

Darren Walsh  
Chair, Environmental Protection Authority  
Prime House, 8 Davidson Terrace Joondalup,  
Western Australia 6027  
Telephone: (08) 6364 7000 | Email: info.epa@dwer.wa.gov.au

24 March 2025

Dear Darren,

**Response to request for further information Robe Mesa Project (10/3/2025). APP-0027770 and RFI-0000690).**

In response to your letter on the 10 March 2025, CZR Resources (CZR) wish to provide further information in the assessment of the Robe Mesa Project.

CZR considers assessment via the Native Vegetation Clearing Permit (NVCP) process, under Section 51(E) of the EP Act, to be the most appropriate approval pathway for the Robe Mesa Project.

Baseline studies since 2020 have contributed significantly to the scientific understanding of environmental significance within the project area and allowed CZR to design the Robe Mesa Project in a way that identifies, prevents, and minimises adverse environmental impacts. The results of these investigations, along with consultation and risk assessment, have all been considered in the design of the project and the decision to seek a NVCP.

As part of the process to seek approvals for the Project, CZR has, amongst other things, submitted native vegetation clearing permit CPS 10248/1 (NVCP) and mining proposal MP 120354 (Mining Proposal) to the Department of Energy, Mines and Industry Regulation and Safety (DEMIRS) for assessment.

The NVCP includes detailed information and modelling in respect of the following environmental factors:

- climate;
- geology and landforms;
- soils and waste characterisation;
- landsystems;
- groundwater assessment, including water use/ balance and drawdown modelling,
- surface water assessment, including catchment and watercourses impact assessment and flood modelling;
- vegetation mapping and detailed assessment of conservation significant and groundwater dependent vegetation;
- flora, including conservation significant species and weeds;
- terrestrial fauna assessment, including habitat mapping, fauna assemblages surveys, significant terrestrial fauna searches, including Northern Quoll, conservation significant bats, Pilbara Olive Python, night parrot;
- noise assessment;
- subterranean fauna, including troglofauna and stygofauna assessments
- Priority ecological community assessment, including *Triodia pisolitica* communities of mesa landforms and Subterranean communities of the Robe Valley;
- Troglofauna habitat volume calculations, and loss and fragmentation assessment;

- Greenhouse gas emissions assessment
- Indigenous Cultural Heritage; and
- Non-indigenous and natural heritage.

The Mining Proposal includes detailed information and modelling in respect of the following:

- key mining and operational activities to be undertaken on each tenement;
- stakeholder engagement and access agreements;
- RRKAC consultation;
- climate;
- landscape;
- materials classification;
- biodiversity;
- hydrology;
- heritage;
- environmental threats and risk assessment;
- environmental management system;
- mine closure plan;
- detailed flora and vegetation assessment and survey;
- road realignment and vegetation consolidation;
- fauna assessment;
- environmental noise assessment;
- Troglifauna assessment;
- short range endemic invertebrate survey;
- surface water modelling; and
- road surface water assessment.

An Environmental Management Plan has also been developed for the Robe Mesa Project, in conjunction with Biota Environmental Sciences (CZR and Biota 2024). The plan provides a list of environmental outcomes to manage key environmental factors. Management and monitoring actions are assigned to these outcomes to measure their performance.

By avoiding core habitat for many of the conservation significant species, implementing our adaptive management EMP that responds to ongoing monitoring, adopting measures detailed in the management and monitoring procedures developed by CZR, and through provisions under other (WA State) regulatory mechanisms (such as the EP Act, RIWI Act, *Mining Act 1978* (Mining Act), *Aboriginal Heritage Act 1972* (AH Act)), CZR is of the view that the Robe Mesa Project can be implemented without material risk the environmental values of the area.

CZR has prepared a response document below, which addresses the key requests for further information in the following sections


- Section 1: EPA Referral Form provides information in the EPA requested format
- Section 2: Robe Mesa Project provides some context about the Project and the work that has been undertaken as part of CZRs environmental impact assessment.
- Section 3: Stakeholder Consultation summary
- Sections 4-7: Cumulative Impacts Robe River Valley, Statutory Decision-Making Processes, Provision of Spatial Data and Provision of IBSA Data Package

- Section 8 Supporting Documentation including NVCP, Mining Proposal submission to DEMIRS and other important documentation such as a copy of the redacted Principal Agreement with RRKAC for Robe Mesa Project and the Cultural Heritage Management Plan and Environmental Management Protocol.

**Table 18** contains CZR responses to items raised by RRKAC in their Part IV submission.

Please contact either myself ([stefan.murphy@cZRresources.com.au](mailto:stefan.murphy@cZRresources.com.au)) or Dr Michelle Carey, Environmental Approvals ([michelle.carey@cZRresources.com.au](mailto:michelle.carey@cZRresources.com.au)) if you have any queries.

Yours sincerely,



**Stefan Murphy**

Managing Director  
CZR Resources Ltd



Suite 9, Level 3, 47 Havelock Street, West Perth WA 6005  
PO Box 16, West Perth WA 6872 | 0477 711 437 | (08) 9468 2050

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# 1. EPA Form

In preparing the requested information, the EPA’s guidelines, procedures and instructions, including the submission form format have been replicated in Section 1.1 and Section 1.1.6 of the submission, with further details provided in subsequent sections.

Although the information below highlights relevant environmental factors for the Robe Mesa Project, after doing the baseline surveys and conducting appropriate risk assessments and implementing appropriate management plans, **CZR believe that the project environmental assessment does not warrant a Part IV assessment and can be managed through the current DEMIRS Native Vegetation Clearing Permit process.**

There are 6 factors (Flora and Vegetation, Landforms, Subterranean Fauna, Terrestrial Fauna, Inland Water and Social Surroundings) deemed as possible key environmental factors, however upon completion of field surveys, technical investigations, and industry subject matter expert opinion, these factors can be appropriately managed. In summary, none of the EPA’s 14 environmental factors are identified as preliminary key factors for this proposal, but for the purposes of the RFI the below table has been completed with supporting information provided below as requested.

## 1.1. Assessment of Relevant Environmental Impacts

**Table 1 Environmental Factor Summary**

Possible Environmental factors	
What are the <u>relevant</u> environmental factors for this proposal?	<input type="checkbox"/> Benthic Communities and Habitat <input type="checkbox"/> Coastal Processes <input type="checkbox"/> Marine Environmental Quality <input type="checkbox"/> Marine Fauna <input checked="" type="checkbox"/> Flora and Vegetation <input checked="" type="checkbox"/> Landforms <input checked="" type="checkbox"/> Subterranean Fauna <input type="checkbox"/> Terrestrial Environmental Quality <input checked="" type="checkbox"/> Terrestrial Fauna <input checked="" type="checkbox"/> Inland Waters <input type="checkbox"/> Air Quality <input type="checkbox"/> Greenhouse Gas Emissions <input checked="" type="checkbox"/> Social Surroundings <input type="checkbox"/> Human Health

**Table 2 Preliminary identification of key environmental factors summary**

Objective	Activities and preliminary unmitigated potential impacts and relevance to the proposal	Key Factor
<b>LAND</b>		
<b>Flora and Vegetation</b>		
To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	See Section 1.1.1 Flora and Vegetation	No
<b>Landform</b>		
To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected.	See Section 1.1.2 Landforms	No
<b>Subterranean Fauna</b>		
To protect subterranean fauna so that biological diversity and ecological integrity are maintained.	See Section 1.1.3 Subterranean Fauna	No
<b>Terrestrial Fauna</b>		
To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	See Section 1.1.4 Terrestrial Fauna	No
<b>WATER</b>		
<b>Inland Water</b>		
To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.	See Section 1.1.5 Inland Waters	No
<b>PEOPLE</b>		
<b>Social Surroundings</b>		
To protect social surroundings from significant harm.	See Section 1.1.6 Social Surroundings	No

### 1.1.1. Flora and Vegetation

**Table 3 Environmental Factor Flora and Vegetation**

Potential environmental impacts for Flora and Vegetation	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of Environmental Principles, Factors and Objectives (EPA, April 2023)</li> <li>• Environmental Factor Guideline: Flora and Vegetation (EPA, December 2016)</li> <li>• Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, December 2016)</li> <li>• Guideline Native vegetation clearing referrals Native vegetation clearing activities regulated under the Environmental Protection Act 1986 and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (DWER, October 2021)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Procedures Manual 2021 (EPA, December 2024)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Administrative Procedures (EPA, December 2024)</li> <li>• Taking decision making processes into account in EIA Interim Guidance (EPA, October 2021)</li> <li>• Environmental outcomes and outcomes-based conditions Interim Guidance (EPA, October 2021)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<ul style="list-style-type: none"> <li>• The primary landforms found throughout the survey area comprised:               <ul style="list-style-type: none"> <li>- Drainage lines, ranging in scale from major drainages supporting riparian Eucalyptus, Acacia and Melaleuca open forests and woodlands, through to minor drainages of scattered <i>Corymbia hamersleyana</i> over mixed Acacia shrubs and <i>Triodia epactia</i>;</li> <li>- Hills and slopes with stony substrates supporting spinifex hummock grasslands; these usually had an overstorey of Acacia spp. and Senna spp. shrubs over a hummock grassland typically dominated by <i>Triodia wiseana</i>;</li> <li>- Stony or gravelly plains, sometimes with clay soils, supporting Snakewood (<i>Acacia xiphophylla</i>) shrublands over tussock/annual grasses; and</li> <li>- Stony or gravelly plains higher in the landscape supporting spinifex hummock grasslands with a sparse to open cover of shrubs and occasional <i>Corymbia</i> trees.</li> </ul> </li> <li>• The condition of the vegetation ranged from 'Excellent' to 'Completely Degraded', with most (over 95%) ranked from 'Very Good' or better condition. Poor condition sites are generally associated with existing tracks and other pastoral infrastructure.</li> <li>• A total of 422 confirmed native flora species from 161 genera. The most common families recorded included Fabaceae, Malvaceae, Poaceae, Asteraceae, Amaranthaceae, Chenopodiaceae, Convolvulaceae, Cyperaceae.</li> <li>• One Priority flora, <i>Triodia pisolitica</i>, was recorded within the project area. Note, At the time of assessment, three Priority species were confirmed from the surveys, <i>Eragrostis crateriformis</i> (P3), <i>Goodenia nuda</i> (P4) and <i>Triodia pisolitica</i> (P3). Since assessment in 2025, DBCA have updated the Priority list and subsequently removed both <i>Eragrostis crateriformis</i> and <i>Goodenia nuda</i> from priority flora status.</li> </ul>

<p><b>Likely environmental impacts</b></p>	<p>Direct Impact</p> <ul style="list-style-type: none"> <li>• Loss of native vegetation from land clearing and ground disturbance, including unauthorised clearing outside approved clearing extent</li> <li>• Loss of conservation significant flora and vegetation from land clearing and ground disturbance</li> </ul> <p>Indirect Impacts</p> <ul style="list-style-type: none"> <li>• Decline in vegetation condition due to: <ul style="list-style-type: none"> <li>- Fragmentation from linear infrastructure</li> <li>- Altered hydrological regimes</li> <li>- Introduction and/or spread of weed species</li> <li>- Increased dust deposition</li> <li>- Changes to current fire regimes</li> </ul> </li> </ul>
<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to flora and vegetation will include:</p> <ul style="list-style-type: none"> <li>• Native Vegetation Clearing Permit will authorise clearing extent and disturbance boundaries.</li> <li>• Mining Proposal will manage weeds, surface hydrology, fire and dust related impacts through the mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10) during operations.</li> <li>• Environmental Management Plan (Section 3) also addresses management actions associated with vegetation and flora values.</li> <li>• Mine Closure Plan will prescribe completion criteria to achieve rehabilitation success in the post mine environment.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to flora and vegetation will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• Except for access ramp points, designs will avoid disturbance to vegetation and flora associated with in-tact mesa escarpments.</li> <li>• Final mine pit design to also avoid sensitive flora and vegetation of other nominated ‘no-go’ areas.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Limit the magnitude of land clearing. The initial (April 2023) NVCP application sought to clear 277 ha within a larger 2,254 ha disturbance envelope. A modified resubmission (June 2023) substantially restricted the disturbance envelope to 902 ha and further removed 7ha from the disturbance footprint.</li> <li>• The extent of vegetation clearance will be limited to necessary operational areas, with strict clearing limits in sensitive zones.</li> <li>• Internal ground disturbance permitting procedures will be implemented to manage all land clearing activities.</li> <li>• Dust suppression techniques, such as water carts and speed limits, will be applied to minimise dust impacts, as described in the Mining Proposal and EMP.</li> <li>• A comprehensive weed management strategy, including vehicle hygiene procedure will be implemented to control the introduction and spread of weeds.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan outlines post mine land use. Progressive rehabilitation will also occur within the mine life and the pit will be progressively back-filled with waste.</li> </ul>

<b>Assessment and significance of residual impacts</b>	<ul style="list-style-type: none"> <li>• No Threatened Flora or Threatened Ecological Communities.</li> <li>• Vegetation is widely distributed across the west Pilbara.</li> <li>• One Priority Flora species (<i>Tridodia pisolitica</i>) was recorded on site and is widely distributed.</li> <li>• Offsets are likely to be conditioned as part of the NVCP process.</li> </ul>
<b>Likely environmental outcomes</b>	<ul style="list-style-type: none"> <li>• The flora and vegetation biological diversity and ecological integrity are maintained.</li> <li>• Clearing of up to 270 ha of native vegetation, considered widespread within the region.</li> <li>• The proposed disturbance footprint (270 ha) is a relatively small footprint for the Pilbara region, representing 0.005% of the Hamersley subregion</li> <li>• No listed Threatened flora species, TECs or PECs are present</li> <li>• Removal of 21 recorded locations of <i>Tridodia pisolitica</i>, representing 5.1% of the surveyed recorded locations of this species in the project area. More broadly, regional surveys of <i>Tridodia pisolitica</i> have recorded the species widespread throughout the mesas of the West Pilbara region.</li> <li>• Weeds, dust deposition and fire will be managed within the disturbance envelope with the application of standard weed, dust, waste management, and hot work management measures, as outlined in the EMP and Mining Proposal.</li> <li>• <b>Vegetation and flora will be managed through the implementation of the EMP and controlled by conditions that would be set on the proposal by Native Vegetation Clearing Permit.</b></li> </ul>
<b>Holistic impact assessment</b>	
Refer to Section 1.1.6 (Holistic assessment)	
<b>Cumulative environmental impact assessment</b>	
Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)	
<b>Consultation</b>	
Refer to Section 3 (Stakeholder Consultation)	
<b>Supporting documents</b>	
<ul style="list-style-type: none"> <li>• Investigations/ Studies: <ul style="list-style-type: none"> <li>- Detailed Flora and Vegetation Assessment – Robe Mesa and Robe East extension. RPS Group (2021)</li> <li>- Detailed Flora and Vegetation Survey – Robe Mesa Project. Biota Environmental Sciences (2023)</li> <li>- Follow-up Vegetation mapping of southern road realignment and infill areas. Biota Environmental Sciences (2023)</li> <li>- Follow-up <i>Tridodia pisolitica</i> PEC review. CZR (2024)</li> </ul> </li> <li>• CZR Regulator RFI Response Documents: <ul style="list-style-type: none"> <li>- Robe Mesa Project Agreement</li> <li>- Response to RFI (Feb 2024) Response to RFI CPS10248_1 20240215</li> <li>- Response to RFI (Dec 2024) 20241202 DEMIRS Letter and Response CPS 10248-1</li> </ul> </li> <li>• CZR Approval Documents: <ul style="list-style-type: none"> <li>- Robe Mesa Project Environmental Management Plan (CZR and Biota 2024)</li> <li>- Robe Mesa Project NVCP Supporting Document NVCP Supporting Doc</li> <li>- Robe Mesa Project Mining Proposal Mining Proposal</li> <li>- Robe Mesa Project Mine Closure Plan</li> </ul> </li> </ul>	

### 1.1.2. Landforms

**Table 4 Environmental Factor Landforms**

<b>Potential environmental impacts for Landforms</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of environmental principles, factors, objectives and aims of EIA (EPA 2023)</li> <li>• Environmental Factor Guideline – Landforms (EPA, June 2018)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Procedures Manual 2021 (EPA, December 2024)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Administrative Procedures (EPA, December 2024)</li> <li>• Taking decision making processes into account in EIA Interim Guidance (EPA, October 2021)</li> <li>• Environmental outcomes and outcomes-based conditions Interim Guidance (EPA, October 2021)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<ul style="list-style-type: none"> <li>• A total of nine land systems are mapped within the project area, all of which are well represented in the region. The Disturbance envelope and Disturbance footprint intersect only very small portions of the extent of each land system in the Pilbara bioregion. <ul style="list-style-type: none"> <li>- Landsystem 296Ro Robe, described as low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands, represents the largest proportion of the disturbance footprint (73ha), 0.2% of the total area of Robe landsystem area in the Pilbara.</li> <li>- 296St Stuart, described as gently undulating stony plains supporting hard and soft spinifex grasslands and snakewood shrublands, represents the second largest proportion of the disturbance footprint (67ha), 0.2% of the total area of the Stuart landsystem.</li> </ul> </li> <li>• Mesa formations in the Robe Valley provide important ecological habitats, primarily the gullies and breakaway habitats associated with the mesa escarpments. Sections of the escarpments often host features such as caves, rock crevices, overhangs, fissures and boulders that provide a range of habitat for fauna, including conservation significant fauna.</li> <li>• Mesas also have significant Aboriginal heritage and cultural values, particularly associated with the mesa escarpments and can include artefact scatters, rock shelters, scarred trees and quarries. The mesa landforms are also features of the landscape with cultural significance, including serving as navigational landmarks.</li> </ul>
<b>Likely environmental impacts</b>	<ul style="list-style-type: none"> <li>• Degradation of the ecological values of the mesa landforms.</li> <li>• Degradation of the social values of the mesa landforms through loss of indigenous heritage and amenity values.</li> </ul>

<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to landforms will include:</p> <ul style="list-style-type: none"> <li>• Mining Proposal will manage project layout and landform design, and geotechnical stability, as part of the mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10) during operations.</li> <li>• Mine Closure Plan will prescribe completion criteria to ensure that progressive backfilling and rehabilitation is achieved.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to landforms will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• Avoid the adverse environmental impact altogether, by positioning infrastructure away from mesa edge and where that is not possible (i.e. Mesa Ramp) then minimise disturbance.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Access to the Robe Mesa mine pit will traverse approximately 0.5 ha of mesa escarpment. The ramp to the pit has been designed to limit disturbance to the mesa face, rather citing the ramp within a section of the mesa edge that is more weathered and scree-sloped.</li> <li>• Mine pits will be backfilled during operations, with no external waste rock landforms proposed.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan outlines post mine land use and completion criteria.</li> <li>• Progressive pit backfilling of waste and rehabilitation will occur during operations.</li> </ul>
<p><b>Assessment and significance of residual impacts</b></p>	<ul style="list-style-type: none"> <li>• Retention of the highest value habitat values associated with the mesa landforms, the escarpments, within the broader habitat unit. Mesa edge and escarpment remains intact (other than provision for a mine access ramp, which will disturb 0.5ha of mesa edge/ scree slope habitat)</li> <li>• Pit boundary is setback between 50 and 300m from the mesa edge to avoid disturbance to the cultural and habitat values of the mesa edge and scree slopes, maintaining 7.2 km of escarpment.</li> <li>• 30 ha mine exclusion zone on the mesa surface and no mining within a minimum 50 metres of the mesa edge</li> <li>• No waste rock landforms/dumps are proposed outside the mine pit (i.e. 100% of waste material will report to in-pit back fill).</li> </ul>
<p><b>Likely environmental outcomes</b></p>	<ul style="list-style-type: none"> <li>• Implementation of the proposal will result in the loss of 0.5 ha of mesa edge landform.</li> <li>• The project will not result in a reduction in the geodiversity or range of geological or geomorphological features that exist in the Pilbara region.</li> <li>• Mine pits will be backfilled, and no waste rock landforms/dumps will be established outside the mine pit footprint (i.e. 100% of waste material will report to in-pit back fill).</li> <li>• <b>Rehabilitation and closure planning will be implemented by CZR and can be controlled by conditions that would be set on the proposal by the Mining Act.</b></li> </ul>
<p><b>Holistic impact assessment</b></p>	
<p>Refer to Section 1.1.6 (Holistic assessment)</p>	
<p><b>Cumulative environmental impact assessment</b></p>	
<p>Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)</p>	
<p><b>Consultation</b></p>	
<p>Refer to Section 3 (Stakeholder Consultation)</p>	
<p><b>Supporting documents</b></p>	
<ul style="list-style-type: none"> <li>• Investigations/ Studies: <ul style="list-style-type: none"> <li>- Geotechnical Assessment CZR Resources Robe Mesa. March 2023 – FINAL.pdf (Peter O’Byrne)</li> </ul> </li> </ul>	

