risk-based assessment (provided in **Appendix 1**) and have included the application of the mitigation hierarchy, to ensure impacts to key environmental factors have been avoided or reduced to as low as reasonably practicable (ALARP). Management actions have been identified and prioritised based on the risk assessment, which was based on survey outcomes and potential Proposal impacts during construction, operation and closure.

The relevant potential impacts to terrestrial fauna resulting from the Proposal include:

- Direct loss of habitat for species of conservation significance;
- Mortality or injury through entrapment or vehicle strike;
- Fragmentation of significant habitat;
- Decline in health and/or change in habitat composition;
- Mortality or injury from predatory feral animals;
- Behaviour changes in fauna individuals to avoid areas previously used for foraging or breeding; and

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- Disrupted breeding activities.

1.6 Phases of the Proposal

The environmental provisions set out in Section 2 may apply to different phases of the Proposal or contain requirements that change depending on the current phase of the Proposal. Terms used are defined in Table 1-9 and illustrated in relation to Proposal activities in Figure 1-8.

Table 1-9: Proposal Phases

Construction	The period during which construction activities are occurring.
Operations	The period during which operational activities are occurring. Generally, this includes mining (development of open pits and extraction of ore), processing (crushing of ore) and product transport (haulage).
Post-mining	The period commencing at the conclusion of mining activities.
Post-closure	The period commencing at the conclusion of initial major mine closure works. Minor/remedial closure works may still occur post-closure.

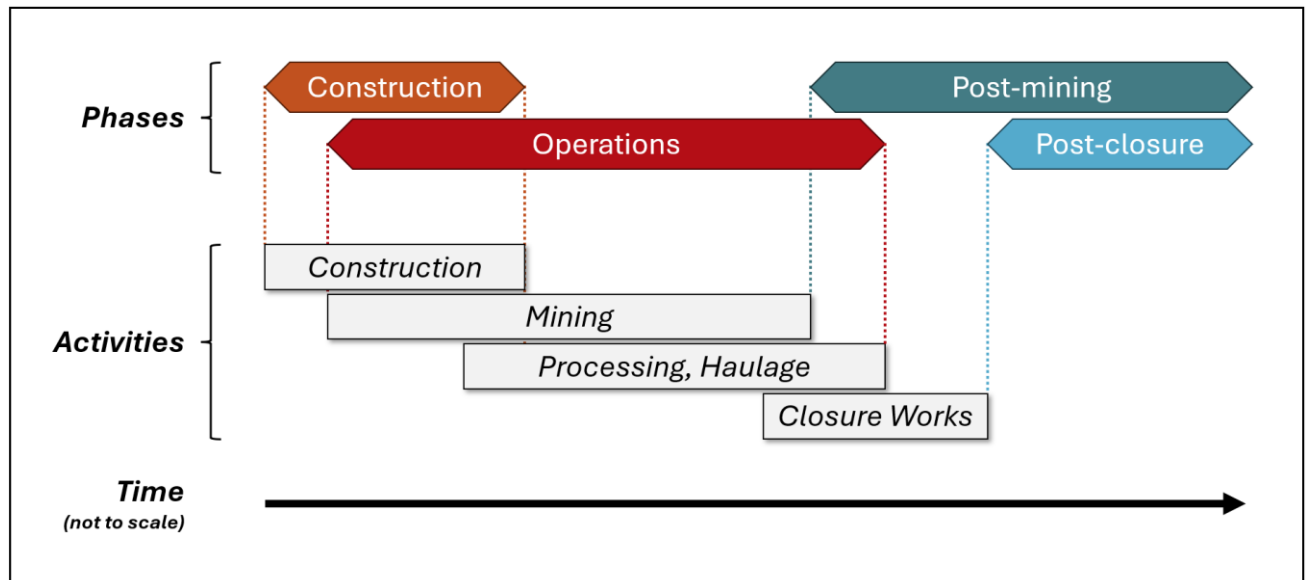


Figure 1-8: Proposal Phases and Activities

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2 CSFMP Provisions

The CSFMP includes both **outcome-based** and **objective-based** management frameworks, which are described below:

- **Outcome-based:** elements that are performance based. Focused on monitoring and evaluating specific measurable outcomes, usually driven by trigger and threshold criteria.
 - Trigger criteria, threshold criteria, response actions, monitoring, timing/frequency of monitoring, and reporting.
- **Objective-based:** elements relate to monitoring and management actions that are required to achieve an objective.
 - Management actions, management targets, monitoring, and reporting.

Outcome-based and objective-based management actions will be implemented to manage direct impacts, for example from native vegetation clearing, and minimise indirect impacts, for example from habitat fragmentation from clearing. The management actions focus on all key Proposal activities identified as potentially having a medium or higher risk on significant fauna. The provisions within this CSFMP have been informed by the results of baseline surveys as detailed in Table 1-4, the characteristics of the Proposal and EPA and DCCEEW guidelines (EPA, 2020; DoE, 2014).

Overall, the controls are considered in line with similar proposals approved in the region, and consistent with industry practices. This CSFMP provides for:

- Early response indicators and criteria (**Section 2.2**);
- Expected changes in the intensity, duration, magnitude or geographic footprint of the impact;
- Expected changes and rate of changes in the environment;
- Possible effects of issues external to the Proposal (e.g. rainfall, land use, other users); and
- Expected timeframe for mitigation to take effect.

2.1 Environmental Outcomes & Objectives

The objective of this CSFMP is consistent with the EPA objective for terrestrial fauna: *“To protect terrestrial fauna so that biological diversity and ecological integrity are maintained”*.

This CSFMP has been developed to ensure that Proposal activities are managed to minimise impacts to conservation significant fauna species. The CSFMP also includes monitoring indicators to evaluate the effectiveness of management measures for direct and indirect impacts on conservation significant fauna species. Whilst this CSFMP has been targeted towards management actions applicable to conservation significant fauna, many of the management actions identified can be applied to minimise the potential impacts to, and the effect of the Proposal, to other fauna taxa which are not of listed conservation significance, therefore management actions are not divided by conservation significant fauna species.

The specific trigger and threshold criteria, management targets and actions defined in **Table 2-1** and **Table 2-2** have been chosen to provide a basis for detecting, avoiding and/or managing potential impacts to ensure

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environmental outcomes and management targets are met and are based on current advice provided through baseline surveys and assessments of the Proposal.

The trigger criteria are based on best practice and are set at a level to ensure management actions are implemented well in advance of the threshold criteria being reached. The exceedance of trigger criteria is not considered to be a non-compliance event; however, the breach of a threshold will be deemed to be a possible non-compliance, a stop work will be implemented and will be investigated internally, with suitable contingency actions implemented as required.

Reporting methods are included in both **Table 2-1** and **Table 2-2**. Monitoring will be used to measure ongoing performance against the environmental criteria and management targets to determine if trigger or threshold criteria have been breached.

2.2 Management Plan Components

The management approach is informed by results of baseline surveys and the Proposal parameters. The Proposal aims to minimise the Indicative Footprint over the life of operation with priority given to using areas of existing disturbance and applying progressive rehabilitation.

Management and mitigation measures have been designed for the life of the mine, and as such, may require adaptive solutions in subsequent revisions of this CSFMP.

2.2.1 Management Actions

To meet the over-arching Proposal objectives, a series of Proposal specific, risk-based management actions have been developed and prioritised in order to minimise potential impacts to terrestrial fauna and fauna habitat. The management actions have been identified to address the potential impacts detailed in **Table 1-2**, and the actions focus on proposed activities that have the highest likelihood of causing adverse impacts to the following MNES:

- Night Parrot (Endangered, EPBC Act; Critically Endangered, BC Act);
- Northern Quoll (Endangered, EPBC Act and BC Act);
- Ghost Bat (Vulnerable, EPBC Act and BC Act);
- Pilbara Leaf-nosed Bat (Vulnerable, EPBC Act and BC Act);
- Pilbara Olive Python (Vulnerable, EPBC Act and BC Act);
- Greater Bilby (Vulnerable, EPBC Act and BC Act);
- Grey Falcon (Vulnerable, EPBC Act and BC Act);
- Peregrine Falcon (Other Specially protected fauna, BC Act);
- Red-necked Stint (Migratory Species, EPBC Act and BC Act);
- Wood Sandpiper (Migratory Species, EPBC Act and BC Act);
- Common Greenshank (Migratory Species, EPBC Act and BC Act); and
- Glossy Ibis (Migratory Species, EPBC Act and BC Act).

And the following DBCA State listed Priority species:

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- Western Pebble-mound Mouse (Priority 4, DBCA);
- Brush-tailed Mulgara (Priority 4, DBCA);
- Northern Short-tailed Mouse (Priority 4, DBCA); and
- Spotted Ctenotus (Priority 2, DBCA).

Risk assessment tables and a risk assessment of potential impacts resulting from the Proposal are provided as **Appendix 1**. The risk assessment addressed and mitigated the risks associated with terrestrial fauna (and fauna habitat) to as low as reasonably practicable (ALARP). The risk management process utilised a hierarchy of controls to avoid (eliminate risk first), then undertake alternative risk management strategies (such as substitution by utilising alternative areas for infrastructure or previously disturbed areas) to minimise the impacts or implement engineering controls (such as the installation of egress mats, fencing etc to prevent fauna access); and administration (such as the use of inspections, clearing permits etc).

The residual risk rating (**Appendix 1**) remains moderate for two management objectives:

- Minimise incidental mortality or injury of conservation significant terrestrial fauna from clearing activities, vehicle strike or mining related activities; and
- Minimise conservation significant terrestrial fauna population decline due to entrapment within mine infrastructure and equipment.

2.3 Outcome-based Provisions

Outcome-based provisions are performance-based and are used where a potential impact on the environment is suited to objective measurement and reporting. For the CSFMP these include:

- Limits on clearing of conservation significant fauna habitat (item 1a, 1b (EPA) 1c, 1d (EPBC), and 2).
- Protection of caves for the Pilbara Leaf-nosed Bat and Ghost Bat (item 3, 4, 5 & 6).
- Feral animal management (item 7).

The outcome-based environmental criteria have been identified in **Table 2-1**. For each of the criteria trigger and threshold indicators, response actions and corresponding monitoring and reporting requirements are outlined.

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Table 2-1: Outcome-based Provisions

EPA factors and objectives:	Terrestrial Fauna: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Key environmental values:	Conservation significant fauna species that will be disturbed.
Key impacts and risks	Direct impact due to loss of conservation significant species and fragmentation of habitat. Behavioural changes in conservation significant species causing avoidance in areas previously used for foraging or breeding and disrupted breeding activities.

No.	Indicators Trigger Criteria Threshold Criteria	Response actions Trigger Level Actions Threshold Contingency Actions			Monitoring Indicator, Methods and Locations	Timing/frequency of monitoring	Reporting																																		
Outcome: Limits on clearing of conservation significant fauna habitat within Development Envelope (Assessment No. EPA 2326)																																									
1a	<table border="1"> <thead> <tr> <th>Fauna Habitat</th> <th>95% Trigger Value (ha)</th> <th>Threshold Value (100%) (ha)</th> <th>Total Fauna Habitat (ha)</th> </tr> </thead> <tbody> <tr> <td>Drainage Line/Floodplain</td> <td>67.70</td> <td>71.26</td> <td>71.26</td> </tr> <tr> <td>Rocky Hills</td> <td>494.76</td> <td>520.80</td> <td>520.80</td> </tr> <tr> <td>Stony Spinifex Plains and Hillslopes</td> <td>773.27</td> <td>813.97</td> <td>813.97</td> </tr> <tr> <td>Gibber Cracking Clay</td> <td>53.66</td> <td>56.48</td> <td>56.48</td> </tr> <tr> <td>Mulga Woodland</td> <td>2,683.50</td> <td>2,824.74</td> <td>2,824.74</td> </tr> <tr> <td>Chenopod Cracking Clay Floodplain</td> <td>14.93</td> <td>15.72</td> <td>15.72</td> </tr> <tr> <td>Cracking Clay</td> <td>26.70</td> <td>28.10</td> <td>28.10</td> </tr> <tr> <td>Snakewood</td> <td>7.64</td> <td>8.04</td> <td>8.04</td> </tr> </tbody> </table>	Fauna Habitat	95% Trigger Value (ha)	Threshold Value (100%) (ha)	Total Fauna Habitat (ha)	Drainage Line/Floodplain	67.70	71.26	71.26	Rocky Hills	494.76	520.80	520.80	Stony Spinifex Plains and Hillslopes	773.27	813.97	813.97	Gibber Cracking Clay	53.66	56.48	56.48	Mulga Woodland	2,683.50	2,824.74	2,824.74	Chenopod Cracking Clay Floodplain	14.93	15.72	15.72	Cracking Clay	26.70	28.10	28.10	Snakewood	7.64	8.04	8.04	<p>Trigger Level Actions:</p> <ul style="list-style-type: none"> No further Ground Disturbance Permits (GDPs) to be authorised if threshold criteria will exceed. Confirm extent of existing approved ground disturbance against assessment of infrastructure yet to be constructed. <p>Threshold Contingency Actions:</p> <ul style="list-style-type: none"> Immediate cease of clearing activities. Undertake aerial audit on current disturbance. A rehabilitation plan may be prepared and implemented for the area of habitat in the event the total area of fauna habitat is exceeded. Investigation into threshold breach. Undertake further education and awareness training. Offset via IRP. 	<p>Indicator:</p> <ul style="list-style-type: none"> Actual clearing Clearing authorised by a GDP but not yet undertaken. <p>Methods:</p> <ul style="list-style-type: none"> Monitoring will be line with HanRoy Environmental Compliance Standard (ECS). Visual inspection during vegetation clearing. Internal GDP procedure and tracking of allocated clearing via Ground Disturbance Permit process (GDP), to ensure compliance with State and Commonwealth approved clearing allocations. <p>Locations:</p> <ul style="list-style-type: none"> Within the Development Envelope. 	<p>Construction and Operations:</p> <p>Prior to commencement of construction and once for each ground disturbance area (GDP inspection) during ground disturbing activities until completion.</p> <p>From commencement of construction, monthly survey of cleared areas and annual reconciliation of land disturbance data with the respective year's aerial imagery.</p> <p>Aerial audits will be undertaken in the event of a clearing breach identified.</p>	<p>Impact Reconciliation Report (IRR).</p> <p>Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.</p>
Fauna Habitat	95% Trigger Value (ha)	Threshold Value (100%) (ha)	Total Fauna Habitat (ha)																																						
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Stony Spinifex Plains and Hillslopes	773.27	813.97	813.97																																						
Gibber Cracking Clay	53.66	56.48	56.48																																						
Mulga Woodland	2,683.50	2,824.74	2,824.74																																						
Chenopod Cracking Clay Floodplain	14.93	15.72	15.72																																						
Cracking Clay	26.70	28.10	28.10																																						
Snakewood	7.64	8.04	8.04																																						
Outcome: Limits on clearing of conservation significant fauna habitat within Cwth Proposed Action Area EPBC 2022/09255																																									

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No.	Indicators Trigger Criteria Threshold Criteria				Response actions Trigger Level Actions Threshold Contingency Actions	Monitoring Indicator, Methods and Locations	Timing/frequency of monitoring	Reporting
1b		95% Trigger Value (ha)	Threshold Value (100%) (ha)	Total Fauna Habitat (ha)	Trigger Level Actions: <ul style="list-style-type: none"> No further GDP's to be authorised if threshold criteria will exceed. Confirm extent of existing approved ground disturbance against assessment of infrastructure yet to be constructed. Threshold Contingency Actions: <ul style="list-style-type: none"> Immediate cease of clearing activities. Undertake aerial audit on current disturbance. A rehabilitation plan may be prepared and implemented in the event the total area of fauna habitat is exceeded. Investigation into threshold breach. Undertake further education and awareness training. Offset via IRP. 	Indicator: <ul style="list-style-type: none"> Actual clearing. Prior to clearing authorised by a GDP. During Mine Rehabilitation Fund (MRF) audit and reporting. Methods: <ul style="list-style-type: none"> Monitoring will be line with HanRoy Environmental Compliance Standard (ECS). Aerial flyover. Visual inspection during vegetation clearing. Internal GDP procedure and tracking of allocated clearing via Ground Disturbance Permit process (GDP), to ensure compliance with State and Commonwealth approved clearing allocations. Scheduled aerial surveys. Locations: <ul style="list-style-type: none"> Within the Proposed Action Area. 	Construction and Operations: <p>Prior to commencement of construction and once for each ground disturbance area (GDP inspection) during ground disturbing activities until completion.</p> <p>From commencement of construction, monthly survey of cleared areas and annual reconciliation of land disturbance data with the respective year's aerial imagery.</p> <p>Aerial audits will be undertaken in the event of a clearing breach identified.</p>	Impact Reconciliation Report (IRR). Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.
	Fauna Habitat							
	Drainage Line/Floodplain	67.84	71.41	71.41				
	Rocky Hills	574.50	604.74	604.74				
	Stony Spinifex Plains and Hillslopes	806.86	849.33	849.33				
	Gibber Cracking Clay	53.66	56.48	56.48				
	Mulga Woodland	2,944.81	3,099.80	3,099.8				
	Chenopod Cracking Clay Floodplain	14.93	15.72	15.72				
	Cracking Clay	26.70	28.10	28.1				
Snakewood	7.64	8.04	8.04					
Outcome: Limits on clearing of both the State Development Envelope and Cwth Proposed Action Area								
2	Trigger Criteria: Clearing in a 10 m buffer zone outside of the FHEZ or FHEZ Corridor boundary. Threshold Criteria: Clearing reaches the FHEZ or FHEZ Corridor boundary.				Trigger Level Actions: <ul style="list-style-type: none"> Review approved GDPs to ensure proposed clearing does not intersect the FHEZ or FHEZ Corridor (unless otherwise authorised). Review proposed future clearing areas to ensure proposed clearing does not intersect the FHEZ or FHEZ Corridor (unless otherwise authorised). Threshold Contingency Actions: <ul style="list-style-type: none"> Immediate cease of clearing activities. Conduct aerial audit on current disturbance. A rehabilitation plan will be prepared and implemented for the area of habitat. Investigation into threshold breach. Undertake further education and awareness training. 	Indicator: <ul style="list-style-type: none"> Actual clearing. Prior to clearing authorised by a GDP. Methods: <ul style="list-style-type: none"> FHEZ and FHEZ Corridor will be clearly demarcated onsite to ensure no clearing within the FHEZ or FHEZ Corridor. Demarcation will be primarily virtual, through the use of geofencing, with physical demarcation to be used at key access points to these areas or where it is known that an approved GDP may be within close proximity to these exclusion zones. Monitoring will be line with HanRoy Environmental Compliance Standard (ECS). Visual inspection during vegetation clearing. Locations: Within and immediately adjacent to, the FHEZ or FHEZ Corridor.	Construction and Operations: <p>From commencement of construction, monthly survey of cleared areas and annual reconciliation of land disturbance data with the respective year's aerial imagery.</p> <p>Aerial audits will be conducted in the event of a clearing breach identified.</p>	Impact Reconciliation Report (IRR). Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.
Outcome: Protection of retained Category 4 caves for conservation significant bats								
3	Trigger Criteria:				Trigger Level Action:	Indicator:	Operations:	Annual Environmental Report (AER) – submitted

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	<p>Minor to moderate rockfall within a cave such that the cave remains viable as conservation significant habitat in the future once mining has ceased.</p> <p>Threshold Criteria:</p> <p>Significant structural damage that would prevent significant bat usage within a cave identified as to be retained within the Development Envelope/FHEZ that is viable for significant bat species usage.</p> <p><i>*Note, caves to be retained will be identified as Proposal design progresses. These criteria will be updated accordingly</i></p>	<ul style="list-style-type: none"> Undertake geotechnical assessment to reassess structural integrity and the susceptibility of the cave structural changes, considering blast monitoring details. Investigate extent and severity of damage. Review blast and vibration levels. Design next blast to achieve a lower blast vibration at all relevant caves. Review training and inductions. Compare before and after images from a continuous image-based monitoring system of the cave entrance structure. <p>Threshold Level Action:</p> <ul style="list-style-type: none"> Cease blasting near relevant area and review blasting parameters. Undertake any practical corrective rehabilitation (remove rock fall or sealing of significant fractures), where any damage is considered to have potential ongoing effects to use by bats. Investigate cause of damage and significance of loss for fauna. Compare before and after images from a continuous image-based monitoring system of the cave entrance structure. If investigation of the cave determines the structure to no longer be viable as a category 4 cave, offset via the IRP. 	<p>Rockfall, cave structure alteration.</p> <p>Refer to Section 3 for relevant monitoring programs.</p> <p>Methods:</p> <p>Implement blasting limitations as per results of geotechnical caves assessment.</p> <p>Qualitative comparison of images of the cave entrance taken before and after the defined event.</p> <p>Locations:</p> <p>Monitoring of cave structure will occur at, or as close to (with respect to heritage avoidance areas), the following category 4 caves which occur within 200 m of blasting activity:</p> <ul style="list-style-type: none"> MEC008; MEC009; MEC010; MEC012; MEC016; MEC025; MEC039; MEC070; MEC073; MEC074. <p>Where geotechnical analysis identifies a cave as high susceptibility and it is located >200 m and <500 m from blasting activity, this cave will also be monitored.</p>	<p>Continuous data collection will begin at least six months prior to blasting activity occurring within 500 m of cave locations identified for monitoring.</p> <p>Continuous data collection will end six months post blasting activity occurring within 500 m of cave locations identified for monitoring.</p>	<p>to DMPE under the <i>Mining Act 1978</i></p> <p>Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.</p> <p>Sightings of conservation significant fauna – quarterly report to DBCA.</p>

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No.	Indicators Trigger Criteria Threshold Criteria	Response actions Trigger Level Actions Threshold Contingency Actions	Monitoring Indicator, Methods and Locations	Timing/frequency of monitoring	Reporting									
4	<p>Peak particle velocity</p> <table border="1"> <thead> <tr> <th>Cave Susceptibility</th> <th>85% Trigger Value (mm/s)</th> <th>Threshold Value (mm/s)</th> </tr> </thead> <tbody> <tr> <td>Low to medium susceptibility caves within FHEZ/Development Envelope</td> <td>63.75</td> <td>75</td> </tr> <tr> <td>High susceptibility caves within FHEZ/Development Envelope</td> <td>21.25</td> <td>25</td> </tr> </tbody> </table> <p><i>* Note, caves to be retained will be identified as Proposal design progresses. These criteria will be updated accordingly</i></p>	Cave Susceptibility	85% Trigger Value (mm/s)	Threshold Value (mm/s)	Low to medium susceptibility caves within FHEZ/Development Envelope	63.75	75	High susceptibility caves within FHEZ/Development Envelope	21.25	25	<p>Trigger Level Action:</p> <ul style="list-style-type: none"> Review blast and vibration levels and redesign of next blast to achieve lower blast vibration at relevant caves. Review of all relevant management plans. Visual inspection of relevant cave(s). Review training and inductions. <p>Threshold Level Action:</p> <ul style="list-style-type: none"> Cease blasting near relevant area and review blasting parameters. Investigate and identify cause. If investigation of the cave determines the structure to no longer be viable as a category 4 cave, offset via the IRP. 	<p>Indicator:</p> <p>Blast vibration measurement measured as peak mm/s.</p> <p>Refer to Section 3 for relevant monitoring programs.</p> <p>Methods:</p> <p>Blast vibration measurements from caves closest to blast / pit.</p> <p>Locations:</p> <p>Monitoring of vibration will occur at, or as close to (with respect to heritage avoidance areas), the following category 4 caves which occur within 200 m of blasting activity:</p> <ul style="list-style-type: none"> MEC008; MEC009; MEC010; MEC012; MEC016; MEC025; MEC039; MEC070; MEC073; MEC074. <p>Where geotechnical analysis identifies a cave as high susceptibility and it is located >200 m and <500 m from blasting activity, this cave will also be monitored.</p>	<p>Operations:</p> <p>Continuous data collection will begin at least six months prior to blasting activity occurring within 500 m of cave locations identified for monitoring.</p> <p>Continuous data collection will end six months post blasting activity occurring within 500 m of cave locations identified for monitoring.</p>	<p>Annual Environmental Report (AER) – submitted to DMPE under the <i>Mining Act 1978</i>.</p> <p>Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.</p>
Cave Susceptibility	85% Trigger Value (mm/s)	Threshold Value (mm/s)												
Low to medium susceptibility caves within FHEZ/Development Envelope	63.75	75												
High susceptibility caves within FHEZ/Development Envelope	21.25	25												
<p>Outcome: Maintain or improve the condition of fauna habitat within the Development Envelope / Proposed Action Area / FHEZ, such that predation from feral animals attributable to the Proposal does not result in a measurable increase in the mortality of conservation significant fauna.</p>														
5	<p>Trigger Criteria</p> <p>A > 1 standard deviation increase in the presence of feral animals within the Development Envelope / Proposed Action Area / FHEZ over a one year monitoring period, from the baseline*.</p> <p>OR</p> <p>Any unconfirmed record of cane toad presence within the Development Envelope / Proposed Action Area / FHEZ.</p> <p>Threshold Criteria</p> <p>A >2 standard deviation increase in the presence of feral animals within the Development Envelope / Proposed Action Area / FHEZ over a one year monitoring period, from the baseline*.</p> <p>OR</p> <p>Any confirmed record of cane toad presence within the Development Envelope / Proposed Action Area / FHEZ.</p> <p>*Baseline dataset will be established as the first year of feral animal monitoring.</p>	<p>Trigger Level Action:</p> <ul style="list-style-type: none"> Increase monitoring frequency. Deploy additional animal control measures (e.g. trapping, baiting, Felixers and other methods that may be employed by contractors engaged to conduct feral animal control, including euthanasia methods). Investigate and identify cause. <p>Threshold Level Action:</p> <ul style="list-style-type: none"> Review and implement trigger level actions where appropriate. Intensive feral animal eradication program Reassessment of entry pathways, review and implementation of prevention actions Investigate whether additional engineering design/controls could lead to a decrease in available habitat for feral animals 	<p>Indicator:</p> <p>Feral animal sightings, recorded via:</p> <ul style="list-style-type: none"> Visual observations Camera traps <p>Methods:</p> <ul style="list-style-type: none"> Visual inspections. Inspections may be conducted in person or remotely (e.g. via motion cameras) and will look for evidence of feral animals. Opportunistic sightings. <p>Locations:</p> <p>Sightings/inspections to be recorded within the Development Envelope/Proposed Action Area and FHEZ.</p> <p>Pest management will be conducted within the Development Envelope/Proposed Action Area, FHEZ and within the immediate vicinity of the Proposal (where tenure allows).</p>	<p>Operations:</p> <ul style="list-style-type: none"> Annual pest animal control program. <ul style="list-style-type: none"> Undertaken between April and September Visual inspections monthly during clearing activities. Annual inspection of clearing areas. Annual inspection of rehabilitated areas. Monthly inspection of work areas to ensure free from litter etc. Further action and/or monitoring may also be initiated on an as required basis when there have been two consecutive reports of feral animals. 	<p>Annual Environmental Report (AER) – submitted to DMPE under the <i>Mining Act 1978</i>.</p> <p>Exceedance of threshold criteria – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.</p> <p>Sightings of conservation significant fauna – quarterly report to DBCA.</p>									

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2.4 Objective-based Provisions

Objective-based provisions related to management actions are used when the environment is not suited to objective measurement and reporting.