- Ethnological Report 221031 Final Report Ethno. RRKAC and CZR Robe Mesa Project. (P Haydock 2022)
- Flood Modelling (AQ2 2024) Flood Modelling Assessment 385M\_039b
- Troglifauna habitat modelling Robe Mesa (CZR 2023)
- Mine Waste and Low-Grade Ore Characterisation Investigations – Robe Mesa Project. December 2022. Graeme Campbell and Associates
- CZR Regulator RFI Response Documents:
  - Response to RFI (Dec 2024) Response to RFI CPS10248\_1 20241202
  - Response to RFI (Feb 2024) Response to RFI CPS10248\_1 20240215 (Section 4.2)
- CZR Approval Related Documents:
  - Project Agreement 20221221 Robe Mesa Project Agreement
  - Environmental Protocol EMProt Draft - end of Workshop 7 (up to Section 5.2)
  - Native Title Agreement 20221222 - CZR Native Title Mining Agreement
  - Mining Proposal Mining Proposal Rev2 20241202
  - Mine Closure Plan MCP\_ROM-2311\_REV1 20231128
  - NVCP Supporting Document NVCP Supporting Doc Rev2 20241202

### 1.1.3. Subterranean Fauna

**Table 5 Environmental Factor Subterranean Fauna**

<b>Potential environmental impacts for Subterranean Fauna</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of Environmental Principles, Factors and Objectives (EPA, April 2023)</li> <li>• Environmental Factor Guideline – Subterranean Fauna (EPA, December 2016)</li> <li>• Technical Guidance – subterranean fauna surveys for environmental impact assessment (EPA, December 2021)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Procedures Manual 2021 (EPA, December 2024)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Administrative Procedures (EPA, December 2024)</li> <li>• Taking decision making processes into account in EIA Interim Guidance (EPA, October 2021)</li> <li>• Environmental outcomes and outcomes-based conditions Interim Guidance (EPA, October 2021)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<ul style="list-style-type: none"> <li>• The project area is within the State-listed PEC - 'Subterranean invertebrate communities of mesas in the Robe Valley region.</li> <li>• Three phases of sampling for troglofauna have been completed in the CID mesa landform of the project area, with at least 13 species from seven orders recorded (Biota 2023a and 2024).</li> <li>• Eight of the 13 species have thus far only been recorded within the project mine pit (Biota 2023a and 2024). However, both geological modelling (CZR Resources 2023a) and extensive subterranean fauna research completed elsewhere in the locality (Biota 2023a and 2024), indicate that it is highly likely the channel iron deposit (CID) troglofauna habitat is connected across the extent of the mesa landform and the species are similarly distributed.</li> <li>• Two specimens, <i>Draculoides</i> sp. H-SCH200 and Armadillide sp. H-ISA064, are recorded both inside and outside the conceptual pit. Other species, <i>Japygidae</i> sp. H-DJA023, <i>Scolopendrellidae</i> sp. H-SYM039 and <i>Scolopendrellidae</i> sp. H-SYM040, are found outside the mine pit, but in connected CID in the vicinity of the Disturbance footprint (i.e. within the same CID habitat).</li> <li>• An assessment of stygofauna at production bore (PB13-3) and impacts arising from operation of the water supply bore, which is located approximately 8 km from the Robe Mesa Project mine.</li> <li>• No stygofauna were recorded from bore PB13-3 during the November 2022 sampling, consistent with the habitat assessment of the site. No fauna were recorded from bore the associated monitoring bore (MB13-3), but fauna were recorded from bore MB11-5, which is approximately 5 km southwest of PB13-3. The stygofauna collected nearby were consistent with the relatively small interstitial spaces in the groundwater habitats present: comprising copepods and stygal worm taxa, which are typically widespread and do not represent SREs.</li> </ul>
<b>Likely environmental impacts</b>	<p>Direct Impact</p> <ul style="list-style-type: none"> <li>• Direct loss of troglofaunal habitat from ore extraction.</li> <li>• Direct loss of stygofauna habitat from groundwater abstraction at PB13-3</li> </ul> <p>Indirect Impact</p> <ul style="list-style-type: none"> <li>• Contamination of remaining habitat through hydrocarbon spills and leaks</li> </ul>

<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to subterranean fauna will include:</p> <ul style="list-style-type: none"> <li>• Native Vegetation Clearing Permit will authorise clearing extent and disturbance boundaries at the mine pit.</li> <li>• Mining Proposal will manage mine pit footprint extent, progressive backfilling, geotechnical stability of mine pits (and troglofauna habitat), mining stages, volumes of ore and waste extracted and processed, and the management, storage and handling of hydrocarbons through mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10).</li> <li>• Environmental Management Plan (Section 3) also addresses management actions associated with mesa edge buffers and pit depths to project remaining troglofauna habitat.</li> <li>• Mine Closure Plan will prescribe completion criteria to achieve rehabilitation success in the post-mine environment.</li> <li>• Groundwater Licence and the associated Groundwater Operating Strategy, issued to supply water for operations from production bore PB13-3, will ensure that groundwater is abstracted at a sustainable rate.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to subterranean fauna will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• No mining will occur below the water table, thus there will be no disturbance to stygofauna habitat at the mine area</li> <li>• Final mine pit design to be spatially limited to observe the mesa edge buffer, avoid mining CID (troglofaunal habitat) on the plains (off mesa), and any designated no-go areas on the mesa top.</li> <li>• Waste rock landforms will only be located on sites that have already been disturbed for mining. This will avoid placement of waste rock over undisturbed troglofauna habitat, which may affect infiltration rates and humidity levels of troglofauna habitat.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Minimise mine pit footprint on the mesa top.</li> <li>• Vegetation clearance is limited, where possible, to avoid degradation of subterranean habitat quality due to the reduction of nutrients transported into the habitat.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan outlines post mine land use and progressive backfill and rehabilitation, which will protect the adjacent troglofauna habitat and help to maintain sustainable habitat conditions for troglofaunal populations near the pit shell boundary.</li> </ul>
<p><b>Assessment and significance of residual impacts</b></p>	<p>Habitat volumes were quantified from Robe Mesa, using 3D-wireframing of the geological units representing troglofauna habitat (CZR Resources 2023).</p> <ul style="list-style-type: none"> <li>• Outcomes for the CZR managed portion of the Mesa F (M08/533): <ul style="list-style-type: none"> <li>- The residual habitat remaining in M08/533 after mining is ~33,000,000 bcm, 68% of the pre-mining habitat volume.</li> <li>- Habitat in the lower CID units is ~87% remaining post mining.</li> </ul> </li> <li>• Outcomes for the entire contiguous habitat of the Mesa F landform: <ul style="list-style-type: none"> <li>- The total troglofauna habitat volume for the entire Mesa F landform is ~452,400,000 bcm, of which the habitat of the entire M08/533 represents ~10% of this contiguous landform.</li> <li>- The proposed mining volume for the Robe Mesa Project, ~15,500,000 bcm, represents 3.5% of the total contiguous troglofaunal habitat within the Mesa F landform.</li> </ul> </li> </ul>

<b>Likely environmental outcomes</b>	<ul style="list-style-type: none"> <li>• Excavation will result in loss of subterranean fauna habitat, representing 3.5% of the total contiguous troglofaunal habitat within the Mesa F landform.</li> <li>• The proposed disturbance to the total mesa landform is so minor (3.5%) that the remaining channel iron deposit can continue to sustain viable troglofauna populations.</li> <li>• Mine pit ground disturbance will not exceed 68 ha.</li> <li>• Progressive backfilling of the mine pit will protect remaining troglofaunal habitat conditions and will ensure there is no significant decline in subterranean fauna habitat condition outside of the mine pit.</li> <li>• <b>Mine and closure planning will be controlled by conditions set on the proposal by the Mining Act</b></li> </ul>
<b>Holistic impact assessment</b>	
Refer to Section 1.1.6 (Holistic assessment)	
<b>Cumulative environmental impact assessment</b>	
Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)	
<b>Consultation</b>	
Refer to Section 3 (Stakeholder Consultation)	
<b>Supporting documents</b>	
<ul style="list-style-type: none"> <li>• Investigations/ Studies: <ul style="list-style-type: none"> <li>- Troglofauna Baseline Assessment – Robe Mesa. Biota Environmental Sciences (2023c)</li> <li>- Troglofauna habitat modelling – Robe Mesa. CZR (2023)</li> <li>- Robe Mesa Project Troglofauna habitat. Summary Memo Report. Biota Environmental Sciences (2024a).</li> <li>- Addendum to Biota (2023c) Biota Environmental Sciences (2024b)</li> <li>- Stygofauna preliminary study. Biota Environmental Sciences (2022)</li> </ul> </li> <li>• CZR Regulator RFI Response Documents: <ul style="list-style-type: none"> <li>- Response to RFI (Dec 2024) Response to RFI CPS10248_1 20241202</li> <li>- Response to RFI (Feb 2024) Response to RFI CPS10248_1 20240215</li> </ul> </li> <li>• CZR Approval Related Documents: <ul style="list-style-type: none"> <li>- Robe Mesa Project Environmental Management Plan</li> <li>- Mining Proposal Mining Proposal Rev2 20241202</li> <li>- Mine Closure Plan MCP_ROM-2311_REV1 20231128</li> <li>- NVCP Supporting Document NVCP Supporting Doc Rev2 20241202</li> </ul> </li> </ul>	

### 1.1.4. Terrestrial Fauna

**Table 6 Environmental Factor Terrestrial Fauna**

<b>Potential environmental impacts for Terrestrial Fauna</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of Environmental Principles, Factors and Objectives (EPA, April 2023)</li> <li>• Environmental Factor Guideline – Terrestrial Fauna (EPA, December 2016)</li> <li>• Technical Guidance Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, July 2020)</li> <li>• Technical Guidance - Sampling of short-range endemic invertebrate fauna (EPA, December 2016)</li> <li>• Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2020)</li> <li>• Guideline Native vegetation clearing referrals Native vegetation clearing activities regulated under the Environmental Protection Act 1986 and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (DWER, October 2021)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Procedures Manual 2021 (EPA, December 2024)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Administrative Procedures (EPA, December 2024)</li> <li>• Taking decision making processes into account in EIA Interim Guidance (EPA, October 2021)</li> <li>• Environmental outcomes and outcomes-based conditions Interim Guidance (EPA, October 2021)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<ul style="list-style-type: none"> <li>• The Project area encompasses a mesa, scattered rocky hills, plains and drainage systems that range from minor creeklines to large river systems.</li> <li>• The mine pit is restricted to the mesa tops, which have lower habitat value compared to the mesa edges (habitat type VSA2a, which will be avoided). The mine plant and other infrastructure is predominately within the habitat type VSA3 (plains and flats), which is the most extensive habitat type of the project area.</li> <li>• The corridor to the North West Coastal Highway and the mine passes mostly over slightly undulating plains with scattered bloodwood over spinifex on gravelly loam (habitat type VSA3).</li> </ul>
<b>Likely environmental impacts</b>	<p>Direct impacts:</p> <ul style="list-style-type: none"> <li>• Loss of fauna habitat due to clearing</li> <li>• Fragmentation of fauna habitats, limiting fauna access and movement</li> <li>• Fauna mortality or injury from vehicle strike and entrapment</li> </ul> <p>Indirect Impacts</p> <ul style="list-style-type: none"> <li>• Species disturbance associated with increased dust, noise, vibration or light</li> <li>• Degradation of fauna habitats due to:               <ul style="list-style-type: none"> <li>- Introduction or spread of weeds;</li> <li>- An increase in feral predators (vertebrate fauna only); and</li> <li>- Altered fire regimes.</li> </ul> </li> </ul>

<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to terrestrial fauna will include:</p> <ul style="list-style-type: none"> <li>• Native Vegetation Clearing Permit will authorise clearing extent and disturbance boundaries within specific habitat types.</li> <li>• Mining Proposal will manage clearing extent, feral animals, surface hydrology (downstream impacts), and fire related impacts through the mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10).</li> <li>• Environmental Management Plan (Section 3) also addresses management and monitoring, noise, light spill and vibration impacts on behaviour changes, actions associated with loss and degradation of fauna habitat (fire, weeds etc.), direct impacts to significant terrestrial fauna (vehicle strike and entrapment), altered surface hydrology, feral animal control.</li> <li>• Mine Closure Plan will prescribe completion criteria to achieve rehabilitation success in the post mine environment, including monitoring for evidence of fauna re-establishment.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to terrestrial fauna will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• Avoid the adverse environmental impact altogether, by positioning infrastructure away from sensitive habitat. Where that is not possible then minimise disturbance.</li> <li>• Except for access ramp points, designs will avoid disturbance to in-tact mesa escarpments.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Limit the magnitude of the impact to conservation significant fauna near sensitive habitats, including the installation of underpass culverts to link movement along similar habitats such as creek crossings and the mesa edge (mine pit ramp), as described in the Mining Proposal and EMP.</li> <li>• Dust suppression techniques, such as water carts and speed limits, will be applied to minimise dust impacts, as described in the Mining Proposal and EMP.</li> <li>• Limit interactions between the project and fauna (native and feral) on site, through inductions and raising awareness of issues such as appropriate food disposal, no feeding animals, and a register to record fauna presence etc.), as per the EMP.</li> <li>• Minimise feral animal presence on site through the implementation of a feral animal inspection and control program, as per the EMP.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan describes the progressive rehabilitation of the project during operations and provides for monitoring to inspect sites for evidence of fauna re-establishment post closure.</li> </ul>
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<p><b>Assessment and significance of residual impacts</b></p>	<ul style="list-style-type: none"> <li>• Northern Quolls recorded from the mesa edge and drainage lines and considered visitors to the project area.</li> <li>• Ghost Bat and Pilbara Leaf-Nose Bats recorded in low numbers and considered visitors to project area.</li> <li>• No bat roosts were recorded within the project area, despite extensive cave searches and assessment of mesa edge habitats (Bamford Consulting Ecologists 2024).</li> <li>• Locally, the disturbance footprint represents a very small proportion of the total mapped extent for each habitat type (BCE 2023), with all but one habitat type having more than 96% of the surveyed area outside the Disturbance footprint:             <ul style="list-style-type: none"> <li>- 53.2% of the local mapped extent of VSA1, Mesa Tops (139 ha), is outside the disturbance footprint.</li> <li>- 97.3% of the mapped extent of VSA2a, Mesa Edges (17 ha), is outside the Disturbance footprint.</li> <li>- 96.5% of the mapped extent of VSA2b, Rocky Hills and Slopes (1,412 ha), is outside the Disturbance footprint.</li> <li>- 97% of the mapped extent of VSA3, Plains and Flats (3,638 ha), is outside the Disturbance footprint.</li> <li>- 97.3% of the mapped extent of VSA4, Minor Drainage and Shallow Valleys (1,459 ha), is outside the Disturbance footprint.</li> <li>- 99.2% of the mapped extent of VSA5, Floodplains and Drainage Lines (180 ha), is outside the Disturbance footprint.</li> <li>- 100% of the mapped extent of VSA6, Gallert Forests (30 ha), is outside the Disturbance footprint.</li> <li>- 100% of the mapped extent of VSA7, Pools (6 ha), is outside the Disturbance footprint.</li> </ul> </li> <li>• Three species listed as Threatened under State BC Act: Northern Quoll (<i>Dasyurus hallucatus</i>); Pilbara Leaf-nosed Bat (<i>Rhinoicteris aurantia</i>); and Ghost Bat (<i>Macroderma gigas</i>) are known to occur in the area. All three species are strongly associated with the mesa edge habitat for denning and roosting opportunities and foraging resources.</li> <li>• Disturbance to mesa edge habitat will be restricted less than 0.5 ha, to allow for a haul road / ramp to connect the plant site (on the plains) with the mine pit (on the mesa top). There are no Northern Quoll records from the location of the proposed ramp, as the habitat at this specific location is more like rocky hills than mesa edges.</li> <li>• No known maternity roosts for either bat species are present in the project area, with the nearest likely Ghost bat roost located over 2km south of project area and off tenement (Bamford Consulting Ecologists 2022).</li> <li>• A noise assessment undertaken by Lloyd George Acoustics (LGA 2023) found that the proposed mine operations demonstrated compliance with the fauna site criteria level of 70 dB(A) at mock ‘cave entrance’ and ‘interior’ locations along mesa edge, with neither exceeding 55 dB(A).</li> <li>• Predicted noise levels from the Robe Mesa Project at a likely Ghost Bat roost site, 2km off tenement, did not exceed 19dB(A), demonstrating compliance with fauna site criteria level 70 dB(A) (LGA 2023).</li> </ul>
<p><b>Likely environmental outcomes</b></p>	<ul style="list-style-type: none"> <li>• Direct disturbance to mesa edge habitat is avoided with a minimum 50 m setback distance.</li> <li>• A ramp that links the plant with the mine pit will disturb up to 0.5ha of mesa edge habitat.</li> <li>• Implementation of management actions in the EMP, including under road culverts/bypass culverts and directional fencing will be established at core habitat locations.</li> <li>• The disturbance footprint will be predominately located on habitat that is extremely widespread in the region and considered to be of lower habitat value. Mesa tops (65 ha) and stony plains (109 ha) represent two thirds (65%) of the proposed Disturbance footprint and accommodate low species richness, compared with other habitat types of the region.</li> <li>• Noise modelling at operations was demonstrated to comply with the fauna site criteria at the mesa edge.</li> <li>• <b>Management controls proposed will be implanted through the Robe Mesa Project EMP throughout the life of mine to manage potential impacts to habitat and individuals.</b></li> </ul>

<b>Holistic impact assessment</b>
Refer to Section 1.1.6 (Holistic assessment)
<b>Cumulative environmental impact assessment</b>
Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)
<b>Consultation</b>
Refer to Section 3 (Stakeholder Consultation)
<b>Supporting documents</b>
<ul style="list-style-type: none"> <li>• Investigations/ Studies: <ul style="list-style-type: none"> <li>- Fauna Assessment – Robe Mesa Iron Ore Project. Bamford Consulting Ecologists (2024a). Updated in 2024</li> <li>- Robe Mesa Project, Fauna species Matters of National Environmental Significance Threats and Mitigation. Response to DEMRIS RFI. Memo report 14 Oct 2024. Bamford Consulting Ecologists (2024b).</li> <li>- Robe Mesa Project. Response to comments provided by DEMIRS Feb and Aug 2024. Bamford Consulting Ecologists (2024c).</li> <li>- Short-range Endemic Invertebrate (SRE) Fauna Survey – Robe Mesa Project. Biota Environmental Sciences (2022)</li> <li>- Environmental Noise Assessment. April 2023. Lloyd George Acoustics</li> </ul> </li> <li>• CZR Regulator RFI Response Documents: <ul style="list-style-type: none"> <li>- Response to RFI (Dec 2024) Response to RFI CPS10248_1 20241202</li> <li>- Response to RFI (Feb 2024) Response to RFI CPS10248_1 20240215</li> </ul> </li> <li>• CZR Approval Related Documents: <ul style="list-style-type: none"> <li>- Robe Mesa Project Environmental Management Plan</li> <li>- Mining Proposal Mining Proposal Rev2 20241202</li> <li>- Mine Closure Plan MCP_ROM-2311_REV1 20231128</li> <li>- NVCP Supporting Document NVCP Supporting Doc Rev2 20241202</li> </ul> </li> </ul>

### 1.1.5. Inland Waters

**Table 7 Environmental Factor Inland Waters**

<b>Potential environmental impacts for Inland Waters</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of Environmental Principles, Factors and Objectives (EPA, April 2023)</li> <li>• Environmental Factor Guideline: Inland Waters (EPA, June 2018)</li> <li>• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)</li> <li>• Water Quality Protection Note No. 44: Roads Near Sensitive Water Resources (DOW 2006)</li> <li>• Water Quality Protection Note No. 52: Stormwater Management at Industrial Sites (DOW 2010)</li> <li>• WA Water in Mining Guideline (DOW 2013)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<p>Groundwater</p> <ul style="list-style-type: none"> <li>• The major aquifer systems in the Robe Mesa Project area are encountered within the following main hydrostratigraphic units:               <ul style="list-style-type: none"> <li>- Valley-fill deposits (alluvium, elluvium and coluvium materials).</li> <li>- Palaeochannel Channel Iron Deposits (CID) (Robe Pisolite).</li> <li>- Weathered bedrock that may have formed from the creek/river erosion.</li> <li>- Faults/shear zones within the bedrock (fractured rock).</li> </ul> </li> <li>• There will be no drawdown of groundwater contours in and around the mine area.</li> <li>• The groundwater supply for the project is based on an existing Production Bore (PB13-1), which is located approximately 8 km southeast of the Robe River pools, and the mine area, and any groundwater dependent vegetation.</li> <li>• Production Bore PB13-3, is the preferred groundwater abstraction site for the Project, it has been drilled into fault Breccia within the Duck Creek Dolomite. PB13-3 is currently licensed under GWL180637 to sustainably abstract up to 95,000 kL pa. An application is with DWER for CZR (Zanthus) to transfer the current GWL and increase the abstraction rate for mine development.</li> <li>• The Robe Mesa Project does not require dewatering the mine pit to access the resource. Current groundwater levels are approximately 50-60 m below the mesa surface.</li> </ul> <p>Surface Water</p> <ul style="list-style-type: none"> <li>• Most of the Application area is located within the surface water management area for the Robe River and its tributaries. Creeks in the region are ephemeral with runoff responding to the sporadic significant rainfall events.</li> <li>• Mungarathoona Creek, one of the major Robe River tributaries, flows through the main Project tenement area from south to north and around the northern part of the Robe Mesa. The confluence of Mungarathoona Creek and Robe River occurs directly north of the project area (approximately 1.8km northeast) and has resulted in a series of river pools at the junction.</li> <li>• Unnamed Pool is approximately 1000 m northeast of the project and Robe Pool and Chalyarn Pool are approximately 1,600 m and 2,100 m further east of the mine area respectively.</li> <li>• There are no Ramsar Wetlands in the Application area, with the closest Ramsar Site located approximately 440 km northeast (Eighty Mile Beach).</li> <li>• The closest significant wetlands (as listed on the Directory of Important Wetlands, DBCA-045) are located 125 km west (Exmouth Gulf East Wetlands) and 225 km east (Fortescue Marshes) of the project area</li> </ul>

<p><b>Likely environmental impacts</b></p>	<p>Direct impact</p> <ul style="list-style-type: none"> <li>• Groundwater abstraction for water supply/ consumption</li> </ul> <p>Indirect Impact</p> <ul style="list-style-type: none"> <li>• Contamination of the groundwater and wetland systems from poor hydrocarbon and chemical storage and handling</li> <li>• Changes to hydrological regimes (quality and quantity) from infrastructure establishment</li> <li>• Sedimentation downstream from poor materials handling and surface water management</li> </ul>
<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to inland waters will include:</p> <ul style="list-style-type: none"> <li>• Native Vegetation Clearing Permit will authorise clearing extent and disturbance boundaries at the mine pit and the estimated four drainage line crossing points along the haul road.</li> <li>• Mining Proposal will manage mine pit footprint extent, surface water management infrastructure across the project area, and the management, storage and handling of hydrocarbons through mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10).</li> <li>• Environmental Management Plan (Section 3) addresses management actions associated with altered surface hydrology as it related to management of terrestrial waterway and riparian habitats, as well as and stygofauna aquifer habitats.</li> <li>• Mine Closure Plan will prescribe completion criteria to manage surface water movement and quality in a post mine environment.</li> <li>• Groundwater Licence and the associated Groundwater Operating Strategy, issued to supply water for operations from production bore PB13-3, will ensure that groundwater is abstracted at a sustainable rate, with no significant impacts to groundwater dependent vegetation or ecosystems.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to inland waters will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• No mining will occur below the water table, thus there will be no dewatering of the mine pit</li> <li>• Avoid the adverse environmental impact altogether, by positioning infrastructure away from sensitive waterways. Where that is not possible, disturbance will be minimised.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Predicted groundwater drawdown at production bore PB13-3, over 8km from the mine pit and the Robe River pools, will not impact riparian vegetation or groundwater dependent ecosystems.</li> <li>• Incorporate appropriate culverting or other drainage treatments into the final design of the haul road at drainage line crossing points, to ensure that the natural surface water regime in the drainage lines surrounding the project are maintained and there is not ponding upstream or water shadowing downstream.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan is part of the Mining Proposal and outlines future state post mining. The Plan will describe closure implementation for surface water infrastructure and water supply bores.</li> </ul>

<p><b>Assessment and significance of residual impacts</b></p>	<p>Groundwater</p> <ul style="list-style-type: none"> <li>The deposit is above the water table and no mine pit dewatering is required. As a result, there will be no groundwater drawdown contours at sensitive groundwater dependent vegetation or groundwater dependant ecosystem locations near the Robe River.</li> <li>Groundwater requirements for construction and operations can be sourced from the existing production bore PB13-3, drilled into the faulted/fractured Duck Creek Dolomite aquifer system, is located more than 8 km southeast from the proposed Robe Mesa mine and has the potential to fully meet the Robe Mesa Projects water demand.</li> <li>Predicted groundwater drawdown from sustainable abstraction at production bore PB13-3, over 8 km from the mine pit and the Robe River pools, will not impact riparian vegetation or potential GDEs.</li> <li>Recent groundwater quality analysis at PB13-3, determined that the groundwater is fresh of potable quality. All parameters tested were well below the Australian Drinking Water Guidelines (ADWG) values (Version 3.8, September 2022), except for hardness, which has no health implications.</li> <li>A Groundwater Operating Strategy for the Robe Mesa Project has been developed and approved by DWER, to meet the requirements to support a Groundwater Licence for PB13-3. The Strategy document has been prepared at a basic level of assessment in accordance with DWER Operational Policy (DWER 2020).</li> <li>Groundwater will be monitored and managed in accordance with RIWI Act licence conditions as well as internal groundwater monitoring procedures. A groundwater monitoring program has been implemented and is ongoing, with early results forwarded to DWER Water for their information during the 5C application assessment process.</li> </ul> <p>Surface Water</p> <ul style="list-style-type: none"> <li>The 270 ha disturbance footprint is predominately located within the 758,253 ha Robe River Catchment. Part of the access road is also located within the 424,037 ha Coastal Plains Catchment.</li> <li>Surface water modelling and flood assessment has guided the location of mine infrastructure out of Mungarathoona Creek and Robe River flood zones / floodplains.</li> <li>Post-development flood modelling has been based on preliminary civil designs for the haul road, which has included floodways, culverts and flood levees. The assessment indicates that the impact of the haul road on the Mungarathoona Creek and the Robe Pools will be minimal.</li> <li>Three vegetation units (E2; E5; and M1) represent groundwater dependent vegetation, comprising major drainages supporting <i>Eucalyptus victrix</i> (low to moderate dependence), <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> (moderate dependence) and/or <i>Melaleuca argentea</i> (high dependence). These three vegetation units combined represent 273.7 ha of the survey area, of which only a very small proportion (1.5 ha, 0.6%) will be impacted by the proposed disturbance footprint at 3-4 road crossing locations along the access road. Large trees within these vegetation types will be avoided during construction.</li> </ul>
<p><b>Likely environmental outcomes</b></p>	<ul style="list-style-type: none"> <li>No wetlands or GDVs will be impacted by the Robe Mesa Project.</li> <li>Apart from necessary creek crossings, drainage lines will be avoided.</li> <li>CZRs EMP has proposed a series of management and monitoring actions to manage potential impacts to drainage and wash plain vegetation within the project area.</li> <li><b>Groundwater will be monitored and managed in accordance with RIWI Act licence conditions as well as internal groundwater monitoring procedures (i.e. Groundwater Monitoring Procedure has been implemented and is ongoing). A Groundwater Operating Strategy for the Robe Mesa Project has been developed and approved by DWER, to meet the requirements to support a Groundwater Licence for PB13-3.</b></li> </ul>
<p><b>Holistic impact assessment</b></p>	
<p>Refer to Section 1.1.6 (Holistic assessment)</p>	
<p><b>Cumulative environmental impact assessment</b></p>	
<p>Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)</p>	

<b>Consultation</b>
Refer to Section 3 (Stakeholder Consultation)
<b>Supporting documents</b>
<ul style="list-style-type: none"> <li>• Investigations/ Studies: <ul style="list-style-type: none"> <li>- Stygofauna preliminary study. Biota Environmental Sciences (2022)</li> <li>- Mining Proposal Section 8.5.1.2 (Flood modelling assessment) (AQ2 2024a)</li> <li>- Amended Groundwater Assessment Report (H2) AQ2 (2024b)</li> <li>- Groundwater Operating Strategy AQ2 (2024c)</li> <li>- Groundwater monitoring report memo, presenting latest groundwater level results from project bores. AQ2 (2024d)</li> <li>- Memo responding to RFI request from groundwater licence application (AQ2 2024e)</li> </ul> </li> <li>• CZR Regulator RFI Response Documents: <ul style="list-style-type: none"> <li>- Response to RFI (Dec 2023) GWL Ref056535 (CZR_RFI_Response_20231215)</li> <li>- Response to RFI (Dec 2024) CPS10248_1 20241202</li> <li>- Response to RFI (Feb 2024) CPS10248_1 20240215</li> </ul> </li> <li>• CZR Approval Related Documents: <ul style="list-style-type: none"> <li>- Groundwater Operating Strategy 385 E_031c (Rev1) (AQ2 2023)</li> <li>- Robe Mesa Project Environmental Management Plan (Biota and CZR 2024)</li> <li>- Mining Proposal Mining Proposal Rev2 20241202 (Section 8.5.1.2, flood modelling results update to text and figures)</li> <li>- Mine Closure Plan MCP_ROM-2311_REV1 20231128</li> <li>- NVCP Support Document Rev 2 Section 3.1.6.2. (update of surface water flood modelling results and figures)</li> </ul> </li> </ul>

### 1.1.6. Social Surroundings

**Table 8 Environmental Factor Social Surroundings**

<b>Potential environmental impacts for Social Surrounds</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>• Statement of Environmental Principles, Factors, Objectives and Aims of EIA (EPA, April 2023)</li> <li>• Environmental Factor Guideline – Social Surroundings (EPA, November 2023)</li> <li>• Technical Guidance – Environmental Impact Assessment of Social Surroundings – Aboriginal Cultural Heritage (EPA, November 2023)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Procedures Manual 2021 (EPA, December 2024)</li> <li>• Environmental Impact Assessment (Part IV Divisions 1 And 2) Administrative Procedures (EPA, December 2024)</li> <li>• Taking decision making processes into account in EIA Interim Guidance (EPA, October 2021)</li> <li>• Environmental outcomes and outcomes-based conditions Interim Guidance (EPA, October 2021)</li> <li>• Statutory Guidelines for Mining Proposals V6 (DEMIRS, November 2023)</li> <li>• Statutory Guidelines for Mine Closure Plans V4 (DEMIRS, January 2023)</li> </ul>
<b>Receiving environment</b>	<p>Indigenous Cultural Heritage</p> <ul style="list-style-type: none"> <li>• CZR recognises the Robe River Kuruma People as the traditional owners of the land that the Robe Mesa Project is on.</li> <li>• The Robe Mesa Project is part of the overall cultural landscape of the Robe River Kuruma People and in this respect, remains an important part of Robe River Kuruma culture and cultural record.</li> <li>• The natural features of the disturbance envelope are important to Robe River Kuruma People. The Robe River (Jajiwurra), permanent pools, the mesa edges, flora and fauna are all integral to the cultural landscape of the RRK People where they have hunted, gathered, lived, conducted ceremonies, shared stories and have been a part of this Country for thousands of years.</li> <li>• The disturbance envelope for the Robe Mesa Project does not include any part of a protected area.</li> <li>• For Robe River Kuruma People, this Country and landscape is imbued with cultural heritage and values where their ancestors once lived, and where ancestral and spirit beings continue to live. There are tangible values that are associated with artefact scatters, caves, and scarred trees (recorded during archaeological surveys). These places serve as a physical reminder of the cultural life of their ancestors and the connection that exists now with present generations.</li> </ul> <p>Current Land use</p> <ul style="list-style-type: none"> <li>• The main access road and accommodation village are situated within the Yarraloola Pastoral Station.</li> <li>• The mine and plant infrastructure are located within Unallocated Crown Land.</li> </ul> <p>Non-indigenous and natural heritage</p> <ul style="list-style-type: none"> <li>• The Pilbara region has 7.75% of its surface under some form of conservation tenure. At a subregional level, the Hamersley (PIL3) has 14.10% in conservation reserve (Kendrick 2001). The subregion contains almost all Karijini National Park and the eastern half of Cane River Conservation Park.</li> <li>• The closest conservation reserve to the survey area is the Cane River Conservation Park, which is 17.4 km south at its closest point.</li> </ul>

<p><b>Likely environmental impacts</b></p>	<p>Direct impacts</p> <ul style="list-style-type: none"> <li>• Disturbance to sites of indigenous cultural heritage</li> </ul> <p>Indirect Impacts</p> <ul style="list-style-type: none"> <li>• Disruption to traditional use of land/ loss of access to sites of cultural significance</li> <li>• Dust emissions from mine activities disturbing sites of cultural significance</li> </ul>
<p><b>Application of the mitigation hierarchy, including other statutory decision-making processes</b></p>	<p>Decision-making processes that will manage potential impacts to social surroundings will include:</p> <ul style="list-style-type: none"> <li>• Native Vegetation Clearing Permit will authorise clearing extent and disturbance boundaries for the project area.</li> <li>• Mining Proposal will manage disturbance footprint extent for all mining activities, progressive rehabilitation, geotechnical stability of the mesa landforms, storage and handling of hydrocarbons, surface water management, fire management, and dust emissions through mitigation prescribed in the risk assessment table (Section 9) and the outcomes, performance criteria and monitoring table (Section 10).</li> <li>• Environmental Management Plan (Section 3) also addresses management actions associated with mesa edge buffers, management and monitoring of conservation significant fauna and flora, dust emissions, fire prevention, land clearing activities and ground disturbance permitting procedures.</li> <li>• Mine Closure Plan will prescribe completion criteria to achieve rehabilitation success and relinquishment.</li> <li>• Groundwater Licence and the associated Groundwater Operating Strategy, issued to supply water for operations from production bore PB13-3, will ensure that groundwater is abstracted at a sustainable rate and will not impact on the water balance of the Robe River and its associated pools.</li> </ul> <p>The mitigation hierarchy applied to manage potential impacts to social surroundings will include:</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> <li>• Robe River Kuruma Aboriginal Corporation (RRKAC) have designated ‘No Go Areas’ within the project which must not be entered into or impacted. RRKAC and Zanthus (CZR) have established the Aboriginal Cultural Heritage Protocol, outlining appropriate protection and management measures for the places it contains.</li> <li>• Avoid the adverse environmental impact altogether, by positioning infrastructure away from sites of cultural significance.</li> <li>• Implement internal clearance permitting procedure to ensure all site disturbance works are compliant with regulatory requirements, including the provision of technological solutions such as geo-referencing tools to manage land clearing.</li> </ul> <p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>• Ongoing consultation with RRK to identify cultural values throughout planning, construction, operational and closure phases.</li> <li>• Implement Aboriginal Cultural Heritage Management Plan</li> <li>• Implement stop work procedure implemented if unexpected sites are located during operations or closure earthworks.</li> <li>• Dust emissions will be minimised through measures outlined in EMP and dust management procedures, including water carts along frequented sites, speed restrictions, water sprays/ sprinklers on stockpiles/ conveyors etc.</li> </ul> <p><u>Rehabilitate</u></p> <ul style="list-style-type: none"> <li>• The Mine Closure Plan is part of the Mining Proposal. The post mine land use for the project area will be determined in consultation with RRKAC and other key stakeholders.</li> <li>• Safe access requirements are factored into closure designs.</li> <li>• Maintain buffers during closure works.</li> <li>• Compliance with rehabilitation and landform design.</li> </ul>

<b>Assessment and significance of residual impacts</b>	<ul style="list-style-type: none"> <li>Aboriginal cultural heritage information has been surveyed and recorded over the project area for more than 30 years.</li> <li>CZR has reviewed over forty historic survey reports identifying the fifty (50) Aboriginal sites recorded on the Aboriginal Heritage Inquiry System (AHIS) (30 Registered sites and 20 Other Heritage Places) including water sources, burials, mythological, ceremonial sites, artefact scatters and camping sites.</li> <li>The frequency of cultural heritage surveys and abundant cultural information available provides CZR with confidence in its knowledge of the Aboriginal heritage site profile of the Project area.</li> <li>CZR’s approach to the management of Aboriginal cultural heritage is based on the ‘avoidance principle’, promoting preservation and working with the Robe River Kuruma People to avoid impacting Aboriginal cultural heritage places and mitigate indirect impacts on heritage values.</li> </ul>
<b>Likely environmental outcomes</b>	<ul style="list-style-type: none"> <li>Disturbance to 270 ha of traditional lands of the Robe River Kuruma People</li> <li>Direct disturbance to mesa edge habitat is avoided with a minimum 50 m setback distance.</li> <li>No disturbance to known or recorded sites or places of cultural significance, including the Robe River (Jajiwurra) and permanent pools</li> <li>Implementation of management actions in the Cultural Heritage Management Plan and Environmental Management Plan and Protocol documents.</li> <li><b>Management controls proposed will be implanted through the Robe Mesa Project Cultural Heritage Management Plan and Environmental Management Protocol, both of which are being developed in collaboration with RRK and CZR, to manage potential impacts to cultural heritage values.</b></li> </ul>
<b>Holistic impact assessment</b>	
Refer to Section 1.1.6 (Holistic assessment)	
<b>Cumulative environmental impact assessment</b>	
Refer to Section 4 (Cumulative Impact Assessment of the Robe River Valley)	
<b>Consultation</b>	
Refer to Section 3 (Stakeholder Consultation)	
<b>Supporting documents</b>	
<ul style="list-style-type: none"> <li>Cultural Heritage Management Plan (developed in collaboration with RRK and CZR)</li> <li>Environmental Management Protocol (developed in collaboration with RRK and CZR)</li> <li>Robe Mesa Native Title Mining Agreement (20221221)</li> <li>CZR Resources Robe Mesa - OP geotechnical assessment March 2023</li> <li>Ethnographic Survey Report RRKAC and CZR Robe Mesa Project. P Haydock (221031 Final)</li> </ul>	

## 1.2. Other Environmental Factors or Matters

### 1.2.1. Greenhouse Gas Emissions

**Table 9 Other Environmental Factor Greenhouse Gas Emissions**

<b>Potential environmental impacts for Greenhouse Gas Emissions</b>	
<b>EPA policy and guidance</b>	<ul style="list-style-type: none"> <li>Environmental Factor Guideline – Greenhouse Gas Emissions (EPA 2024).</li> <li>Statement of Environmental Principles, Factors, Objectives and Aims of EIA (EPA 2023).</li> </ul>
<b>Receiving environment</b>	<p>Australia and Western Australia’s contribution to greenhouse gas emissions, from Environmental Factor Guideline: Greenhouse Gas Emissions (EPA 2024)</p> <ul style="list-style-type: none"> <li>Australia currently contributes around 1.2 per cent of global greenhouse gas emissions.</li> <li>Australia’s emissions for the year to June 2022 were approximately 432.6 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e), which is 29% below emissions in 2005.</li> <li>WA’s emissions in 2022 were 82.5 million tonnes CO<sub>2</sub>-e, which represents 19 % of Australia’s emissions.</li> <li>The State and Territory Greenhouse Gas Inventories show an increase in WA’s emissions from the early 1990s. WA emissions in 2022 were 8% above 2005 levels due to growth in emissions from mining, extraction and processing of fossil fuels and transport.</li> </ul>
<b>Likely environmental impacts</b>	<p>Direct emissions</p> <ul style="list-style-type: none"> <li>Scope 1 emissions from clearing of native vegetation for construction and development</li> <li>Scope 1 emissions from burning fossil fuels for site energy production (diesel powered plants, equipment and vehicles) during construction, operations and haulage</li> <li>Scope 1 emissions from mining and processing of ore</li> </ul> <p>Indirect emissions</p> <ul style="list-style-type: none"> <li>Scope 3 emissions from customer activities, and sources not owned or controlled by CZR (i.e. steel manufacturing).</li> </ul>
<b>Application of the mitigation hierarchy, including other statutory decision-making processes</b>	<p><u>Minimise</u></p> <ul style="list-style-type: none"> <li>Setting annual emission targets for the Proposal</li> <li>Investigating opportunities to reduce emissions by increasing efficiency and continually updating to more efficient technology</li> <li>Clearing minimal amounts of vegetation and conducting progressive rehabilitation wherever practicable</li> <li>Regular updates of training and awareness.</li> </ul>
<b>Assessment and significance of residual impacts</b>	<ul style="list-style-type: none"> <li>Annual operating greenhouse gas emissions (for mine and road haulage to port) is approximately 51,000 tCO<sub>2</sub>e pa,</li> <li>An additional, once off, biogenic emission value of approximately 14,200 tCO<sub>2</sub>e is also associated with land use changes from land clearing for the development.</li> </ul>

<b>Likely environmental outcomes</b>	<ul style="list-style-type: none"> <li>Greenhouse gas emissions for the proposal are not expected to exceed 100,000 tCO<sub>2</sub>e in any year, as such the Safeguard Mechanism does not yet apply the Robe Mesa Project.</li> </ul>
<b>Supporting documents</b>	
<ul style="list-style-type: none"> <li>Annual Greenhouse Gas Emissions Estimate for the Robe Mesa Project (mine and road haulage to port) (Greenbase 2023)</li> </ul>	

### 1.3. Holistic Assessment

CZR has undertaken substantial investigations, guided in part by the outcomes of regulator consultation, and has completed a detailed assessment of the risks the project poses to the environment.

While the investigations have studied various aspects of each key factor independently, the interactions between the key environmental factors have also been considered. Many aspects of the project have the potential to impact on multiple factors and understanding this has enabled mitigation strategies to consider and manage multiple factors.