Table 2-2 outlines the management objectives that have been identified for the Proposal. All objectives and outcomes of potential impacts cover both State and Commonwealth assessments. Management actions, monitoring and reporting requirements are outlined for each of the management objectives.

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Table 2-2: Objective-based Provisions

EPA factors and objectives:	Terrestrial Fauna: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained
Key environmental values:	Conservation significant fauna species that will be disturbed.
Key impacts and risks	Direct impact due to loss and fragmentation of terrestrial fauna habitat from clearing or ground vibration. Direct impact through mortality or injury through entrapment or vehicle strike. Direct impact through mortality or injury from predatory fauna.

No.	Management target	Management action	Monitoring Indicators, Methods and Locations	Timing/frequency of monitoring	Reporting
Direct and indirect impacts within the EPA Development Envelope 2326 and EPBC Proposed Action Area 2022/09255					
1	No adverse impacts to significant fauna habitat from dust emissions as a result of implementation of the Proposal.	<ul style="list-style-type: none"> All site personnel and contractors to be inducted/trained on environmental responsibilities, with respect to dust minimisation. Induction/training to occur prior to entering the site and delivered online and/or in person. Material delivered during the induction/training will be developed and/or delivered by the appropriate responsible person (i.e. environmental advisor, see Section 5). Vehicle speed limits on haul roads, work areas and campsites will be imposed and enforced where necessary to minimise dust emissions (see Provision 5 below for speed limits) : <ul style="list-style-type: none"> Routine speed testing will be undertaken to ensure limits and restrictions are being adhered to. Road signs with speed limits and time restrictions posted will be installed on all sealed and unsealed roads. Vegetation health monitoring (which will include dust as a criteria) as described in the WMP. Undertake dust suppression on all active roads and unsealed operational areas to reduce dust emissions, including: <ul style="list-style-type: none"> Dust suppression techniques (e.g., water trucks) used on unsealed roads and access tracks, cleared areas and at locations of high dust risk; No vegetation clearing and earthworks during wind speed greater than 50 km/hr; and Clearing activities will be staged to minimise areas of exposed surfaces. 	<p>Indicator:</p> <p>Excessive dust emissions observed.</p> <p>Wind speed.</p> <p>Ground disturbance proposed through the internal GDP process.</p> <p>Decline in vegetation health metrics.</p> <p>Change to Northern Quoll presence from baseline</p> <p>Change to Pilbara Leaf-nosed Bat presence from baseline</p> <p>Method:</p> <ul style="list-style-type: none"> Visual assessment of dust during environmental inspections. Opportunistic sightings. Internal GDP process condition implementation. Review of site meteorological data. Vegetation health monitoring (which will include dust as a criteria) as described in Section 3.6 Northern Quoll monitoring program (see Section 3.1) Pilbara Leaf-nosed Bat monitoring program (see Section 3.2) <p>Locations:</p> <p>Active dust suppression activities will occur on all unsealed roads/access tracks and cleared areas within the Development Envelope/Proposed Action Area that are proximal (<100m) to significant fauna habitat.</p> <p>Vegetation health monitoring sites as described in the WMP.</p> <p>Relevant GDP boundary area.</p> <p>Northern Quoll/Pilbara Leaf-nosed Bat monitoring locations are given in Section 3.1 and 3.2.</p>	<ul style="list-style-type: none"> Daily review of meteorological conditions during construction and operation. Daily opportunistic observations during construction and operation. As required, during construction and operation. Vegetation health monitoring conducted annually at the end of the dry season in accordance with Section 3.6.3 of this Plan. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Incident reporting system. Recording as per internal GDP procedure (Appendix 3). All instances of excessive dust generation will be reported within 24 hours and recorded within HPPL's incident reporting system. Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.

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No.	Management target	Management action	Monitoring Indicators, Methods and Locations	Timing/frequency of monitoring	Reporting
2	No occurrence of Proposal related fire in the FHEZ or outside of the Development Envelop / Proposed Action Area.	<ul style="list-style-type: none"> An adequate number of personnel and contractors shall be trained in basic fire awareness, fire response and use of fire suppression equipment. Smoking permitted in designated smoking areas to have a cease fire unit (or similar) for safe and contained cigarette butt disposal. Spark arrestors will be fitted to mobile equipment with internal combustion engines involved in clearing operations. Fire-control equipment will be available in fire-risk areas including but not limited to hazardous material storage areas, hot works job sites, service trucks. An emergency management plan shall be developed and implemented and shall include methods for managing major environmental incidents, including but not limited to fire. Implementation of the following procedures to reduce the risk of fire from project related activities: <ul style="list-style-type: none"> Hot Works Procedures. Implementation of the following procedures to ensure weeds are controlled, as far as practicable: <ul style="list-style-type: none"> Ground Disturbance Permit Procedure (Appendix 3) Weed Hygiene Procedure Hydrocarbon Management Procedure Compliance with the <i>Bushfire Act 1954</i>. 	<p>Indicator: Record of a Proposal related fire in the FHEZ or outside of the Development Envelop / Proposed Action Area.</p> <p>Method: Fire incident reports.</p> <p>Locations: Outside of the Development Envelope/Proposed Action Area</p>	<ul style="list-style-type: none"> Inspect equipment every 6 months during construction and operation. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Incident reporting system. Recording as per internal GDP procedure (Appendix 3). Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.

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No.	Management target	Management action	Monitoring Indicators, Methods and Locations	Timing/frequency of monitoring	Reporting
3	No adverse disturbance to conservation significant fauna from noise and lighting during Proposal implementation.	<ul style="list-style-type: none"> All site personnel and contractors to be inducted on environmental responsibilities regarding noise, vibration and lighting implementation. Induction/training to occur prior to entering the site and delivered online and/or in person. Material delivered during the induction/training will be developed and/or delivered by the appropriate responsible person (i.e. environmental advisor, see Section 5). All activities will be conducted in accordance with the <i>Environmental Protection (Noise) Regulations 1997</i>, Australian Standard 2436-1981: Guide to noise control on construction, maintenance and demolition sites and relevant occupational health and safety standards. All activities will be conducted in accordance with DCCEEW (2023b) National Light Pollution Guidelines for Wildlife, with the application of the following best practise design principles where practicable: <ul style="list-style-type: none"> Adaptive lighting controls (e.g. timing, intensity and colour) Directed, shielded and placement of light sources low to the ground. Use of the low intensity lighting that is appropriate for the task and meets relevant occupational health and safety standards. Use of lights with reduced/filtered blue, violet and ultraviolet wavelengths. Equipment shall be fitted with appropriate noise reduction devices (where necessary) to comply with Project HSE and regulatory requirements. Inspections and maintenance of equipment and machinery to reduce noise emissions. Directional lighting onto active construction/operational areas to minimise the potential for light overspill resulting in fauna disturbances. No lighting towers within 500m of the FHEZ will be positioned facing towards the FHEZ. Lighting will be strategically placed and designed to shine towards plant operations. Lighting will only be used where it is necessary for safe operations. 	<p>Indicator:</p> <ul style="list-style-type: none"> Excessive noise or lighting observed. Recorded disturbance in caves observed from blasting activities. Change to Northern Quoll presence from baseline Change to Pilbara Leaf-nosed Bat presence from baseline <p>Method:</p> <ul style="list-style-type: none"> Visual inspections of lighting on active construction areas. Inspection of noise emissions. Northern Quoll monitoring program (see Section 3.1) Pilbara Leaf-nosed Bat monitoring program (see Section 3.2) <p>Locations:</p> <p>Noise/lighting may be generated from mobile and stationary plant and construction/ operational working areas within the Development Envelope/Proposed Action Area.</p> <p>Monitoring to occur at sensitive receptors (e.g. within the FHEZ) – exact locations are yet to be determined (See Section 3).</p> <p>Northern Quoll/Pilbara Leaf-nosed Bat monitoring locations are given in Section 3.1 and 3.2.</p>	<ul style="list-style-type: none"> Visual inspections monthly during clearing activities. As required by approval conditions during construction and operation. Visual inspection of equipment prior to construction activities. As per general inspection schedule. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Incident reporting system. Noise monitoring results. Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.

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No.	Management target	Management action	Monitoring Indicators, Methods and Locations	Timing/frequency of monitoring	Reporting
4	No adverse impacts to conservation significant fauna due to the introduction and/or spread of weeds as a result of the Proposal.	<ul style="list-style-type: none"> All site personnel and contractors to be inducted on environmental responsibilities. Environmental induction will include awareness of high risk/priority weed relevant to the Proposal and weed hygiene management. Induction/training to occur prior to entering the site and delivered online and/or in person. Material delivered during the induction/training will be developed and/or delivered by the appropriate responsible person (i.e. environmental advisor, see Section 5). Undertake progressive rehabilitation in accordance with a Mine Closure Plan to reduce the opportunity for weeds to become established. All machinery and vehicles shall be cleaned down of all soil and vegetation material prior to arriving or entering on site. Any soil and vegetation removed from machinery or vehicles during clean down shall be collected and disposed of offsite. Vehicle and Mobile Equipment Weed Hygiene Inspection Form (HNR-0000-EN-TEM-0014) must be completed, prior to entry to site and records maintained. Vehicles and equipment access of existing designated roads/access tracks and cleared areas will be preference over clearing new roads/access tracks. Imported fill, ballast or other potential weed mediums to be certified by the supplier as being free from weed free sources prior to arrival on site. Certification and completed Imported Materials Weed Hygiene Inspection Form (HNR-0000-EN-TEM-0004) is to be provided to HanRoy. Undertake progressive land clearing minimising the amount of active disturbance present at any one time to reduce the opportunity for weeds to become established. Inspect topsoil stockpiles annually to check for evidence of weed infestations. Develop and implement weed control programs where new species of weeds are detected or where declared weeds are recorded. Weed control methods, control issues and timing will be outlined in a site specific Weed Management Plan. Operate in accordance with the following HPPL operational documents: <ul style="list-style-type: none"> Environmental Compliance Standard (HNR-0000-EN-STD-0001); Significant Fauna, Flora and Weed Identification Manual (HNR-0000-EN-MAN-0001); Imported Materials Weed Hygiene Inspection Form (HNR-0000-EN-TEM-0004); Vehicle & Mobile Equipment Weed Hygiene Inspection Form (HNR-0000-EN-TEM-0014). 	<p>Indicator:</p> <p>New weed species identified.</p> <p>New localised outbreak of known or new weed species.</p> <p>Change to Northern Quoll presence from baseline</p> <p>Change to Pilbara Leaf-nosed Bat presence from baseline</p> <p>Method:</p> <ul style="list-style-type: none"> Visual inspections. Opportunistic sightings. Weed control reports. Northern Quoll monitoring program (see Section 3.1) Pilbara Leaf-nosed Bat monitoring program (see Section 3.2) <p>Locations:</p> <p>Development Envelope/Proposed Action Area with specific attention paid to high frequency areas such as the mine access road.</p> <p>Annual weed monitoring program to have monitoring locations in the FHEZ/FHEZ Corridor.</p> <p>Northern Quoll/Pilbara Leaf-nosed Bat monitoring locations are given in Section 3.1 and 3.2.</p>	<ul style="list-style-type: none"> Visual inspections monthly during clearing activities. Prior to mobilisation to Proposal. Prior to delivery of each load. Annual inspection will be after a rainfall event and at the beginning of the growing season (February to May). Annual inspection of clearing areas. Annual inspection of rehabilitated areas. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Inspection records. Incident reporting system. Weed inspection records. Monthly inspection. Pest animal control records. Material specification certificates provided by contractors, reviewed and stored internally to ensure materials bought to site are compliant. Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.

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5	No direct mortality or injury of conservation significant terrestrial fauna from clearing activities, vehicle strike or mining related activities resulting from the Proposal.	<ul style="list-style-type: none"> All site personnel and contractors to be inducted on protected or threatened species and appropriate fauna management practices. Induction/training to occur prior to entering the site and delivered online and/or in person. Material delivered during the induction/training will be developed and/or delivered by the appropriate responsible person (i.e. environmental advisor, see Section 5). Promote driver awareness and implement appropriate mitigation measures for vehicle strike including speed limit restrictions, right of way for fauna, and the prohibition of off-road driving. All staff will undertake mandatory driver competency testing prior to driving on site. Vehicle speed limits on haul roads, work areas and campsites will be imposed and enforced where necessary including (but not necessarily limited to): <ul style="list-style-type: none"> Site wide (within the Development Envelope but excluding the Northern Haul Road FHEZ Restriction Zone): <ul style="list-style-type: none"> An upper limit of 90 km/hr on all sealed roads An upper limit of 60 km/hr on all unsealed roads Northern Haul Road FHEZ Restriction Zone (Figure 2-1): <ul style="list-style-type: none"> Between 6pm and 6am, an upper speed limit restriction of 60 km/hr During Northern Quoll breeding season (July to September (Moore et al 2021)), between 6am and 6pm, an upper speed limit restriction of 60 km/hr and between 6pm and 6am 40 km/hr. Routine speed testing will be undertaken to ensure limits and restrictions are being adhered to. Road signs with speed limits and time restrictions posted will be installed on all sealed and unsealed roads. If an incident occurs, undertake an investigation on causation. Should the signed speed be a contributing factor, review the upper speed limit. In the event that of protected or threatened species are observed within active clearing area, clearing will cease in the area of the sighting for 15 minutes to allow the fauna to move away from the area or until the individual/s have been relocated. If any of protected or threatened species are required to be moved, fauna are to be handled (by appropriately trained personnel or contractor) and transported in accordance with the requirements of the BC Act. Site layout designed to reduce habitat fragmentation and provide corridors allowing fauna to move through the landscape. <ul style="list-style-type: none"> Where haulage routes intersect drainage lines or run adjacent to the FHEZ or FHEZ Corridor, fauna friendly underpasses shall be installed. 	<p>Indicator: Conservation significant fauna mortality or injury from mining, clearing or vehicle strike. Any other interactions with conservation significant fauna.</p> <p>Method: Visual observation and incident reports of deceased or injured conservation significant fauna.</p> <p>Locations: All roads within the Development Envelope / Proposed Action Area. Northern Haul Road FHEZ Restriction Zone (). Relevant GDP boundary area All interactions within the Development Envelope/Proposed Action Area, FHEZ and other additional regional monitoring locations (pending tenure) will be recorded.</p>	<ul style="list-style-type: none"> Training to be provided during inductions of staff or contractors prior to entry on site. Monthly visual inspection of clearing extent during clearing activities. Records of fauna death or injury on incident during construction and operation. As required during clearing activities, during construction and operation. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Incident reporting system. Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days. Notify regulator Authority in accordance with Section 4.2. Any protected or threatened species encountered on site are to be recorded and records maintained for the Proposal. This will include locations, date, species, animal status (alive/dead) and actions taken.
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No.	Management target	Management action	Monitoring Indicators, Methods and Locations	Timing/frequency of monitoring	Reporting
6	No conservation significant terrestrial fauna death as a result of entrapment within mine infrastructure and equipment, as a result of the Proposal.	<ul style="list-style-type: none"> Ensure egress points and/or fauna ladders are installed as appropriate in excavations and dams to avoid accidental death and/or entrapment of fauna. Undertake inspections of water infrastructure to ensure integrity of fauna egress points and fencing. Ensure all open holes, including drill holes, are covered or capped during construction and operation; or are rehabilitated when they are no longer required. Implement domestic waste management procedures (e.g. fencing of landfills, covering putrescible waste, secure lids on bins, to avoid attraction of both feral and native species to the Proposed Action Area. The landfill will be operated and managed in accordance with the Environmental Protection (Rural Landfill) Regulations 2002. Ensure all container doors are closed securely when not in use. Avoid the use of barbed wire fencing. Where barbed wire fencing cannot be avoided, HPPL will install reflectors so the fence is conspicuous to bats. Where trapped fauna has been sighted/recorded, the site environmental advisor will monitor the individual, and where deemed appropriate and safe, a qualified fauna handler will rescue the individual and return them to adjacent vegetation. <ul style="list-style-type: none"> Entrapped fauna will prompt an adequacy review of the egress points installed for the infrastructure in question. Where haulage routes intersect drainage lines or run adjacent to the FHEZ or FHEZ Corridor, fauna friendly underpasses shall be installed. 	<p>Indicator: Sightings of a conservation significant fauna presence within mine infrastructure or equipment.</p> <p>Method:</p> <ul style="list-style-type: none"> Visual inspections of equipment/infrastructure. Opportunistic sightings. <p>Locations: Locations to be monitored within the Development Envelope/Proposed Action Area include, but are not limited to; landfill, drainage infrastructure, ponds, accommodation area, workshops, lay down areas etc.</p>	<ul style="list-style-type: none"> Daily inspections during excavation works. Inspection undertaken of rehabilitation following closure of open holes no longer required. Monthly inspection egress points and/or fauna ladders during construction and operation. Daily checks of waste facilities and container doors during construction and operation. 	<ul style="list-style-type: none"> The following Internal reporting processes ensure accurate record keeping to inform compliance and audit under relevant legislation (EPBC Act/EP Act/Mining Act): <ul style="list-style-type: none"> Induction and training records. Incident reporting system. Reporting on the review and revision of management actions – annually in the EP Act CAR and the EPBC Act Annual Compliance Report. Exceedance of management target – notify regulatory authorities (DWER and DCCEEW) within 7 days of exceedance being identified and provide a written report within 21 days.

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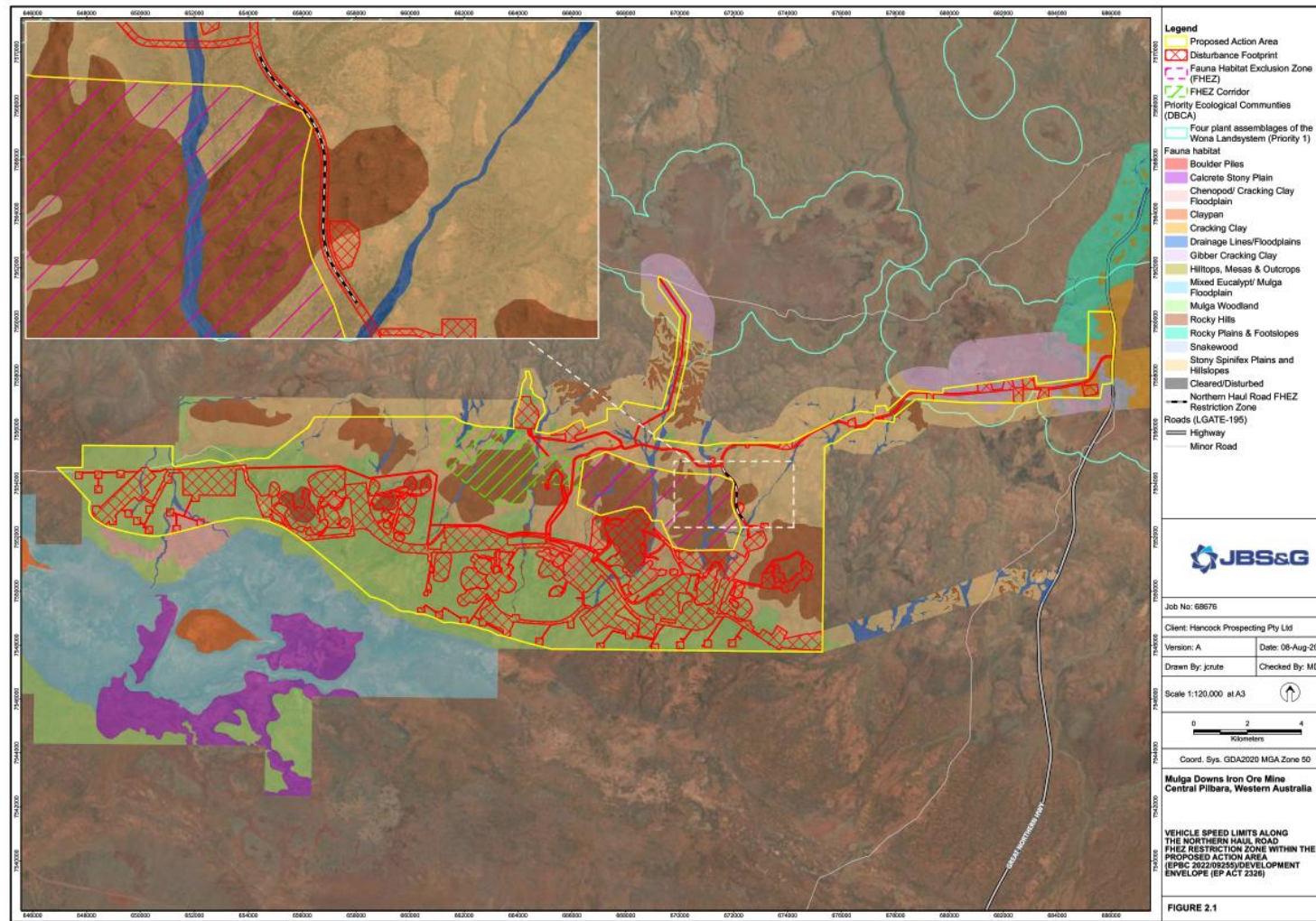


Figure 2-1: Vehicle speed limits along an indicative Northern Haul Road FHEZ restriction zone

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3 Monitoring

Due to cultural sensitivities, access to baseline monitoring locations or proposed construction/operational monitoring sites may be restricted. The Proponent will work with the Banjima people to implement the monitoring program outlined in this section. The specific locations and number of sites proposed may change as a result of those discussions. The CSFMP will be updated accordingly.

3.1 Northern Quoll Monitoring Program

Management actions have been designed to avoid, mitigate, manage or minimise potential impacts on Northern Quoll individuals and their preferred habitats. It is necessary to monitor the implementation of these actions to ensure they are effective. To achieve this, a monitoring program for Northern Quoll will be conducted to monitor the population of Northern Quolls in the FHEZ.

3.1.1 Baseline Northern Quoll Data

Baseline surveys for Northern Quoll were completed between 2019 and 2024:

- *ecologia* (2021) Mulga East Project Baseline Terrestrial Vertebrate Fauna Assessment;
- Biologic (2022a) Mulga Downs Iron Ore Project: Transport Corridor to Great Northern Hwy Terrestrial Fauna Survey;
- Biologic (2022b) Mulga Downs Iron Ore Project: Mulga West Borefield and Mulga East Southern Corridor Terrestrial Fauna Survey;
- Spectrum (2023a) Solar Farm, Haul Road & Pipeline: Vertebrate & Short-Range Endemic Terrestrial Fauna Assessment; and
- Spectrum (2024) Mulga Downs Iron Ore Mine Supplementary Targeted Fauna Survey.

Additional information on the presence of Northern Quolls within drainage lines which have been identified as their preferred habitat for foraging and dispersal is presented in Spectrum (2024) Mulga Downs Iron Ore Mine. *Attexo (2023) Mulga Downs Iron Ore Mine Consolidated Terrestrial Fauna Report* is a consolidation of the terrestrial fauna surveys undertaken prior to 2023 and included surveys for short-range endemic invertebrates.

The total survey effort for the Northern Quoll is summarised as:

- Motion sensor camera traps at 132 sites over 5,429 trap nights;
- Cage traps at 50 sites over 385 trap nights;
- Targeted searches, including 229.73 hrs of targeted surveys and 55 hours of nocturnal searches, and 34.8 kms of transect; and
- 107 km of UAV flight pathways.

The results of these surveys provide baseline data on Northern Quoll population in the Development Envelope / Proposed Action Area and FHEZ prior to development of the Proposal; however, it is noted that Northern Quoll populations often fluctuate and can undergo boom and bust periods, depending on the food resources and conditions. This is demonstrated through the results presented in *ecologia* (2021), where only five individuals

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were recorded in 2019 following lower than average rainfall records prior to this survey. No Northern Quolls were detected during Phase 2 of the survey despite camera traps being placed at 39 locations within habitat considered suitable for this species. Nocturnal spotlighting did not yield any records. Northern Quoll scats were noted at six locations within the Rocky Hills habitat, three of these locations are in the FHEZ (*ecologia* 2021).

Subsequent surveys in 2021 (Biologic 2022a, b) did not detect the presence of Northern Quolls. The two phase surveys included targeted searches and camera traps at 25 sites spanning from the far west of the Proposed Action Area across to the Great Northern Highway.

Targeted searches for the Northern Quoll in March 2023 did not find evidence of Northern Quolls along the northern section of the Proposed Action Area (Spectrum 2023a). Motion cameras were placed in areas considered suitable; however, none were triggered by Northern Quolls. Targeted searches also did not yield any results (Spectrum 2023a). No Northern Quoll dens were found during any of the terrestrial fauna surveys. Targeted searches along drainage lines and spotlight searches were completed as part of the Bilby targeted survey and opportunistic sightings did not result in any evidence of quolls within the drainage lines (Spectrum 2024).

These results are in contrast with the Spectrum (2024) results, which followed higher than average rainfall, where the species was recorded on 16 occasions.

Individuals are very short lived and each females reproduces six young each year. Multiple years of drought or good conditions can alter the size of a population significantly. The results of baseline surveys (together with other environmental data e.g. temperature, rainfall) will be used to inform monitoring results analysis where possible.

All records of Northern Quoll taken to date are shown in Figure 3-1 and detailed further in Table 3-1.

Table 3-1: Northern Quoll Data recorded to date

Year (Month)	Survey Report	Individuals Recorded	Habitat	Method
2019 (April/July)	<i>Ecologia</i> (2021)	5	Stony Spinifex Plains and Hillslopes	Cage trap
			Rocky Hills	Camera trap
2024 (June/July)	Spectrum (2024)	16	Stony Spinifex Plains and Hillslopes	Camera trap
			Rocky Hills	Scat
			Drainage Lines/Floodplains	

3.1.2 Monitoring Program Objectives

The broad objectives for the monitoring program are to monitor and measure the success of management actions in protecting Northern Quoll. Specific objectives include:

- Measure impacts of the Proposal over time; and
- Measure the success of management measures (based on Northern Quoll monitoring results) against performance indicators to inform an adaptive management approach that will be implemented during the life of the Proposal.

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3.1.3 Monitoring Site Selection

To ensure that the monitoring program is consistent with, and builds on data previously collected during baseline surveys, monitoring will continue to utilise Northern Quoll monitoring sites established during baseline surveys. Indicative monitoring locations are provided in Figure 3-3.

Previous Northern Quoll monitoring undertaken for the Proposal incorporated site specific control sites. It is proposed that the monitoring program aligns with DBCA Pilbara Northern Quoll Project (DBCA 2014). This project currently incorporates 14 monitoring sites across the Pilbara. The methods used to monitor the Northern Quolls within Proposal impact sites are comparable to those DBCA have applied at their regional Pilbara Northern Quoll monitoring sites. As such, the information from the DBCA control sites can be used as reference sites in addition to the original baseline survey control sites. This approach allows for a comparison of Northern Quoll population trends within the Proposal to regional control sites.

Monitoring will be undertaken at ten monitoring sites, comprising five impact sites and five control sites. The impact sites are considered impact sites because they are within proximity (less than 1 km) to anticipated mining disturbance, whilst control sites are located away (more than 1 km) from anticipated mining disturbance. Control sites will provide regional and contextual information against which results from the impact sites can be compared. Monitoring sites are listed in Table 3-2 and are shown in Figure 3-3.

Impact and control sites are located where Northern Quoll have previously been recorded and/or within core breeding habitat (Stony Spinifex Plains and Hillslopes, Rocky Hills and Drainage Lines/Floodplains). Where possible, the same monitoring sites will be monitored each monitoring survey to maximise consistency between monitoring events. In the event the original sites cannot be adequately surveyed (e.g. due to access constraints, recent fire), suitable alternatives meeting the criteria will be identified.