Figure 1.1 presents the interaction matrix between the relevant factors identified, including Terrestrial Fauna, Flora and Vegetation, Subterranean Fauna, Landforms, Inland Waters and Social Surroundings. Holistic overview of the potential impacts and mitigation measures that extend across multiple factors was considered in all aspects of the environmental investigation program and impact assessment.

Implementation of the project may result in combined impacts from key factors, for example:

- Removal of vegetation may lead to loss of conservation significant flora and altered surface water regimes, which in turn may impact riparian vegetation and fauna habitat dispersal routes.
- Mine operations within the pit have the potential to generate noise emissions at the mesa edge landform, which may in turn have the potential to disturb conservation significant fauna.
- Groundwater abstraction has the potential to affect groundwater dependent vegetation and ecosystems such as stygofauna communities.

**Figure 1.1: Relationship between relevant environmental factors to the Robe Mesa Project**

Terrestrial Fauna	Conservation Significant fauna and habitats					
Flora and Vegetation	Vegetation and fauna habitat	Conservation Significant Flora and Veg				
Subterranean Fauna	Short Range Endemic species	Flora and vegetation on the mesa tops	Troglofauna and stygofauna species and populations			
Landforms	Mesa edge habitat (breeding, foraging, shelter)	Vegetation type/ diversity across different landscapes	Channel iron deposits represent vuggy troglofaunal habitat	Geodiversity and landform of the West Pilbara and Robe Valley		
Inland Waters	Riparian vegetation providing foraging and dispersal habitat	Groundwater and surface water dependent vegetation	Stygofauna habitat near groundwater abstraction bore	Surface water run off and drainage from mesas to Robe pools	Groundwater and Surface Water resources	
Social Surroundings	Ethnozology values of conservation significant fauna	Ethnobotany values of local flora		Messa landforms, cultural significant mesa edges	Robe River and the local permanent pools	Aboriginal Cultural Heritage values
	Terrestrial Fauna	Flora and Vegetation	Subterranean Fauna	Landforms	Inland Waters	Social Surroundings

## 1.4. Other Approvals and Regulation

**Table 10 Environmental Factor Inland Waters**

Decision-making authorities and their approvals	
Provide a table list of the decision-making authorities, associated legislation or agreement regulating the activity and the specific approval required. (Example table at the end of form)	See Section 5 and Table 15 Other statutory decision-making process which can mitigate potential impacts on the environment)
Provide a summary of the statutory decision-making processes you consider can mitigate the potential impacts of the proposal on the environment. (Note: this should be a summary of the information provided in Part B section 2.4). (Example table at the end of form)	<ul style="list-style-type: none"> <li>• DWER               <ul style="list-style-type: none"> <li>- Groundwater Licence can mitigate some potential impacts to Inland Waters, Assessments of licence applications to take groundwater include consideration of environmental and social impacts</li> <li>- Works Approval, 5 – Processing of ore, 54 – Sewage facility, 64 – Class II Putrescible landfill</li> </ul> </li> <li>• DEMIRS               <ul style="list-style-type: none"> <li>- Native Vegetation Clearing Permit</li> <li>- Mining Proposal approval considers environmental monitoring and reporting requirements.</li> <li>- Dangerous Goods Licence is required for the storage and handling of hazardous materials and requires completion of a risk assessment demonstrating the dangerous goods site can be operated with minimal risk to people, property and the environment.</li> </ul> </li> </ul>
Tenure and Local Government approvals	
Location of proposal: a) street address, lot number, suburb, and nearest road intersection; or b) if remote, the nearest town and distance and direction from that town to the proposal site.	Robe Mesa deposit is located in the West Pilbara in the Robe River Valley, approximately 30 km southwest of Pannawonica on Mining Tenement M08-533, with the Miscellaneous Licenses L08/295, L08/297, L08/303, L08/304, L08/319, L08/320, L08/321, L08/322, L08/323, L08/326  The site is approximately 200km from Karratha, 180kms from Onslow.
Name of the Local Government Authority in which the proposal is located.	Shire of Ashburton
Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>
What is the current land use on the property, and the extent (area in hectares) of the property?	Mining and exploration tenements issued pursuant to the Mining Act (1978), pastoral activities, recreational activities (predominantly by Traditional Owners) such as camping.

<p>Does the proponent have the legal access required for the implementation of all aspects of the proposal?</p> <p><i>If yes, provide details of legal access authorisations / agreements / tenure.</i></p> <p><i>If no, what authorisations / agreements / tenure is required and from whom?</i></p>	<p><input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b></p> <p>Mining tenure and Miscellaneous licenses have been granted by DEMIRS.</p> <p>Access deeds have been entered into with other overlapping licence holders.</p>
<p><b>Commonwealth Government approvals</b></p>	
<p>Does the proposal involve an action that may be or is a controlled action under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No (see explanation below, Section 1.4.1)</b></p>
<p>Has the proposed action been referred? If yes, when was it referred and what is the reference number (EPBC No.)?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b></p> <p>Date: _____</p> <p>EPBC No.: _____</p>
<p>If referred, has a decision been made on whether the proposed action is a controlled action? If 'yes', check the appropriate box and provide the decision in an attachment.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Decision – controlled action</p> <p><input type="checkbox"/> Decision – not a controlled action</p>
<p>If the proposal is determined to be a controlled action, do you request that this proposal be assessed under a Bilateral Agreement or as an accredited assessment?</p>	<p><input type="checkbox"/> Yes - Bilateral <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - Accredited</p>
<p>Is approval required from other Commonwealth Government/s for any part of the proposal?</p> <p><i>If yes, describe.</i></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b></p> <p>Approval:</p>
<p><b>Decision-making authority referrals ONLY</b></p>	
<p>What approval/s, under your authority, are required for this proposal? <i>Please provide details.</i></p>	

#### 1.4.1. Significance test

Internal workshop and self-assessment significance test determined that referral under EPBC Act was not required. The Robe Mesa Project is considered a low impact development for the Pilbara region:

- Small development envelope of 270 ha (within which is a smaller footprint), consisting of a mine pit, temporary plant/infrastructure, and access road to North West Coastal Highway
- No mine pit dewatering
- No waste rock landforms, with all waste progressively backfilled directly back into the mine void
- Mine pit is setback from, and will avoid, the mesa edges, with any disturbance at the top of the mesa located between 50 and 300m from the mesa edge
- 30 ha mesa top mine exclusion zone
- No disturbance to drainage lines, wetlands, water bodies, or groundwater dependent vegetation and ecosystems.

CZR has conducted detailed environmental investigations and environmental impact assessments since 2020, including:

- 4 phases detailed terrestrial fauna surveys
- 3 phases detailed flora and vegetation surveys
- 3 phases of SRE surveys
- 3 phases of troglofauna surveys
- Three-dimensional troglofauna habitat modelling
- Noise and vibration modelling
- Groundwater assessments
- Surface water modelling and flood assessment
- Waste characterization analysis
- Greenhouse gas assessment

Key outcomes from our investigations to date include:

- Over 3,000 ha of vegetation and fauna habitat mapped in and around the project area
- Vegetation types of the project area are common and widespread in the west Pilbara
- No Threatened Flora or TECs recorded
- One Priority Flora identified, widely distributed in the west Pilbara
- Three conservation significant species (BC Act and EPBC Act listed) recorded:
  - Northern Quoll, widespread throughout the region and considered visitors to the project area.
  - Ghost Bat and Pilbara Leaf-Nose Bats in low numbers, with no significant / maternity roosts within project area.
- Waste classified as NAF, lacking enrichments in minor-elements.

## 2. Robe Mesa Project

### 2.1. Low Impact Development

The Robe Mesa Project is a low impact iron ore development, comprising:

- Small development footprint, consisting of
  - **68 ha mine pit on mesa surface**
  - 94 ha plant and support infrastructure on stony plains
  - 108 ha access road to NW Coastal Hwy on stony plains
- Pit boundary is setback between 50 and 300m from the mesa edge to avoid disturbance to the cultural and habitat values of the mesa edge and scree slopes, maintaining 7.2 km of escarpment.
- 30 ha mine exclusion zone on the mesa surface and no mining within a minimum 50 m of mesa edge
- No waste rock landforms/dumps outside the pit (100% in-pit back fill).
- No mine pit dewatering, with all mining above the water table.

### 2.2. Key Investigations and Findings

**Table 11 Summary of key findings from investigations at the Robe Mesa Project area.**

Factor	Key findings	Reference
Vegetation and Flora	<ul style="list-style-type: none"> <li>• No Threatened Flora or Threatened Ecological Communities</li> <li>• Vegetation is widely distributed across the west Pilbara.</li> <li>• Three Priority Flora, widely distributed</li> </ul>	Biota (2023a) Biota (2023b) RPS (2021)
Terrestrial Fauna	<ul style="list-style-type: none"> <li>• Northern Quolls recorded from the mesa edge and drainage lines and considered visitors to the project area.</li> <li>• Ghost Bat and Pilbara Leaf-Nose Bats recorded in low numbers and considered visitors to project area. No roosts were recorded within the project area.</li> </ul>	Bamford Consulting Ecologists (2023) and (2024)
Noise and Vibration	<ul style="list-style-type: none"> <li>• No noise or vibration impacts from the Project predicted to disturb known roost site ~2km south of the project area, off CZR managed tenements.</li> </ul>	Lloyd George Acoustics (2023)
Troglofauna	<ul style="list-style-type: none"> <li>• Troglofaunal species of the project area were recorded on and off the project footprint.</li> </ul>	Biota (2023c) and (2024)
Troglofauna habitat	<ul style="list-style-type: none"> <li>• Estimated volume of troglofauna habitat for the Robe Mesa Project is ~15,500,000 bcm, which represents 3.5% of the total contiguous troglofaunal habitat within Mesa F.</li> </ul>	CZR (2023)
Stygofauna	<ul style="list-style-type: none"> <li>• No impact from mining as all excavations are above the water table.</li> <li>• No impact on stygofauna key receptors from the operation of production bore PB13-3.</li> </ul>	Biota (2023d)
Groundwater	<ul style="list-style-type: none"> <li>• Predicted groundwater drawdown at production bore PB13-3, over 8km from the mine pit and the Robe River pools, will not impact riparian vegetation or potential GDEs.</li> </ul>	Biota (2023d) AQ2 (2023)
Surface Water	<ul style="list-style-type: none"> <li>• Surface water modelling and flood assessment has guided the location of mine infrastructure out of Mungarathoona Creek and Robe River flood zones / floodplains.</li> </ul>	AQ2 (2021) AQ2 (2022) AQ2 (2024)
Waste characterisation	<ul style="list-style-type: none"> <li>• All waste streams are considered non-acid forming (NAF) and lacking enrichments in minor-elements.</li> </ul>	Graeme Campbell (GCA 2022)

Factor	Key findings	Reference
Greenhouse Gas	<ul style="list-style-type: none"> <li>Annual operating greenhouse gas emissions (for mine and road haulage to port) is estimated at ~51,000 tCO<sub>2</sub>e pa, with all land clearing estimated at a total of ~14,200 tCO<sub>2</sub>e.</li> </ul>	Greenbase (2023)
Management Plan	<ul style="list-style-type: none"> <li>Site Specific Environmental Management Plan, with a focus on management of fauna and fauna habitat values.</li> </ul>	Biota and CZR (2024)

### 2.3. Environmental Management Outcomes

Through implementation of the Environmental Management Plan, CZR will ensure the following management outcomes are achieved.

#### Vegetation and Flora:

1. No loss of significant flora species due to the project.
2. No loss of flora and vegetation outside of the project development envelope.
3. No introduction or spread of environmental weeds due to the project.
4. No significant decline in vegetation condition outside of the project development envelope.

#### Landforms:

- No reduction in the geodiversity or range of geological or geomorphological features that exist in the Pilbara region.
- Mine pits will be backfilled, and no waste rock landforms/dumps will be established outside the mine pit footprint (i.e. 100% of waste material will report to in-pit back fill).

#### Subterranean fauna:

5. Mine pit ground disturbance will not exceed 68 ha.
6. No significant decline in subterranean fauna habitat condition outside of the mine pit.
7. No loss of subterranean fauna habitat outside of the project development envelope.

#### Terrestrial Fauna:

8. Project ground disturbance will not exceed 270 ha.
9. No loss of habitat critical to significant fauna species due to the project.
10. No loss of fauna habitat outside of the project development envelope.
11. No introduction or spread of introduced fauna due to the project.
12. No significant decline in habitat condition outside of the project development envelope.

#### Inland Waters:

- No mining will occur below the water table
- No wetlands or GDVs will be impacted by the project.
- Apart from necessary creek crossings, drainage lines will be avoided.

#### Social Surroundings (Heritage):

1. No direct disturbance of sites of cultural heritage significance.
2. No degradation or reduction in amenity of sites of cultural heritage significance.

### 2.4. Environmental Management Actions

Management actions associated with the environmental outcomes in Section 1.3, are a subset of actions prescribed within the Environmental Management Plan (EMP) for the Project. The complete set of management actions within the EMP are ranked using a risk-based prioritisation and timing approach. Key

management actions relevant to this document are provided below, with some actions affecting more than one environmental receptor/factor.

### **Robe River Valley Mesa Landforms**

- Retention of the highest value habitat values associated with the mesa landforms, the escarpments within the broader habitat unit.

### **Environmental Management**

- Site induction for all personnel to specify environmental management requirements including:
  - Ground disturbance approval procedure.
  - Fire prevention and emergency response procedures.
  - Onsite speed limits and response and reporting protocols for any fauna roadkill.
  - Prohibition of off-road driving over uncleared fauna habitat and vegetation.
- Final design of project footprint to reduce extent of vegetation / habitat cleared, including utilising existing tracks and co-locating infrastructure, where feasible.
- Develop and implement ground disturbance approval procedures, requiring supervisor approval prior to proceeding.
- Approved clearing limits to be delineated on ground and spatially managed via GPS technology.
- Final alignment of road and any associated materials sourcing areas (i.e. borrow) to avoid known locations of Priority fauna and flora.
- Implement rehabilitation procedures for decommissioned areas of the project footprint, in accordance with the project's Mine Closure Plan

### **Conservation Significant Fauna**

- Final mine pit design to be spatially limited to observe the mesa edge buffer and No-Go Areas (i.e. Heritage Exclusion Zone).
- Monitor for conservation significant species activity prior to and during construction and operations to assess for changes in behaviour/distribution.

### **Northern Quoll**

- Provide for underpasses that link disconnected habitats such as creek crossings and pit ramp.
- Best practice waste management procedures and facilities, particularly for food waste.
- Prohibiting all personnel from feeding of fauna or disposal of food outside of allocated disposal points.
- Implementation of targeted feral fauna control in areas of higher risk, principally around the camp mess and crib rooms.

### **Conservation Significant Bats**

- Drill and blast activities to be constrained to the approved mine pit boundaries.
- Incorporate best practice lighting design principles (based on DCCEEW 2023), including but not limited to:
  - site lighting incorporating light sources with little/no short wavelength (blue and ultraviolet).
  - light and motion-sensitive activation and deactivation where safety considerations permit.
  - direct lighting to required areas only.
  - incorporate shielding to reduce unneeded light spill.

### **Priority Flora**

- Weed hygiene and topsoil management plan, including creation of formalised clean down points prior to plant and vehicles entering site.
- Development and readiness resourcing for fire emergency response procedures.

## Surface Water

- Incorporate appropriate culverting or other drainage treatments into the final design of the haul road at locations where it crosses significant drainage lines, to ensure no backwater upstream of the crossing point or reduction in natural hydrology downstream.
- Implement a surface water management plan, based on surface water modelling already completed, to manage surface water flow in and around the Project area during operations.
- With RRK endorsement, establish a monitoring program for the Robe River Pools to establish baseline conditions and monitor during operations.

## Heritage

- Implement approved Cultural Heritage Management Plan and Environmental Management Protocol.

### 3. Stakeholder Consultation

*EPA Services Request: Details of consultation that has been undertaken with relevant stakeholders, including Traditional Owners on matters relating to impacts to cultural heritage values.*

Since acquiring tenements in 2014, CZR has consulted broadly during ongoing investigation, design, and evaluation of the Project. Key stakeholders identified and engaged in the last three years are listed below.

- State Government Agencies and Branches
  - Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), Environment
  - DEMIRS, Mineral Titles
  - Department of Water and Environment Regulation (DWER), EPA Services
  - DWER, Part V EP Act approvals and licencing
  - DWER, Water Branch
  - Department of Planning, Lands and Heritage (DPLH)
  - Department of Biodiversity Conservation and Attractions (DBCA), Species and Communities
  - DBCA, Environmental Management Branch
  - Main Roads Western Australia (MRWA).
- Local Government Authority
  - Shire of Ashburton
- Indigenous Groups and representatives.
  - Robe River Kuruma Aboriginal Corporation (RRKAC)
- Pastoral station owners.
  - Yarraloola Station
- Other (underlying) tenement holders
  - Access deeds entered into with entities associated with Rio Tinto, Robe River Mining Company, API Management, Red Hill Minerals and Mineral Resources.

Meetings have been held with a range of government agencies, RRK people, and individuals interested in, or affected by, the Project. The consultation meetings aimed to:

- Inform stakeholders about the proposed project
- Identify areas in which stakeholders would or may be affected
- Collect feedback and stakeholder's concerns regarding the proposed project
- Ensure that there are mechanisms in place for stakeholders to be able to exchange information and discuss concerns with CZR.

The process of engagement has been to enable individuals, groups and agencies potentially interested or affected by the Project, to provide feedback, ask questions, raise issues or opportunities, and have their feedback considered. This assists to proactively identify and manage any potential issues or opportunities as early as possible in the Project.

The engagement has resulted in:

- Negotiation and finalisation of the Robe Mesa Project Agreement with RRK people
- Land access agreements
- Regular stakeholder updates on the Project
- Understanding and mitigation of potential social risks and enhance opportunities
- A strong relationship with stakeholders and the community

Community and stakeholder engagement is continuing to assist with the management of stakeholder communication and interaction as the Project progresses through regulatory approvals and prepares for execution.

CZR will continue to liaise closely with all stakeholders, authorities, and the local community during the next phases of the Project and will continue to adapt the engagement strategy to respond to the needs of the Project and the stakeholders.

### 3.1. Robe River Kuruma Aboriginal Corporation (RRKAC)

Dialogue with RRKAC has taken place over many years and has involved negotiating the Native Title Agreement (with its subsequent Schedule 2 Cultural Heritage Management Plan and Schedule 3 Environmental Management Protocol), conducting Heritage surveys and general stakeholder engagement activities. Table 12 is only a snapshot of RRKAC stakeholder engagements related to our environmental management plans and regulatory submissions. Further details and minutes can be provided if required.

**Table 12 Key environmental discussions with RRKAC**

RRKAC – CZR	
26-May-21	Initiate CZR and RRKAC Native Title Agreement negotiation process
During 2022	Native Title Agreement progression through regular workshops
7-Oct-2022	First Cultural Heritage Management Protocol (CHMP) workshop held between RRK-CZR
18-Nov-22	Common law holders of Robe River Kuruma people agreed to endorse the CZR Agreement
15-Dec-22	Finalisation of the CZR Native Title Mining Agreement & State Deed for execution by CZR & RRKAC
26-Oct-23	CZR provided RRKAC the Robe Mesa NVCP Supporting Document to DMIRS (June 2023), GWOS and H2 assessment and summary of CZR submissions and regulatory process
02-Nov-23	Face-to-Face Meeting with RRKAC to discuss Environmental Approvals, and appointment on new RRKAC Team Members for Heritage, and Environment
15-Nov-23	Email to RRKAC advising response from DMIRS Environmental Officer regarding NVCP advertising that no public comments were received and due to DMIRS workload the application is still under assessment, so no further guidance at this time on likely outcome or timing.
23-Nov-23	CZR provided RRKAC the Mining Proposal submission sent to DMIRS (24 August 2023)
22-Dec-23	CZR issued RRK a clean version of the CHMP for comment ( <i>still awaiting RRKAC feedback</i> )
13-Mar-2025	CZR presented to RRKAC Heritage Advisory Committee in Karratha, providing an update on Robe Mesa project
Regular RRKAC-CZR meetings	Regular RRKAC-CZR Catch Ups (scheduled three-weekly) commenced 27-Feb-24, with subsequent meetings 19-Mar, 9-Apr, 21-May, 18-Jun, 11-Sep, 22-Oct, 12-Nov, 10-Dec, continuing into 2025 with 23-Jan-25, 13-Feb-25, 25-Feb-25, 18-Mar-25,
EMProt workshops	CZR sent RRKAC first draft of Environmental Management Protocol (EMProt) on 18-Mar-24, with first face-to-face workshop 24-Jul, followed by subsequent MS Teams workshops on 6-Aug, 20-Aug, 25-Oct, 30-Oct, 11-Dec, 28-Jan-2025, 5-Mar-25, 19-Mar-25

## **3.2. DWER (EPA Services)**

### **3.2.1. EPA Services Pre-Referral meeting 1: December 4, 2020**

A face to face meeting occurred on 4 December 2020 with DWER – EPA Services (Troy Sinclair, Liesl Rohl), Bamford Consulting Ecologists (Mike Bamford) and CZR Resources (Tanya McColgan) in Joondalup. The meeting discussed the Project (Yarraloola Project at this time).

Notes were taken and included in a follow-up email (can be provided). CZR were primarily seeking feedback on survey approaches.

It is understood that this meeting also involved discussions about the possibility of a NVCP route. No follow-up notes between CZR and EPA Services confirm this, however internal CZR emails following this meeting (2 February 2021) suggest that referral of the proposal to the EPA is unlikely (based on discussions in December 2020). In pre-meeting notes sent to EPA Services, prior to the December 2020 meeting, Tanya McColgan is very clear about the description of the project, which remains like that currently proposed, and clear about the potential impacts to significant fauna in emails.

### **3.2.2. EPA Services Pre-Referral meeting 2: June 1, 2022**

A Teams meeting occurred on 1 June 2022 at 2.00pm with DWER – EPA Services (Troy Sinclair), Bamford Consulting Ecologists (Mike Bamford) and CZR Resources (Tanya McColgan and Fabian Goddard).

The purpose of this meeting was to discuss the approach towards the Robe Mesa Project and combination of detailed and targeted investigations that have been undertaken in 2021 and scheduled in 2022.

Notes were taken (can be provided).

The notes provide a description of the Robe Mesa Project, which is the same or like the Robe Mesa Project proposed. The Robe Mesa Project described in the June 1 meeting notes consists of a mine area (within Mesa F), an infrastructure area to the south, and two options for a haul road to the coastal highway to the west.

Additionally a pre-RFI response meeting with EOA Services was held 19 March 2025, to confirm content of the RFI response was in line with submission requirements.

## **3.3. DEMIRS**

### **3.3.1. DEMIRS Pre-submission meeting: February 23, 2023**

A face to face meeting with DEMIRS was held on the 23 February 2023 at Mineral House, where CZR proposed its approval pathway (i.e. NVCP). The approach was received positively, and no concerns were raised, or suggestions made that the project should be assessed by EPA Services.

Notes from this meeting were taken (can be provided).

### **3.3.2. DEMIRS Response to further information meeting: 11 September 2024**

A face to face meeting with DEMIRS and EPA Services was held on the 11 September 2024 at Mineral House. Presentation addressed concerns raised by DEMIRS and DBCA during assessment of CPS. Also present at meeting were technical experts Dr Mike Bamford (Bamford Ecological Consultants) and Garth Humphreys (Biota Environmental Sciences) to address concerns raised on terrestrial fauna and subterranean fauna. Outputs from this meeting were CZR provided amended NVCP and Mining Proposal submissions over the following weeks with the final submission occurring on 2 December 2024 (Section 8.1, 2 December 2024 DEMIRS RFI Response).

Notes from meeting were taken (can be provided).

**Table 13 Key environmental discussions with DEMIRS**

DEMIRS – CZR (Zanthus)	
12-Apr-23, 21-Jun-23	Native Vegetation Clearing Permit (NVCP) application was submitted for assessment, then resubmitted 21-Jun-23 with reduced application area.
24-Aug-23	CZR applied for a Mining Proposal for the Robe Mesa Project (Reg ID 120354)
17-Oct-23	NVCP application (CPS 10248/1) was formally advertised with no objections received
2-Feb-24	CZR was advised that the DEMIRS review of the NVCP application had identified some concerns and requested further information.
15-Feb-24	CZR provided a detailed response to the queries raised by DEMIRS on 2-Feb-24
27-Aug-24	DEMIRS provided further comments, based on a separate DBCA assessment of the NVCP application. A copy of DBCAs original advice was provided to CZR on 9-Sep-24.
11-Sep-24	Meeting between CZR, its environmental consultants/ technical experts, DEMIRS and the EPA Services Unit determined which additional information was to be provided to DEMIRS to support finalising the assessment
2-Dec-24	CZR submitted final package of documents which included <ol style="list-style-type: none"> <li>1. Amended NVCP CPS-10248/1 supporting document</li> <li>2. Amended Robe Mesa Project Mining Proposal MP (Reg ID 120354)</li> <li>3. Amended Robe Mesa Project Environmental Management Plan (CZR and Biota)</li> <li>4. Amended Terrestrial Fauna Report (Bamford Consulting Ecologists),</li> <li>5. New supporting information on <i>Triodia pisoliticola</i> PEC in the Robe Mesa Project footprint</li> <li>6. New supporting information on subterranean communities of the Robe Valley (Biota)</li> <li>7. Amended Robe Mesa Project Troglifauna Assessment Report (Biota Environmental Sciences)</li> <li>8. Amended Surface Water Model, with culvert designs for Mungarathoona Creek (AQ2)</li> <li>9. Baseline groundwater monitoring data (AQ2)</li> </ol>

### 3.4. DWER (Water)

Consultation with DWER regarding Section 5C Application to abstract water (application 056535) for PB-13, is ongoing.

In June 2023, CZR Resources applied for a new groundwater licence under 5C of the RIWI Act (Water Online Ref. 056535 - CZR), to add production bore PB13-3 (currently held by API Management, under GWL186037) to L08/303.

Preliminary requests for information were received in August 2023, with CZR providing the requested further information in September. The requests related to general administrative queries as well as request to prepare a Groundwater Operating Strategy. A Robe Mesa Project Operating Strategy was provided for review September 2023. At this time (September 5, 2023), CZR also provided DWER (Water) with a copy of the NVCP application, Mining Proposal and Mine Closure Plan for their reference, as well as all tenement granting letters.

In November 2023, DEWR requested for further information to the 5C application. This request sought further information on the H2 Hydrological Report (review with comments to be updated), groundwater monitoring regime, the *Triodia pisoliticola* PEC, subterranean fauna assessment at the bore fields (stygofauna) and Traditional Owner Consultation. Further information for all these matters was provided on December 17, 2023, including a revised Operating Strategy from AQ2.

In February 2024, CZR provided DWER (Water) with an update of recent consultation with RRK relating to an RRK review of the Robe Mesa Project Hydrological Report (AQ2) and Operating Strategy (AQ2). CZR, in consultation with AQ2, responded to the review and provided DWER with an update on consultation with RRK around this matter.

In August 28, 2024, further groundwater monitoring data was provided to DWER, as summarised by AQ2 (Memo).

In October 2024, following a final review of the Robe Mesa Project Groundwater Operating Strategy by the DWER Regional Hydrogeologist, three additional updates were requested. A meeting between DEWR (Water), AQ2 and CZR was also held on October 9 2024, to discuss the comments raised and the amended document was provided back to DWER on November 19,2024.

In discussions with DWER (Water since the submission of the latest Groundwater Operating Strategy), they noted that they have completed their review and assessment and are awaiting Mining Proposal and NVCP approval for Groundwater License to be issued.

### **3.5. Shire of Ashburton**

Consultation and engagement with Shire of Ashburton regarding Robe Mesa Project has mainly been in the context of utilising the Port of Ashburton as an export facility, and this has been undertaken on behalf of Ashburton Link [Ashburton Link](#) which is 50% owned by CZR Resources.

## 4. Cumulative Impacts Robe River Valley

*EPA Services Request: Information on cumulative impacts, taking into consideration past, current and reasonably foreseeable future activities in the area.*

Noted. CZR also recognise the significance of the environmental and cultural heritage of the area, and as such, have prepared an Environmental Management Plan and a Cultural Heritage Management Plan, based on comprehensive environmental and heritage surveys. Through both these Management Plans, CZR provides the following commitments:

- To maintain a minimum 50 metre mesa edge buffer zone to protect areas of environmental and cultural heritage importance.
- To enforce No-Go-Areas.
- To backfill the mining void with waste material.
- To only undertake mining above the water table.
- To continue collaborative engagement with the RRK people on heritage and closure landform.

These key commitments will ensure that the project proactively manages environmental and cultural priorities, through an avoidance approach, consistent with best practice impact mitigation.

### 4.1. Cumulative Assessment

The Robe Valley contains numerous mesa landforms, of which a large proportion are comprised of channel iron deposits. The Robe Valley mesas are remnants of the ancestral Robe River, where iron rich deposits have been deposited in paleochannels. Subsequent uplift and erosion of the surrounding landscape has exposed and segregated the paleochannels into a series of mesa formations, which are characterised by relatively flat tops and steep sides (escarpments).

Mesa F, within which the Robe Mesa Project is located, is an incised and partial-formed mesa located in the western region of the Robe Valley, within the Robe River Catchment. Operations and/or proposals in the Robe Valley, in proximity to the Robe Mesa Project on Mesa F include (GeoView.WA):

- Existing Mesa A/Warramboe Iron Ore Project – 16.2 km north east
- Existing Mesa A Hub Project (including Mesa B and Mesa C) – 9.2 km north east.
- Existing Mesa H operations – 19 km east north east
- Existing Mesa J Project – 24.4 km east
- Historical Mesa K and Remnant Mining Operations – 26 km east north east
- Existing West Pilbara Iron Ore Project (Kens Bore Pit) – 43 km south east

The habitat type most affected by cumulative impacts in the Robe Valley are the Mesa Plateaus, which, accounting for cumulative impacts from reasonably foreseeable projects, will have lost 61% of their pre-European extent in this area (Rio Tinto 2019). Note, the other operations in the Robe Valley are all at a significantly larger scale than that of the Robe Mesa Project Proposal, requiring mine pit dewatering, removing mesa edges and escarpments, and establishing additional footprints for waste rock landforms (see **Table 14** ).

**Table 14 Cumulative assessment of projects within the Robe Valley**

	<b>Mesa A Hub Revised, (MS 1112)</b>	<b>Mesa H (revision to Mesa J Development) (MS 1141)</b>	<b>West Pilbara Iron Ore Project, Stage 1 Mine Area (Ministerial Statement 1027)</b>	<b>Robe Mesa Proposal</b>
<b>Proponent</b>	Robe River Mining Co. Pty Ltd	Robe River Mining Co. Pty Ltd	API Management Pty Ltd	Zanthus Resources Pty Ltd
<b>Approval date</b>	21 August 2019	9 July 2020	4 February 2016	
<b>Footprint</b>	6,680 ha	4,000 ha	5,445 ha	270 ha
<b>Significant habitat / vegetation units to be removed</b>	<ul style="list-style-type: none"> <li>8 ha of breakaway and gully habitat</li> <li>3 ha of major river/creek habitat</li> <li>1 nocturnal GB roost cave</li> </ul>	<ul style="list-style-type: none"> <li>3.5 ha of breakaway and gorge habitat</li> <li>1.3 ha of riverine habitat</li> <li>No bat roost caves</li> </ul>	<ul style="list-style-type: none"> <li>282 ha of <i>Triodia pisolitica</i> assemblages PEC</li> <li>125 ha of vegetation on Red Hill Creek within dewatering drawdown contour</li> <li>110 ha indirect disturbance of surface water dependent vegetation</li> </ul>	<ul style="list-style-type: none"> <li>0.5 ha of breakaway habitat (ramp access)</li> <li>1.5 ha of floodplain and minor drainage (haul road corridor)</li> <li>No major river / creek habitat disturbed.</li> <li>No bat roost caves</li> </ul>
<b>Troglofauna habitat retention</b>	Retain 50% of connected pre-mining troglofauna habitat at Mesa A, Mesa B and Mesa C	Retain 50% of connected pre-mining troglofauna habitat at Mesa H	<ul style="list-style-type: none"> <li>Retain 50% of connected CID deposits (potential troglofaunal habitat) for each of the following deposits: Cochrane, Jewel, Cardo Bore North, Cardo Bore East, Upper Cane, Trinity Bore, Catho Well</li> <li>Retain 35% of connected CID deposits (potential troglofaunal habitat) for Kens Bore deposit.</li> </ul>	<ul style="list-style-type: none"> <li>Retain 96.5% of connected pre-mining troglofauna habitat at Mesa F</li> <li>Retain 68% of connected pre-mining troglofauna habitat within CZR's portion of Mesa F (M08/533)</li> </ul>
<b>Mesa edge retained</b>	Retain escarpments in Mine Exclusion Zones (MEZ) only for Mesa A, B and C	Retain escarpments in Mesa H Retain northern escarpment only for Mesa J	Remove 17.4 km of liner mesa landforms, including mesa edges	Retain escarpments for Robe Mesa Project
<b>WRD Placement</b>	Out of Pit and In Pit	Out of Pit and In Pit	Primarily out of pit Waste rock landforms	In Pit only
<b>Water supply</b>	15 GL pa	30 GL pa	5 GL pa	0.54 GL pa
<b>Dewatering/ discharge</b>	Dewatering to Mesa C and Warrambo Discharge to Warrambo Ck	Dewatering to Mesa H & Mesa J, Discharge to Jimmawurrada Ck, West Ck, Robe River	Dewatering of two of the either deposits (Kens Bore and Cardo Bore East). Discharge 1.5GL pa to Red Hill Creek	No dewatering No discharge

## 4.2. Regional Landform and Geodiversity

Regional assessment of landform and geodiversity within the Pilbara was conducted by Doug Blandford (Blandford 2009) for APIM (MS 881 and MS1027), looking at mesa landform diversity throughout the Pilbara, quantifying their extent, and estimating cumulative impacts to these landforms. Blandford (2009) categorised these landforms into three broadly distinct types (Figure 4.1: ):

- Type A mesa: A flat-topped hill, generally of limited area, the surface of which comprises flat-lying sediments that form an erosion-resistant cap.
- Type B mesa: Erosion has, in part, destroyed the integrity of the continuous free face normally, weathering or erosion systems resulting in a landscape of low rolling hills.
- Type B mesa attached. Mesa-like morphology like Type A mesas, but the structure is embedded in (attached to) the walls of the original valley (i.e., is not free-standing).

Robe Mesa Project is within Mesa F, which has been classified as a Type B Mesa.

Blandford (2009) quantified the extent of mesa and mesa-type palaeochannel landforms by measuring the length of each plateau surface along the longer axis of the structure. Results found that 222.6 km of Type A Mesas and 1,396 km of Type B Mesas remain (undisturbed and unapproved for disturbance) in the Pilbara (Figure 4.2). **The Robe Mesa Project represents 0.1% (1.8 km) of the Type B Mesas remaining in the Pilbara region.**

## 4.3. Landform and Geodiversity of the Robe Valley

Within the Robe Valley, the Robe Valley Pisolite represents 29,326.1 ha, of which an estimated 2,618 ha (9%) has been extracted. The Robe Mesa Project represents 0.3% (68 ha) of the remaining 26,708 ha of Robe Valley Pisolite (Figure 4.3).

Even within the approximately 1,880 ha Mesa F formation, the 68 ha **Robe Mesa Project mine void represents a very small proportion (3.6%) of the broader and undeveloped landform** (Figure 4.4).

Figure 4.1: Landform types associated with channel iron deposits

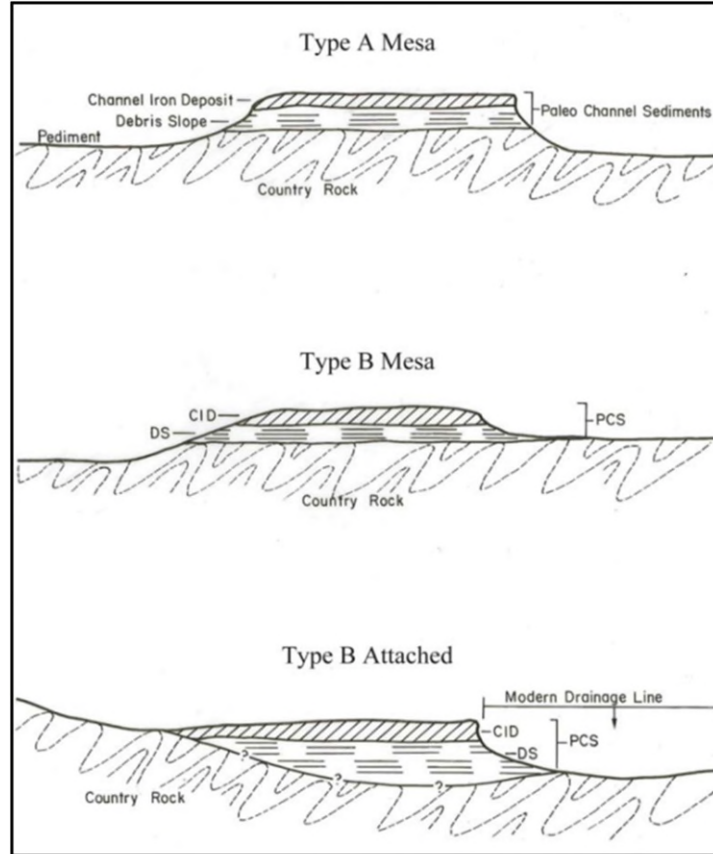


Figure 4.2: Palaeochannel landforms (regional context)