Table 3-2: Proposed Northern Quoll Monitoring Sites

Site	Type	Habitat
MC01	Impact	Rocky Hills
MC03	Control	Rocky Hills / Drainage Line
MC04	Impact	Rocky Hills
MC06	Impact	Rocky Hills
MC09	Control	Rocky Hills
MC13	Impact	Rocky Hills
MC14	Impact	Rocky Hills
TQCT003	Control	Rocky Hills / Stony Spinifex Plains and Hillslopes
TQCT022	Control	Rocky Hills / Drainage Line
TQCT038	Control	Rocky Hills

Information about the monitoring sites listed above will be detailed in the initial baseline monitoring report which will be completed prior to operations.

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3.1.4 Monitoring Program Design

The Northern Quoll monitoring program design for the Proposal will align with the current DBCA Pilbara Northern Quoll Project (DBCA 2014). The survey outcomes can be compared with the ongoing Pilbara regional monitoring program. In addition, the Survey Guidelines for Australia Threatened Mammals (DSEWPac, 2011) and Referral guidelines for the endangered Northern Quoll (DSEWPAC, 2016) have also been considered.

The monitoring program is outlined below. A summary of all proposed monitoring is provided in Table 3-4.

3.1.5 Trapping Method

3.1.5.1 Motion Cameras

Recent advances in motion camera monitoring have demonstrated that Northern Quoll can be identified by downward facing cameras. This method is less invasive than cage trapping and poses less risks to harming Northern Quoll.

Each monitoring site shall consist of:

- Trap type: infra-red motion sensitive cameras;
- Bait type: non-food reward bait consisting of cotton rope soaked in fish oil;
- Layout: up to four (4) cameras at each site at least 100 m apart following the contours of suitable habitat;
- Duration: four (4) consecutive nights at each site (16 trap nights per site, 10 sites total, sum of 160 trap nights per monitoring year); and
- Marking: individual trap locations are fixed and marked (GPS) for the duration of the monitoring program.

3.1.5.2 Active Searching

Active searching (targeted searching and opportunistic observations) will be undertaken at each of the monitoring sites for a total of one person-hour to obtain supplementary information of Northern Quoll occurrence. Such data will include direct visual records of Northern Quolls, or indirect records such as bones, carcasses, tracks and scats. A sample of scats shall be collected where possible for dietary analysis. The results of the analysis will be provided to DBCA. Other species of conservation significance or introduced predators will also be recorded, if observed.

3.1.5.3 Habitat Assessments

Two photo points will also be established at each monitoring site to document any changes to habitat over time, should information be required to investigate population fluctuations. Photos will be collected at the time of monitoring. The following parameters will be assessed and measured, where present:

- Vegetation cover, condition and species composition.
- The presence or absence of habitat structures.
- The presence or absence of water.

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- Types and level of disturbance.

3.1.6 Supplementary Camera Trapping (Feral Predators, Fauna Friendly Culverts, Mine Pits and Artificial Lighting)

3.1.6.1 Feral Predators

Cameras will be set up in areas where quolls and predators are most likely to interact, such as putrescible waste storage areas and permanent water sources, or locations where predators are likely to use preferentially, such as roads, access tracks and culverts. The location of motion cameras may change for each monitoring event and therefore, their locations have not been included.

3.1.6.2 Fauna Friendly Culverts

Motion cameras shall be deployed near fauna friendly culverts to confirm the culverts are in use and they are effective as habitat linkages. Assessment on whether feral predators are frequenting fauna friendly culverts shall be incorporated into the feral predator control programs.

3.1.6.3 Operational areas

Cameras will be set up inside mining areas to assess whether Northern Quolls are also using these areas.

3.1.6.4 Artificial Lighting

Motion cameras shall be deployed in monitoring sites identified in the baseline artificial light survey (see **Section 3.4**). Fauna activity shall be assessed and comment will be made to assert whether the following impacts are identified:

- Fauna appear more vulnerable to predator species;
- Fauna access to food and habitat resources is impacted;
- Change in fauna circadian rhythms and activity periods; and
- Stopping, reducing or change in fauna reproduction timing.

3.1.7 Survey Timing

Monitoring will be undertaken annually, with a review of the program after the first two years of monitoring. Camera deployment and collection should occur between 1 April to 30 September to avoid the periods of the year when females have large pouch young or denned young (Dunlop, et al., 2014). The results will be compared to baseline results (including the DBCA monitoring locations) along with environment factors to determine whether the results are likely to be attributed to environmental conditions, or Proposal activities. Should the monitoring results indicate impacts as a result of the Proposal, the frequency of future monitoring will be re-assessed as well as the methodology and effort on annual monitoring and any other appropriate contingency actions that should be implemented in consultation with DBCA.

3.1.8 Environmental Data

Standardised data sheets for Northern Quoll will be completed for each monitoring site during each monitoring event. Weather data will be obtained on site by permanent weather stations and will be incorporated into analysis of Northern Quoll monitoring results.

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3.1.9 Reporting

A standalone report at the conclusion of each monitoring period will be prepared documenting the occurrence and status of Northern Quoll monitored by this procedure. This report will include the following sections: methods, results, discussion and recommendations, as well as any instances of species of conservation significance that may be observed during the monitoring or elsewhere within the Development Envelope.

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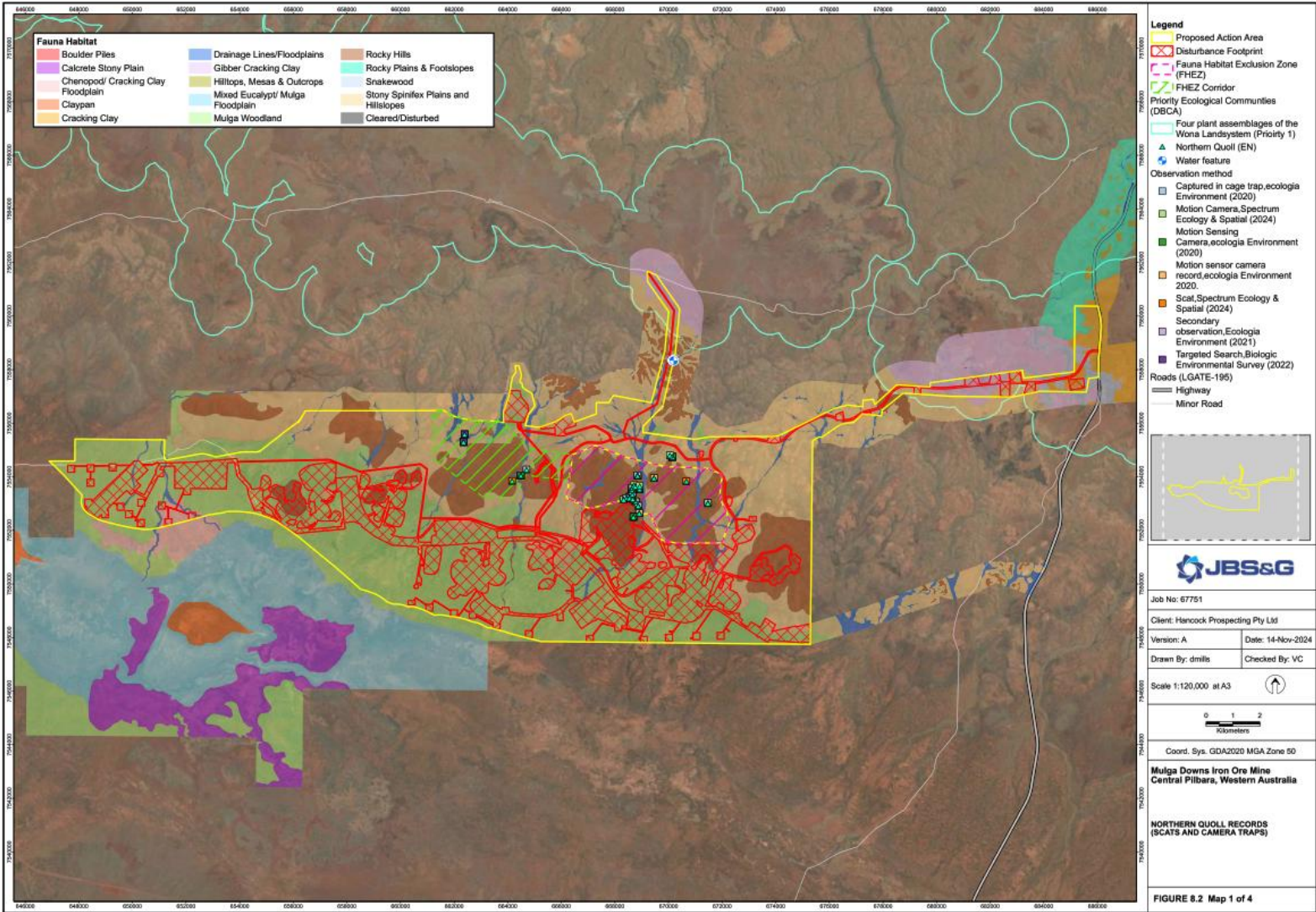
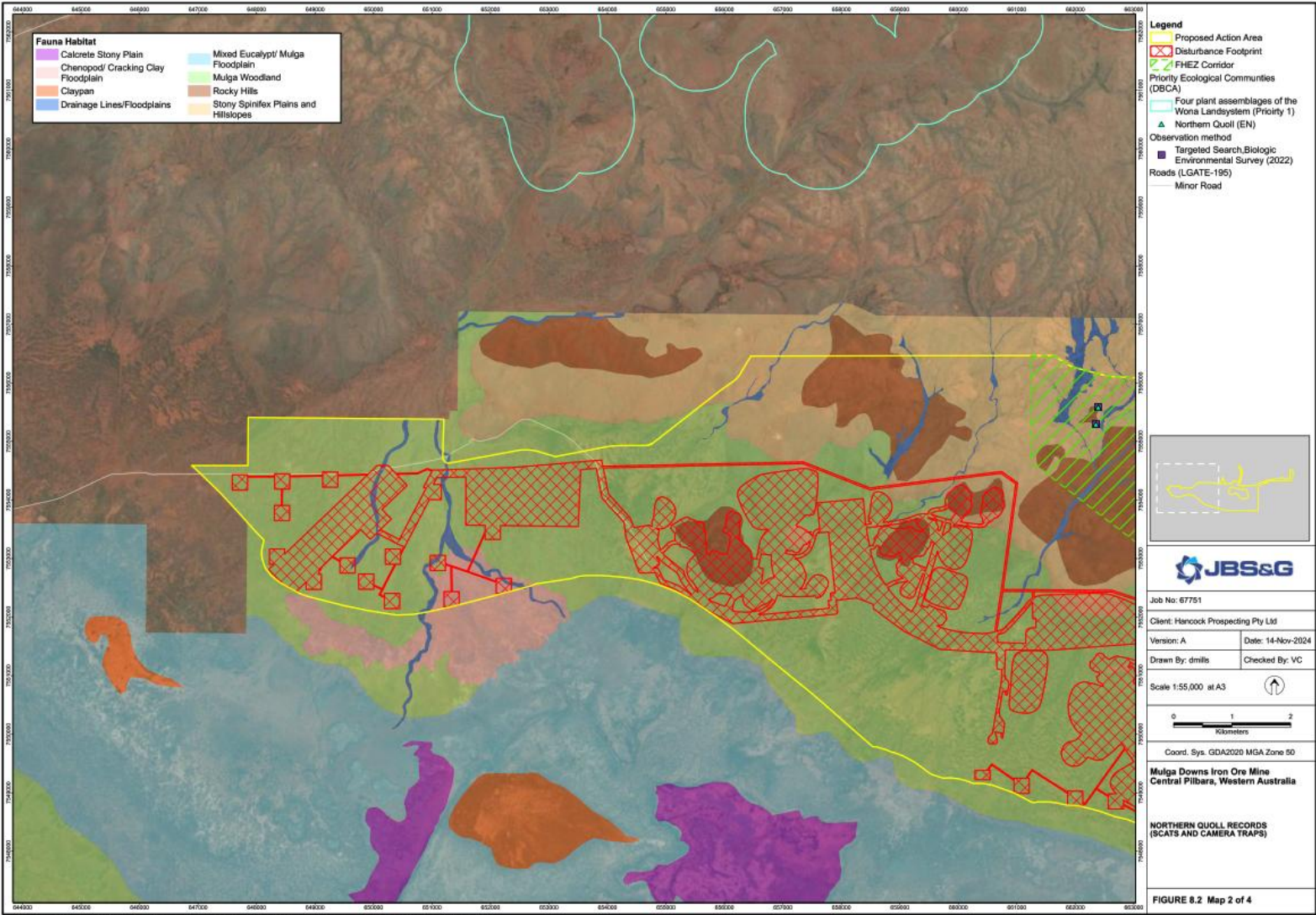


Figure 3-1: Northern Quoll Records (Scats and Camera Traps)
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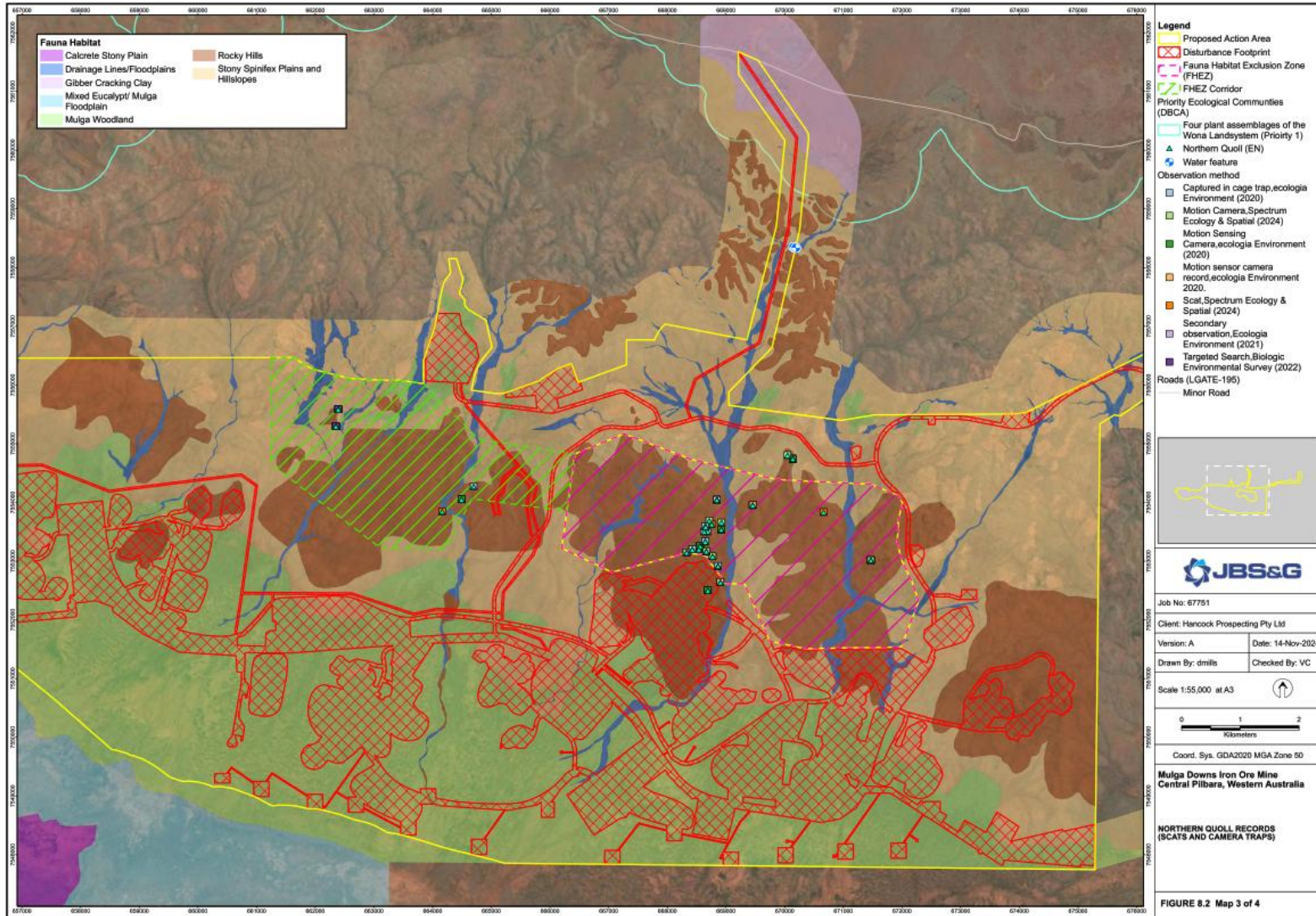


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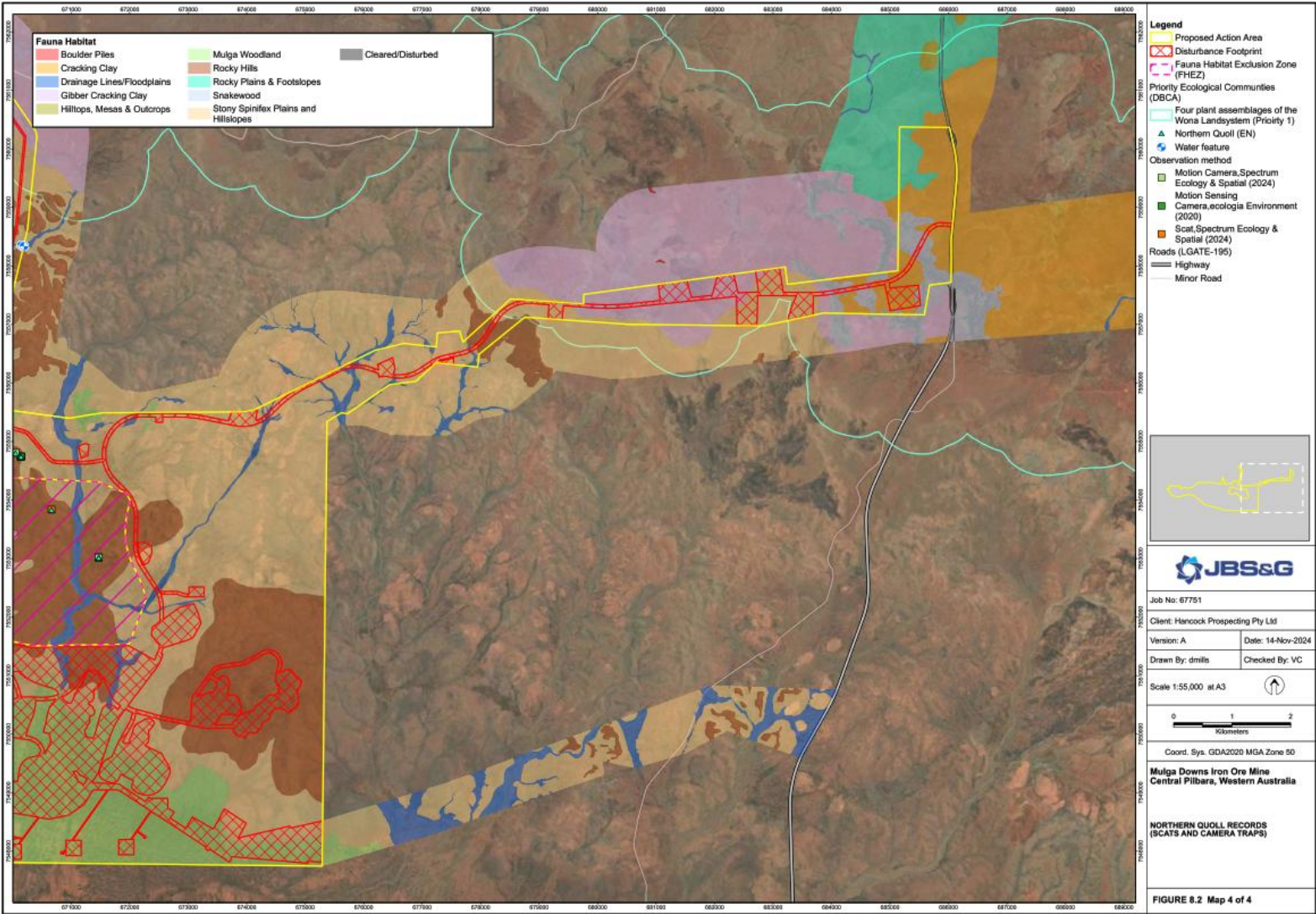


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3.2 Pilbara Leaf-nosed Bat and Ghost Bat Monitoring Program

3.2.1 Baseline Pilbara Leaf-nosed Bat and Ghost Bat Data

Baseline surveys for Pilbara Leaf-nosed Bat and Ghost Bat were completed between April 2019 and June 2024. Surveys completed for the Proposed Action targeting the Ghost Bat/Pilbara Leaf-nosed Bat include:

- *ecologia* (2021) Mulga East Project Baseline Terrestrial Vertebrate Fauna Assessment; this assessment includes:
 - Phase 1 - Level 2 vertebrate fauna survey: 4- 16 April 2019
 - Phase 1 - Targeted conservation significant fauna survey: 22 - 30 July 2019
 - Targeted Pilbara leaf-nosed bat survey: 25 November to 2 December 2019
 - Long-term Pilbara leaf-nosed bat survey December 2019- March 2020
 - Phase 2 – Level 2 vertebrate fauna assessment: 14 – 27 April 2020
 - Phase 2 - Targeted conservation significant fauna survey: 29 June - 6 July 2020
 - Targeted Pilbara leaf-nosed bat Survey: 5 - 9 October 2020
- *ecologia* (2021) Targeted Pilbara leaf-nosed bat Gap Survey (Appendix K of this report): 5 - 9 March 2021;
- Biologic (2022a) Mulga Downs Iron Ore Project: Transport Corridor to Great Northern Hwy Terrestrial Fauna Survey;
- Biologic (2022b) Mulga Downs Iron Ore Project: Mulga West Borefield and Mulga East Southern Corridor Terrestrial Fauna Survey; and
- Spectrum (2023a) MDIOM Solar Farm, Haul Road & Pipeline Vertebrate and Short-Range Endemic Terrestrial Fauna Assessment;
- Spectrum (2024) Mulga Downs Iron Ore Mine Supplementary Targeted Fauna Survey.

The results of these surveys provide baseline data on Pilbara Leaf-nosed Bat and Ghost Bat populations in the Development Envelope / Proposed Action Area and FHEZ prior to development of the Proposal. These results are summarised in **Appendix 2** and will be incorporated into future monitoring results analysis.

3.2.2 Monitoring Program Objectives

The broad objective for the monitoring program is to monitor and measure the success of management actions for maintaining the usage of areas within the Development Envelope / Proposed Action Area and FHEZ as foraging habitat for the Pilbara Leaf-nosed Bat and Ghost Bat. Management actions are relevant to Outcome-based Provisions 3, 4 and 5.

3.2.3 Monitoring Site Selection

To ensure that the monitoring program is consistent with, and builds on data previously collected during baseline surveys, monitoring will continue to utilise Pilbara Leaf-nosed Bat and Ghost Bat monitoring sites established during baseline surveys. Bat call recording devices will be installed as part of the broader cave monitoring systems. This allows for efficiency in the monitoring site design but also targets caves where bat calls were detected during baseline surveys. These monitoring locations are available for viewing in Figure 1-6, detailed in **Table 3-3** with further information in **Appendix 2**. These are primarily Category 4 caves, but at least

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one site in the drainage line area that had relatively high rates of detection will be included. This site will act as a reference for bat presence in the foraging habitat in the FHEZ.

Table 3-3: Bat presence monitoring locations

Monitoring Site/Cave ID	Category
MEC008	Category 4 Cave
MEC009	Category 4 Cave
MEC010	Category 4 Cave
MEC012	Category 4 Cave
MEC016	Category 4 Cave
MEC025	Category 4 Cave
MEC039	Category 4 Cave
MEC070	Category 4 Cave
MEC073	Category 4 Cave
MEC074	Category 4 Cave
FHEZ Central Drainage Line	Drainage Line

3.2.4 Monitoring Program Design

The survey shall be conducted in alignment with relevant State, Commonwealth guidelines and policy including:

- Environmental Factor Guidelines – Terrestrial Fauna (EPA, 2016a).
- Environmental Protection Authority (EPA) Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020).
- Survey guidelines for Australia’s threatened mammals (DSEWPaC 2011a).
- Survey guidelines for Australia’s threatened bats (DSEWPaC 2010).
- EPBC Act Significant impact guidelines 1.1 - Matters of National Environmental Significance (DotE 2013).

The monitoring program is outlined below. A summary of all proposed monitoring is provided in Table 3-4.

3.2.5 Bat/Cave Monitors

A monitoring system for bat presence will be implemented within the Development Envelope / Proposed Action Area and FHEZ. This will be based on the detection of the characteristic echolocation and social calls of the Pilbara Leaf-nosed Bat and Ghost Bat. The equipment chosen will be capable of making high quality full spectrum ultrasonic sound recordings in the frequency range used by the two target species. A key feature of the systems to be installed is that they will be present year-round and make recordings continuously. For sites where detections are relatively uncommon, a survey programme that samples every night per year will provide the best level of information to support interpretations of how bats are using a foraging area, both naturally and also when the influence of nearby mining-related activity needs to be assessed. There are several options for this kind of system, one of which is custom-designed and able to record the echolocation and social calls of bats,

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plus have a sensor connected for the detection of vibration from nearby blasts, and that can take images of the cave entrance periodically.

The bat call detection sub-system of a continuously monitoring system will use an ultrasonic microphone that has low noise and is relatively robust to long-term placement in the environment. Recordings will be continuous, and the level of activity reported will be structured so that it is comparable to the triggered recordings made by commercially-available detectors—specifically, those that were used for baseline surveys. Identification of bat calls will be made automatically using a trained and locally-validated deep learning classification system (developed in collaboration between a qualified Zoologist with relevant experience and a research engineer specialising in machine learning), with relevant sound files kept in a repository in case manual validation or independent verification is required. Recordings will span the period beginning 30 minutes before sunset and ending 30 minutes after sunrise. Recording equipment will be placed in locations where the species has been detected previously at relatively high levels, mainly at cave entrances but also at one or more points in riparian areas where the species is likely to be detected while out foraging. By including at least one recording position away from Category 4 caves it allows for interpretation of whether bats are still present in the area, but not visiting Category 4 caves.

The vibration sampling equipment will collect data continuously to ensure an adequate baseline comparison is possible. The sensors used will be of a standard that is typical for engineering studies that monitor blasts on mine sites. The data from a vibration monitoring sub-system will be available in near real time via an online tool, and alerts will be built in to allow short term response to the breach of a Trigger value or Threshold value (see Table 2.1 No. 5). Vibration data will be collected over a 24-hour period.

The image collection sub-system will take still images periodically to allow comparison of cave entrance structure before and after an event of interest. At least two images will be taken at night in infrared light to remove the influence of shadowing, and at least two images will be taken during the day to allow further interpretation with colour information. These images will be available via remote automated upload to a cloud repository or local network.

Given the past consideration given to Cave MEC016, which was concluded to be a Priority 4 nocturnal refuge for the Pilbara Leaf-nosed Bat, it is prudent to consider the possibility that a better understanding will come from longer-term monitoring, and that it is used occasionally as a diurnal roost. This cave, and others that had the highest rates of visitation in baseline studies, are the key focus of the monitoring programme, and could be subject to adaptive management actions if long-term monitoring improves understanding of their use. Likewise, although there were very few records of the Ghost Bat documented in baseline studies, the potential for rare visitations will be accommodated via the bat call subsystem that will also run a detection system for the echolocation and social calls of this species.