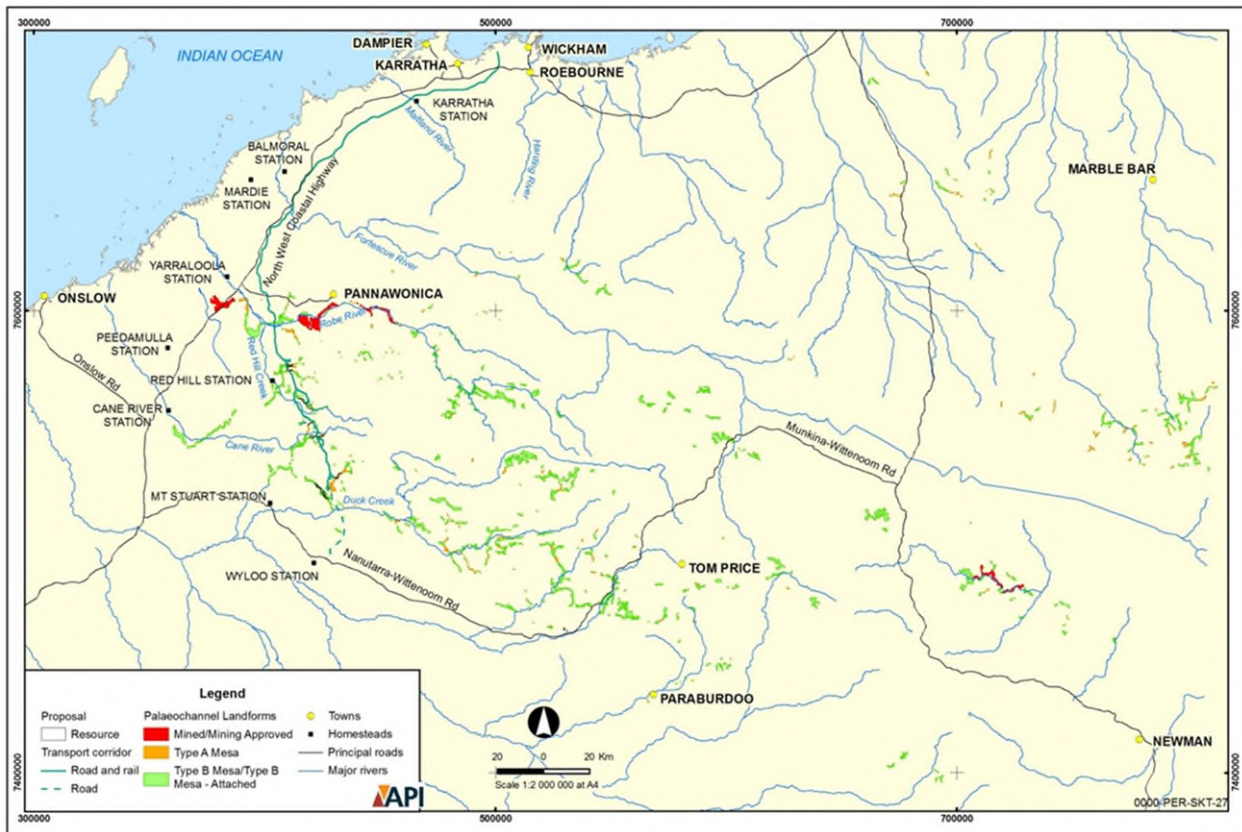


Figure 4.3: Robe Valley Pisolite

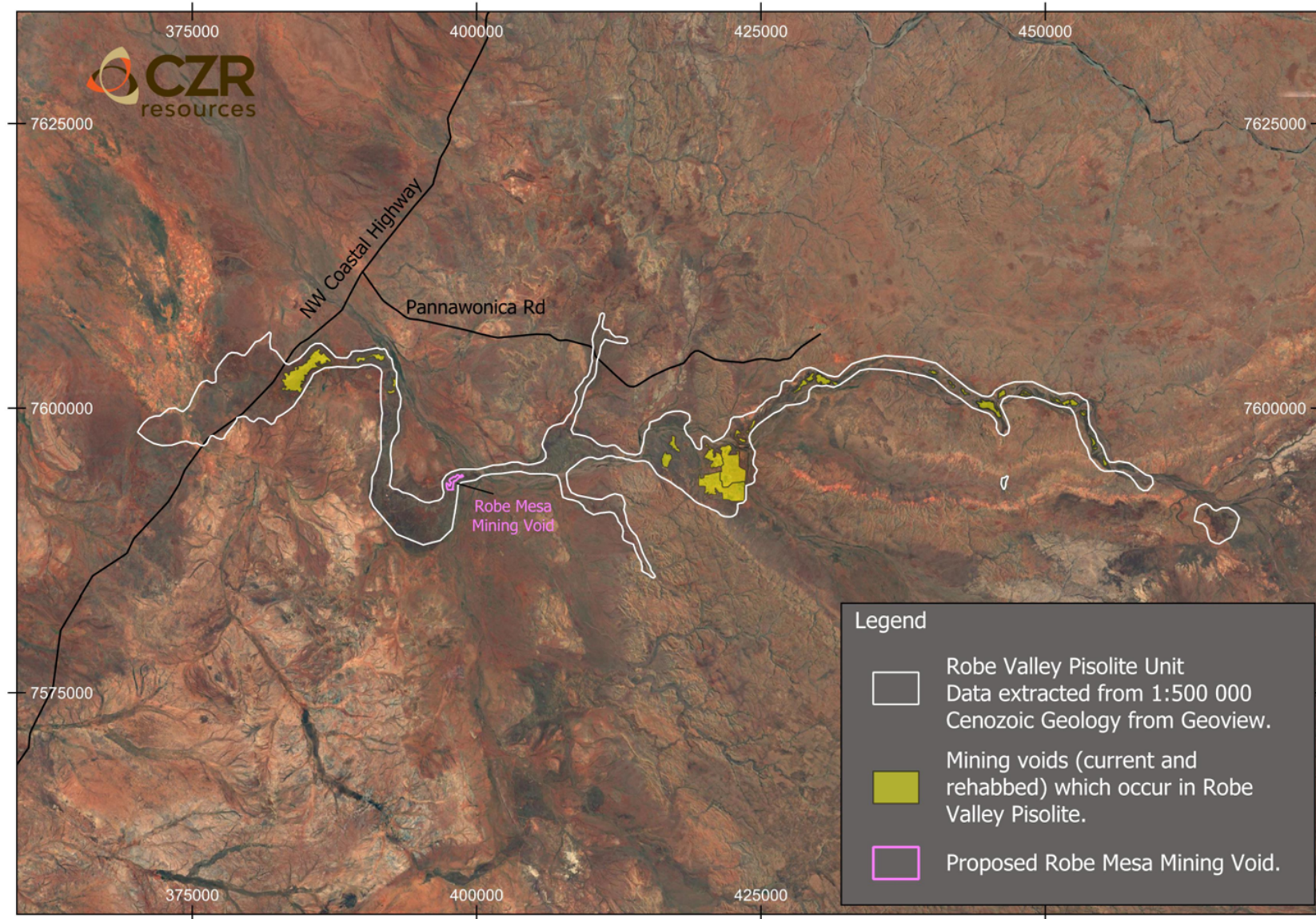
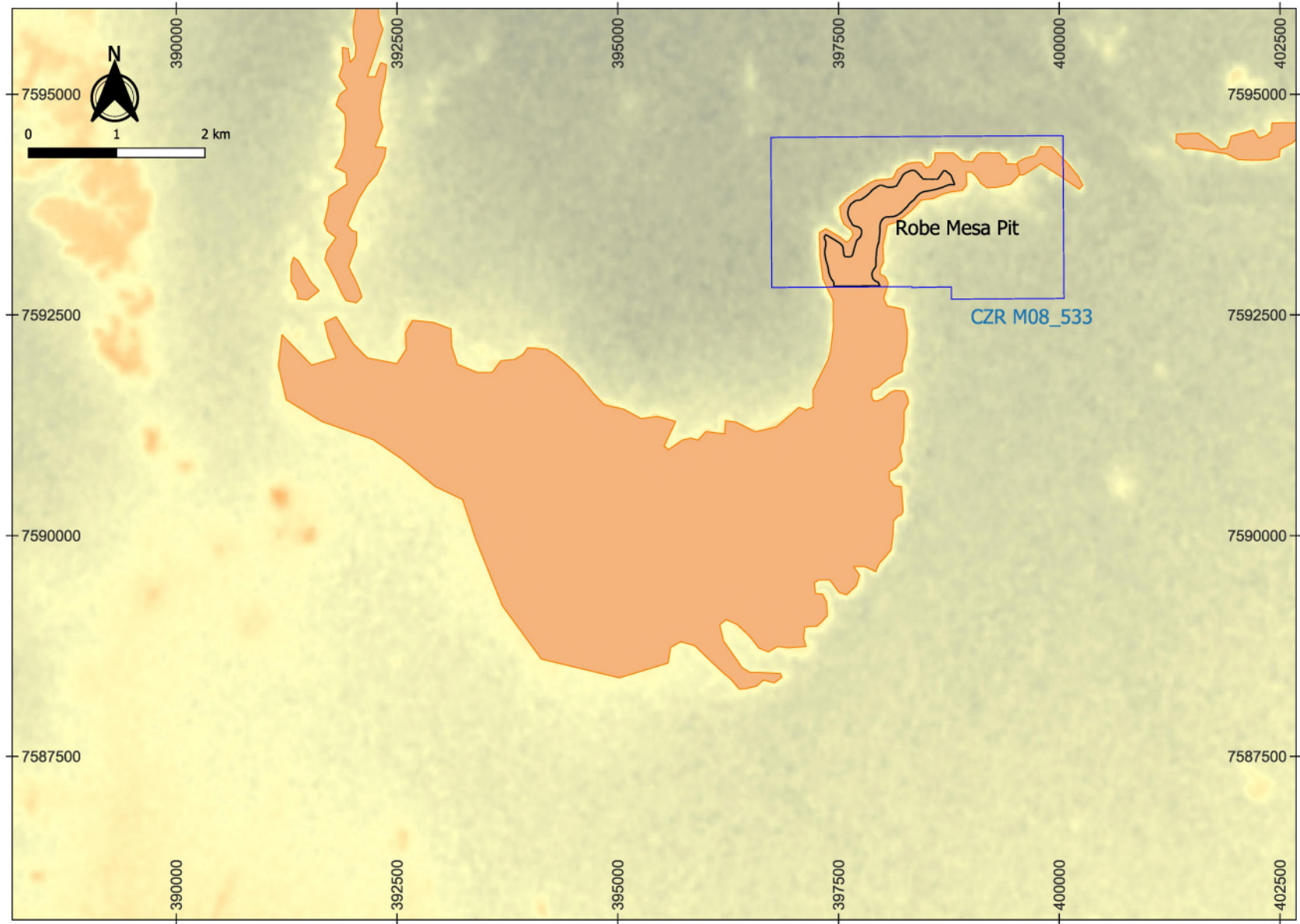


Figure 4.4: Mesa F landform



## 5. Statutory Decision-Making Processes

**EPA Services Request:** *A summary of the statutory decision-making processes you consider can mitigate the potential impacts of the proposal on the environment, this should include completion of the example table provided as Attachment A to this Notice (reproduced from the EPA’s referral form)*

The principal legislation governing the environmental assessment of the Project is the Environmental Protection Act 1986 (EP Act). CZR has submitted the Project to be assessed via the Native Vegetation Clearing Permit (NVCP) process, under Section 51(E) of the EP Act.

Secondary environmental approvals include all other statute requirements that address environmental risk and provide for the regulation of key environmental aspects, including:

- Mining Proposal under the Mining Act 1978 (Mining Act), administered by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).
- Environmental Licences under Part V of the EP Act to operate the prescribed premises required for the Project, administered by the Department of Water and Environmental Regulation (DWER).
- Groundwater Licence under the Rights in Water and Irrigation Act 1913 (RIWI Act), administered by DWER.
- EP Act and Environmental Protection (Unauthorised Discharges) Regulations 2004
- Dangerous Goods Safety Act 2004 (DGS Act) and associated regulations.
- National Pollutant Inventory (NPI)
- National Greenhouse and Energy Reporting Scheme (NGERS)
- DWER Environmental Protection Regulations

Other management documents, developed to accompany approval applications and provide further detailed on management actions, include:

- Environmental Management Plan (Biota and CZR 2024), developed to accompany the NVCP application and Mining Proposal
- Groundwater Operating Strategy (AQ2), developed as part of Groundwater License requirements
- Cultural Heritage Management Plan (CZR and RRK 2022-2025), under development.
- Environmental Management Protocol (CZR and RRK 2024-2025), under development.

A summary of relevant legislative approvals and regulations required to manage impacts associated with the Robe Mesa Project is provided in Table 15. Table 15 is based on an EPA table provided in the referral application, with two columns omitted (‘Limits of decision-making processes’ and ‘stakeholder engagement’). The column for ‘Limits of decision-making processes’ was omitted as each decision making process provided can legitimately be used to condition, enforce or review against the impact listed. The ‘Stakeholder’ column was omitted as this information is provided in Section 3.

**Table 15 Other statutory decision-making process which can mitigate potential impacts on the environment**

Environmental impact	How is the impact regulated by other decision-making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
Unauthorised land clearing resulting in loss of environmental and heritage values	<ul style="list-style-type: none"> <li>Land clearing is directly regulated by DWER (EP Act).</li> </ul>	Project ground disturbance will not exceed 270 ha.	<ul style="list-style-type: none"> <li>NVCP Conditions</li> <li>Internal ground disturbance permitting conditions</li> <li>AER review</li> </ul>
Weed introduction and spread resulting in habitat degradation	<ul style="list-style-type: none"> <li>Weeds are directly managed within Outcomes of the Mining Proposal (Section 10.4).</li> <li>Management of weeds are also addressed in EMP (Section 3).</li> </ul>	No introduction of new weed species or populations.	<ul style="list-style-type: none"> <li>Mining Proposal Outcomes as tenement conditions:               <ul style="list-style-type: none"> <li>Zero introductions of WoNS (Weeds of National Significance) or Declared Weed species</li> <li>Weed populations to either remain stable or decrease during the Project, based on baseline data.</li> </ul> </li> <li>Detailed weed management actions in EMP (Table 3-2)</li> </ul>
Fauna interaction with site traffic and construction machinery	<ul style="list-style-type: none"> <li>Fauna is directly managed within outcomes of the Mining Proposal (Section 10.4)</li> <li>Management of fauna is also addressed in EMP (Section 3).</li> </ul>	Reduce the risk of vehicle strike and entrapment	<ul style="list-style-type: none"> <li>Mining Proposal Outcomes as tenement conditions:               <ul style="list-style-type: none"> <li>Speed limits are clearly signposted at key locations (e.g. creek crossings and mesa edge) on the road network.</li> <li>Speed restrictions of 60 km/ hr are implemented within key habitat locations (e.g. creek crossings and mesa edge) on the road network.</li> <li>Limit light vehicle movements at night-time while still meeting operational needs.</li> <li>Conduct training and awareness sessions, particularly during periods of seasonal fauna activity</li> </ul> </li> <li>Fauna management actions in EMP (Table 3-2, Section 3)               <ul style="list-style-type: none"> <li>Final design of mine pit and associated infrastructure footprint to observe mesa edge buffer and No-Go Areas.</li> <li>Final alignment of project haul road and any associated materials sourcing areas to avoid known locations of Priority fauna and flora.</li> <li>Drill and blast activities to be constrained to the approved mine pit boundaries.</li> <li>Culverts under roads and directional fencing be established to facilitate movement around the project</li> </ul> </li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
			area. Steep batters may also help to guide animals to the entrance.
Increase in presence of feral animals due to Project related water and food resources resulting in increase in predation and competition	<ul style="list-style-type: none"> <li>Management of feral animals is addressed in EMP (Section 3).</li> </ul>	No increase in introduced fauna due to the project.	<ul style="list-style-type: none"> <li>Feral animal management actions, EMP (Table 3-2, Section 3):               <ul style="list-style-type: none"> <li>Implement best practice waste management procedures and facilities, particularly for food waste.</li> <li>Prohibit all personnel from feeding of fauna or disposal of food outside of allocated disposal points.</li> <li>Maintain a register to record the presence of feral animals on site (including procedure in induction).</li> <li>Implement annual targeted feral fauna control across the broader project area, including high risk areas such as around the camp mess and crib rooms, as well as the infrastructure sites and haul road.</li> <li>Regular inspections of the area and reporting of opportunities sightings will guide annual control event target sites and timing.</li> </ul> </li> </ul>
Change in water demand requirements	<ul style="list-style-type: none"> <li>Groundwater is directly regulated by DWER (RIWI Act).               <ul style="list-style-type: none"> <li>5C Groundwater Licence</li> <li>Groundwater Operating Strategy</li> </ul> </li> </ul>	Management of groundwater resources will occur in accordance with the Groundwater Operating Strategy (AQ2), developed in in consultation with DWER	Groundwater management and monitoring to be implemented in accordance with the Robe Mesa Project Groundwater Operating Strategy (AQ2 2024).
Localised change to surface water flows impacting downstream sensitive receptors (Robe Pools) through erosion and/or sedimentation.	<ul style="list-style-type: none"> <li>Surface water is directly managed within outcomes of the Mining Proposal (Section 10.4).</li> <li>Management of hydrology is also addressed in EMP (Section 3).</li> </ul>	<ul style="list-style-type: none"> <li>Surface water quality and quantity downstream of the mine is maintained within the range of variance of pre-mining background levels.</li> <li>Surface water control structures are constructed and operating in accordance with engineered designs and surface water models,</li> </ul>	<ul style="list-style-type: none"> <li>Mining Proposal Outcomes as tenement conditions:               <ul style="list-style-type: none"> <li>Where possible Infrastructure has been placed outside of 1 in 100-year flood zone.</li> <li>Clearing, movement and disturbance around creek lines and pooled water will be restricted.</li> <li>Construction of surface drains to control and manage surface runoff, separation of clean water runoff (undisturbed catchments) from dirty (sediment laden) and contaminated runoff from disturbed catchments</li> </ul> </li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
		<p>considering rare to extreme rainfall events.</p>	<ul style="list-style-type: none"> <li>- Installation of surface water management infrastructure (culverts, sediment basins, drainage channels, levees) to mitigate flow</li> <li>- Flood risk and surface water containment and diversion strategy for events greater than 1 in 20 year - 72 hours rainfall event</li> <li>• Monitoring, as prescribed in Mining Proposal (Section 10.4):               <ul style="list-style-type: none"> <li>- Audit of constructed surface water control structures associated against engineered designs and surface water models, particularly in relation to rare and extreme rainfall events</li> <li>- Daily inspections (and maintenance as required) of the water storage facilities and surface water management structures. Inspections are to be undertaken by personnel with experience and training in site inspections and should include examination of bunding, sediment basins, liner (if any), flow pathways and downstream impacts.</li> <li>- Monthly water level readings and quarterly water quality sampling from water storage ponds. Analysis will include pH, EC, TDS, acidity, alkalinity, and soluble SO<sub>4</sub>, and Cl, Ca, Mg, Na, K, Ag Al, As, Ba, Be, B, Cd, Co, Cr, Cu, Fe, Hg, Mo, Mn, Ni, Pb, Sb, Se, and Zn. Water level reading and sampling is to be undertaken by an environmental specialist with experience or training in water sampling and preparing samples for laboratory analysis.</li> <li>- Maintain project water balance, including capacity and volume status of each water storage facility.</li> <li>- A summary of inspections, audits, water monitoring results (quality and levels) and project water balance updates will be provided to DEMIRS in the AER.</li> <li>- Detailed monitoring data, chain of custody documents and laboratory analysis available on request.</li> </ul> </li> <li>• Surface Water management actions provided in EMP (Table 3-2, Section 3):</li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
			<ul style="list-style-type: none"> <li>- Ensure earthworks and roads minimise any obstruction to natural surface water flow.</li> </ul>
<p>Poor storage and handling of hazardous materials (including hydrocarbons) resulting in contamination of land, soil resources, groundwater, or surface water because of leaks and spills</p>	<ul style="list-style-type: none"> <li>• EP Act and Environmental Protection (Unauthorised Discharges) Regulations 2004</li> <li>• Dangerous Goods Safety Act 2004 (DGS Act) and associated regulations.</li> <li>• Australian Standard 1940-2004, Storage and Handling of Flammable and Combustible Liquids</li> </ul>	<p>No impact to surrounding soils, land and water resources from hydrocarbon and fluid contamination.</p>	<ul style="list-style-type: none"> <li>• Implement management actions within Mining Proposal (Section 9) and in accordance with EP Act and Environmental Protection (Unauthorised Discharges) Regulations 2004 and Dangerous Goods Safety Act 2004 (DGS Act) and associated regulations, including:               <ul style="list-style-type: none"> <li>- Implement appropriate storage and handling procedures for hazardous materials</li> <li>- Removal of all hazardous materials prior to closure.</li> <li>- Chemicals, hydrocarbons, and other environmentally hazardous materials will be stored and handled in accordance with the DGS Act</li> <li>- Hydrocarbon storage will be self-bunded.</li> <li>- Bunding, containment and handling will be managed in accordance with the Australian Standard 1940-2004, Storage and Handling of Flammable and Combustible Liquids.</li> <li>- Facilities containing hydrocarbons and/or chemicals will be designed with bunds to contain 110% of the contents of the material stored.</li> <li>- Spill control measures in strategic positions with appropriate equipment available to contain and collect/recover hydrocarbon spills.</li> <li>- Personnel trained in use of spill kits.</li> <li>- Spills will be cleaned up and contaminated soils will either be remediated or removed from site by a licenced third party.</li> <li>- Equipment pre-start checks to be undertaken.</li> </ul> </li> </ul>
<p>Greenhouse gas emissions generated from light/heavy</p>	<ul style="list-style-type: none"> <li>• National Pollutant Inventory (NPI) and National Greenhouse</li> </ul>	<p>Minimise greenhouse gas emissions through energy conservation measures</p>	<ul style="list-style-type: none"> <li>• GHG related management actions within Mining Proposal (Section 9) include:</li> </ul>

Environmental impact	How is the impact regulated by other decision-making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
vehicles, generators, and the power station	and Energy Reporting Scheme (NGERS) <ul style="list-style-type: none"> <li>Greenhouse Gas will also be regulated by DWER via Environmental Protection Regulations</li> <li>Note, GHG accounting for the Robe Mesa Project, annual emission estimate is ~51,000 tCO<sub>2</sub>e (Greenbase 2023).</li> </ul>	during design, construction and operations and comply with NGERS.	<ul style="list-style-type: none"> <li>Gas emissions reported to the National Pollutant Inventory (NPI) and National Greenhouse and Energy Reporting Scheme (NGERS)</li> <li>Energy efficiency and greenhouse gas emissions will be considered with equipment selection and purchase (including increased use of renewable energy sources).</li> <li>Regular maintenance of diesel combustion equipment.</li> <li>Education of the workforce on energy efficiency and monitoring consumption</li> <li>Project represents a small footprint relative to other mining groups in the region</li> </ul>
Generation of particulate emissions (dust) from mine and haulage activities	<ul style="list-style-type: none"> <li>Dust emissions are directly managed within outcomes of the Mining Proposal (Section 10.4)</li> <li>Dust management is also addressed in EMP (Section 3).</li> </ul>	No decline in habitat condition outside of the project development envelope	<ul style="list-style-type: none"> <li>Dust related management actions within MP (Section 9):               <ul style="list-style-type: none"> <li>Dust suppression activities are conducted where dust emissions are likely to be deposited on significant vegetation to not damage native vegetation.</li> <li>Water carts are used to control dust emissions on cleared areas and material movement operations.</li> <li>Progressive clearing and rehabilitation will be undertaken to reduce the extent of open areas and dust generation</li> <li>Dust emissions are visually monitored during ground clearing operations (including topsoil stripping) and activities are modified or stopped if unacceptable dust emissions are generated.</li> <li>Controlled screening activities from Plant operations</li> <li>Disturbance activities to be undertaken in accordance with internal clearing permitting process and site clearing procedures</li> </ul> </li> </ul>
Artificial light spill resulting in behaviour changes (i.e. altered foraging)	<ul style="list-style-type: none"> <li>Light spill is managed within the Mining Proposal (Section 9)</li> <li>Light spill management and monitoring is also addressed in EMP (Section 3).</li> </ul>	No decline in habitat condition outside of the project development envelope	<ul style="list-style-type: none"> <li>Implement management actions within Mining Proposal (Section 9) include:               <ul style="list-style-type: none"> <li>Lighting to be directed to required areas only and incorporate shielding to reduce unneeded light spill.</li> </ul> </li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
			<ul style="list-style-type: none"> <li>- Impacts to population abundance is not expected to be significant as these species have not been recorded in high numbers in the project area.</li> <li>• Light management actions in EMP (Table 3-2, Section 3):               <ul style="list-style-type: none"> <li>- Design of site lighting to incorporate light sources with little or no short wavelength (blue and ultraviolet) light and motion-sensitive activation and deactivation where safety considerations permit.</li> <li>- Lighting to be directed to required areas only and incorporate shielding to reduce unneeded light spill into natural areas.</li> <li>- Lighting should not be directed into natural areas and should use non insect-attracting fittings</li> </ul> </li> </ul>
<p>Excess noise and vibration from construction and operation activities (blasting and excavation)</p>	<ul style="list-style-type: none"> <li>• Noise emissions are directly managed within outcomes of the Mining Proposal (Section 10.4)</li> <li>• Noise management is also addressed in EMP (Section 3).</li> <li>• Note, noise and vibration assessments at the site have determined noise impacts comply with relevant criteria and studies (LGA 2023; Bullen and Creese 2014). Sites both at the mesa edge (setback 50 m from operations) and at a known Ghost bat maternity roost (off tenement, &gt; 2 km south of the Project) predicted noise emissions in the range of 45-55dB and 18-22 dB respectively, and well below the criteria level of 70dB (LGA 2023).</li> </ul>	<p>No decline in habitat condition outside of the project development envelope</p>	<ul style="list-style-type: none"> <li>• Noise related management actions within MP (Section 9):               <ul style="list-style-type: none"> <li>- Regular servicing/maintenance of equipment.</li> <li>- Noise Modelling shows no impact on sensitive noise receptors (bat habitat)</li> </ul> </li> <li>• EMP noise management actions in EMP (Table 3-2, Section 3):               <ul style="list-style-type: none"> <li>- Blasting limited to daylight hours and will avoid any nominated exclusion zones.</li> <li>- Drill and blast practices will be modified near the pit edge if rock shelters are identified along the mesa escarpment. If any rock shelter found sits within the minimum distance for 95% probability of compliance with 20 mm/sec vibration, no blasting will occur, with only dozer rip and excavator free-dig activities performed.</li> <li>- Plant, vehicles, and generators will be maintained according to manufacturer specifications.</li> <li>- Vehicle and machinery traffic will be confined to defined roads and tracks where practicable.</li> <li>- Vehicle speed limits shall be imposed and enforced on all roads and tracks.</li> </ul> </li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
PAF materials in waste	<ul style="list-style-type: none"> <li>Management of waste material is managed within the Mining Proposal</li> <li>Note, baseline sampling indicates waste rock at the Robe Mesa Deposit is non-acid forming (NAF) and the risk of acid-metalliferous drainage is low (Graeme Campbell Associates 2022)</li> </ul>	<p>All waste material to be backfilled into mine pit void. Waste material from the project site is Non-Acid Forming</p>	<p>Mining Proposal (Section 9) notes that that continued testing will occur throughout operations for ore and waste characterisation programs.</p>
Unplanned fire resulting from project activities, degrading fauna habitats and vegetation	<ul style="list-style-type: none"> <li>Hot works and fire training are managed in accordance with the Robe Mesa Projects internal operating procedures and Safety/Emergency Management System (SMS).</li> <li>Potential hazard facilities (i.e., magazine) are managed under DG regulations and relevant Australian Standards.</li> <li>Fire management is included within Mining Proposal (Section 10.4)</li> <li>Fire management is also addressed in EMP (Section 3).</li> </ul>	<p>No change to current (pre-mine) fire regime</p>	<ul style="list-style-type: none"> <li>Fire related management actions within Mining Proposal (Section 9) include: <ul style="list-style-type: none"> <li>Vehicles and equipment restricted to designated roads and tracks.</li> <li>Vehicles and equipment fitted with fire control equipment.</li> <li>Implementation of Hot Works Permit system.</li> <li>Installation of firebreaks at selected locations in consultation with DFES.</li> <li>Water carts in operation on site and fire-fighting trailer on site</li> <li>Emergency Response Team will receive firefighting training</li> </ul> </li> <li>EMP fire management actions in EMP (Table 3-2, Section 3): <ul style="list-style-type: none"> <li>Implementation of a hot works permitting system to control any works where sparks or other potential ignition sources are generated, such that there is no risk of adjacent intact vegetation being ignited.</li> <li>Ensure adequate firefighting equipment and personnel are available on site.</li> <li>Development and readiness resourcing for fire emergency response procedures.</li> </ul> </li> </ul>

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
			<ul style="list-style-type: none"> <li>- Liaise with DBCA during their controlled burning season and ensure they are aware of the need to protect sensitive habitat around the project area (i.e. riparian vegetation).</li> </ul>
Waste Water Treatment Plant spill or leakage	<ul style="list-style-type: none"> <li>• WWTP constructed and operated in accordance with Part V Works Approval Licence, administered by DWER.</li> </ul>	No contamination of groundwater reserves from wastewater treatment facility	Conditions will be prescribed within the Works Approval and Operating Licence
Disturbance to Aboriginal and other heritage sites.	<ul style="list-style-type: none"> <li>• Aboriginal Heritage Act 1972</li> <li>• Project Cultural Heritage Management Plan (CHMP) (CZR and RRK collaboration)</li> <li>• Environmental Management Protocol (CZR and RRK collaboration)</li> </ul>	No disturbance to Indigenous Cultural Heritage Sites	Conditions prescribed within the Cultural Heritage Management Plan and Environmental Management Protocol
Mine establishment (and presence) on country	<ul style="list-style-type: none"> <li>• Aboriginal Heritage Act 1972</li> <li>• Project Cultural Heritage Management Plan (CHMP) (CZR and RRK collaboration)</li> <li>• Environmental Management Protocol (CZR and RRK collaboration)</li> </ul>	Access to sites outside the development envelope still possible	Conditions prescribed within the Cultural Heritage Management Plan and Environmental Management Protocol Native Title Agreement between CZR and RRKAC Section 3.2 Access; acknowledges and agrees that the RRK People have non-exclusive Native Title rights including the right to move freely through the RRK Determination Area, in line with the Cultural Heritage Management Plan and Environmental Management Protocol.
Inadequate volume, handling and/or storage of topsoil	<ul style="list-style-type: none"> <li>• Robe Mesa Project Mine Closure Plan</li> </ul>	Adequate topsoil material is available for rehabilitation	Completion criteria of Mine Closure Plan
Poor revegetation outcomes.	<ul style="list-style-type: none"> <li>• Robe Mesa Project Mine Closure Plan</li> </ul>	Safe, stable, and non-polluting mine footprint that has achieved completion criteria and is consistent with the post mining land use.	Completion criteria of Mine Closure Plan

Environmental impact	How is the impact regulated by other decision- making process(es)?	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)
		<p>Achievement of sustainable vegetation/habitats compatible with surrounding undisturbed areas, wherever practicable.</p> <p>Fulfilment of legal obligations.</p> <p>Interests and knowledge of stakeholders considered.</p> <p>Closed areas are safe (no compromise in the health and safety of mine workers and the public).</p> <p>Minimisation of the spread and prevalence of weeds and feral animals.</p> <p>Protection of traditional heritage and cultural values.</p>	

## 6. Provision of Spatial Data

*EPA Services Request: Please provide spatial data in GIS format that is geo-referenced and conforms to the following parameters:*

- *Data type: closed polygons that represent the proposal boundary (development envelope) and the activity areas for all physical elements of the proposal (footprint).*
- *Attribution: Name the development envelope and each activity area in the attribute table of the spatial data.*
- *Format: ESRI geodatabase or shapefile.*
- *Coordinate System: GDA2020 (datum) and projected into the appropriate Map Grid of Australia (MGA) zone.*

Spatial data, as submitted with the Mining Proposal and NVCP application is provided.

## 7. Provision of IBSA Data Packages

***EPA Services Request:** For each biodiversity survey report provided, please ensure that an Index of Biodiversity Surveys for Assessments (IBSA) data package has been submitted in accordance with the Instructions and Form: IBSA Data Packages. These instructions and forms are available on the EPA website [www.epa.wa.gov.au/forms-templates/instructions-preparing-data-packages-index-biodiversity-surveys-assessments-ibsa](http://www.epa.wa.gov.au/forms-templates/instructions-preparing-data-packages-index-biodiversity-surveys-assessments-ibsa). Please submit your IBSA package and provide the reference number received on submission.*

IBSA data was prepared and submitted, as per the IBSA guidelines with the NVCP application for all relevant factors, and includes:

- Terrestrial Fauna: **IBSASUB-20230417-42A64133**
- Subterranean Fauna: **IBSASUB-20230417-9ED66BA3**
- Short Range Endemics (SRE): **IBSASUB-20230412-0A497240**
- Flora and Vegetation: **IBSASUB-20230405-2626E86C**

## 8. Supporting Documentation

### 8.1. 2 December 2024 DEMIRS RFI Response

On 2 December 2024 CZR provided DEMIRS with RFI Response to queries raised with NVCP Application CPS 10248/1 and Mining Proposal MP120354. The response included documents that were prepared and/or amended in response to the RFI (**Table 16**). The DEMIRS RFI submission is included for reference.

**Table 16 Summary of Appendices referenced in 2 Dec 2024 DEMIRS RFI Response**

Appendix	Title	Document
1	NVCP Rev 2	Amended NVCP support document CPS-10248/1
2	Mining Proposal Rev 2	Amended Mining Proposal (Reg ID 120354)
3	EMP Rev 2 (CZR and Biota 2024)	Amended Environmental Management Plan (CZR and Biota Environmental Sciences)
4	BCE 2024a	Amended Terrestrial Technical Fauna Report (Bamford Consulting Ecologists)
5	BCE 2024b	Threats and Mitigation Assessment (Bamford Consulting Ecologists)
6	BCE 2024c	Response to RFI – Fauna specific (Bamford Consulting Ecologists)
7	CZR 2024	Review of <i>Triodia pisolitica</i> PEC (CZR, Dr Michelle Carey)
8	Biota 2024a	Review of Subterranean communities of the Robe Valley (Biota Environmental Sciences)
9	Biota 2024b	Amended Troglifauna Assessment Report (Biota Environmental Sciences)
10	AQ2 2024a	Amended Surface Water Model Report (AQ2)
11	AQ2 2024b	Amended Groundwater H2 Assessment Report (AQ2)
12	AQ2 2024c	Amended Groundwater Operating Strategy (AQ2)
13	AQ2 2024d	Baseline groundwater monitoring data (AQ2)
14	AQ2 2024e	Response to Groundwater Licence RFI (AQ2)

**Table 17 Additional documentation provided to assist the EPA with their determination (Confidential)**

Appendix	Title	Document File Name
A1 Confidential	Robe Mesa Project Agreement	20221221 Robe Mesa Native Title Mining Agreement (Fully Signed)_redacted
A2 Confidential	Cultural Heritage Management Plan (CHMP)	22068 CZR CHMP RRKAC Clean 2023-12-20
A3 Confidential	Environmental Protocol (EMProt)	EMProt Draft - Workshop 7 end of workshop (5-Mar-25)
A4 Confidential	RRK Correspondence	20231022 RE_ CZR RRK CHMP 20231019 RE_ Contact Details 20231023 MP RE_ Contact Details 20231026 GWOS H2 RE_ Contact Details

Appendix	Title	Document File Name
		20231026 NVCP RE_ Contact Details CZR-RRK Agreement - Water Supply-Demand document request FW_ Robe Mesa Groundwater Levels Monitoring Data RE_ 20250123 CZR-RRK Meeting MINUTES
A5 Confidential	Email to RRK showing Rio Tinto Memo sent 1-Jul-2022 and resent 19-Mar-2024	FW_ CZR buffer zones
A6 Confidential	A10 Robe Valley Deposits Facade Stand-off Distance Memo (Rio Tinto 2017i)	A10 Robe Valley Deposits Facade Stand-off Distance Memo (Rio Tinto 2017i)
A7 Confidential	CZR Resources Robe Mesa - OP geotechnical assessment March 2023 – FINAL.pdf (Peter O’Byrne)	CZR Resources Robe Mesa - OP geotechnical assessment March 2023 - FINAL
A8 Confidential	221031 Final Report Ethno_RRKAC_CZR_RobeMesaProject_PHaydock.pdf	221031 Final Report_Ethno_RRKAC_CZR_RobeMesaProject_PHaydock
A9 Confidential	CZR Response Summary to RRK Referral.pdf	Attachment 9 Confidential Response to RRK Referral

## 9. Bibliography

- Abrams, K. M., J. A. Huey, M. J. Hillyer, R. K. Didham, and M. S. Harvey (2020). A systematic revision of *Draculoides* (Schizomida: Hubbardiidae) of the Pilbara, Western Australia, Part I: the Western Pilbara. *Zootaxa* 4864:1–75. doi: 10.11646/zootaxa.4864.1.1.
- ALA. (2021). Atlas of Living Australia. <http://www.ala.org.au>
- Aplin, K. P. (1998). Three new blindsnakes (Squamata: Typhlopidae) from northwestern Australia. *Records of the Western Australian Museum* 19:1–12.
- AQ2 Pty Ltd (AQ2) (2021). CZR Robe Mesa – Preliminary Surface Water Modelling. 385C\_005a. 31/08/2021. Appendix 3-2.
- AQ2 Pty Ltd (AQ2) (2022). Robe Mesa Study – Haul Road Surface Water Assessment. 385F\_016a. 15/06/2022. Appendix 3-3.
- AQ2 Pty Ltd (AQ2) (2023). Robe Mesa Project H2 Level of Assessment. Groundwater Abstraction from Bore PB13-3 for Mine Water Supply. March 2023. Appendix 3-1.
- AQ2 (2024a) Robe Mesa MOC and Mungarathoona Creek Surface Water Modelling. Report prepared for CZR Resources for the Robe Mesa Project.
- AQ2 (2024b) Hydrological Investigations. H2 Level of Assessment. Report prepared for CZR Resources for the Robe Mesa Project.
- AQ2 (2024c) Robe Mesa Project Groundwater Operating Strategy. Report prepared for CZR Resources for the Robe Mesa Project.
- AQ2 (2024d) Robe Mesa Project Groundwater Level Monitoring – Results Memo. Report prepared for CZR Resources for the Robe Mesa Project.
- AQ2 (2024e) Robe Mesa Project. Response to DWER Comments on MB13-3 GWL Application and H2 Report. Report prepared for CZR Resources for the Robe Mesa Project.
- Astron Environmental Services (2011). Mesa J Tail Track Extension Vegetation, Flora and Fauna Survey, unpublished report to Rio Tinto
- Astron Environmental Services (2014). Mesa H - Level 1 Flora, Vegetation and Fauna Assessment, unpublished report to Rio Tinto Iron Ore by Astron Environmental Services, East Perth.
- Astron Environmental Services (2016a). Bungaroo Iron Ore Mine and Infrastructure Project Level 2 Vegetation and Flora Assessment, unpublished report to Rio Tinto
- Astron Environmental Services (2016b). Bungaroo Iron Ore Mine and Infrastructure Project, Level 2 Fauna Assessment, unpublished report to Rio Tinto Iron Ore by Astron Environmental Services, East Perth.
- Astron Environmental Services (2016c). Middle Robe and East Deepdale Level 2 Fauna Assessment, unpublished report to Rio Tinto Iron Ore by Astron Environmental Services, East Perth.
- Astron Environmental Services (2016d). Middle Robe and East Deepdale Level 2 Vegetation and Flora Assessment, unpublished report to Rio Tinto

- Astron Environmental Services (2016e). Mesa H Level 2 Fauna assessment. Unpublished report for Robe River Mining Company Pty Ltd by Astron Environmental Services, East Perth.
- Astron Environmental Services (2017a). Mesa H Ghost Bat, *Macroderma gigas* - Contextual Study. Unpublished report for Robe River Mining Company Pty Ltd by Astron Environmental Services, East Perth.
- Astron Environmental Services (2017b). Warramboe Level 2 fauna assessment.
- Bamford Consulting Ecologists (BCE) (2022). Robe Mesa Iron Ore Project Fauna Assessment. Unpublished report for CZR Resources, Bamford Consulting Ecologists, Perth, Western Australia.
- Bamford Consulting Ecologists (BCE) (2023). Robe Mesa Iron Ore Project Fauna Assessment. RevA. 1670. 5th April 2023. Appendix 5-1.
- Bamford Consulting Ecologists (BCE) (2024a). Robe Mesa Iron Ore Project Fauna Assessment. RevB. 1670. November 2024.
- Bamford Consulting Ecologists (2024b). Robe Mesa Project, Fauna species Matters of National Environmental Significance Threats and Mitigation. Response to DEMRIS RFI. Memo report 14 Oct 2024.
- Bamford Consulting Ecologists (2024c). Robe Mesa Project. Response to comments provided by DEMIRS Feb and Aug 2024
- Barrett, M.D. and Trudgen, M.E. 2018, *Triodia pisolitica* (Poaceae), a new species from the Pilbara region, Western Australia, and a description for *T. sp.* Mt Ella (M.E. Trudgen MET 12739). *Nuytsia* 29: 271-281.
- Barrett, R.L. and Barrett, M.D. 2015, Twenty-seven new species of vascular plants from Western Australia. *Nuytsia* 26: 21-87.
- Bastin G and the ACRIS Management Committee (2008). Rangelands 2008 — Taking the Pulse, published on behalf of the ACRIS Management Committee by the National Land & Water Resources Audit, Canberra. (<https://www.dcceew.gov.au/sites/default/files/env/resources/a8015c25-4aa2-4833-ad9c-e98d09e2ab52/files/bioregion-pilbara.pdf>)
- Bat Call WA (2016). Mesa H Survey, Pilbara WA, September-October 2015 / May-June 2016: Echolocation Survey of Bat Activity, unpublished report to Astron Environmental Services.
- Bat Call WA (2017a). Robe Valley Mesa A to Mesa 2405A, impact of mining on Ghost bat presence and activity, April 2017, including assessment of caves on Mesas F and G. unpublished report to Rio Tinto Iron Ore.
- Bat Call WA (2017b). Robe Valley Mesa H, Ghost bat roost cave assessment.
- Bat Call WA (2017c). Robe Valley Mesas A and C, Ghost Bat roost cave assessment.
- Beard, J.S. 1975, Pilbara Sheet 4, 1:1,000,000 Vegetation series, University of Western Australia Press, Perth.
- Beard, J.S. 1990, Plant Life of Western Australia. Kangaroo Press Pty Ltd, Kenthurst NSW.
- Bennelongia (2017). Mesa A and Mesa B Annual Compliance Troglifauna Survey 2016. Unpublished report prepared for Rio Tinto, Bennelongia Environmental Consultants.
- Biota (2003). Mesa J Extension Vegetation, Flora and Fauna Assessment, unpublished report to Rio Tinto

- Biota (2004). Mesa A and Bungaroo Creek Exploration Areas Subterranean Fauna Survey. Unpublished report prepared for Robe River Iron Mining Company, August 2004, Biota Environmental Sciences, Western Australia.
- Biota (2005). Fauna Habitats and Fauna Assemblages of Mesa A and G, near Pannawonica. Unpublished report for Robe River Iron Associates by Biota Environmental Sciences, Leederville.
- Biota (2006a). Mesa A and Robe Valley Mesas Troglobitic Fauna Survey. Unpublished report prepared for Robe River Iron Associates, March 2006, Biota Environmental Sciences, Western Australia.
- Biota (2006b). A Vegetation and Flora Survey of the Proposed Mesa A Transport Corridor, Warrambo Deposit and Yarraloola Borefield, unpublished report to Rio Tinto
- Biota (2006c). Fauna Habitats and Fauna Assemblage of the Mesa A Transport Corridor and Warrambo, unpublished report to Robe River Iron Associates by Biota Environmental Sciences.
- Biota (2007a). A Vegetation and Seasonal Flora Survey of the Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica and Sampling of the Broader Bungaroo Valley, unpublished report to Rio Tinto
- Biota (2007b). Mesa K Targeted Fauna Survey. Unpublished report for Pilbara Iron by Biota Environmental Sciences, Leederville.
- Biota (2009a). Mesa G Troglifauna Survey 2009. Unpublished report prepared for Rio Tinto Iron Ore, December 2009, Biota Environmental Sciences, Western Australia.
- Biota (2009b). West Pilbara Iron Ore Project Mine Areas Seasonal Fauna Survey. Unpublished report for API Management by Biota Environmental Sciences, Leederville.
- Biota (2009c). Mesa G Baseline Fauna Survey. Unpublished report prepared for Rio Tinto Iron Ore, December 2009, Biota Environmental Sciences, Western Australia.
- Biota (2009d). West Pilbara Iron Ore Project Rail Corridor Fauna and Flora Assemblages Survey. Unpublished report for API Management by Biota Environmental Sciences, Leederville.
- Biota (2010). Robe Valley Mesas fauna survey. Unpublished report for Rio Tinto Iron Ore by Biota Environmental Sciences, Leederville.
- Biota (2010). Yandicoogina Subterranean Fauna Assessment Phases I - V. Unpublished report prepared for Rio Tinto Iron Ore, December 2010, Biota Environmental Sciences, Western Australia.
- Biota (2011). Baseline Flora and Vegetation Assessment of Robe Valley Mesas B, C, D, E, F, H and I, unpublished report to Rio Tinto
- Biota (2011a). WPIOP Basalt Quarry Troglobitic Fauna Pilot Survey Results. Unpublished letter report prepared for API Management, 21 January 2011, Biota Environmental Sciences, Western Australia.
- Biota (2011b). Robe Valley Mesas Troglobitic Fauna Survey 2010. Unpublished report prepared for Rio Tinto Iron Ore, March 2011, Biota Environmental Sciences, Western Australia.
- Biota (2012). Mesa G Troglobitic Fauna Assessment Phases I-VI. Unpublished report prepared for Rio Tinto, March 2012, Biota Environmental Sciences, Western Australia.
- Biota (2013a) Koodaideri Iron Ore Project Orange Leaf-nosed Bat Blasting Disturbance Trial. Prepared for Rio Tinto. November 2013.