The bat call recordings will be analysed by an appropriately qualified zoologist.

3.2.6 Other Monitoring (Caves and Lighting)

The results of the artificial light survey and cave monitoring will be assessed in conjunction with bat recording data.

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3.2.7 Survey Timing

The system will make continuous recordings throughout the year. Thus, there will be no discrete survey periods. Issues with the continuous monitoring system will be attended to so that breaks in the datastream are minimised.

3.2.8 Reporting

A standalone report at the conclusion of each monitoring period will be prepared documenting the occurrence and status of Pilbara leaf-nosed bat and Ghost Bat monitored by this procedure. As a result of the continuous nature of data capture, the monitoring period will capture data within a period of 12 months prior to the submission of the annual compliance report. This report will include the following sections: methods, results, discussion and recommendations, as well as any instances of species of conservation significance that may be observed during the monitoring or elsewhere within the Development Envelope.

3.3 Cave Monitoring

3.3.1 Baseline Cave Monitoring / Geotechnical Assessment

The baseline cave monitoring and geotechnical stability assessment has been performed by PSM (2024). The baseline geotechnical assessment and literature review recommends that vibration limits are established to reduce the likelihood of significant damage above the natural background level of degradation that may contribute in changes to climatic conditions within the caves.

Nineteen (19) caves to be retained within the FHEZ were selected for the initial assessment. The assessed caves were considered most susceptible to vibration impacts, and subsequently most susceptible to climate condition changes related to any structural changes.

Low/medium susceptibility caves, viable for conservation significant bat usage (category 4), were identified as MEC007; MEC012; MEC016; MEC025; MEC033; MEC039; MEC042; MEC049; MEC062; MEC073 and MEC074.

High susceptibility caves were identified as MEC063 and MEC065.

To further assess the geotechnical stability of category 4 caves with the potential to be indirectly impacted by vibration, HPPL will undertake further investigations to assess category 4 caves within 500 m of blasting activities. Investigations of this nature will be considerate of heritage values and potential exclusion zones. Results will inform the susceptibility of caves in proximity to blasting activities and inform management of these caves.

3.3.2 Vibration Monitoring (during blasting activities)

As described previously in Section 3.2.5, vibration monitors shall be deployed in the vicinity of a selection of those caves identified as viable for significant bat species usage that will be retained and that have been geotechnically assessed. Monitoring of caves within 200 m of proposed mining activities will be prioritised. The following preliminary vibration limits are proposed:

- High susceptibility caves = 25 mm/s; and

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- Low to medium susceptibility caves = 75 mm/s.

Noting that some other Pilbara projects have proposed higher vibration limits (i.e. 100mm/s for Atlas' McPhee Project), the proposed limits for the MDIOM proposal may be revised based on the results of relevant monitoring programs.

A summary of all proposed monitoring is provided in Table 3-4.

3.3.2.1 Cave vibration monitoring method overview

A permanent location for vibration and noise monitoring will be established for each cave required to be monitored. The monitor will be established as close as possible (ideally within 10 m) to the nearest part of the cave to the pit. The monitor can be located further away if necessary, e.g. for access or safety reasons, or to achieve optimal location with respect to two closely placed caves that are required to be monitored. However, at a minimum, the monitor must be closer to the cave than the pit is to the cave. Figure 3-2 shows the conceptual position of blast vibration monitors with respect to blasting and the caves.

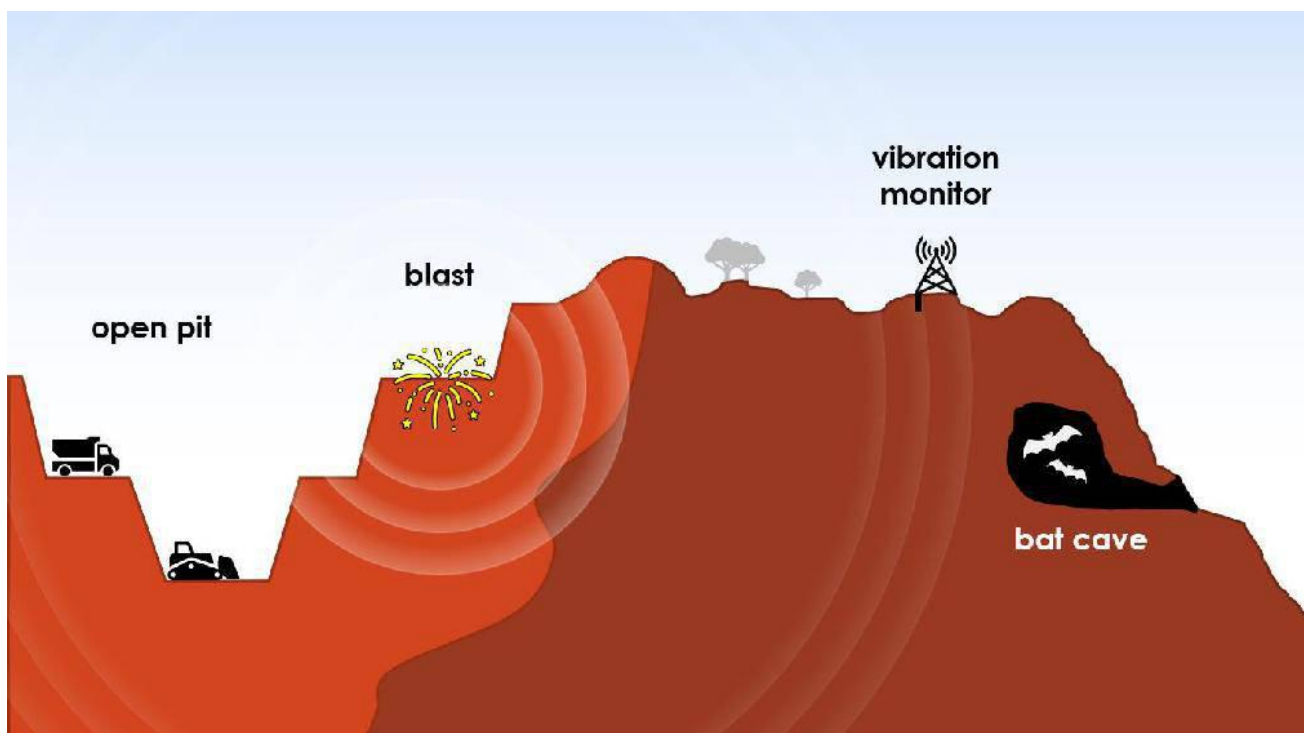


Figure 3-2: Blast vibration monitoring concept (image is for illustrative purposes only and is not to scale)

The blast monitor is a device capable of measuring in-ground vibration. A typical setup consists of a monitoring unit, geophone and an attachment point. The attachment point can be either the rock mass of the ground (if hard/solid enough) or a fixed concrete block set into the rock mass (if the rock mass is not hard/solid enough). The geophone is a microphone sensitive to in-ground vibration. The monitoring unit is a piece of equipment that receives and records signals from the geophone. Data can be retrieved locally or remotely.

Numerous blast monitoring locations can be established (by identifying attachment points and/or installing fixed concrete blocks, as required), to account for the fact that different caves may be closer to different blasting locations. However, for any given blast, only the nearest monitoring location respective of the blast and cave is required to be monitored.

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The desktop blast modelling and predictions will require calibration for actual on-site conditions. This will be achieved by the blasting engineer comparing the results of initial blasts with the predictions of the model. The various inputs to the model will then be adjusted based on monitoring results, so that the model more closely replicates the recorded results. Adjustments are applied iteratively with successive blasts. The calibrated site-specific version of the model is also known as the “site law” or “site prediction equations”. A reasonable degree of confidence in the site law is achieved when the blasting engineer is satisfied that the model is reliably predicting (and not underestimating) the blast vibrations as measured.

3.4 Artificial Light Survey

3.4.1 Baseline Artificial Light Survey

A baseline artificial light survey shall be conducted following construction of long-term structures and infrastructure using techniques outlined in the following guidance and studies:

- Methods for assessment and monitoring of light pollution around ecologically sensitive sites (Barentine 2019); and
- National Light Pollution Guidelines for Wildlife (DCCEEW 2023b).

The baseline survey will identify fauna monitoring locations where artificial lighting has the potential to affect local populations. The light survey shall include assessment of artificial light on caves.

A summary of all proposed monitoring is provided in Table 3-4.

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Figure 3-3: Monitoring Locations for Northern Quoll and Pilbara Leaf-nosed Bat

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3.5 Monitoring Overview

An overview of environmental monitoring, as it relates to targeted conservation species or supporting values, is provided in Table 3-4 below.

Table 3-4: Summary of Monitoring

Targeted Species / Element	Methodology	Monitoring Locations	Minimum Monitoring Effort	Timing and Frequency	Responsible party for implementation
Northern Quoll	Trapping – motion cameras	10 monitoring sites (5 Control, 5 Impact) within the Development Envelope / Proposed Action Area and FHEZ, see Table 3-2.	Motion cameras: up to 4 cameras per sampling site, for a minimum of four nights per site	Northern Quoll monitoring program will be implemented during construction and be maintained during operations. Monitoring round will occur annually between 1 April and 30 September.	Environmental Advisor (see Section 5).
	Active searches for scats and other signs	10 active search areas. Active searches will be focussed in the immediate area surrounding the camera trap locations.	At least 1 km search effort per monitoring site		
	General remote cameras	General remote camera locations will target putrescible waste bin locations, fauna friendly culverts, artificial light monitoring locations, mine pits etc.	Up to 4 cameras per sample location. Ongoing monitoring during operations.		
Pilbara Leaf-nosed Bat and Ghost Bat	High frequency bat call recorders	11 monitoring sites within the Development Envelope / Proposed Action Area and FHEZ, see Table 3-3.	Continuous monitoring.	Continuous data collection will begin at least six months prior to blasting activity occurring within 200 m of cave locations identified for monitoring. Continuous data collection will end six months post blasting activity occurring within 200 m of cave locations identified for monitoring.	
Artificial light	Artificial Light Survey		Baseline survey undertaken at the	Baseline survey conducted following detailed design, where engineering	

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Targeted Species / Element	Methodology	Monitoring Locations	Minimum Monitoring Effort	Timing and Frequency	Responsible party for implementation
	Cave light assessment	<p>Locations are yet to be developed in detail but will be informed by the location of long-term structures/infrastructure.</p> <p>Locations will be areas where artificial light may have a material impact on conservation significant fauna habitat (i.e. Mulga Woodlands close to camp, Category 4 caves in the Rocky Hills).</p> <p>A subsequent revision of the CSFMP (post-construction) will define these monitoring locations.</p>	chosen monitoring locations.	maturity would allow to appropriately site areas prone to light spill. Following construction of long-term structures and infrastructure a second phase of the baseline will be undertaken to measure light spill at chosen receptors.	
Caves	<p>Vibration monitoring in caves identified to be retained.</p> <p>Vibration to be monitored by a logging device that provides peak particle velocity (PPV) data.</p>	<p>Monitoring of vibration will occur at, or as close to (with respect to heritage avoidance areas), the following category 4 caves which occur within 200 m of blasting activity:</p> <p>MEC008; MEC009; MEC010; MEC012; MEC016; MEC025; MEC039; MEC070; MEC073; MEC074.</p> <p>Where geotechnical analysis identifies a cave as high susceptibility and it is located >200 m and <500 m from blasting activity, this cave will also be monitored.</p>	Continuous monitoring.	<p>Vibration monitoring will occur on an on-going basis during operations as required.</p> <p>Data will be reviewed post-blast against the relevant trigger and threshold criteria.</p>	

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4 Review and Reporting

4.1 Adaptive Management and Review

Review of learnings from the implementation of mitigation measures will be utilised for the development of adaptive management practices to meet environmental objectives more effectively. The need for adaptive management may be recognised in the following ways:

- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program;
- Re-evaluation of the risk assessment and revision of risk-based priorities as a result of monitoring outcomes;
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem;
- Review of management actions as the Proposal matures and new management measures and technologies become available that may be more effective for conservation significant fauna management;
- Assessment of changes which are outside the control of the Proposal and the management measures identified (i.e. a new project within the area or region; regional change affecting conservation significant fauna management); and
- Reaching a trigger or breaching a threshold.

Each adaptive management review will include:

- Review of the outcomes and objectives that this CSFMP addresses;
- Review of the implementation of the response and management actions and associated monitoring, recording and reporting requirements;
- Review of the response and management actions based on evaluation of:
 - Monitoring data and records;
 - Review of assumptions, uncertainties and understanding (e.g., of the ecological system);
 - Risk assessment; and
 - External changes (e.g., technical advances or innovation).

This CSFMP is to be reviewed by HPPL at the following intervals:

- Grant or modification to relevant approvals (including any proposed clearing within the FHEZ Corridor);
- When the need for adaptive management not covered in this CSFMP is recognised;
- When monitoring indicates a potential new or increased impact on conservation significant fauna;
- Findings or actions identified through monitoring, audits and incident reports;
- Confirmation of proposed monitoring sites with Traditional Owner representatives;
- Every second year from the commencement of construction until the achievement of rehabilitation completion criteria for construction disturbance, followed by five-yearly during operations; and
- As and when directed by Chief Executive Officer, DWER and DCCEEW.

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4.2 Reporting

4.2.1 Internal Reporting

Environmental incidents are to be reported within HanRoy's Incident Management System. In accordance with internal procedures, the incident will be assessed by severity and relevant personnel will be notified and consulted if required to notify regulatory agencies. **Table 4-1** below outlines proposed internal and external reporting actions.

Table 4-1: Fauna Reporting Actions

Notification Event	Action	Responsibility	Timing
Trigger exceedance (and failure of management target)	Internal incident report and investigation	Environmental Advisor	Within 24 hours
Threshold exceedance	Internal incident report and investigation. External incident report to regulator	Environment Manager	Within 7 days of event
Injury or death of conservation significant fauna	Internal incident report and investigation	Environmental Advisor	Within 24 hours
Damage to conservation significant fauna habitat outside the approved footprint	Internal incident report and investigation	Environmental Advisor	Within 24 hours

4.2.2 Regulator Reporting

The annual Compliance Assessment Report to DWER and Annual Compliance Report to DCCEEW will report on environmental compliance and management practices. The annual reporting will be completed and submitted to the relevant regulator (DWER and/or DCCEEW) as required within the approval conditions. It will encompass the following, building upon the information outlined previously:

- Statement of compliance
- Compliance status
- Compliance assessment against approval conditions
- Performance against management objectives
- A dedicated section detailing all reported environmental incidents applicable to the CSFMP during the year.
 - For each incident, the report will include:
 - Date and time of the incident;
 - Description of the incident and its potential causes;
 - Actions to address the incident, including containment, remediation, and mitigation measures; and
 - Lessons learned from the incident and any changes implemented in management practices to prevent future occurrences.

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- An appendix/appendices containing the results of annual environmental monitoring in the form of annual monitoring reports (e.g. Northern Quoll monitoring report, Pilbara Leaf-nosed Bat and Ghost Bat monitoring report etc.)

In addition to the regular reporting procedures outlined above, HPPL will report incidents associated with the CSFMP within seven business days in writing to the CEO of DWER/DCCEEW. Examples of incidents are the discovery of injured or deceased conservation significant species. HPPL will follow established protocols for handling and transporting injured fauna and adhere to the Authority's guidance regarding deceased specimens. Incidents reportable to the DWER and DCCEEW will be in accordance with condition requirements.

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5 Roles and Responsibilities

HPPL is committed to managing its activities in an environmentally and socially responsible manner, as reflected in the Environmental Compliance Standard (HNR-00000-EN-STD-0001). This standard is based on the recognition that although mining projects affect the environment, prudent planning and excellence in management can result in the most significant impacts being avoided or effectively mitigated. All employees and contractors of the Proposal are required to comply with the requirements of this CSFMP and any associated procedures. An outline of the specific roles and responsibilities of this CSFMP are outlined in Table 5-1.

Table 5-1: Roles (or equivalent) and Responsibilities for the implementation of the CSFMP

Role	Responsibility
All Personnel	<ul style="list-style-type: none"> Comply with all legal requirements and requirements of the CSFMP. Report vehicle strikes, fauna deaths, significant fauna species sightings and feral animal sightings to Supervisor or Site Environmental team. Attend environmental inductions or any other training on fauna management as required.
Environmental Advisor	<ul style="list-style-type: none"> Implement monitoring programs. Maintain monitoring records. Deliver monitoring/reporting data to the DCCEE, DWER, DBCA and DEMIRS as required. Implement and deliver awareness training programs to personnel, contractors and visitors. Record all sightings or incidents involving conservation significant fauna. Assess ground disturbance and access applications. Ensure all personnel involved in fauna surveys are appropriately licenced and qualified. Investigate any incidents involving conservation significant species and implement findings where relevant. Review and update, where applicable, the conservation status of fauna occurring in the Development Envelope annually. Provide advice, including procedures and requirements, to all key parties to ensure compliance with legal requirements, achievements of environmental objectives and outcomes as well as improving environmental performance. Provide support to all personnel as required to ensure the correct implementation of this CSFMP
Environment Superintendent	<ul style="list-style-type: none"> Implement and maintain the CSFMP. Review the CSFMP. Annual Audit of Compliance. Provide advice, including procedures and requirements, to all key parties to ensure compliance with legal requirements, achievements of environmental objectives and outcomes as well as improving environmental performance. Provide training and inductions on fauna management as outlined in the CSFMP.
Environmental Manager	<ul style="list-style-type: none"> Ensure compliance with all legal requirements and requirements of the CSFMP. Reporting to government agencies as required under the CSFMP.

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6 Abbreviations, Definitions & Acronyms

Abbreviation	Definition
Abstraction	Process of removing ground water via bores to support construction and operation
AEP	Annual Exceedance Probability
ALARP	ALARP
Aquifer injection	The process by which excess dewatering is returned to the groundwater system via bores that intersect the aquifer, to replenish and maintain water levels
BACI	before – after - control – impact
BAM Act	<i>Biosecurity Agriculture Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
BNTAC	Banjima Native Title Aboriginal Corporation
CAMBA	China-Australia Migratory Bird Agreement
CD	Conservation Dependent
CE	Critically Endangered
CEO	Chief Executive Officer
CSFMP	Conservation Significant Fauna Management Plan
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Dewatering	The process by which excess groundwater is removed via groundwater bores, or in-pit sumps, with the primary intent to provide access to below natural water table ore bodies
DJTSI	Department of Jobs, Trade, Science and Innovation
DMIRS	Department of Mines, Industry Regulation and Safety
DMSI	Digital Multispectral Imagery
DO	Dissolved Oxygen
DoE	Department of Environment
DPAW	Department of Parks and Wildlife (now DBCA)
DPLH	Department of Planning, Lands and Heritage
DSEWPac	Department of Sustainability, Environment, Water, Population and Communities (now DCCEEW)
DWER	Department of Water and Environmental Regulation
EC	Electrical Conductivity
ECS	Environmental Compliance Standard
EMP	Environmental Management Plan
EMS	Environmental Management System
EN	Endangered
EP Act	<i>Environmental Protection Act 1986</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERD	Environmental Review Document
ESD	Environmental Scoping Document

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Abbreviation	Definition
EX	Extinct
FHEZ	Fauna Habitat Exclusion Zone
GDP	Ground Disturbance Permit
ha	Hectare
HPPL	Hancock Prospecting Pty Ltd
IRP	Impact Reconciliation Procedure
km	Kilometre
MAR	Managed Aquifer Recharge (MAR) - The practice of recharging groundwater systems for purpose of environmental management or storage and future reuse, methods of MAR can include Aquifer Injection and Pit/sump Infiltration
MASVI	Modified Soil Adjusted Vegetation Index
mbgl	Meters below ground level
MDIOM	Mulga Downs Iron Ore Mine, the Proposal
MI	Migratory
MNES	Matters of National Environmental Significance
MRWA	Main Roads Western Australia
Mtpa	Million tonnes per annum
NATA	National Association of Testing Authorities
NDVI	Normalised Difference Vegetation Index
OS	Other Special (protected fauna)
PAR	Passive Acoustic Recorder
PEC	Priority Ecological Community
PER	Public Environment Report
Pit Infiltration	The process by which excess dewatering is returned back to the groundwater system via mine pits that intersect the aquifer, to replenish and maintain water
RiWI Act	<i>Rights in Water and Irrigation Act 1914</i>
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SWML	Surface water monitoring locations
TBC	To be confirmed
UAV	Un-manned Aerial Vehicle
VU	Vulnerable
WoNS	Weeds of National Significance
WRD	Waste Rock Dump

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In-text Citation	Reference
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8 Appendices

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1. EPBC Terrestrial Fauna Risk Assessment

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Environment Consequence Severity Table

Environmental Factor	Level	Environment
Terrestrial Fauna and MNES	5-Severe	Permanent or irreversible widespread impact to land or water providing habitat for MNES threatened flora or fauna species or mangrove community
	4-Major	Permanent or irreversible widespread impact to land or water that provide habitat or scheduled, listed, or declared rare and/or MNES, threatened species of flora or fauna (>5 individuals) OR >5 years recovery time) to land or water providing habitat for threatened flora or fauna species
	3-Moderate	>5 years recovery time to land or water that provides habitat for flora and fauna. OR <3 months recovery time to land or water providing habitat for threatened flora or fauna species
	2-Minor	Localised impact, <24 hours recovery time to land or water providing habitat for threatened flora or fauna species
	1-Slight	Direct impact to fauna (excluding conservation significant, priority or threatened fauna species)

Risk Consequence and Likelihood Definitions

Consequence Ranking			Likelihood Ranking		
1	Slight	Limited damage to minimal area of low significance.	A	Almost Certain	The event is expected to occur in most circumstances (May occur multiple times within 12 months)
2	Minor	Minor effect on biology or physical environment.	B	Likely	The event will probably occur in many circumstances (May occur once per year)
3	Moderate	Moderate short-term effects but not affecting ecosystem.	C	Possible	The event is expected to occur at some time (May occur once in 5 years)
4	Major	Serious medium-term environmental effects.	D	Unlikely	The event could credibly occur at some future time (May occur once in 10 years)
5	Severe	Very serious long-term environmental impairment of ecosystems.	E	Rare	The event may occur only in exceptional circumstances (May occur once during Life of Mine)

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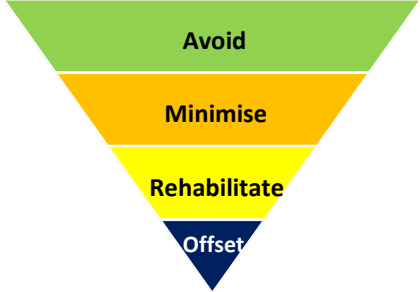
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Risk Assessment Categories

Risk Evaluation Matrix (5 x 5)			Likelihood Rating				
			RARE	UNLIKELY	POSSIBLE	LIKELY	ALMOST CERTAIN
Consequence / Impact		Factors	Residual Risk Rating (RRR)				
Severity Level	5 – SEVERE	10	50*	75*	150	200	300
	4 – MAJOR	5	25*	37.5*	75	100	150
	3 – MODERATE	2	10	15	30	40	60
	2 – MINOR	1	5	7.5	15	20	30
	1 – SLIGHT	0.5	2.5	3.75	7.5	10	15

Hierarchy of Controls



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Management Plan Risk Assessment – Terrestrial Fauna

Management Objective	Inherent Risk	Management Actions	Residual Risk	Timeframe/Phase
Minimise incidental mortality or injury of conservation significant terrestrial fauna from clearing activities, vehicle strike or mining related activities resulting from the Proposal	Severe/Possible 150	<p>Implement induction and education programme.</p> <p>Promote driver awareness/training and implement appropriate speed limits.</p> <p>Enforce strict traffic management rules (e.g. keeping to designated tracks, limiting driving at dusk and dawn, driving to road and weather conditions, reduced speed limits, signage of fauna along roads) to avoid accidental disturbance to fauna and habitat.</p> <p>Record any injury or death of fauna to relevant agencies and as per internal processes</p>	Moderate/Unlikely 15	Construction, operation and closure
Minimise conservation significant terrestrial fauna population decline due to entrapment within mine infrastructure and equipment, as a result of the Proposal	Major/Likely 100	<p>Ensure egress points and/or fauna ladders are installed as appropriate in excavations and dams to avoid accidental death and/or entrapment of fauna.</p> <p>Undertake inspections of water infrastructure to ensure integrity of fauna egress points and fencing.</p> <p>Ensure all open holes, including drill holes, are covered or capped during construction and operation; or are rehabilitated when they are no longer required.</p> <p>Ensure all domestic waste facilities are fenced, and putrescible wastes are covered.</p> <p>Ensure all containers doors closed are securely when not in use</p>	Moderate/Possible 30	Design, construction, operation and closure
Minimise impacts from clearing and mining required for the Proposal, which results in conservation significant terrestrial fauna habitat loss and fragmentation	Moderate/Likely 40	<p>Implement induction and education programme.</p> <p>Design measures to avoid the clearing of terrestrial fauna habitat, including locating infrastructure in existing disturbed areas.</p> <p>Require site layout designed to reduce habitat fragmentation and provide corridors allowing fauna to move through the landscape on all sides of development.</p> <p>Avoid or minimise disturbance to terrestrial fauna habitat, in particular critical and important habitat such as Pilbara Leaf-nosed bat roosts, claypan habitat features, rocky hills areas.</p> <p>Establishment and avoidance of the fauna habitat exclusion zone and fauna habitat corridor.</p> <p>Protection of Category 4 caves for conservation significant bats with a 50m buffer zone of cave(s) identified as to be retained within the Development Envelope.</p>	Minor/Unlikely 7.5	Design, construction, operation and closure

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Management Objective	Inherent Risk	Management Actions	Residual Risk	Timeframe/Phase
		<p>Protection of retained Category 4 caves for conservation significant bats through the monitoring of vibrations, humidity and rockfall within caves such that the cave remains viable as habitat once mining has ceased.</p> <p>Implementation of internal clearing permit procedure to avoid unauthorised clearing (procedure to include flagging of clearing areas by surveyors, supervision of clearing by a suitably qualified environmental professional, reporting of over-clearing). Refer to Ground Disturbance Permit Procedure (HNR-00000-GD-PRO-0001).</p> <p>Vehicles and machinery limited to designated access tracks.</p> <p>Progressive land clearing to be undertaken to minimise the amount of active disturbance at any one time.</p> <p>Monitor impacts to vegetation including potential Grey Falcon nesting tress, sheet flow dependent, riparian and clay pans for impacts from the project.</p> <p>Monitor impacts to clay pan water quality and hydroperiod from the project.</p> <p>Progressive rehabilitation to be undertaken in accordance with the Mine Closure Plan</p> <p>Undertake direct placement of topsoil and vegetation respreading over rehabilitated areas</p>		
Minimise decline in significant fauna habitat condition or composition due to altered fire regimes and dust emissions from the Proposal	Moderate/Likely 40	<p>Implement induction and education programmes.</p> <p>All activities to be conducted in accordance with relevant legislation and regulations.</p> <p>Vehicle speed limits to be enforced to reduce dust emissions.</p> <p>Main access road (approx. 27 km from Great Northern Hwy to the Mine) will be sealed to reduce dust emissions.</p> <p>Undertake dust suppression on all active roads to reduce dust emissions.</p> <p>Ensure all processing equipment is appropriately sealed or has appropriate dust emission reduction facilities.</p> <p>Implement a dust monitoring program in areas containing conservation significant fauna habitat (refer to Vegetation Health Monitoring methodology in the WMP).</p> <p>Undertake maintenance of fire breaks and implement fire management procedures (e.g. Hot Work Permit system, firefighting training, Emergency Response Plan) to avoid increases in fire frequency.</p> <p>Enforce strict traffic management rules (e.g. keeping to designated tracks) to reduce the dust/light/vibration emissions.</p>	Slight/Possible 7.5	Design, construction, operation and closure

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Management Objective	Inherent Risk	Management Actions	Residual Risk	Timeframe/Phase
		<p>Fire control equipment to be present and available on site and in all vehicles.</p> <p>HPPL will work with DFES and DBCA to undertake prescribed burns if deemed necessary</p>		
Minimise disturbance to native fauna from noise, vibration and lighting during Proposal implementation	Moderate/Likely 40	<p>Implement induction and education programmes.</p> <p>All activities to be conducted in accordance with relevant legislation and regulations.</p> <p>Ensure all lights are strategically placed and designed to shine towards plant operations and minimise light spill to the surrounding environment.</p> <p>Potential mitigation measures (e.g. sound absorption devices) will be considered when selecting noise and vibration equipment.</p> <p>Inspections and maintenance of equipment and machinery to reduce noise emissions</p> <p>Monitor sensitive receptors (e.g. known bat caves) for impacts from vibration and lighting.</p>	Minor/Unlikely 7.5	Design, construction, operation and closure
Minimise decline in conservation significant fauna populations and habitat due to predation from introduced fauna and the introduction of pest species (including weeds) resulting from the Proposal	Moderate/Possible 30	<p>Implement induction and education programmes.</p> <p>Ensure appropriate fencing is constructed where required.</p> <p>Implement domestic waste management procedures (e.g. fencing of landfills, covering putrescible waste, secure lids on bins, designed to avoid ponding water) to avoid attraction of both feral and native species to the Project area.</p> <p>Undertake pest animal control on site in cooperation with regional control programs where appropriate.</p> <p>Implement vehicle hygiene management procedures and requirements for all new vehicles and equipment to be certified clean and weed-free prior to mobilisation to site.</p> <p>Enforce strict traffic management rules (e.g. keeping to designated tracks) to reduce the introduction and spread of weeds. Vehicles are not permitted to leave access tracks or cleared areas to reduce the spread of weeds.</p> <p>Weed monitoring.</p> <p>Undertake progressive land clearing minimising the amount of active disturbance present at any one time to reduce the opportunity for weeds to become established.</p> <p>Undertake progressive rehabilitation in accordance with a Mine Closure Plan to reduce the opportunity for weeds to become established</p>	Slight/Possible 7.5	Design, construction, operation and closure

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Management Objective	Inherent Risk	Management Actions	Residual Risk	Timeframe/Phase
Minimise decline in conservation significant fauna populations due to altered hydroecology from changes to groundwater level and quality water use and/or altered surface water flows	Major/ Possible 75	<p>There will be no dewatering, managed aquifer recharge, aquifer injection and pit infiltration (as defined in Section 1.2 until provisions for management of potential impacts to MNES are approved within an updated revision of this plan or a standalone Water Management Plan.</p> <p>Groundwater abstraction permitted to support construction and operation requirements.</p> <p>Implement induction and education programmes.</p> <p>Re-establishment of existing drainage lines upstream and downstream of development</p> <p>Construction and installation of appropriate surface water diversion structures.</p> <p>TDS testing to ensure saline water use does not exceed >5000 mg/L.</p> <p>Implement a vegetation health monitoring program with a focus on key areas of sheet flow dependent vegetation and pooling water (e.g. clay pans and channel pools).</p>	Minor/Unlikely 7.5	Design, construction, operation and closure

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2. Bat Cave Locations and Baseline Data

Appendix Table 1: Category 4 cave locations

Cave ID	Long (DD)	Lat (DD)	Long (DMS)	Lat (DMS)
MEC001	118.655344	-22.11204001	118° 39' 19.24" E	22° 6' 43.34" S
MEC002	118.641419	-22.11353098	118° 38' 29.11" E	22° 6' 48.71" S
MEC004	118.654912	-22.11134196	118° 39' 17.68" E	22° 6' 40.83" S
MEC006	118.654707	-22.11628603	118° 39' 16.95" E	22° 6' 58.63" S
MEC007	118.635806	-22.11460403	118° 38' 8.90" E	22° 6' 52.57" S
MEC008	118.637537	-22.12123697	118° 38' 15.13" E	22° 7' 16.45" S
MEC009	118.634337	-22.11837002	118° 38' 3.61" E	22° 7' 6.13" S
MEC010	118.634898	-22.11833096	118° 38' 5.63" E	22° 7' 5.99" S
MEC012	118.636256	-22.119934	118° 38' 10.52" E	22° 7' 11.76" S
MEC015	118.591247	-22.10816002	118° 35' 28.49" E	22° 6' 29.38" S
MEC016	118.636565	-22.11979	118° 38' 11.63" E	22° 7' 11.24" S
MEC017	118.590823	-22.11147398	118° 35' 26.96" E	22° 6' 41.31" S
MEC018	118.587108	-22.11254401	118° 35' 13.59" E	22° 6' 45.16" S
MEC022	118.592632	-22.11324901	118° 35' 33.48" E	22° 6' 47.70" S
MEC024	118.591031	-22.11074802	118° 35' 27.71" E	22° 6' 38.69" S
MEC025	118.635278	-22.11867697	118° 38' 7.00" E	22° 7' 7.24" S
MEC027	118.633321	-22.11804103	118° 37' 59.96" E	22° 7' 4.95" S
MEC030	118.632688	-22.11827698	118° 37' 57.68" E	22° 7' 5.80" S
MEC031	118.635058	-22.11635903	118° 38' 6.21" E	22° 6' 58.89" S
MEC033	118.635883	-22.11442298	118° 38' 9.18" E	22° 6' 51.92" S
MEC034	118.626406	-22.11453002	118° 37' 35.06" E	22° 6' 52.31" S
MEC035	118.626392	-22.11392099	118° 37' 35.01" E	22° 6' 50.12" S
MEC036	118.635942	-22.12532901	118° 38' 9.39" E	22° 7' 31.18" S
MEC037	118.635541	-22.12463097	118° 38' 7.95" E	22° 7' 28.67" S
MEC038	118.636853	-22.12495199	118° 38' 12.67" E	22° 7' 29.83" S
MEC039	118.638052	-22.12241798	118° 38' 16.99" E	22° 7' 20.70" S
MEC041	118.636211	-22.12543102	118° 38' 10.36" E	22° 7' 31.55" S
MEC042	118.636058	-22.12536396	118° 38' 9.81" E	22° 7' 31.31" S
MEC044	118.655517	-22.11199902	118° 39' 19.86" E	22° 6' 43.20" S
MEC045	118.657135	-22.11867202	118° 39' 25.69" E	22° 7' 7.22" S
MEC046	118.642256	-22.11434403	118° 38' 32.12" E	22° 6' 51.64" S
MEC048	118.635145	-22.12726297	118° 38' 6.52" E	22° 7' 38.15" S
MEC049	118.642179	-22.11044703	118° 38' 31.84" E	22° 6' 37.61" S
MEC052	118.651263	-22.11639399	118° 39' 4.55" E	22° 6' 59.02" S
MEC054	118.6553949	-22.11193842	118° 39' 19.42" E	22° 6' 42.98" S
MEC055	118.6555621	-22.11192694	118° 39' 20.02" E	22° 6' 42.94" S
MEC056	118.6559364	-22.11182719	118° 39' 21.37" E	22° 6' 42.58" S
MEC062	118.6366914	-22.11129544	118° 38' 12.09" E	22° 6' 40.66" S
MEC063	118.6367128	-22.11072765	118° 38' 12.17" E	22° 6' 38.62" S
MEC065	118.6349485	-22.11451208	118° 38' 5.81" E	22° 6' 52.24" S
MEC066	118.6350087	-22.1168684	118° 38' 6.03" E	22° 7' 0.73" S

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Cave ID	Long (DD)	Lat (DD)	Long (DMS)	Lat (DMS)
MEC068	118.6341372	-22.11751917	118° 38' 2.89" E	22° 7' 3.07" S
MEC069	118.6344639	-22.11753367	118° 38' 4.07" E	22° 7' 3.12" S
MEC070	118.6347433	-22.1184162	118° 38' 5.08" E	22° 7' 6.30" S
MEC073	118.637894	-22.12187399	118° 38' 16.42" E	22° 7' 18.75" S
MEC074	118.6384534	-22.12287747	118° 38' 18.43" E	22° 7' 22.36" S
MEC075	118.5974525	-22.11372802	118° 35' 50.83" E	22° 6' 49.42" S
MEC076	118.6019868	-22.11062514	118° 36' 7.15" E	22° 6' 38.25" S
MEC079	118.6352385	-22.12419502	118° 38' 6.86" E	22° 7' 27.10" S
MEC080	118.636073	-22.12629503	118° 38' 9.86" E	22° 7' 34.66" S
MEC082	118.642912	-22.11495004	118° 38' 34.48" E	22° 6' 53.82" S

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Appendix Table 2: Category 4 cave baseline information (data from ecologia 2023, PSM 2024), directly impacted caves highlighted orange.

Cave ID	PLNB Cave Category	GB Cave Category	Critical Habitat?	Cave to be retained?	Geotechnically Assessed?	Qualitative Susceptibility Rating	Recommended Vibration Limits (mm/s)	Number PLNB calls detected	Time of first PLNB call after dusk	Time of last PLNB call before dawn	Time +/- Civil Twilight	Primary evidence of GB	Secondary evidence of GB	Location/User			Distance from Cave to Nearest Pit (m)
														Development Envelope	Disturbance Footprint	FHEZ	
MEC001	4	4	No	Yes				0				-	Yes			PLNB/GB	>500
MEC002	4	4	No	Yes				0				-	-			PLNB/GB	>500
MEC004	4	4	No	Yes				-				-	-			PLNB/GB	>500
MEC006	4	4	No	Yes				-				-	-			PLNB/GB	>500
MEC007	4	4	No	Yes	Yes	Medium	75	0				-	-			PLNB/GB	575
MEC008	4	-	No	Yes				2	8:59:00 PM	11:32:00 PM	Midnight	-	-			PLNB	65
MEC009	4	-	No	Yes				6				-	-			PLNB	170
MEC010	4	-	No	Yes				5	~21:00	~03:30	CT-80	-	-			PLNB	170
MEC012	4	4	No	Yes	Yes	Medium	75	45	6:29:00PM	10:25:00PM	CT + 21 CT -70	-	-			PLNB/GB	65
MEC015	4	4	No	Yes				-				-	-	PLNB/GB		PLNB/GB	>500
MEC016	4	4	No	Yes	Yes	Medium	75	hundreds of calls	7:31:00PM	4:05:00 AM	CT+25-0	-	-			PLNB/GB	100
MEC017	4	-	No	Yes				-				-	-	PLNB		PLNB	>500
MEC018	4	4	No	Yes				-				-	-	PLNB/GB		PLNB/GB	>500
MEC022	4	4	No	Yes				-				-	-	PLNB/GB		PLNB/GB	>500
MEC024	4	4	No	Yes				-				-	-	PLNB/GB		PLNB/GB	>500
MEC025	4	-	No	Yes	Yes	Medium	75	13	8:54:00PM	10:51:00 PM	Midnight	-	-			PLNB	120
MEC027	4	4	No	Yes				-				-	-			PLNB/GB	>200 and <500
MEC030	4	4	No	Yes				2	12:03:00AM	12:03:00AM	Midnight	-	Yes			PLNB/GB	>200 and <500
MEC031	4	-	No	Yes				1	7:38:00PM		CT + 90	-	-			PLNB	>200 and <500
MEC033	4	-	No	Yes	Yes	Medium	75	0				-	-			PLNB	595
MEC034	4	-	No	Yes				11	8:56:00 PM	9:25:00 PM	Midnight	-	-			PLNB	>500
MEC035	4	4	No	Yes				-				-	-			PLNB/GB	>500
MEC036	4	4	No	No				0				-	-	PLNB/GB	PLNB/GB		n/a
MEC037	4	4	No	No				1	3:29:00AM		Midnight	-	-	PLNB/GB	PLNB/GB		n/a
MEC038	4	-	No	No				-				-	-	PLNB			n/a
MEC039	4	4	No	Yes	Yes	Medium	75	0				-	-			PLNB/GB	100
MEC041	4	4	No	No				1		12:26:00AM	Midnight	-	-	PLNB/GB	PLNB/GB		n/a
MEC042	4	4	No	No	Yes	Low	75	3	9:50:00PM	1:12:00 AM	Midnight	-	-	PLNB/GB	PLNB/GB		n/a
MEC044	4	4	No	Yes				-				-	-			PLNB/GB	>500
MEC045	4	-	No	Yes				0				-	-			PLNB	>500
MEC046	4	-	No	Yes				1	11:38:00 AM		Midnight	-	-			PLNB	>500
MEC048	4	-	No	No				1	9:22:00PM		Midnight	-	-	PLNB			n/a
MEC049	4	-	No	Yes	Yes	Medium	75	-				-	-			PLNB	1250
MEC052	4	-	No	Yes				0				-	-			PLNB	>500
MEC054	4	-	No	Yes				0				-	-			PLNB	>500
MEC055	4	-	No	Yes				0				-	-			PLNB	>500

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Conservation Significant Fauna Management Plan

Mulga Downs Iron Ore Mine – Western Australia

Cave ID	PLNB Cave Category	GB Cave Category	Critical Habitat?	Cave to be retained?	Geotechnically Assessed?	Qualitative Susceptibility Rating	Recommended Vibration Limits (mm/s)	Number PLNB calls detected	Time of first PLNB call after dusk	Time of last PLNB call before dawn	Time +/- Civil Twilight	Primary evidence of GB	Secondary evidence of GB	Location/User			Distance from Cave to Nearest Pit (m)	
														Development Envelope	Disturbance Footprint	FHEZ		FHEZ Corridor
MEC056	4	-	No	Yes				-				-	-			PLNB		>500
MEC062	4	4	No	Yes	Yes	Medium	75	-				-	-			PLNB		950
MEC063	4	4	No	Yes	Yes	High	25	13	8:46:00PM	5:06:00 AM	CT -70	-	-			PLNB		1015
MEC065	4	-	No	Yes	Yes	High	25	0				-	-			PLNB		580
MEC066	4	-	No	Yes				4	8:22:00PM	12:38:00AM	Midnight	-	-			PLNB		>200 and <500
MEC068	4	4	No	Yes				2	11:26:00PM	12:22:00AM	Midnight	-	-			PLNB/GB		>200 and <500
MEC069	4	4	No	Yes				29	9:30:00PM	4:06:00 AM	Midnight, CT -72	-	-			PLNB/GB		>200 and <500
MEC070	4	-	No	Yes				4	8:54:00 AM	10:41:00 AM	Midnight	-	-			PLNB		160
MEC073	4	4	No	Yes	Yes	Low	75	0				-	-			PLNB/GB		100
MEC074	4	-	No	Yes	Yes	Medium	75	28	10:50:00PM	11:05:00PM	Midnight	-	-			PLNB		130
MEC075	4	4	No	Yes				0				-	-	PLNB				n/a
MEC076	4	-	No	Yes				0				-	-	PLNB			PLNB	>500
MEC079	4	4	No	No				5	8:22:00PM		Midnight	-	-	PLNB/GB	PLNB/GB			n/a
MEC080	4	-	No	No				1	11:21:00PM		Midnight	-	-	PLNB				n/a
MEC082	4	4	No	Yes				0				-	-			PLNB		>500

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Conservation Significant Fauna Management Plan

Mulga Downs Iron Ore Mine – Western Australia

3. Internal Ground Disturbance Permit Procedure (HNR-00000-GD-PRO-0001)

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Ground Disturbance Permit Procedure

Ground Disturbance

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Revision Register

REV	DATE	NAME	DESCRIPTION OF CHANGES
0	7/03/2025	Suzana Mitrevski	Issued for Use

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FIGURES

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Ground Disturbance Permit Procedure

Ground Disturbance

1 Introduction

Ground Disturbance is any disturbance of ground or change in land use. This can be to allow for the development of specific works (roads, buildings, workshops etc.) or access to a specific resource (mining pit, borrow pit, groundwater bore). Ground Disturbance includes but is not limited to clearing of native vegetation, driving off tracks, earthworks/excavations, geotechnical investigations, and drilling. It also includes disturbance of previously rehabilitated areas.

Without the appropriate regulatory approval, it is unlawful to:

- Clear native vegetation;
- Impact conservation significant flora and fauna and/or their habitat;
- Disturb watercourses;
- Disturb Aboriginal cultural heritage sites;
- Access third party locations without approval; or
- Undertake mining related activities beyond the limits of their approval.

HanRoy ensures all necessary approvals have been obtained prior to any ground disturbance. To ensure all conditions of these approvals are adhered to and impacts to the environment are minimised, all ground disturbance or changes in land use must be undertaken in accordance with this Ground Disturbance Permit (GDP) Procedure.

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2 Purpose and Scope

2.1 Purpose

The purpose of this procedure is to ensure all ground disturbance is undertaken in compliance with HanRoy's standards and regulatory requirements, including but not limited to:

- *Mining Act 1978 (WA)*
- *Environmental Protection Act 1986 (WA) (EP Act)*
- *Environmental Protection (clearing of Native Vegetation) Regulations 2004 (WA)*
- *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*
- *Biodiversity Conservation Act 2016 (WA)*
- *Aboriginal Heritage Act 1972 (WA)*
- *Aboriginal Heritage Regulations 1974 (WA)*
- *Rights in Water and Irrigation Act 1914 (WA)*
- *Native Title Act 1993 (Cth)*
- *Land Administration Act 1997 (WA)*

The Ground Disturbance process is **not** a method for obtaining approvals. It is a business requirement to confirm all necessary approvals have been obtained prior to ground disturbance commencing and execution teams are informed of disturbance conditions.

2.2 Scope

This procedure applies to all Hancock Prospecting (HPPL) and HanRoy (the Company) managed works and areas they have governance over on behalf of the Hancock Group. This includes any Pastoral activities undertaken by the Hancock Group over areas of active exploration or mining tenure.

For simplification HanRoy is used to refer to all relevant groups within this document and any related supporting documents.

Examples of relevant work groups include where:

- HanRoy currently has control or HanRoy project activities are occurring;
- HPPL has control or HPPL exploration activities are occurring;
- Hancock Agriculture activities are undertaken over areas of active exploration or mining tenure; and
- HanRoy procedures, policies, management etc. are in effect for environment, heritage, tenure, land access and native title matters.

Note: Within HanRoy managed works there are instances where works are conducted under Operational procedures e.g. Roy Hill – Land Use Certificate (OP-PRO-00193) and/or Atlas – Ground Disturbance Permit (950-EN-PRO-0006). The respective Operational Ground Disturbance team are responsible for issuing GDPs in alignment with the Operational Group. HanRoy managed works outside of HanRoy tenure and/or Operational

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procedures (i.e. external third party) shall require a HanRoy GDP to be issued, the HanRoy issued GDP will address requirements from the third party in addition to HanRoy compliance requirements.

This procedure applies to all activities, employees, contractors and visitors at sites that meet the above criteria.

If there is uncertainty, the Ground Disturbance (GD) Team can assist in consultation with the Ground Disturbance Permit Assessment Stakeholders, to determine if a GDP is required.

Note: The GDP process is the overarching approval for ground disturbance, however, it does not remove the requirement for other permits to be obtained (such as an Excavation and Penetration (dig) Permit) in specific work locations.

GDP is not required for, but not limited to the following:

- Maintenance activities (cleaning of existing drains/sump excavation etc);
- Leveling/re-sheeting of an existing area (pad/track/laydown/parking etc); or
- Ensuring there is no additional ground disturbance/clearing or change in land use, where disturbance was previously undertaken under a GDP.

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Ground Disturbance

3 Ground Disturbance Permit Procedure

Table 2, Table 3, Table 4, Table 5 and Table 5 outlines the four phases of the Ground Disturbance Permit process. Appendix 1 outlines the Ground Disturbance Permit workflow process.

Table 1: Ground Disturbance Permit Application Planning

Step	Responsible	Tasks
 <p>GDP Planning</p>	<p>GDP Applicant</p> <p>Consulted: GDP Owner GD Team</p>	<p>Develop GDP boundary</p> <p>Prepare scope of work (SoW) in accordance with Project schedule work package or exploration business plan. Prepare work boundary for the proposed SoW. GDP boundary should be specific to the ground disturbance works, not a block area. The following considerations should be considered when preparing the boundary for the proposed SoW – GDP boundary.</p> <ul style="list-style-type: none"> • Access to the GDP Area • Temporary construction and laydown areas • Allowance for topsoil and vegetation stockpiles • Windrow requirements (where permitted) • Approval and site boundaries and clearing limits (including fauna habitat limits, excess tonnage limits etc.) • Significant sites: environmental, heritage, land access and tenure exclusions and constraints, including demarcation requirements. • Flexibility to allow minor design changes without a GDP amendment. <p>Note : A GDP boundary can be created via the following methods:</p> <ul style="list-style-type: none"> • Project webviewer – eDraw Widget User Guide (eDRAW Widget User Guide); or • With assistance from the GIS team – raise a Jira request via the HanRoy Service Portal (HanRoy Services Portal - Jira Service Management (atlassian.net)).

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Step	Responsible	Tasks
	<p>GDP Applicant</p> <p>Consulted: GDP Owner GD Team</p>	<p>Complete GDP Webviewer – Planning Tool</p> <p>via the GDP Planning Tool webviewer (Ground Disturbance Permit Planning Tool) following the Ground Disturbance Permit Planning Tool User Guide (Ground Disturbance Permit Planning Tool User Guide).</p> <p>The GDP Planning Tool webviewer will allow for GDP boundary to be drawn or shapefiles to be uploaded.</p> <p>The GDP Planning Tool webviewer will assess the proposed GDP application boundary against the following:</p> <ul style="list-style-type: none"> • Exclusion areas, including: <ul style="list-style-type: none"> ○ Significant Sites identified by GDP Assessment Stakeholders, including but not limited to: <ul style="list-style-type: none"> ▪ Heritage sites, including Aboriginal Cultural Areas (ACH), Heritage Restricted Zones (HRZ), Key Heritage Concerns (KHC) and PDLH Sites. ▪ Environmental sites, including priority flora (threatened and priority), Threatened Ecological Communities (TEC), Priority Ecological Communities (PEC), Environmental sensitive Areas (ESA), RAMSAR site) and conservation significant fauna including habitats. ▪ Land Access and Tenure sites, including Homesteads and other infrastructure, survey control points, contaminated sites and other sites as outlined in Land Access and Tenement conditions. ○ Area outside of HanRoy approved areas, including: <ul style="list-style-type: none"> ▪ Areas outside of LIVE tenure ▪ Area outside of cleared Archaeological and Ethnographic survey ▪ Area outside of Environmental approval • Conditional areas, including: <ul style="list-style-type: none"> ○ Areas identified by GDP Assessment Stakeholders which will permit ground disturbing activity however an action may need to be completed, for example Significant Site demarcation, Notification requirements, development of management plans including Drill and Blast Management and Borrow Pit Management etc. • Consideration areas, including: <ul style="list-style-type: none"> ○ Areas identified by GDP Assessment Stakeholders which will permit ground disturbing activity however should be considered by the GDP Applicant and Owner to ensure minimal disturbance. <p>Please note: GDP Applicant should amend the GDP boundary to ensure no intersections with Exclude areas are submitted to the GDP Team as GDPs intersecting with Exclude areas will be held up and/or returned to the GDP Applicant and Owner for amendment.</p>
	<p>GDP Applicant</p> <p>Consulted: GDP Owner GD Team GDP Assessment Stakeholders</p>	<p><u>Consult Ground Disturbance Assessment Stakeholders</u></p> <p>Engage with the Ground Disturbance Assessment Stakeholders, including representatives from the Heritage, Native Title, Land Access and Tenure and Environment Teams.</p> <p>Ensure the consultation has been reflected within the GDP Application Form.</p>


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Table 2: Ground Disturbance Permit Application

Step	Responsible	Tasks
 <p style="text-align: center;">GDP Application</p>	<p>GDP Owner</p> <p>Consulted: GDP Applicant</p>	<p><u>Complete the Ground Disturbance Permit Application Form</u> (HNR-00000-GD-TEM-0001) correctly and clearly to ensure the application is not delayed or returned to the GDP Applicant and Owner for amendment.</p> <p>The GDP Application should contain the following:</p> <ul style="list-style-type: none"> • GDP Webviewer Screening Assessment Report • GDP Application Form • GDP supporting approvals, for example Program of Works approval • Spatial data in .shp, .dxf, or .gpx format (design, GDP application area, topsoil locations, approved PoW areas) • Map(s)
	<p>GDP Owner</p> <p>Consulted: GDP Applicant</p>	<p><u>Submit the GDP Application Form</u></p> <p>via email to the Ground Disturbance Team gdp@hanroy.com.au at least 14 days prior to the proposed activity. If a GDP is required inside this timeframe, ensure thorough communication with all respective parties and Ground Disturbance Team as applications requested within this timeframe may not be approved. A request for an expedited review of an application will be considered where the application is linked to a project critical or safety critical activity and endorsed by Project Directors (or delegate).</p> <p>Factor in a suitable window for GDP boundary mark-out and significant site demarcation prior to disturbance occurring.</p> <p>Note: GDP boundary and Significant site demarcation is in addition to the 14 days for GDP review and approval process.</p> <p>The application must be submitted with all the required attachments, including:</p> <ul style="list-style-type: none"> • GDP Webviewer Screening Assessment Report • GDP Application Form • GDP supporting approvals, for example Program of Works approval • Spatial data in .shp, .dxf, or .gpx format (design, GDP application area, topsoil locations, approved PoW areas) • Map(s)
	<p>GDP Coordinator</p> <p>Consulted: GDP Applicant GIS Specialist</p>	<p><u>Enter the GDP Application</u></p> <p>GD team review the GDP Application to ensure all requirements have been met and request additional information is required or reject/place the GDP Application on hold if required.</p> <p>GD Team review includes, but is not limited to the following:</p> <ul style="list-style-type: none"> • Assign the GDP Application a unique GDP identifier e.g. GDP-<SITE>-<GDP NUMBER> • Complete a GDP Webviewer Screening Assessment Report via the GDP – SME Review webviewer (Ground Disturbance Permits SME Review) • Confirm all details of the GDP Application, including permitted activities, GDP area and clearing allowance, approvals, GDP intersections with Significant sites etc. • Create and enter the GDP details into the GDP SharePoint folder • Enter the GDP details into the GDP Register • Enter the GDP details into the nominated GDP system • Raise a Jira Ticket to commence the GIS/GDP workflow

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Step	Responsible	Tasks
		<p>If a GDP application is cancelled/rejected/onhold, record the reason in the register and do not reallocate the number.</p>
		<p><u>Prepare draft GDP</u></p> <p>Using the Ground Disturbance Permit Template (HNR-0000-GD-TEM-00004 and save the draft GDP to the respective GDP SharePoint location.</p>
		<p><u>Raise Jira request</u></p> <p>Via the HanRoy Service Portal HanRoy Services Portal - Service project (hancockprospecting.com.au) and inform the GIS Specialist of the GDP Application and direct them to commence the GIS GDP workflow, including:</p> <ul style="list-style-type: none">• Upload the GDP Application boundary to the GDP webviewer• Prepare draft GDP map in accordance with the GIS- GDP Map Product Specification• GDP Coordinator to be informed of GIS Specialist close out of Jira ticket upon completion of works.