- Biota (2013b). Bungaroo Subterranean Fauna Collections Summary; Phases 1 - 11. Unpublished report prepared for Rio Tinto, March 2013, Biota Environmental Sciences, Western Australia.
- Biota (2014) Orange Leaf-nosed Bat Review of Potential Mining Activity Impacts at Koodaideri. Prepared for Rio Tinto. February 2014.
- Biota (2016a). Middle Robe and East Deepdale Troglitic Fauna Assessment. Unpublished draft report being prepared for Rio Tinto, Biota Environmental Sciences, Western Australia.
- Biota (2016b). Warramboe to Mesa C Subterranean Fauna Assessment. Unpublished draft report being prepared for Rio Tinto, Biota Environmental Sciences, Western Australia.
- Biota (2017a). Mesa A Hub: Mesas B and C Troglitic Fauna Assessment. Unpublished report prepared for Rio Tinto, Biota Environmental Sciences, Western Australia.
- Biota (2017b). Mesa A Hub: Warramboe Troglitic Fauna Assessment. Unpublished report prepared for Rio Tinto, Biota Environmental Sciences, Western Australia.
- Biota (2019a). Mesa H Project Subterranean Fauna Habitat and Impact Risk Assessment. Unpublished report for Rio Tinto by Biota Environmental Sciences, Leederville.
- Biota (2019b). Mesa A Hub: Mesas B and C Additional Troglitic Fauna Survey. Unpublished report prepared for Rio Tinto, Biota Environmental Sciences, Western Australia.
- Biota (2019c). Mesa A Hub: Mesas B and C Reference Areas Troglitic Fauna Surveys. Unpublished Report Prepared for Rio Tinto, Biota Environmental Sciences, Western Australia, Perth.
- Biota (2020a). Mesa A Hub: Mesas B and C Additional Reference Areas Troglitic Fauna Surveys. Biota Environmental Sciences, Western Australia, Perth.
- Biota (2020b). Mesa A and K In-Pit Troglifauna Sampling Phase 5. Unpublished Report Prepared for Rio Tinto, Biota Environmental Sciences.
- Biota (2022a). Robe Mesa Project Short-range Endemic Invertebrate Fauna Survey. RevA. 1670. December 2022. Appendix 7-3.
- Biota (2023a). Robe Mesa Project Detailed Flora and Vegetation Survey. 1651B. Rev 0. February 2023. Appendix 4-2.
- Biota (2023b). Robe Mesa Project: Haul Road Realignment and Associated Vegetation Extrapolation and Consolidation. 1651C\_Rev0. 23 March 2023. Appendix 4-3.
- Biota (2023c). Robe Mesa Troglifauna Baseline Assessment Report. 1580\_RevA. April 2023. Appendix 7-1.
- Biota and CZR (2023). Robe Mesa Iron Ore Project Environmental Management Plan (EMP). Rev1. 1 April 2023. Appendix 1-1
- Biota and CZR (2024). Robe Mesa Iron Ore Project Environmental Management Plan (EMP). Rev2. November 2024.
- Biota Environmental Sciences (2024a) Robe Mesa Project Troglifauna habitat. Summary Memo Report
- Biota Environmental Sciences (2024b) Addendum to Biota (2023c) Troglifauna phase 3 sampling results and analysis. Biota and DC Blandford & Associates (2013). Robe Valley Troglifauna Habitat Characterisation and Reconstruction Review. Unpublished report prepared for Rio Tinto, June 2013, Biota Environmental Sciences and DC Blandford & Associates, Western Australia.

- Biota and Helix (2012). Polyxenid Millipede Regional Molecular Analysis. Unpublished report prepared for Rio Tinto Iron Ore, December 2012, Biota Environmental Sciences and Helix Molecular Solutions.
- Bleby, K., Kristancic, A., Huang, N. and Mike Bamford, M. (2022). Review of the use of Underpasses for Northern Quoll in the Ashburton Infrastructure. Unpubl. report to Mineral Resources by Bamford consulting Ecologists, Kingsley.
- BOM. (2022). Climate Data Online. Commonwealth of Australia, Bureau of Meteorology.  
<http://www.bom.gov.au/climate/data/index.shtml?bookmark=200&view=map>
- Bullen, R. and Creese, S. (2014). A note on the impact on Pilbara leaf-nosed and Ghost Bat activity from cave sound and vibration levels during drilling operations. *The Western Australian Naturalist* 29: 145-154.
- Burbidge, A. A. (2004). *Threatened Animals of Western Australia*. Department of Conservation and Land Management, Kensington, Western Australia.
- Burbidge, A. A. and McKenzie, N. L. (1989). Patterns in the modern decline of Western Australia's vertebrate fauna: causes and conservation implications. *Biological Conservation* 50: 143-198.
- Busnel, R.G. and Fletcher, J.L. (Eds.) (1978). *Effects of Noise on Wildlife*. Academic Press, New York.
- Bussemaker and Brunner (2017) Onslow Waste Facility Flood Study Report. Prepared by Pells Sullivan Meynink Engineering Consultants (PSM) for Talis Consultants. August 2017.
- CZR Resources (2023b). Robe Mesa Iron Ore Mine Closure Plan. Tenements - M08/519, M08/533, L08/281, L08/295, L08/296, L08/297, L08/298, L08/299, L08/302, L08/303, L08/304, L08/317, L08/318, L08/323, L08/324, L08/319, L08/320, L08/321, L08/322. April 2023.
- CZR Resources (CZR) (2023). Work Completed for the Review of Troglifauna Habitat at Robe Mesa Deposit. Rev0. March 2023. Appendix 7-2.
- DAWE. (2021c). *Dasyurus hallucatus* in Species Profile and Threats Database. Department of Agriculture, Water and the Environment. Available from: <http://www.environment.gov.au/sprat>
- DAWE. (2021d). *Rhinonictis aurantia* in Species Profile and Threats Database. Department of Agriculture, Water, and the Environment. Available from: <http://www.environment.gov.au/sprat>
- DAWE. (2023). *Australia's bioregions (IBRA)*. Department of Agriculture, Water, and the Environment.  
<http://www.environment.gov.au/land/nrs/science/ibra#ibra>
- DBCA (2022). *Priority Ecological Communities for Western Australia, Version 34. Species and Communities Program*, Department of Biodiversity, Conservation and Attractions, 21 December 2022.
- DBCA. (2021). *NatureMap*. Department of Biodiversity, Conservation and Attractions.  
<https://naturemap.dbca.wa.gov.au/>
- DBCA. (2022a). *Priority Ecological Communities For Western Australia Version 34. Species and Communities Program*, Department of Biodiversity, Conservation, and Attractions.  
<https://www.dpaw.wa.gov.au/images/images/documents/plants-animals/threatened-species/Listings/Priority%20Ecological%20Communities%20list.pdf>
- DBCA. (2022b). *Threatened and Priority Fauna List*. Department of Biodiversity, Conservation and Attractions.

- DBCA. (2023a). Directory of Important Wetlands in Australia—Western Australia (DBCA-045). Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/tr/dataset/directory-of-important-wetlands-in-western-australia>
- DBCA. (2023b). Ramsar Sites (DBCA-010). Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/tr/dataset/ramsar-sites>
- DBCA. (2023c). Threatened ecological communities. Department of Biodiversity, Conservation and Attractions. <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/wa-s-threatened-ecological-communities>
- DCCEEW. (2023). Protected Matters Search Tool. Department of Climate Change, Energy, the Environment and Water. <https://www.environment.gov.au/epbc/protected-matters-search-tool>
- Department of Biodiversity, Conservation and Attractions (DBCA) 2019, Conservation codes for Western Australian flora and fauna, <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Conservation%20code%20definitions.pdf>. Accessed online 19 August 2020.
- Department of Biodiversity, Conservation and Attractions (DBCA) 2020, Priority ecological communities for Western Australia version 30. <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Priority%20Ecological%20Communities%20list.pdf>. Accessed online 25 August 2020.
- Department of Environment and Conservation (DEC) 2013), Definitions, Categories and Criteria for Threatened and Priority Ecological Communities, [https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/definitions\\_categories\\_and\\_criteria\\_for\\_threatened\\_and\\_priority\\_ecological\\_communities.pdf](https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/definitions_categories_and_criteria_for_threatened_and_priority_ecological_communities.pdf). Accessed online 19 August 2020.
- Department of Mines, Industry Regulation and Safety (2022). Annual Environmental Report Guideline. Perth Western Australia.
- Department of the Environment and Energy (DEE) 2016, Interim Biogeographic Regionalisation for Australia, Version 7, <https://www.environment.gov.au/system/files/pages/5b3d2d31-2355-4b60-820c-e370572b2520/files/subregions-new.pdf>. Accessed online 19 August 2020.
- DotE. (2013). Matters of National Environmental Significance. Significant impact guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999 Department of the Environment, Canberra, Australia.
- DSEWPaC. (2013a). Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies. Significant impact guidelines 1.2. Environment Protection and Biodiversity Conservation Act 1999 Department of Sustainability, Environment, Water, Population and Communities, Canberra, Australia.
- DWER. (2023a). Clearing Regulations—Environmentally Sensitive Areas (DWER-046). Department of Water and Environmental Regulation. <https://catalogue.data.wa.gov.au/tr/dataset/clearing-regulations-environmentally-sensitive-areas-dwer-046>
- DWER. (2023b). Environmentally Sensitive Areas. Department of Water and Environmental Regulation. <https://www.der.wa.gov.au/your-environment/environmentally-sensitive-areas>
- DWER. (2023c). Index of Biodiversity Surveys for Assessments (IBSA). Department of Water and Environmental Regulation. <https://biocollect.ala.org.au/ibsa#max%3D20%26sort%3DdateCreatedSort>

- Ecologia (2013). Middle Robe and East Deepdale Flora, Vegetation, Vertebrate and Invertebrate Fauna Survey, unpublished report to Rio Tinto Iron Ore by Ecologia Environment.
- Ecoscope (2019). Rail Culvert Fauna Monitoring 2018, Roy Hill. Unpublished report for Roy Hill.
- EPA (2002). Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3. Environmental Protection Authority, Perth, Western Australia.
- EPA (2004). Guidance for the assessment of environmental factors: Terrestrial fauna surveys for environmental impact assessment in Western Australia. No. 56. Environmental Protection Authority, Perth, Western Australia.
- EPA (2016a). Environmental Factor Guideline - Terrestrial Fauna. Environmental Protection Authority, Perth, Western Australia.
- EPA (2016b). Environmental Factor Guideline - Subterranean Fauna. Environmental Protection Authority, Western Australia.
- EPA (2016c). Technical Guidance - Subterranean Fauna Survey. Environmental Protection Authority, Western Australia.
- EPA (2016d). Technical Guidance - Terrestrial Fauna Surveys. Environmental Protection Authority, Perth, Western Australia.
- EPA (2020). Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment. Environmental Protection Authority, Perth, Western Australia.
- EPA (2021). How to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans. Environmental Protection Authority, Western Australia.
- EPA (2021). Technical guidance: Subterranean fauna surveys for environmental impact assessment. Environmental Protection Authority, Western Australia.
- Geological Survey of Western Australia (1968). 1:250,000 Geological Map - Yarraloola (SF50-6) digital shapefile. Government of Western Australia Department of Mines and Petroleum.
- Government of Western Australia (2014). WA Environmental Offsets Guidelines. Environmental Protection Authority, Western Australia.
- Government of Western Australia. (2019). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Graeme Campbell and Associates Pty Ltd GCA (2022). Robe Mesa Project: Mine-Waste & LG-Ore Characterisation Investigation – Implications for Mining-Stream Management. 9 December 2022. Appendix 2-1.
- Guzik, M. T., A. D. Austin, S. J. B. Cooper, M. S. Harvey, W. F. Humphrey, T. Bradford, S. M. Eberhard, R. A. King, R. Leys, K. A. Muirhead, and M. Tomlinson (2010). Is the Australian subterranean fauna uniquely diverse? *Invertebrate Systematics* 24:407–418.
- Harvey, M. S. (2002). Short-range endemism among the Australian fauna: some examples from non-marine environments. *Invertebrate Systematics* 16:555–570.

- Harvey, M. S., O. Berry, K. L. Edward, and G. Humphreys (2008). Molecular and morphological systematics of *hypogean schizomids* (Schizomida: Hubbardiidae) in semi-arid Australia. *Invertebrate Systematics* 22:1–28.
- Helix (2012). Report on the molecular systematics of Polyxenida from the Pilbara - update. Unpublished report prepared for Biota Environmental Sciences, 20 December 2012, Helix Molecular Solutions, Western Australia.
- Hernandez-Santin, L., Henderson, M., Molloy, S.W., Dunlop, J.A. and Davis, R.A. 2021. Spatial ecology of an endangered carnivore, the Pilbara northern quoll, *Australian Mammalogy*, 43, 235-242.
- Humphreys, G., J. Alexander, M. S. Harvey, and W. F. Humphreys (2013). The subterranean fauna of Barrow Island, northwestern Australia: 10 years on. *Records of the Western Australian Museum Supplement* 83:145–158.
- Humphreys, W. F. (1991). Experimental re-establishment of pulse -driven populations in a terrestrial troglobite community.
- Humphreys, W. F. (1993). Cave fauna in semi-arid tropical Western Australia : a diverse relict wetforest litter fauna. *Memoires de Biospeologie* 20:105–110.
- Humphreys, W. F. (2001). The subterranean fauna of Barrow Island, northwestern Australia, and its environment. *Memoires de Biospeologie (International Journal of Subterranean Biology)* 28:107– 127.
- IUCN Standards and Petitions Committee 2019, Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Committee.  
<http://www.iucnredlist.org/documents/RedListGuidelines.pdf>. Accessed online 26 August 2020.
- KBA. (2020). Key Biodiversity Areas. Key Biodiversity Areas. <http://www.keybiodiversityareas.org/kba-data>
- Kendrick, P. (2003). Pilbara 3 (PIL3 – Hamersley subregion). In: CALM (Ed.) *A Biodiversity Audit of Western Australia’s 53 Biogeographical Subregions in 2002*, pp. 568-580. Department of Conservation and Land Management, Perth, Western Australia. Available online:  
[https://www.dpaw.wa.gov.au/images/documents/about/science/projects/waaudit/pilbara03\\_p568-580.pdf](https://www.dpaw.wa.gov.au/images/documents/about/science/projects/waaudit/pilbara03_p568-580.pdf)
- Kendrick, P. 2001, *A Biodiversity Audit of Western Australia’s 53 Biogeographical Subregions in 2002. Pilbara 3 (PIL3) – Hamersley subregion*. Department of Conservation and Land Management, Western Australia.
- Letnic, M., Dickman, C. R., Tischler, M. K., Tamayo, B. and Beh, C. L. (2004). The responses of small mammals and lizards to post-fire succession and rainfall in arid Australia. *Journal of Arid Environments* 59: 85-114.
- Lloyd George Acoustics (LGA) (2023). Environmental Noise Assessment. Robe Mesa Project. Reference: 23027867-01. 5 April 2023. Appendix 6-1.
- McCreery, A. and Bamford, M. (2020). CZR Resources Ltd. Robe Mesa Iron Ore Project. Assessment of Fauna Values. Unpubl. report to CZR Resources by Bamford Consulting Ecologists, Kingsley.
- McKenzie, N. L., Leeuwen, S., and Pinder, A. M. 2009, *Introduction to the Pilbara Biodiversity Survey, 2002–2007*,  
[http://museum.wa.gov.au/sites/default/files/RecWAMuseum\\_2009\\_Supp78\\_3to89\\_McKenzieetal.pdf](http://museum.wa.gov.au/sites/default/files/RecWAMuseum_2009_Supp78_3to89_McKenzieetal.pdf)  
 Accessed online 20 August 2020.

- Moore, H. A., Michael, D. R., Dunlop, J. A., Valentine, L. E., Cowan, M. A., Nimmo, D. G. (2022). Habitat amount is less important than habitat configuration for a threatened marsupial predator in naturally fragmented landscapes. *Landscape Ecology*, 37: 935-949.
- MRWA (2010) Design of Fauna Underpasses. Technical Information. Main Roads WA, June 2010.
- Oakwood, M. (1997). The ecology of the northern quoll, *Dasyurus hallucatus*. PhD thesis. Australian National University, Canberra.
- Oakwood, M. (2008). Northern quoll *Dasyurus hallucatus*. In: Van Dyck, S. & R. Strahan, eds. *The Mammals of Australia* (3rd ed). Page(s) 57-59. Sydney, NSW: Reed New Holland.
- Oates and Johnson (2015). The Quolls of Poondana; a case study. Powerpoint presentation; Astron Environmental.
- Page, T. J., W. F. Humphreys, and J. M. Hughes (2008). Shrimps Down Under: Evolutionary Relationships of Subterranean Crustaceans from Western Australia (Decapoda: Atyidae: Stygiocarid). *PLoS One* 3:e1618. doi: 10.1371/journal.pone.0001618.
- Payne, A. L. (2004). Land Systems. In: Van Vreeswyk, A. M. E., Payne, A. L., Leighton, K. A. and Hennig, P. (Eds), *Technical Bulletin No. 92: An Inventory and Condition Survey of the Pilbara Region, Western Australia*, pp. 175-384. Department of Agriculture, South Perth, Western Australia.
- Pringle, H.J.R., van Vreeswyk, A.M.E. and Gilligan, S.A. 1994, *An Inventory and Condition Survey of the north-eastern Goldfields, Western Australia*. Technical Bulletin No. 87. Department of Agriculture, South Perth, Western Australia.
- Ramanaidou, E. R., R. C. Morris, and R. C. Horwitz (2003). Channel iron deposits of the Hamersley Province, Western Australia. *Australian Journal of Earth Sciences* 50(5):669–690.
- Rich, C. and Longcore, T. (Eds). (2006). *Ecological Consequences of Artificial Night Lighting*. Island Press, Washington D.C., USA.
- Rio Tinto Iron Ore (RTIO) 2020, *Greater Paraburdoo Iron Ore Proposal Riparian Vegetation and Associated Groundwater Dependent Ecosystems – Targeted Survey of the Greater Paraburdoo Operations*.
- RPS Group (RPS) (2021). *Detailed Flora and Vegetation Assessment. Robe Mesa and Robe East extension deposits. AU213001831.001. Rev 0. 25 October 2021. Appendix 4-1*.
- Scheick, B. K. and Jones, M. D. (1999). Locating wildlife underpasses prior to expansion on Highway 64 in North Carolina. In: Evink, G. L., Garrett, P. and Ziegler, D. (Eds), *Proceedings of the Third International Conference on Wildlife Ecology and Transportation*, pp. 247-252. Florida Department of Transportation, Tallahassee, Florida, USA.
- Soule, M. E., Mackey, B. G., Recher, H. F., Williams, J. E., Woinarski, J. C. Z., Driscoll, D., Dennison, W. C. and Jones, M. E. (2004). The role of connectivity in Australian conservation *Pacific Conservation Biology* 10: 266-279.
- Thackway, R. and Cresswell, I. D. (1995). *An Interim Biogeographic Regionalisation for Australia: A framework for establishing the national system of reserves, Version 4.0*. Australian Nature Conservation Agency, Canberra, Australia.
- Threatened Species Scientific Committee (2016). *Conservation advice. Rhinonicteris aurantia. Pilbara Leaf-nosed Bat*.

- Turpin, J. and Bamford, M. (2015). A new population of the Northern Quoll (*Dasyurus hallucatus*) on the edge of the Little Sandy Desert, Western Australia. *Aust. Mammal.* 37: 86-91.
- van Vreeswyk, A.M.E. Payne, A.L., Leighton, K.A. and, H.J.R., and Hennig, P. 2004, An Inventory and Condition Survey of the Pilbara region, Western Australia. Technical Bulletin No. 92. Department of Agriculture, South Perth, Western Australia.
- Western Australian Herbarium. 2021, FloraBase – The Western Australian Flora. Online database of the Western Australian Herbarium. <http://florabase.DPaW.wa.gov.au>. Department of Environment and Conservation, Kensington.
- Wilkins, H., D. C. Culver, and W. F. Humphreys (Eds.) (2000). *Ecosystems of the World 30: Subterranean Ecosystems*. Elsevier Science, Amsterdam.