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Table 3: Ground Disturbance Permit Assessment

Step	Responsible	Tasks
 <p style="text-align: center;">GDP Assessment</p>	<p>GDP Coordinator</p> <p>Consulted: GDP Owner GDP Assessment Stakeholders</p>	<p><u>Coordinate the GDP assessment</u></p> <p>Seek clarification from the GDP Owner if required.</p> <ul style="list-style-type: none"> If it is determined during the assessment process the works cannot proceed as proposed, discussions with the GDP Owner and GDP Applicant will be held to discuss alternatives. <p>GDP Assessment Stakeholders advised to assess GDP Application.</p> <ul style="list-style-type: none"> GDP Assessment Stakeholders must review the GDP Application, and add specific conditions where necessary to ensure safe execution of the GDP.
	<p>GDP Assessment Stakeholders</p> <p>Consulted: GIS Specialist</p>	<p><u>Complete GDP webviewer – SME Review Assessment Report</u></p> <p>via the GDP webviewer Ground Disturbance Projects GIS (hanroy.com.au)</p> <p>GDP Webviewer Screening Assessment Report will assess the GDP application for significant sites and other requirements for work area clearance:</p> <ul style="list-style-type: none"> Environment <ul style="list-style-type: none"> Conditions and commitments of approvals Habitat for conservation significant fauna Environmentally sensitive values Bores Monitoring Locations Restricted vegetation types Pre-clearance survey Heritage <ul style="list-style-type: none"> ACH HRZ KHC Archaeological and Ethnographic survey DPLH sites Land Access and Tenure <ul style="list-style-type: none"> LIVE tenure – conditions Third Party and stakeholders Land Access Agreements – conditions Pastoral Leases Port Lease and Licences Cadastral data Native title <ul style="list-style-type: none"> Native Title/Heritage Agreements Conditions Approvals <ul style="list-style-type: none"> Other regulatory/approval requirements <p>Attach GDP Webviewer Screening Assessment Report to the approved workflow tool to the nominated GDP system.</p> <p>SMEs shall outline what significant sites are required to be demarcated under each GDP.</p> <p>Appendix 2 outlines the guidance review requirements for GDP Assessment Stakeholders.</p>

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Step	Responsible	Tasks
		<p>Appendix 3 outlines the GDP standard conditions for GDP Assessment Stakeholders, note bespoke conditions can be applied to GDPs, where applicable, by the GDP Assessment Stakeholders.</p> <p>GDP Assessment Stakeholders to save a copy of GDP Review Checklist and Toll Gate Report to confirm an appropriate GDP review has been completed.</p>
	<p>GDP Coordinator</p> <p>Consulted: GIS Specialist GDP Assessment Stakeholders</p>	<p><u>Prepare GDP, map and spatial data packs</u></p> <p>Upon each GDP Assessment Stakeholder completed review and approval of the GDP, complete the following tasks:</p> <ul style="list-style-type: none"> • Update the GDP Register • Prepare all GDP Supporting Data • Update the Jira ticket requesting the approved GDP map and spatial data pack, including any demarcation line requirements.
	<p>GIS Specialist</p> <p>Consulted: GDP Coordinator GDP Assessment Stakeholders</p>	<p><u>Develop GDP spatial data and map packs</u></p> <p>Create demarcation lines where any significant site (environment etc.) falls within 50m of the GDP boundary or as directed by the GDP Assessment Stakeholders.</p> <p>Note: Heritage Demarcation requirements will be undertaken in accordance with the Aboriginal Cultural Heritage Demarcation Procedure (HNR-00000-HE-PRO-0004).</p> <p>Provide the Ground Disturbance Team with the completed appropriate finalised maps, and finalised spatial data (in .dxf and .shp format).</p>
	<p>GDP Coordinator</p> <p>Consulted: GIS Specialist</p>	<p><u>Issue the GDP</u></p> <p>Prior to issuing the GDP to the GDP Applicant and GDP owner complete the following:</p> <ul style="list-style-type: none"> • Complete a final GDP webviewer Screening Assessment Report on the approved GDP boundary and save the report to the GDP SharePoint. Confirm the GDP boundary does not intersect with any exclusion areas. • Save the GDP, supporting documents, spatial data and map to the nominated GDP System and SharePoint. • Update the GDP Register. <p>Issue the GDP to the GDP Owner and GDP Applicant via the nominated GDP system.</p>

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Table 4: Ground Disturbance Permit Implementation

Step	Responsible	Tasks
GDP Acceptance	GDP Owner GDP Applicant Consulted: GDP Assessment Stakeholders	<u>Review and sign GDP (Permit Acceptance)</u> <ul style="list-style-type: none"> GDP Applicant and GDP Owner acknowledge they have read and understood all conditions listed on the GDP by signing the Permit Acceptance section of the GDP. The GDP is not valid for use until the Permit Acceptance has been signed and returned to the GDP Team and saved to the nominated GDP system and SharePoint. Return the sign form to the GD Team.
GDP Mark-Out, Demarcation & Spatial Data Upload	GDP Coordinator Consulted: GDP Owner	<u>Confirm the GDP Owner has all relevant & accurate spatial data associated with the GDP</u> – GDP boundary, design files, topsoil locations, and significant site boundaries.
	Surveyor	<u>Mark-out the approved GDP boundary and nominated Significant Sites</u> in accordance with the permit conditions and the Significant Sites Demarcation Procedure (HNR-00000-GD-PRO-0002), Aboriginal Cultural Heritage Demarcation Procedure (HNR-00000-HE-PRO-0004) and Environment Significant Sites Procedure (HNR-00000-EN-PRO-010). <ul style="list-style-type: none"> Provide all relevant mark out data to the GDP Owner. Surveyor to acknowledge they confirm demarcation by signing Section 5.2 of the GDP and return to the GDP Owner.
Demarcation Check	GDP Site Compliance Stakeholders Consulted: GIS Specialist	<u>Confirm all significant sites have been demarcated</u> in accordance with the GDP permit conditions, Significant Site Demarcation Procedure (HNR-00000-GD-PRO-0002), Aboriginal Cultural Heritage Demarcation Procedure (HNR-00000-HE-PRO-0004), Environment Significant Sites Demarcation procedure (HNR-00000-EN-PRO-0010) and prior to ground disturbance commencing. Ensure GIS spatial data sets have been updated. Ensure all other permit conditions (e.g. pre-disturbance fauna removal or spotting etc., Traditional Owner Monitor) has been complied with prior to ground disturbance commencing. <ul style="list-style-type: none"> Review and sign the Significant Site Demarcation of the GDP (Section 5.2) and return to the GD Team and GDP Owner.
Pre-disturbance Compliance Check	GDP Owner (or delegate) GDP Applicant GDP Coordinator Consulted: GDP Site Compliance Stakeholders	<u>BEFORE GROUND DISTURBANCE COMMENCES, review and sign Pre-Ground Disturbance Compliance – Section 5.3</u> with Conditions Check of the GDP and return to the GDP Coordinator. Your signature acknowledges that all conditions of the permit where specific actions(s) are required to be taken prior to ground disturbance commencing have been taken and complied with in accordance with the condition(s). Ground disturbing works cannot commence until Pre-clearance Ground Disturbance Compliance with Conditions Check has been signed and returned to the GDP Coordinator.
	GDP Contractor Supervisor (s) GDP Operator (s) GDP Owner (or delegate)	<u>Review all conditions of the GDP and sign Ground Disturbance Works of the GDP – Section 5.4</u> and return to the GDP Owner and GDP Applicant. Signatures acknowledge you have read and understood all Permit conditions listed on the GDP and will comply with all conditions during works.

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Step	Responsible	Tasks
		Ensure a copy of the signed GDP documentation is saved to the nominated GDP system and SharePoint.
Ground Disturbing Works	GDP Contractor Supervisor (s) GDP Operator (s) GDP Owner (or delegate)	<p><u>Undertake all activities in accordance with the GDP.</u></p> <p>Always walk the proposed clearing prior to commencing clearing and install additional flagging tape if necessary.</p> <p>If machine control is not fitted to your machine, only conduct work if there is an approved GPS enabled device loaded with the relevant GDP data in the machine.</p> <p>Ensure there is a hardcopy of the GDP (including maps) always available.</p> <p>STOP WORK immediately and notify the GDP Owner and GDP Applicant if you are unsure of any boundary or if works cannot be completed in accordance with the GDP.</p> <p>Do not restart work until the GDP Owner has provided you with clarification, assistance, and/or an amended and signed GDP.</p>

Table 5: Ground Disturbance Permit Close Out

Step	Responsibility	Tasks
Ground Disturbance Pick-up	Surveyor Consulted: GIS Specialist GDP Coordinator	<p><u>Survey & pick-up actual ground disturbed</u> as directed by the GDP Owner.</p> <p>Spatial data should be attributed with the appropriate MRF and/or approval data classification and provided in .shp or .gpx format to the GDP Owner and GIS Specialist (gis@hanroy.com.au) and GD Team (gdp@hanroy.com.au) within 30 days of completion of works. For progressive clearing activity onsite, partial as cleared data should be submitted monthly.</p> <p><u>Review and sign Ground Disturbance Pick-up of the GDP</u> and return to the GDP Owner.</p>
GDP Close Out	GDP Owner Consulted: GDP Site Compliance Stakeholders	<p><u>Review and sign GDP Close-out of the GDP .</u></p> <p>GDP Owner and GDP Site Compliance Stakeholder to complete a GDP Close-Out inspection to ensure all aspects of the GDP have been addressed and the GDP can be formally Closed-Out.</p> <p>Any GDP non-compliance shall be recorded as an incident in INX InControl and investigated accordingly.</p> <p>Return all signed sections of the GDP to the GD Team (gdp@hanroy.com.au).</p>
	GDP Team	<p><u>Save all GDP close-out data to the server</u> and provide to the GIS Specialist if required.</p> <p>If close-out data has not been received prior to the GDP's expiry date, contact the GDP Owner.</p> <p>If more time is required to complete works, communicate with the GDP Owner and either amend the existing GDP or close-out the existing GDP and issue a new GDP.</p>

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3.1 GDP Boundary Demarcation

GDP boundary demarcation must be in place prior to any disturbance activity taking place.

Demarcation of the GDP boundary shall not be reduced, moved or removed without the authorisation of the GDP Coordinator. Alterations to the requirement to demarcate the GDP boundary will usually only be considered in the following circumstances:

- A risk assessment has been undertaken to demonstrate an acceptable level of risk with alternate controls, for example:
 - Equipment has geo-fencing enabled equipment installed.
 - Alternate demarcation of GDP boundary.
- Proposed activity is within previously cleared area; or
- Where mark-out of the GDP boundary is considered impractical or unsafe (due to topography or significant distances). Mark out of the GDP boundary may be reduced to those sections of the GDP boundary that fall within 50m of proposed disturbance.

The following shall be undertaken when Marking-Out/Installing GDP boundary demarcation:

3.1.1 GDP Boundary Mark-Out and Installation

1. The GDP Owner shall arrange for GDP boundary demarcation tools and equipment, along with a Surveyor (or delegate) shall use a GPS (+/- 1m accuracy) to accurately mark out the GDP boundary.
2. Conduct a preliminary inspection of the demarcation boundary. Use the GPS unit to walk around the demarcation boundary and ensure there is no obstruction to the demarcation boundary.
3. Install the required GDP boundary demarcation in accordance with the Approved GDP boundary supplied data (shapefile and dxf). GDP pegging should be installed every 30m or line-of-sight.
4. GDP Owner and Surveyor confirm GDP boundary demarcation by signing and returning to the GDP Team Section 5.1 of the GDP.
5. Any departure from these procedures (e.g., where demarcation was not installed in accordance with this procedure) must be reported to the GDP Site Compliance Stakeholder and GDP Assessment Stakeholder as soon as possible.

3.1.2 GDP Boundary Demarcation Tools and Equipment

GDP Boundary shall be demarcated using the following equipment:

- Survey pegs.
- Demarcation flagging in the required colour configuration (Figure 1):
 - Blue and White – tied to the top of each peg
- Write GDP number on the survey peg.

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Figure 1: GDP Boundary Demarcation

Personnel installing GDP Boundary Demarcation shall:

- Ensure that appropriate PPE is used, e.g. gloves etc.
- Ensure that appropriate tools are used for the task, e.g. mallet for survey peg installation.
- Avoid using or moving rocks or other natural objects found lying on the ground.
- Ensure all site health and safety requirements are complied with, e.g. JHA, Take 5.

3.2 Training and Awareness

Personnel who will be completing ground disturbance activities or assessing GDPs are to complete the following training:

- HanRoy and/or HPPL Induction – component of Induction to address Ground Disturbance Permit process;
- Nominated GDP Process and System training – training modules available via SuccessFactors; and
- GDP Awareness training Verification of Competency Verification of Competency (VOC) – training module available via SuccessFactors.

Table 6 outlines the position-based training matrix for GDP training and awareness requirements.

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Table 6: Training and Awareness matrix

Item	Position									
	All employees	GDP Applicants	GDP Owner	GIS Specialist	GDP Team	Operators	Compliance Advisors/ Technicians	GDP Assessment Stakeholders	Contractor Supervisor	Contractor Operator
Induction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GDP Process and System		✓	✓	✓	✓		✓	✓		
GDP Awareness VOC		✓	✓		✓	✓	✓	✓	✓	✓

Upon completion of the GDP Process and System training the GD Team shall organise the relevant profile to be created to permit access to the nominated GDP System.

3.3 Audits and Inspections

Active GDPs are subject to inspections to verify compliance with GDP controls. It is the responsibility of the GDP Coordinator and the GDP Assessment Stakeholders) to undertake inspections against their respective GDP controls.

The Ground Disturbance Coordinator (or delegate) shall complete GDP inspection in accordance with the HanRoy Ground Disturbance Permit Inspection Checklist (HNR-00000-GD-CHK-0001).

A GDP inspection shall be completed for each GDP, with additional inspections to be completed adhoc for GDPs with ongoing works.

At the conclusion of all works authorised under the GDP, a close-out inspection will be conducted in accordance with the close-out section of the GDP and signed by all SMEs confirming that all requirements have been met for the GDP to be closed out. It is the responsibility of the person responsible for the GDP to ensure the Ground Disturbance Close-Out Inspection Form is uploaded to nominated GDP system.

3.4 Incident and Reporting Requirements

The GDP Owner shall report all incidents, hazards and near misses in HanRoy’s Incident Management System. The Immediate Incident Notification Form (HNR-00000-HS-TEM-0002) may be used for capturing the initial information for reporting. The GDP Owner of the incident, hazard and/or near miss are to ensure that an investigation is completed in accordance with the HanRoy Incident Investigation Specification (HNR-00000-HS-STD-0005).

3.5 Change Management

3.5.1 GDP Assessment Stakeholder Initiated

If there is a change to approvals and/or significant sites, the SME must provide this information to the GIS team as soon as practicable, as these changes may result in amendments to the GDP and/or to GIS information. The GIS team are responsible for updating GIS layers as changes occur. Where changes to GIS layers occur, the GIS

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team will identify active GDPs that are impacted. In this event, the GDP boundary and/or conditions may need to be amended, which will trigger a review by the GDP Coordinator and/or GDP Assessment Stakeholders. Where the GDP requires update, the GDP Coordinator will notify the GDP Applicant and Owner. Updated GDPs will be sent to the Applicant for review and approval prior to the revised permit being issued.

Changes that may require a GDP review include, but are not limited to the following:

- Boundaries of significant sites;
- Extent of priority flora and fauna habitats and/or values;
- Land access and/or tenement requirements; and
- Native Title Agreements.

3.5.2 GDP Applicant and/or Owner Initiated

The GDP Applicant and/or Owner may initiate a GDP revision/amendment by completing a GDP Application form and selecting the “Amend an existing GDP” checkbox as outlined in Section 4. The GDP will then be reviewed by the GDP Assessment Stakeholders and a revised GDP, map and spatial data will be issued to the GDP Applicant and Owner.

The GDP Applicant and/or Owner can request a revision of a GDP for, but not limited to the following:

- Increase in GDP disturbance allowance;
- Increase in excess tonnage allowance;
- Extension of a GDP completion date;
- Addition of permitted activities; or
- Maintain regulatory compliance.

3.5.3 Management Initiated

The Management (Executive Leadership Team) may request a revision and reinstatement of GDPs for, but not limited to the following:

- Addition of Significant Sites, i.e. Heritage Sites;
- Following a breach/incident of the GDP procedure;
- Legislative changes;
- Significant concerns; or
- Significant data breach.

All nominated GDPs to be revised and reinstated shall be reviewed by the GDP Assessment Stakeholders and a revised GDP, map and spatial data will be sent to GDP Assessment Stakeholder Leader for endorsement followed by endorsement from the Executive Leadership Team, prior to being issued to the GDP Applicant and Owner.

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3.5.4 Conflict Resolution and Escalation

GDP Team/GIS Team any reason relating to time pressure, change in Project focus, etc to GM and /or CEO.
Conflict with policy procedure process accountability.

3.6 Data Management

It is the responsibility of the relevant GDP Assessment Stakeholders to ensure the following is complied with:

- All data collected from desktop assessment, government data base search requests, field collection, purchased, processed, or collated during surveys, on behalf of HanRoy, are to be provided to HanRoy GIS team in the formats adhering to the standards as specified in the following documents:
 - Environment Data Delivery Standard (HNR-00000-GI-STD-0001);
 - Heritage Data Delivery Standard (HNR-00000-GT-STD-0002);
 - Land Access and Tenure Data Delivery Standard (TBC);
 - Native Title Data Delivery Standard (HNR-00000-GI-STD-0004);
 - General Spatial Data Delivery Standard (HNR-00000-GI-STD-0003); and
 - Ground Disturbance Permit Spatial Data Delivery Standard (HNR-00000-GI-STD-0005).
- Review and confirm the data provided is correct and accurate.
- Liaise with GIS Team to ensure relevant Environment, Heritage, Land Access and Tenure and Native Title layers are created and/or updated on the respective web-based viewer.

Liaise with GIS Team to ensure relevant data is added to the Significant Sites layer.

Periodically review and update significant sites layer.

3.6.1 Ground Disturbance Webviewer

It is the responsibility of the relevant GDP Assessment Stakeholders to ensure all relevant significant sites/constraints are added to the Ground Disturbance Webviewer.

Liaise with the GD Team and GIS Team to develop significant sites/constraints rule and ensure it is added to the GDP constraints rules matrix. The development of GDP constraints rule matrix requires the following information:

- HanRoy Function (Heritage, Environment, Land Access and Tenure, and Native Title);
- Constraints rule name;
- Constraints rule description;
- Origin of the constraints rule;
- Relevant Project site the constraints applies to;
- Appropriate GDP webviewer to display significant site/constraints
- Constraint Type (Within, Exclude, Condition, Consideration); and
- Data source – GIS layer.

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3.7 Review

This procedure and associated documentation is to be reviewed as follows:

- Annually; or
- As a result of findings or actions identified through inspections, audits and incident reporting.

Reviews are to examine the appropriateness of the procedure, taking into consideration corporate, system and compliance requirements and legislative changes since the last review was undertaken.

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4 Accountabilities

Table 7: Accountabilities

Role	Responsibility
GDP Applicant	<p>Person proposing to undertake ground disturbance activities.</p> <ul style="list-style-type: none">• Provide necessary details to the GDP Owner to support completion of the GDP Application Form (HNR-00000-GD-TEM-0001).• Responsible for all activities related to the GDP and must ensure that they themselves and the GDP Owner and GDP Operator(s) understand and comply with all conditions of the GDP.• Immediately notify the GDP Owner and GDP Coordinator of any non-compliance.
GDP Owner	<p>Person overseeing the proposed ground disturbance activity.</p> <p>Adherence to this procedure, the conditions of each GDP and the ground disturbance works. The person responsible can be the Applicant and/or Supervisor.</p> <ul style="list-style-type: none">• Accountable for all activity related to the approved GDP.• Must be available on-site during ground disturbance or authorise another HanRoy employee as a delegate to be available on-site.• Submit a Ground Disturbance Permit Application Form (HNR-00000-GD-TEM-0001) in accordance with this procedure, at least 14 days ahead of any ground disturbance taking place and with sufficient time for GDP boundary mark-out, notifications and pre-clearance requirements to be completed.• Ensure adequate time has been allocated to complete all necessary mark-out of GDP boundaries and significant sites on approval of GDP and prior to ground disturbance commencing.• Ensure the GDP application area is suitable to achieve intended works and provides enough flexibility to limit the potential requirement for amendment.• Ensure all conditions stipulated on the GDP are understood and adhered to.• Ensure the GDP is distributed, and conditions are communicated to all stakeholders working under the GDP.• Complete GDP Close-out within 30 days of completion of activity/works and prior to GDP expiry, including arranging GDP disturbance pick-up.• Apply for any GDP amendments, including time extensions, ahead of GDP expiry.• Ownership and close-out of any non-compliance against the GDP.

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GDP Coordinator	<p>Person who coordinates the assessment and issuing of GDPs. Review and update of this procedure and the activities outlined within.</p> <ul style="list-style-type: none"> • Register and coordinate assessment of all new GDP applications. This includes maintaining the GDP register and GDP System, and seeking input from the relevant environment, heritage, land access and tenure, stakeholder engagement and native title stakeholders in the assessment of the GDP application. • Ensure all approved GDPs are signed by the relevant parties and saved to the GDP System and GDP register. • Ensure all GDPs have been closed out prior to expiry. • Educate and increase awareness of this procedure with all employees and contractors. Completed through training workshops and GDP release education. • Investigate any GDP non-compliance.
GIS Specialist	<p>Person who manages spatial data and prepares spatial data and maps associated with GDPs.</p> <ul style="list-style-type: none"> • Complete an assessment of the GDP application using the GDP Spatial Assessment Tool. • Maintain the GDP webviewer as directed by GDP Coordinator and/or GDP Assessment Stakeholders. • Create maps for the GDP permit as directed by the GDP Coordinator. • Export external GDP boundaries, internal disturbance areas, and any other ancillary data as required in .shp, .dxf, and .gpx formats. • Manage disturbance data received from Surveyor / on close-out of the GDP. • Maintain HanRoy GDP feature classes and push updates to Webviewers as required.
GDP Assessment Stakeholders	<p>Subject matter experts who review GDP applications and advise conditions required to achieve compliance. Including representatives from Environment, Heritage, Native Title, Land Access and Tenure and Stakeholder Engagement.</p> <p>Review of proposed GDP activities and adding GDP conditions/controls appropriate to manage risks related to the proposed location and activities specified in the purpose and scope of work.</p> <ul style="list-style-type: none"> • Determine whether all relevant approvals for the GDP application area are held. • Determine if the proposed activity is acceptable and compliant with all relevant approvals and HanRoy standards and procedures. Note this may include consultation across the business due to the range of tenure holders works are conducted on. • Document any conditions/compliance requirements that need to be adhered to during ground disturbance. • Identify relevant external stakeholder notifications and permissions.

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<p>Surveyor</p>	<p>Person who assists with the mark-out and pick-up of disturbance areas. This may include a qualified surveyor for construction – mining works or a suitable execution team member for exploration – pre-construction works.</p> <ul style="list-style-type: none"> • Mark-out the GDP boundary and any significant sites prior to GDP execution/ground disturbance commencing. • Pick up the area of actual disturbance under the GDP on completion of the activity and supplying this data to the GDP Owner/Supervisor, GDP Team and GIS Team. • Disturbance shall be picked up within 30 days and data provided to the GIS Specialist by the end of each month. • Notify the GDP Owner/Supervisor and GDP Coordinator of any potential or detected GDP breaches. • Pick up the area of rehabilitation under the GDP on completion of the activity and supplying this data to the GDP Owner/Supervisor, GDP Team and GIS. • Rehabilitation shall be picked up within 30 days and data provided to the GIS Specialist by the end of each month. • For all exploration activities, the GDP Owner/Supervisor is responsible for ensuring mark-out and disturbance pick-up is conducted by suitably trained HanRoy representative using a DGPS. Where a base station is not available to support DGPS, mark-out and pick-up can be done using a hand-held GPS. However, an additional 10 m buffer will be applied to any sensitive values to account for the device’s inaccuracy. Where proposed works occur within this buffer, the GDP Owner/Supervisor will have to arrange a surveyor for more accurate mark-out. Method of GPS is required to be considered in the GDP
<p>GDP Operator</p>	<p>Person who operates machinery to clear or disturb ground.</p> <ul style="list-style-type: none"> • Understand and comply with all conditions of the approved GDP. • Ensure they have a copy of the GDP (and associated maps) on them at all times while undertaking the activity. • Ensure they have an approved GPS or navigation device (e.g. tablet) loaded with the relevant GDP data when machine control is not fitted to the machine. • Do not work outside the approved GDP area. • Stop work immediately and notify GDP Applicant/Owner/Supervisor where the work cannot be completed in accordance with the GDP (or if they have any uncertainty with regard to the works). Works cannot recommence until which time the GDP Owner/Supervisor has sought, obtained and supplied the GDP Operator with an amended GDP.

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<p>GDP Site Compliance Stakeholders</p>	<p>Person who is site based subject matter experts with accountability to confirm compliance with GDP conditions.</p> <ul style="list-style-type: none"> Review and assess GDP applications, where they are the nominated GDP Assessment Stakeholder. Ensure significant sites relevant to the GDP have been demarcated in accordance with Significant Sites Demarcation Procedure (HNR-00000-GD-PRO-0002) prior to disturbance commencing. Undertake regular GDP inspections, Ground Disturbance Permit Inspection Checklist (HNR-00000-GD-CHK-0001) during ground disturbance when required to ensure compliance with conditions of the GDP (e.g., sufficient depth of topsoil / subsoil is being recovered) and document any non-compliance. Complete GDP Close-Out section, prior to Contractor demobilisation to ensure compliance with conditions of the GDP (including demobilisation and rehabilitation requirements) and document any non-compliance. Investigate GDP breaches/non-compliances if or when they occur.
<p>All HanRoy Mangers, Project Directors and Superintendents</p>	<p>Implementation of this procedure where it is relevant to their area of responsibility.</p> <p>Ensure that all personnel and contractors are aware of, have access to, and comply with this procedure.</p>
<p>All employees, contractors and visitors</p>	<p>Comply with this procedure where it is relevant to their area of responsibility.</p> <ul style="list-style-type: none"> Adhere to this procedure and any advice/instruction issued to them from the Environmental Advisor (or nominated responsible person). Report all incidents and non-compliances with this procedure to your Supervisor as soon as possible.

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5 Abbreviations

Table 8: Abbreviations

Abbreviation	Definition
DGPS	Differential Global Positioning System
GDP	Ground Disturbance Permit
GIS	Geographic Information System
HPPL	Hancock Prospecting Pty Ltd
MRF	Mining Rehabilitation Fund
VOC	Verification of Competency

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6 Definitions

Table 9: Definitions

Term	Definition
Applicant	The person who applies for the Ground Disturbance Permit application and/or is responsible for managing/supervising the work on behalf of the Contractor or any entity conducting works on the ground on behalf of HanRoy.
Clearing	As defined in section 51A of the EP Act, clearing means: <ul style="list-style-type: none">a. the killing or destruction of; orb. the removal of; orc. the severing or ringbarking of trunks or stems of; ord. the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes—<ul style="list-style-type: none">e. the killing or destruction of; orf. the severing of trunks or stems of; org. any other substantial damage to, some or all of the native vegetation in an area.
Change in land use	Change from one previously disturbed land use to another such as a change from a borrow pit to a workshop, or a change from a laydown to a stockpile.
DGPS	Differential GPS, a GPS with enhanced location accuracy.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
GDP	Ground Disturbance Permit
GDP number	A unique identifier assigned to a GDP by the Ground Disturbance Team at registration and used through to assessment and close out. GDP's are consecutively numbered with a three-digit/project reference – e.g. GDP-MIR-001.
GDP boundary	The boundary which is approved for ground disturbance under the GDP. For construction – mining phase activities a GDP boundary will be marked out on-ground in which the permitted disturbance must occur in, for exploration to pre-construction activities the disturbance area within the GDP maybe marked out e.g. an individual drill pad.
GIS	Geographic Information System
Ground disturbance	Any change in land use or disturbance to the ground surface including (but not limited to): clearing of vegetation, clearing of regrowth, placement of survey pegs, placement of water bores, driving off tracks, excavations, geotechnical investigations, drilling release/discharge of water, bulk earthworks, installation of buildings/infrastructure, installation of services (including underground), construction of roads and access tracks, undertaking surveys, laydown areas, disturbance of rehabilitated areas and any work associated with the construction and operation of the project.
Grubbing	Removal of stumps, roots and vegetation matter from the ground surface.
HanRoy	HanRoy Iron Ore Projects Pty Ltd
HPPL	Hancock Prospecting Pty Ltd
INX InControl	HanRoy's incident reporting system

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Mark-out	The physical marking of one or more georeferenced points related to a boundary on-ground.
MRF	Mining Rehabilitation Fund – a pooled fund to which WA mining operators contribute to rehabilitate abandoned mines sites across the state.
Native vegetation	As defined in sections 3(1) and 51A of the EP Act and Environmental Protection Regulations 1987, native vegetation means indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation (unless planted as required under this Act or another law, e.g., rehabilitation).
Pick-up	The surveying and capturing of spatial data relating to an on-ground boundary or area, e.g., an area that has been disturbed.
Rehabilitation	The process of returning the land to as close to its former state as possible. This includes ensuring that rehabilitated areas and constructed landforms are comparable to natural landforms in terms of shape, stability, surface drainage, resistance to erosion and ability of the final landform to support local native vegetation.
Shall	Denotes a mandatory requirement.
Should	Highly desirable but not mandatory.
Significant Site	<p>An area of important cultural, environmental or land access value. Some examples include, but not limited to heritage sites, conservation significant flora, and habitat critical for conservation significant fauna.</p> <p>An exclusion zone includes the following, as per the 'Restricted Areas' GIS layer:</p> <ul style="list-style-type: none"> • Heritage Approvals and Restrictions • Environment Approvals and Restrictions • Land Access Restrictions • Native Title Restrictions • Other Conditional Disturbance • Outside of HanRoy tenure.
GDP Webviewer – Planning Tool	<p>GDP webviewer to be utilised as a GDP Planning tool to determine if proposed disturbance area falls within the following parameters:</p> <ul style="list-style-type: none"> • Environment, Heritage, Native Title, and Land Access and Tenure constraints, including: • Exclusion areas; • Conditional access areas; or • Areas of information or consideration. <p>which fall within the proposed disturbance area.</p>

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GDP Webviewer – SME Review	<p>GDP webviewer to be utilised by the GDP Assessment Stakeholders to review and apply relevant GDP conditions to ensure the proposed disturbance area is effectively managed to be compliant with all relevant legislation, approvals and commitments.</p> <p>GDP webviewer to be utilised as a GDP Planning tool to outline the Environment, Heritage, Native Title, and Land Access and Tenure constraints, including:</p> <ul style="list-style-type: none">• Exclusion areas;• Conditional access areas; or• Areas of information or consideration. <p>which fall within the proposed disturbance area.</p>
Topsoil	The upper 200mm of the soil profile.

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7 References

Table 10: References

Document number	Title
HNR-00000-GD-TEM-0001	Ground Disturbance Permit Application Form
	Ground Disturbance Permit Register
HNR-00000-GD-TEM-0004	Ground Disturbance Permit template
HNR-00000-EN-TEM-0014	Vehicle and Mobile Equipment Weed Hygiene Inspection Form
HNR-00000-GD-PRO-0002	Significant Sites Demarcation Procedure
HNR-00000-GD-TEM-0002	Ground Disturbance Permit Site Inspection Form
HNR-00000-GI-STD-0001	Environmental Data Delivery Standard
HNR-00000-GI-STD-0002	Heritage Data Delivery Standard
	Land Access Data Delivery Standard
HNR-00000-GI-STD-0004	Native Title Data Delivery Standard
HNR-00000-GI-STD-0005	Ground Disturbance Permit Spatial Data Delivery Standard
HNR-00000-GI-STD-0003	General Spatial Data Delivery Standard
HNR-00000-HS-TEM-0002	Immediate Incident Notification Form
HNR-00000-HS-STD-0005	Incident Investigation Specification
	GIS – GDP Map Product Specification
HNR-00000-HE-PRO-0004	Aboriginal Cultural Heritage Demarcation Procedure
HNR-00000-GD-TEM-0006	Ground Disturbance Reinstatement Form
HNR-00000-EN-PRO-0010	Environment Significant Sites Demarcation Procedure
	HPPL RDG Ground Disturbance Permit WIN
	eDraw Widget User Guide
	Webviewer User Guide
	Survey123 Guide
	GDP Webviewer User Guide

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8 Appendices

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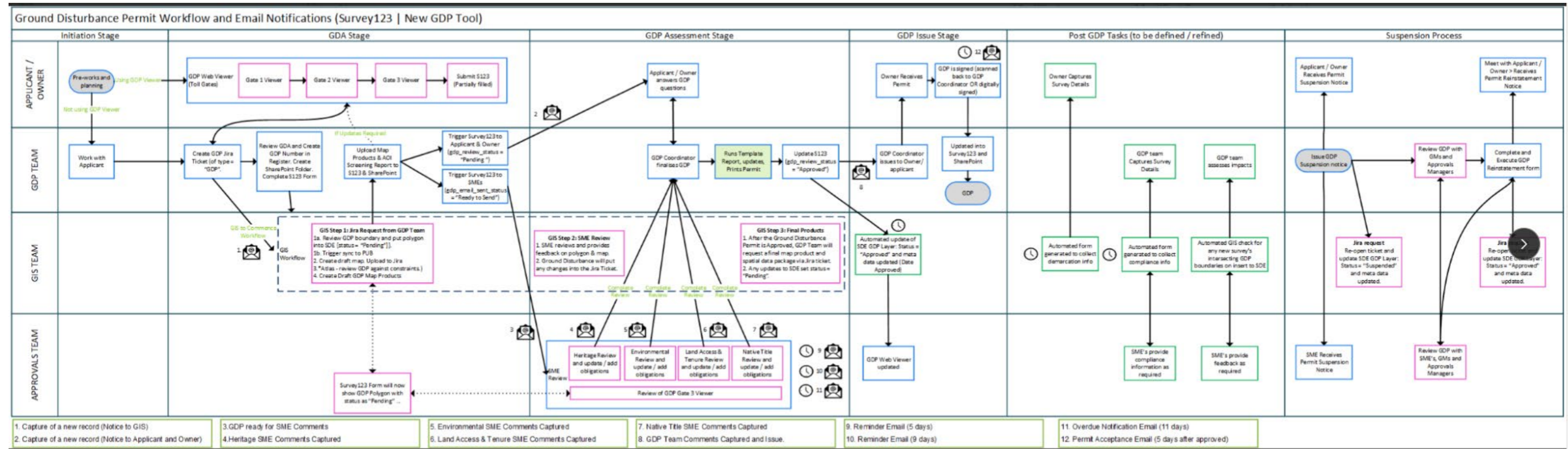
Appendix 1 – Ground Disturbance Permit Workflow and RACI

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		Responsible (R)	Those who do the task.											
		Accountable (A)	The one person ultimately answerable for the correct and thorough completion of the deliverable or task, and the one from whom											
		Consulted (C)	The persons whose opinions are sought, typically subject matter experts; and with whom there is two-way communication.											
		Informed (I)	Those who are kept up-to-date on progress, often only on completion of the task or deliverable; and with whom there is just one-way											
#	ACTION													
Ground Disturbance Planning														
1	Ground Disturbance Planning with Consultation with relevant stakeholders	R/A	I	I	C	C	C	C	C	C	C	I	C	I
2	Submit Ground Disturbance Permit Application (with supporting documentation) via existing GDP System	R	A	I	I	I	I	I	I	I	C	I	I	I
Review Ground Disturbance Application														
3	Ground Disturbance Team initial review of GDP Application	I	I	I	I	I	C	C	C	C	R/A	I	C	I
4	Review and upload GDA boundary to GIS web viewer	I	I	I	I	I	I	I	I	I	C	I	R/A	I
5	SME review GDP Application and apply relevant conditions	I	I	I	I	I	R	R	R	R	A	I	C	I
6	Prepare GDP map and spatial data pack	I	I	I	I	I	C	C	C	C	A	I	R	I
7	GDP finalisation	I	I	I	I	I	I	I	I	I	R/A	I	I	I
Issue and Implement Ground Disturbance Permit														
8	GDP Issued for Applicant/Owner review for Permit Acceptance	R	R	I	I	I	I	I	I	I	A	I	I	I
9	Implementation of GDP controls	R	R/A	I	I	I	C	C	C	C	C	R	I	I
10	GDP sign on prior to execution	R	R	R	R	R	R	R	R	R	A	I	I	I
11	Monitoring of GDP controls during execution	C	C	C	R	R	I	I	I	I	A	I	I	I
12	GDP compliance and Close-Out	R	R	R	R	R	C	C	C	C	A	R	R	I
GDP Escalation														
13	GDP required within 2 weeks of works commencing onsite - GM approval required	R	R	I	I	I	C	C	C	C	C	I	I	A

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Appendix 2 – GDP Assessment Stakeholder Checklist

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Number	Aspect	Review requirement	Condition	Comments
GROUND DISTURBANCE				
1	Activity	Confirm all permitted activity requirements	Add permitted activities condition	Update permitted activities if required.
2	Disturbance	Confirm the GDP disturbance details		Update GDP disturbance details if required.
3	Approvals	Confirm all relevant approvals have been obtained		Please GDP on hold if required.
				Ensure approvals are uploaded as GDP supporting documents
4	Demarcation	Confirm GDP boundary demarcation requirements	Add GDP demarcation condition	Ensure GDP procedure and Significant Sites procedure is uploaded as GDP supporting document
5	Compliance	Confirm as cleared compliance requirements	Add relevant as cleared condition to GDP	
6	Compliance	Confirm infrastructure/services compliance requirements	Add relevant capturing infrastructure/services condition to GDP	
7	Compliance	Confirm rehabilitation compliance requirements	Add relevant rehabilitation condition to GDP	
8	Compliance	Confirm if there's additional compliance requirements	Add relevant condition	
9	Training	Confirm training requirements for GDP	Add relevant training conditions to GDP	
10	Compliance	Review all GDP conditions, confirm no additional conditions required.		Update GDP conditions if required (confirmation from SME).
				Upload all GDP supporting documents.
11	Permitting	GDP details		Ensure, GDP revision, dates and permitted activities updated for each amendment.
12	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required
HERITAGE				
1	Survey	Confirm GDP is covered by heritage ethnographic survey	GDP must fall within the ethno survey area	GDP webviewer report - Ethnographic survey
2	Survey	Confirm GDP is covered by heritage archaeological survey	GDP must fall within the arch survey area	GDP webviewer report - Archaeological survey
3	Survey	Confirm date of survey and ensure survey report and associated data is valid.	GDP must fall within valid ethno and arch survey areas	
4	Survey	Confirm if survey reports have any additional management conditions/recommendations.	Add management controls as GDP condition	
5	Site	Confirm GDP intersects heritage site.	Excise heritage site out of GDP boundary. Sites to be shown on GDP map	GDP webviewer report - Heritage sites (ACH,KHZ,HMZ, HRZ).
6	Site	Complete search of sites against DPLH (lodged and registered sites)	Excise DPLH heritage site out of GDP boundary. Sites to be shown on GDP map	GDP webviewer report - DPLH sites
			DPLH link	
7	Site	Confirm if GDP falls within 100m of heritage site and state demarcation requirements.	State demarcation requirements in accordance with ACH demarcation procedure HNR-0000-HE-PRO-0004.	GDP webviewer report - demarcation
			Confirm which sites have valid/compliant demarcation and which sites require demarcation.	GDP webviewer report - demarcation audits
8	TO	Confirm if a TO is required to be present	Add TO condition requirement	Attach copy of TO request form to GDP (HRN-00000-HE-TEM-0009) Notify GDP Applicant and Owner
9	CHMP	Confirm if GDP is covered by a CHMP and has any additional recommended management controls heritage agreement obligations	Add reference to CHMP and relevant management controls	GDP webviewer - CHMP

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10	Site	Confirm if GDP intersects or is within proximity to KHC/HMZ/HRZ.	Add relevant conditions to GDP in accordance with KHC/HMZ/HRZ requirements.	State site #
11	Activity	Confirm if the GDP activity trigger additional management controls, e.g. drill and blast activity	Specify additional controls for specified GDP activities. E.g. Blast Management Plan	GDP webviewer report - drill and blast
12	Activity/Tenement	Confirm no GDP activity within 10m of tenement boundary		GDP webviewer report - 10m tenement exclusion
13	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required
ENVIRONMET				
1	Fauna	Confirm if GDP intersects with significant fauna habitat	Add fauna survey requirements Add minimisation/avoidance conditions depending on status of habitat.	RH Rail Mainline requires a fauna survey to be completed within PSFH (Potential Significant Fauna Habitat) locations as outlined in MS847.
2	Fauna	Confirm if GDP intersects conservation significant fauna sites, e.g. Caves etc.	Exclude fauna sites from GDP or add management conditions	
2A	Fauna	Confirm if GDP intersects or is near conservation significant fauna sightings, e.g. quolls, northern brush-tailed wallaby	Add management conditions or include awareness material	For purposes of increasing awareness to mitigate roadkill, fauna deaths etc.
3	Flora	Confirm if GDP intersects priority flora, other taxa of interest or conservation significance.	Exclude flora sites from GDP or add management conditions	
3A	Vegetation	Confirm if GDP intersects TECs, PECs	Exclude TEC?PEC sites from GDP or add management conditions	
3B	Vegetation	Confirm if GDP intersects GDC, GDEs, IDEs, sheet flow dependent vegetation	Exclude GDV/GDE/IDE/sheet flow dependent sites from GDP or add management conditions	
4	Exclusion Zones	Does the GDP intersect any specified exclusion zones	Exclude exclusion zones from GDP or add management conditions	
5	Ground Water	Does the GDP intersect any monitoring bores	Exclude bores from GDP or add management conditions	
6	Ground Water	Does the GDP intersect any productions bores	Exclude bores from GDP or add management conditions, outline relevant water licence requirements	
7	Ground Water	Does the GDP involve the installations of bores	Add relevant bore water licence requirements and management controls	Include requirements to log water use if relevant
8	Contaminated Site	Does the GDP intersect with the any contaminated sites	Exclude site from GDP or add management conditions	
9	Rehabilitation	Does the GDP are area need to be rehabilitated	Add rehabilitation permit requirement condition	
10	Rehabilitation	Does the GDP intersect any rehabilitation monitoring sites	Exclude site from GDP or add management conditions	
11	Dust	Does the GDP require dust management control conditions	Add dust management control requirements	
12	Dust	Does the GDP intersect any dust/weather monitoring sites	Exclude site from GDP or add management conditions	
13	Clearing	Confirm which approval is to be undertaken and confirm clearing allocation	Add clearing allocation condition	Could be more than 1 approval. Allocation needs to satisfy all relevant approvals.
14	ASS	Does the GDP intersect any PASS sites	Exclude site from GDP or add management conditions	
15	Surface Water	Does the GDP intersect any monitoring sites	Exclude site from GDP or add management conditions	
16	Surface Water	Does the GDP require surface water management controls	Add relevant surface water management controls	
17	Mining Proposal	Confirm if the GDP is covered by a Mining Proposal	Add relevant MP management conditions, are the activity covered by MP	
18	Part V Licensing	Confirm if the GDP is covered by a Works Approval or Licence	Add relevant Part V management conditions - Division 2 clearing permit	
19	Part V Licensing	Confirm if the GDP is covered by a Works Approval or Licence	Add relevant Part V management conditions - Division 3 industry licence	
20	Part IV	Confirm if the GDP is covered by a Part IV approval	Add relevant Part IV management conditions	Includes: Ministerial Statement Minor or Preliminary Work Approval

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21	ESA	Confirm if the GDP intersects an ESA	Exclude site from GDP or add management conditions	make sure tenement conditions are reiterated e.g. potential for no clearing in 200m of ESA
22	PoW	Confirm if the GDP is covered by a PoW approval	Add relevant PoW management conditions, including PoW approval letter requirements and commitments made by the proponent in response to DEMIRS Request For Information during the PoW assessment process.	
23	Water Licence	Confirm if the GDP activity triggers the need for a water licence	Add relevant conditions to GDP	For the purpose of installing a bore, provide bore logs etc.
24	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required
25	EPBC	Confirm if the GDP is covered by an EPBC approval	Add relevant EPBC approval management conditions	
26	Eligible Mining Activity (EMA)	Confirm if the GDP is covered by an Eligible Mining Activity	Add standard EMA restrictions	Add as placeholder for forthcoming EMA approval mechanism to be introduced into the Mining Regulations 1981 shortly. EMAs will have standard conditions of approval (specified in Regs) and no one-off specific conditions. The conditions/limitations will need to be captured on GDPs as the EMA approval ends as soon as you step outside those limitations.
27	Health approvals	Confirm if the GDP is related to implementing an approval to construct or operate a sewage treatment facility	Add relevant approval management conditions	e.g. for dealing with constructing WWTP sprayfields
28	BC Act authorisations	Confirm if the GDP is covered by an authorisation under the <i>Biodiversity Conservation Act 2016</i> such as an authorisation to take or disturb threatened species (flora, fauna etc.)	Add relevant approval management conditions	e.g. for taking Threatened plants, impacting a TEC, doing certain works near endangered species habitats etc. (Note these approvals are typically not rendered unnecessary by Ministerial Statements, i.e. having a MS doesn't remove the requirement for these)
29	Exclusion or management zones	Confirm if the GDP intersects an exclusion zone or management zone	Exclude zone from GDP or add management conditions or limits to permitted activities	Intended to capture zones specified in approvals where certain activities are limited or not permitted.
30	Management plan commitments	Confirm if any commitments made in management plans apply to the GDP area	Exclude relevant areas from GDP or add management conditions/actions from plan	e.g. from a management plan conditions under a Ministerial Statement And the ECS for Contractors
LAND ACCESS AND TENURE				
1	GDP webviewer report	Run GDP webviewer report		Save copy of report to Sharepoint
2	Tenure	Confirm which tenure the GDP falls within.		GDP webviewer report - LIVE HPPL tenure
3	Tenure	Check tenure conditions, confirm if relevant tenure conditions need to be added as GDP conditions	Add relevant tenement conditions to GDP	Attach a copy of the tenement conditions
4	Third Party	Confirm if GDP intersects any third parties	Add third party notification requirements (contact details) as GDP condition.	GDP webviewer report - Third party tenure Attach a copy of the third party access agreement?
5	Third Party	Check third party access agreement, confirm if relevant tenure conditions need to be add as GDP conditions	Add relevant third party access agreement conditions to GDP	GDP webviewer report - state is GDP intersects with a land access agreement. create land access agreement layer
6	Leases	Confirm if GDP falls within a PPA lease or Licence	Add relevant PPA lease/licence conditions	GDP webviewer report - PPA lease and licence Attach a copy of the agreement

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7	Services	Confirm if GDP contains any services FOC, fence lines, pipelines etc.	Add relevant service conditions- Dial before you dig - Misc Licence	
8	Cadastre	Confirm if GDP contains any relevant cadastre boundaries	Add relevant cadastre boundary conditions	GDP webviewer report - cadastre
9	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required
1	GDP webviewer report	Run GDP webviewer report		Save copy of report to Sharepoint
2	Pastoral	Confirm if GDP falls within a Pastoral Lease	Add pastoral notification requirement(contact details) as GDP condition, if required	GDP report shall outline Pastoral lease
3	Pastoral	Confirm if Station Owner has additional requirements	Add pastoral requirements as GDP condition, if required	Mustering activity
4	Pastoral	Confirm if GDP overlaps with Pastoral restricted areas		GDP report shall outline Pastoral restricted areas - exclusions
5	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required
NATIVE TITLE				
1	GDP webviewer report	Run GDP webviewer report		Save copy of report to Sharepoint
	Native Title	Confirm which Native Title Group the GDP falls within		GDP webviewer report - Registered Native Title Claims, Registered Native Title Bodies Corporate (RNTBC), Native Title Determination
2	Native Title	Confirm if a Native Title agreement, Heritage Agreement and Community Agreement covers the GDP		
3	Native Title	Check Native Title agreement, confirm if relevant conditions/consent/notifications need to be added as a GDP conditions.	Add relevant Native Title Agreement (contact details) as GDP condition	
4	Reserves	Confirm if the GDP falls within a Part III Reserves (Community and/or Reserve)		GIS layer - update the Webviewer layer
5	Reserves	Confirm if relevant conditions/consent/notifications need to be added as a GDP conditions.	Add reserve condition requirement	
6	Native Title	Confirm if consent/notifications have previously been sent to the Native Title group	Advise if a notification is required prior to approving/commencing ground disturbance.	
7	GDP Map	Review GDP Map Product		Outline if changes to GDP Map Product is required

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Appendix 3 - GDP Standard Conditions

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#	Condition	Comment
GROUND DISTURBANCE		
1	The GDP Owner (or delegate) must be on site for the duration of clearing and grubbing activities associated with this GDP.	
2	The GDP Owner (or delegate) must be on site for the duration of ground disturbing activities associated with this GDP.	
3	The GDP Owner (or delegate) must be on site for the duration of rehabilitation activities associated with this GDP.	
4	The GDP Owner (or delegate) must ensure that the workers working under their Supervision understand the GDP controls prior to commencing work under the GDP.	
5	The GDP Owner (or delegate) must ensure all personnel working under the GDP have copies of the GDP, associated maps and relevant documentation stated in the controls.	
6	The GDP Owner (or delegate) must ensure the GDP is referenced as a control to Environmental, Heritage, Native Title and Land Access and Tenure risk assessments undertaken under their Supervision.	
7	The GDP Owner (or delegate) must ensure all workers working under their Supervision have completed GDP Awareness training prior to commencing work under the GDP.	
8	Stop work if at any time you have any uncertainty or concern that you may not be able to comply with the conditions of this GDP or associated procedures. Report your concern immediately to the GDP Owner. No further work can proceed until the GDP Owner has resolved your concern. If the GDP Owner is unable to resolve the concern, the GDP Owner must obtain written clarification and/or an amendment of the GDP via gdp@hanroy.com.au .	
9	Access to the work area is via existing cleared roads and access tracks, as shown on the GDP map.	
10	The only works authorised by this GDP are those described in the "Permitted Activities" section of this GDP.	
11	The GDP does not remove the requirement for other permits to be obtained (such as an Excavation and Penetration (dig) Permit).	
12	All works associated with this GDP must be within the approved GDP boundary(ies).	
13	Any Environmental, Heritage, Native Title and Land Access and Tenure hazards, near misses or incidents occurring from the GDP land use must be recorded within the incident management system.	
14	Ground Disturbing activities shall not be undertaken during a total fire ban without the relevant exemption/approval.	
15	All GDP demarcation must stay in place until the completion of works.	
16	Ensure a spotter is present during all clearing works (including maintenance) where clearing is being conducted within 10m of the GDP boundary(ies), tenure boundary and/or significant sites, unless the clearing equipment is fitted with a geofencing enabled device.	
17	Provide all disturbance data (i.e. drilling locations, pad clearing and access track) and rehabilitation data within 1 month of the activity completion to the HanRoy Ground Disturbance team (gdp@hanroy.com.au) and GIS Team (gis@hanroy.com.au and gis@hancockexplorationhq.com.au).	Only gis@hancockexploration if it is a RDG GDP
18	All works shall be undertaken in accordance with the conditions of this permit along with the following HanRoy procedures, as attached to the GDP workpack: - HanRoy Ground Disturbance Permit Procedure (HNR-00000-GD-PRO-0001) - HanRoy Significant Sites Demarcation Procedure (HNR-00000-GD-PRO-0002)	Attach procedure as GDP supporting document.
19	The boundary of the area approved under the GDP must be surveyed by an authorised surveyor (or delegate) and delineated with blue and white pegs or flagged with blue and white flagging tape at each corner point and at intervals no more than 30m apart or within line of sight between points.	HanRoy GDPs
20	The final 'as built' survey data of any infrastructure and services installed (bores etc) is to be supplied to the GIS Team gis@hanroy.com.au within one month of completion.	Only apply condition when infrastructure and services are being installed.
21	The boundary of the area approved under the GDP and significant sites must be uploaded to a geofencing enabled device. The GDP Owner must ensure all personnel working under the GDP carries the geofencing enabled device at all times whilst undertaking the works approved under this GDP.	Geomoby trial GDPs
HERITAGE		
GENERAL		
1	In the event of the discovery of potential new Aboriginal Cultural Heritage, all parties are to comply with the Newly Identified Aboriginal Cultural Heritage Procedure (HRN-00000-HE-PRO-0005).	attach a copy of the procedure
2	All identified Heritage Sites (HanRoy Heritage Sites, HanRoy Heritage Restriction Zones, DPLH Lodged Aboriginal Cultural Heritage sites and DPLH Registered Aboriginal Cultural Heritage sites) must be excised from the GDP area.	
3	All works must comply with the HanRoy Aboriginal Cultural Heritage Demarcation Procedure (HNR-00000-HE-PRO-0004).	attach a copy of the procedure
	All Heritage sites within 100m of the GDP boundary must be demarcated.	Due to limited field resources, it may be required for the GDP owner to facilitate heritage demarcation.

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	A Heritage Demarcation Request form (HRN-00000-HE-TEM-0003) is to be complete and returned to the Heritage Superintendent Michael Hutchings (michael.hutchings@hanroy.com.au) for the sites listed: [list sites]	attach a copy of the form
4	Contact the HanRoy Heritage team immediately should any heritage related issues arise: HanRoy Heritage Superintendent Michael Hutchings (michael.hutchings@hanroy.com.au).	
5	All ground disturbing works must be within the areas 'cleared' for work through ethnographic and archaeological Heritage surveys.	
6	[For helicopter assisted operations] Helicopter must not land within the boundary of heritage sites or heritage restricted zones.	
7	In the event of a Heritage incident all parties are to comply with the Aboriginal Cultural Heritage Incident Procedure (HRN-00000-HE-PRO-0001).	attach a copy of the procedure
8	A 10m buffer offset to the tenement boundary to be applied if the GDP encroaches a tenement boundary and the abutting tenement is not HPPL-managed and survey history is unknown.	
9	Use a geofence enabled devices if GDP works encroach a tenement boundary and the abutting tenement is not HPPL-managed and survey history is unknown.	
10	All works must comply with the HanRoy Drill and Blast near Aboriginal cultural Heritage Procedure (HNR-00000-HE-PRO-0002). No blasting activity is permitted until the blast management plan has been reviewed and approved by the Heritage team. All heritage sites within 500m of the GDP boundary are subject to a Blast Management Plan, including: [list sites]	attach a copy of the procedure
BANJIMA		
1	Banjima Traditional Owner Participants must be invited to the works. The GDP applicant must complete and submit a Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) least seven weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (paige.fairweather@hanroy.com.au). If Banjima participants are not able to attend, GDP works can proceed.	attach a copy of the form
2	A Banjima Traditional Owner Monitor is required to be present during initial grubbing/ground disturbance activity. A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least seven weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (paige.fairweather@hanroy.com.au).	attach a copy of the form
KARIYARRA		
1	GDP requires invitation of Kariyarra participants. Please complete Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) and submit to the HanRoy Heritage team (matthewderek.walsh@hanroy.com.au) quoting the GDP number. The Participation Request Form must be submitted at least two weeks prior to works commencing. In the event that Kariyarra participants are not able to attend, GDP works can proceed.	attach a copy of the form
YINDJIBARNDI		
1	No horizontal drilling under Yindjibarndi Heritage sites is permitted.	
2	Any existing tracks that pass through Yindjibarndi Heritage sites may be used for access only. No widening of the tracks is permitted	
3	Yindjibarndi representatives request that HanRoy avoid trees with a >25cm diameter when undertaking ground disturbance.	
4	[when recommend within a survey report] 2-4 Yindjibarndi Heritage Monitors must be engaged to accompany the works for the whole of the initial Ground Disturbing Activity, thereafter up to a maximum of two days per week to advise, to direct and assist in avoiding any Aboriginal Objects or Areas of Cultural Concern. Should Yindjibarndi Aboriginal Corporation not be able to provide a Heritage Monitors, written consent should be sought to proceed with Ground Disturbing Activities. A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least three weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (paige.fairweather@hanroy.com.au).	E47/1314, E47/1315, E47/2044, E45/3861 , E47/3052 attach a copy of the form
PALYKU		
1	[if the works are within the immediate vicinity of an Aboriginal Heritage Site] Palyku-Jartayi Aboriginal Corporation requires two (2) Palyku monitors be engaged to insure the proponent avoids impacts to the Aboriginal Heritage Site. A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least three weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (matthewderek.walsh@hanroy.com.au).	attach a copy of the form
NYAMAL		
1	[if the works are within the immediate vicinity of an Aboriginal Heritage Site] Nyamal Heritage Monitors are to be engaged to accompany exploration works within the vicinity of identified Heritage sites. A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least four weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (indiah.fogarty@hanroy.com.au).	attach a copy of the form
NGARLA		
1	Ngarla Heritage monitors are required for these works, as [choose reason below]	attach a copy of the form

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Ground Disturbance Permit Procedure

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	a) The Heritage Consultant, preliminary advice or Survey report has recommended Monitoring; or	
	b) the Parties agree that circumstances indicate a significant risk that sub-surface materials including burials might be encountered; or	
	c) the works are within the immediate vicinity of an Aboriginal Site, and the parties agree Monitoring is required to avoid risks to the Aboriginal Site.	
	A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least four weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (indiah.fogarty@hanroy.com.au).	
NYIYAPARLI		
1	[when recommend within a final survey report] Nyiyaparli Heritage Monitors are to be engaged to accompany exploration works within the vicinity of identified Heritage sites. A completed Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) must be submitted at least four weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (indiah.fogarty@hanroy.com.au).	R52/9, E47/4023, E47/4404 attach a copy of the form
2	A Nyiyaparli Traditional Owner Participant must be invited through KNAC to the initial ground disturbance/grubbing works. The GDP applicant must complete and submit a Traditional Owner Monitor/ Participation Request Form (HRN-00000-HE-TEM-0009) least four weeks prior to works commencing quoting the GDP number to the HanRoy Heritage team (indiah.fogarty@hanroy.com.au). If KNAC do not respond to the Traditional Owner Participant request, the ground disturbance works can proceed.	attach a copy of the form
ENVIRONMENT		
GENERIC		
1	Do not clear or disturb more than XX.X ha within the approved GDP Boundary (GDP-XYZ-123).	
2	All works must comply with the Environmental Compliance Standard (HNR-00000-EN-STD-0001) .	HanRoy GDPs only
3	13. Ensure all environmental incidents are reported to the HanRoy Environment team including: (a) spills (b) fauna impacts (c) ground disturbance incidents (d) fauna sightings (e) any other environmental incidents	
4	Implement the Weed Hygiene requirements to ensure all vehicles and equipment are free of weeds and seeds (HNR-0000-EN-TEM-014).	
5	The activity must not cause erosion and transportation of sediments within or outside of the GDP boundary.	
6	Clearing to be restricted to certain weather conditions where excessive dust is not likely to be generated and/or during rainfall events.	
7	No clearing of vegetation is approved under this GDP.	
PoW		
1	Works undertaken within the GDP area are to be completed in accordance with PoWxxxxxxx , as attached to the GDP workpack.	Attach PoW to GDP
2	Works undertaken within the GDP area are to be completed in accordance with Excess TonnageXXXXX , as attached to the GDP workpack.	Attach excess tonnage to GDP
3	Do not remove more than XXXXXtonnes within the approved GDP Boundary (GDP-XYZ-123).	
4	Raised blade clearing is to be used where practical.	
5	If any significant fauna sites (Bilby, Pilbara Mound mouse etc.) are encountered during works, works must cease immediately, and a member of the HanRoy Environment Approvals team (environment.approvals@hanroy.com.au) is to be contacted. Works may resume following removal of the significant fauna species from the site, or excising Pilbara Pebble Mound mouse's mound with 20m buffer from proposed clearing area, or as directed by the HanRoy Environment team.	
6	Topsoil and vegetation stockpiled appropriately for use in rehabilitation.	
7	Clearing activities shall not be commenced until a targeted flora survey is completed, or unless otherwise directed by the HanRoy Environment Team.	
8	Excavations (sumps, test pits, costeans etc.) must be appropriately ramped to allow fauna egress.	
9	Excavations (sumps, test pits, costeans etc) are to be backfilled or appropriately made safe following completion of works.	
10	Surface holes drilled for the purpose of exploration/investigation are to be capped, filled or otherwise made safe immediately after completion.	
11	All groundwater intercepted during drilling and/or drilling water appropriately stored and contained (e.g. within sumps or tanks).	
12	Management measures implemented to minimise risk of hydrocarbon spillage (e.g. use of liners and drip trays under drill rigs). Hydrocarbon spill kits must be available, and any spills are to be reported to the HanRoy Environment Approvals team (environment.approvals@hanroy.com.au) and cleaned as per their instructions.	
13	A HanRoy Rehabilitation Permit will be required to rehabilitate, test pit pads, drill pads and LV access tracks, submit the HanRoy Rehabilitation Permit Application Form (HNR-00000-EN-TEM-016) at least 4 weeks prior to any proposed rehabilitation works to any proposed rehabilitation works to the HanRoy Environment Approvals team (environment.approvals@hanroy.com.au) to apply for a Rehabilitation Permit.	

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14	All ground disturbing activities undertaken for the purposes of exploration/investigation are to be rehabilitated within 6 months of the works being completed, unless otherwise approved by the HanRoy Environment Approvals team.	
15	The GDP Applicant/Owner conducting the Works shall track and record excess tonnage. Excess tonnage data is to be reported weekly to the Environment Approvals team (environment.approvals@hanroy.com.au).	Only applicable for HanRoy GDPs. HPPL Compliance Team track excess tonnage.
16	Provide geotagged photos before, during and after of activities as authorised under this GDP to the Environment Approvals team (environment.approvals@hanroy.com.au).	Only applicable for HanRoy GDPs.
17	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the GDP prior to or at the termination of the works.	
18	No more than two hectares of scrape and detecting and dry blowing operations will be open (meaning disturbed without rehabilitation works being completed) at any one time.	
19	Avoid significant vegetation (e.g. large trees and dense patches of vegetation).	
20	Drill sample piles rehabilitated or buried.	
21	Block access to rehabilitated tracks.	
22	Compacted areas such as access tracks, core farms, camp sites, etc., rehabilitate in an appropriate manner (e.g. deep ripped, scarified).	
23	Appropriate erosion control implemented in rehabilitation (contour ripping, managing runoff, etc.)	
24	If any conservation significant environmental flora/fauna (including pebble mouse mounds) are identified, the HPPL RDG Compliance Team (fieldcompliance@hancockexplorationhq.com.au) are to be notified. The location needs to have spatial data recorded and sent to HPPL GIS (GIS@hancockexplorationhq.com.au).	
MCPHEE		
1	All bores within the GDP area must be avoided, these include: ****list bore/s****	
2	Night-time vehicle movements shall be restricted where possible to minimise the potential for vehicle strikes.	
3	Topsoil shall not be pushed to areas where access to topsoil is cut off.	
4	Ensure stockpiled topsoil is not trammed over / disturbed.	
5	Topsoil shall not be used for windrows or pushed to areas where access to topsoil is cut off.	
6	Ensure roads are constructed in such a manner so as not to disrupt or have detrimental impact on the natural water flow in drainage lines/creeks, as shown on GDP map.	
7	Environmental and Heritage Management Plan (PRJ0172-COR-5130-EN-C01-0001)	
8	Environmental Management Plan (PRJ0172-PRG-5000-EN-C01-0001)	
9	All blasting for the mining operations must be undertaken during daylight hours to minimise noise and vibration impacts to protected matters.	
10	Blasting vibration levels at 100 mm/s or at or over at the receiver will trigger a non - compliance reportable event - in event of this occurring work will cease until a time the project can process with can conduct an incident investigation.	
11	Blasting vibration levels at 85mm/s or over at receiver shall trigger a change in process and a review of operations.	
12	Must ensure that all required artificial lighting use directional and/or shielded lighting and use the minimum number and intensity of lights required.	
13	Ensure adequate dust suppression is implemented and restrict clearing under certain weather conditions where excessive dust is likely to be generated.	
14	Ensure topsoil is stripped to minimum depth of 200 mm below the natural surface, where available, or unless otherwise stated in GDP conditions.	
15	Ensure stockpiled topsoil is not trammed over / disturbed.	
16	Moving and storing of any existing topsoil stockpiles must be done in accordance with the (950-EN-PRO-00042) Clearing and Grubbing Procedure, (950-EN-PRO-0015) Weed Hygiene Procedure and the HanRoy Topsoil and Subsoil Tracking Form (HNR-00000-EN-TEM-00005).	
17	Topsoil shall not be used for windrows or pushed to areas where access to topsoil is cut off.	
18	Ensure all spills (regardless of volume) are reported to the Environmental team (mcphee.enviro@hanroy.com.au) within 24 hours using the Unscheduled Liquid Discharge Form (950-EN-FRM-0007) and cleaned up appropriately.	
19	Ensure all fauna deaths and injuries are reported to the Environmental team (mcphee.enviro@hanroy.com.au) within 24 hours using the Fauna Impact Form (950-EN-FRM-0006).	
20	All blasting for the mining operations must be undertaken during daylight hours to minimise noise and vibration impacts to protected matters.	
21	All water use in the clearing activities should be recorded and reported to environmental team (mcphee.enviro@hanroy.com.au).	
22	No adverse impacts to surface water quality within McPhee Creek, Branch of McPhee Creek and Lionel Creek.	

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23	No adverse impacts to permanent and semi-permanent surface water pools within McPhee Creek, Branch of McPhee Creek and Lionel Creek outside of the development envelope.	
24	Any trenches left open overnight must have appropriate fauna egress points installed.	
LAND ACCESS AND TENURE		
GENERIC		
1	The GDP Applicant and/or Owner (or delegate) must obtain all external approvals required for fly-over activity, e.g., CASA approvals.	
2	The GDP Applicant and/or Owner (or delegate) conducting the Works must ensure all Works and activities are undertaken in accordance with tenement conditions associated with [insert tenement ID#] as attached to the GDP workpack.	attach tenement conditions
3	The GDP Applicant and /or Owner (or delegate) conducting the Works must ensure a 'Dial before you Dig' is completed prior to commencing works under this GDP.	
4	The GDP Applicant and/or Owner (or delegate) conducting the Works must ensure all Works and activities are undertaken in accordance with land access conditions associated with [insert land access agreement ID#] as attached to the GDP workpack.	attach land access agreement conditions
5	The GDP Applicant and/or Owner (or delegate) conducting the Works must ensure all Works and activities are undertaken in accordance with land access conditions associated with [insert PPA agreement ID#] as attached to the GDP workpack.	attach PPA agreement conditions
GENERIC		
1	The GDP Applicant and/or GDP Owner (or delegate) conducting the Works must ensure there is no impact or interference to existing services or infrastructure, including but not limited to fencelines, survey control points, water bores as shown on the GDP map, unless the approved SoW is directly connected to the existing service/infrastructure.	
MULGA DOWNS STATION		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	
3	The Mulga Downs Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited. For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.	
HOOLEY		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	
3	The Hooley Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited. For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.	
MT FLORANCE		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	

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Ground Disturbance

	<p>The Mount Florence Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited.</p>	
3	For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.	
4	No helicopter or airborne activities are to take place on Mt Florence Station, this is a non negotiable instruction from the station owners.	
BONNEY DOWNS		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	
	<p>The Bonney Downs Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited.</p>	
3	For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.	
CORUNNA DOWNS		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	
	<p>The Corunna Downs Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited.</p>	
3	For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.	
DE GREY		
1	Gates must be left in the state found i.e. if closed, you must close gate once you go through and if open then they must be left open.	
2	Please contact the Stakeholder Engagement Team stakeholder@hanroy.com.au for any pastoral matters, if time critical, please contact Adrian Mudronja on 0427 109 580.	
	<p>The DeGrey Station pastoral team may be undertaking annual mustering during your GDP period, there may be road diversions and closures. Mustering will involve helicopters flying at low levels, supported by mustering vehicles including buggies, motorbikes, quad bikes and horses, with pastoral station personnel on the ground. It is essential that any interaction between mustering and project vehicles, equipment and personnel be minimised. If helicopters are seen in the immediate vicinity or should anyone find themselves close to or within the mustering area, they must return to vehicle or building. If moving, park up immediately until the cattle and muster crew have passed, which should only take between 5-10 minutes. Under no circumstances is anyone to leave their vehicles if they are in the vicinity of mustering, nor are they to drive towards or near cattle that are moving with this muster. Photography is also prohibited. For animal welfare, all efforts must be made to ensure loaded cattle trucks are not stopped and they are allowed to continue on their way.</p>	
3		
NATIVE TITLE		
GENERIC		

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1	No conditions.
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Conservation Significant Fauna Management Plan

Mulga Downs Iron Ore Mine – Western Australia

4. Mulga Downs Night Parrot Habitat Mapping (Spectrum, 2025)

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8 August 2025

RE: Mulga Downs Night Parrot Habitat Mapping

Dear Sarah,

Spectrum Ecology & Spatial (Spectrum) was commissioned by JBS&G on behalf of HanRoy to complete a targeted fauna survey at the Mulga Downs Iron Ore Project (MDIOP) in 2024 (Spectrum, 2024). One aspect involved determining the occurrence or likely occurrence of the Critically Endangered Night Parrot (*Pezoporus occidentalis*). The purpose of this survey was to supplement data obtained in previous detailed and targeted surveys within and surrounding the MDIOP (ecologia, 2021; Biologic, 2022b, 2022a), to support Environmental Impact Assessment.

Methodology and Results Synopsis

The Night Parrot component was conducted in accordance with the Interim guideline for preliminary surveys of night parrot (DPAW, 2017), which was current at the time of the survey. Three habitat types were targeted during survey. These were defined and identified as potentially suitable by Biologic & ecologia (Table 1; ecologia, 2021; Biologic, 2022b, 2022a), and included claypan habitat, as requested by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Table 1: Night Parrot habitat identified by ecologia, Biologic and DCCEEW

Habitat type	Potential nesting and roosting	Potential foraging
Stony Plains and Slopes that support dense, mature <i>Triodia</i>	X	X
Chenopod/Cracking Clay	-	X
Claypan	-	X ¹
Drainage Area/Floodplain, where dense, mature <i>Triodia</i> is present	X	X

¹ = (DCCEEW, 2022)

A desktop habitat assessment was conducted, and subsequently 18 passive acoustic recorders were deployed for 131 recording nights, totalling 1,572 recording hours. Within the broad habitats outlined in Table 1, recorders were placed in proximity to long unburnt *Triodia* (potential breeding and roosting habitat), and within potential foraging and drinking habitat. Not all potentially suitable areas were sampled, as this was impractical in the allotted timeframe. Additionally, habitat assessments and sampling was previously conducted by ecologia (2021) and Biologic (2022b, 2022a). Finally, access was limited at the time of the survey due to flooding and heritage restrictions.

The report conveyed that dense, mature *Triodia* hummocks were present in isolated areas, but the majority of potential habitat in the Survey Area was degraded due to cattle and/or exploration activities (Spectrum, 2024). Night Parrots were not recorded in the Survey Area, but it was deemed that they may potentially occur intermittently for foraging and dispersal activities, but are unlikely to breed or roost in the Survey Area due to the absence of optimal habitat (Spectrum, 2024).

The potential survey limitations related to Night Parrots were unintentionally omitted from the targeted report (Spectrum, 2024). These limitations are now provided in Table 2.

Table 2: Survey limitations

Potential Limitation	Limitation Applicable	Comment
Availability of the contextual information at a regional and local scale.	Yes	Although the survey was conducted adequately, based on accepted survey methodologies, there is a paucity of regional data in respect to Night Parrots, as very few records exist. Additionally, survey guidelines were not publicly available at the time of the survey (DBCA, 2024; Leseberg and Burbidge, 2024).
Competency/experience of the consultant carrying out the survey including experience in bioregion surveyed.	No	The Spectrum team has appropriate experience conducting surveys in Pilbara bioregion. Acoustic recordings were sent to Night Parrot expert Dr. Nick Leseberg (Adaptive NRM) for analysis.
Timing/weather/season/cycle.	Partial	The survey was conducted following wet season rainfall, which provides optimal conditions for Night Parrot breeding. While weather conditions were generally favourable throughout the survey, periods of windy weather occurred, which may have affected the performance of recording devices used to detect Night Parrots.
Disturbances (e.g., fire, flood, accidental human intervention) which affected results of survey.	Yes	A significant portion of the Survey Area was affected by flooding and was consequently inaccessible.
Remoteness and/or access problems.	Yes	A helicopter was used to access the Survey Area. However, access was restricted due to flooding and heritage sites.
The proportion of the task achieved and further work which might be needed.	Yes	Acoustic recorders could not be deployed in the claypan habitat due to flooding and heritage constraints. A landscape scale desktop study may be necessary in line with the 2024 Night Parrot guidelines (DBCA, 2024), which was made public following the survey.

Revised Night Parrot Guideline

In 2024, the interim guideline for preliminary surveys of Night Parrot (DPaW, 2017) was replaced with the guidelines for determining the likely presence and habitat usage of Night Parrot (DBCA, 2024). The updated guideline provides improved survey methodology, informed by contemporary records and research since 2017 that have enhanced understanding of the species' habitat preferences.

In consideration to the revised Night Parrot guidelines (DBCA, 2024), DCCEEW categorises two main habitat types critical to the survival of Night Parrots (Leseberg and Burbidge, 2024).

1. **Critical breeding and roosting habitat:** old growth, long unburnt, dense hummock-forming spinifex in open areas with few trees, or practically treeless. Regarded as irreplaceable habitat (Table 3).
2. **Critical foraging habitat:** within 10 km of breeding and roosting habitat. Paleo-drainage lines, ephemeral grasslands, chenopod herb-fields or samphire, gilgais, run-on areas, floodplains, floristically diverse salt lake systems, or areas of high soil moisture sustaining succulent vegetation.

Table 3: Night Parrot critical breeding and roosting habitat attributes.

Factor	Attribute
<i>Triodia</i> characteristics	Ring forming species (typically long unburnt, but not limited by fire age).
	'Coral reef' pattern 'sausage' shapes on the satellite or aerial imagery view.
	Minimum hummock height of 40 cm.
	Structurally complex with a mix of hummock sizes.
	Fragmented with natural 'fire barriers.'
Landform	Often associated with shallow depressions or paleodrainage lines.
	Roosting and foraging habitat typically occurs on flat or gently sloping ground.
Trees/Shrubs	Preference for treeless plain without shrubs. May occur on lightly wooded plains.
<i>Triodia</i> at landscape scale	Suitable patches of <i>Triodia</i> are widespread at the landscape scale (within 10 km of Survey Area).

Adapted from Leseberg and Burbidge (2024).

Spatial Data

Original habitat mapping was prepared by ecologia (2021) and Biologic (2022b, 2022a). Spectrum characterised and assessed prospective Night Parrot habitat during the survey, but only point data were collected in accordance with DPaW (2017).

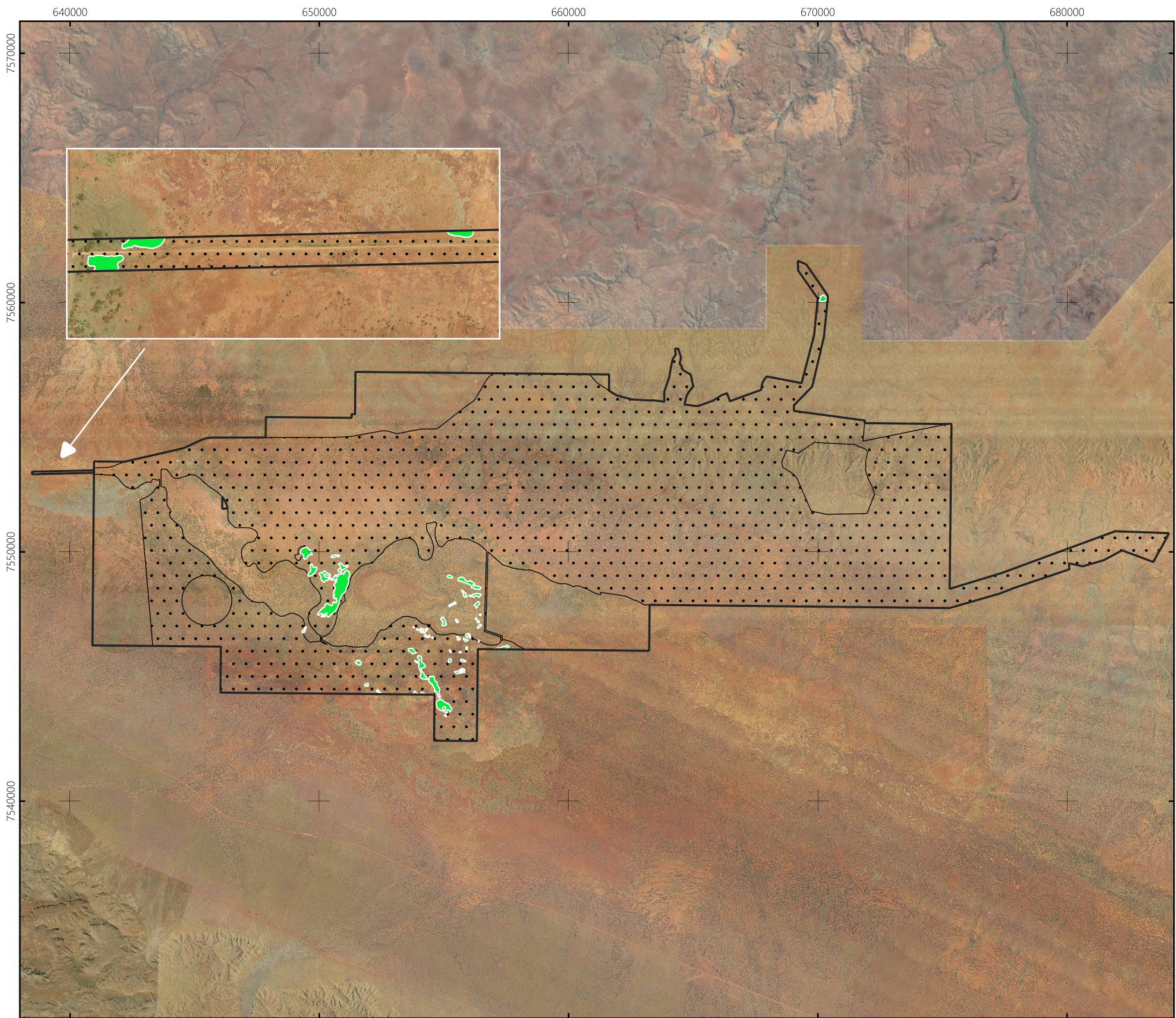
In response to your email dated 30 July 2025, we carried out broad mapping of potential breeding and roosting habitat, using the criteria outlined in Table 3, and applied them as far as practicable based on available aerial imagery. Approximately 242 hectares were identified as potentially suitable habitat, representing around 0.7% of the Survey Area (Map 1, data supplied).

Recommendations

It is important to note that the above assessment was conducted retrospectively as a desktop study, with comprehensive field verification of potentially suitable habitat only partially completed during the surveys. For areas of mapped habitat that may be subject to future disturbance, it is recommended that targeted on-ground surveys be carried out in accordance with the revised Night Parrot survey guidelines (DBCA, 2024).

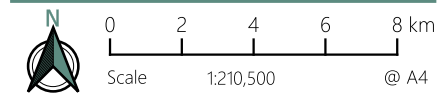
Yours sincerely,
Georgia Ford
Senior Zoologist

© Spectrum Ecology Pty Ltd
PO Box 314 Leederville WA 6902
Ph: (08) 9317 8233
w: www.spectrumecology.com.au
e: info@spectrumecology.com.au



Legend

- Spectrum 2024 Survey Area
- MDIOM Development Envelope
- Potential Breeding & Roosting Habitat



Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator
 Units: Metre



Author: GF

Date: 08-08-2025

Night Parrot Habitat

MAP

Prepared for
 JBS&G | HanRoy

1

References

- Biologic (2022a) Mulga Downs Iron Ore Mine: Mulga West Borefield and Mulga East Southern Corridor Terrestrial Fauna Survey. Unpublished report prepared for Strategen-JBS&G. Biologic Environmental Survey.
- Biologic (2022b) Mulga Downs Iron Ore Project: Transport Corridor to Great Northern Hwy Terrestrial Fauna Survey. Unpublished report prepared for Strategen-JBS&G. Biologic Environmental Survey.
- DBCA (2024) Guidelines for determining the likely presence and habitat usage of Night Parrot (*Pezoporus occidentalis*) in Western Australia. Department for Biodiversity Conservation and Attractions.
- DCCEEW (2022) Guidelines for the Content of a Draft Public Environment Report: Mulga Downs Iron Ore, Mine, WA (Reference: EPBC 2022/9255). Canberra: Department of Climate Change, Energy, the Environment and Water.
- DPaW (2017) Interim guideline for preliminary surveys of night parrot (*Pezoporus occidentalis*) in Western Australia. Department of Parks and Wildlife.
- ecologia (2021) Mulga East Baseline Terrestrial Fauna Vertebrate Fauna Assessment. Unpublished report for Hancock Prospecting Pty Ltd. Ecologia Environment.
- Leseberg, N. and Burbidge, A. (2024) 'Guidelines for determining the presence of Night Parrot (*Pezoporus occidentalis*) in Western Australia. Workshop presentation.'
- Spectrum Ecology & Spatial (2024) Mulga Downs Iron Ore Mine - Targeted Bilby & Night Parrot Survey. Unpublished report for JBS&G | HanRoy. Spectrum Ecology & Spatial.