AUDALIA RESOURCES LIMITED

OFFSET STRATEGY

DOCUMENT ID: AUD-MED-OFF-01
3 DECEMBER 2020

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BY PRESTON CONSULTING PTY LTD

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DOCUMENT CONTROL

Document Title	Audalia Medcalf Project – Offset Strategy		
Document Number	ALB-KEM-PLA-01		
Revision Number	A		3/12/2020
Status	DRAFT		
Author	Blake Marxsen – Environmental Consultant	Signature 	3/12/2020
Checked	Gavin Edwards – Director	 Signature	3/12/2020
Authorisation	Geoffrey Han, Audalia Resources	 Signature	3/12/2020

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1 INTRODUCTION

Audalia Resources Limited (Audalia) has applied for environmental approval under Section 38 of the *Environmental Protection Act 1986* (WA; EP Act) to construct and operate the Medcalf Project (the Proposal); a vanadium, titanium and iron mining operation with associated infrastructure. The Proposal is located in the Bremer Range, Lake Johnston region of Western Australia, approximately 470 kilometres (km) east south-east of Perth (Figure 1).

The proposed Development Envelopes (DEs) outline the boundaries for the Proposal (Figure 1), where all ground disturbance and indicative key Proposal elements listed below are proposed to occur. The Proposal consist of two distinct DEs; a Mine DE and a Haul Road DE. These DEs are located within a Mining Lease M63/656 and a Miscellaneous Licence L63/75 issued under the *Mining Act 1978* (WA; Mining Act; Figure 2).

The Mine DE will require clearing of no more than 300 ha within the 898 ha extent of the Mine DE in order to develop the mine pits and associated infrastructure (Figure 2). The Haul Road DE will require clearing of no more than 350 ha within the 1,633 ha extent of the Haul Road DE in order to develop the haul road and associated infrastructure (Figure 3 and Figure 4).

Access to the site is proposed to be via a 74 km unsealed private haul road from the mine site to an ore transfer hub adjacent to the Coolgardie-Esperance Highway (Figure 3 and Figure 4).

Figure 1: Regional setting of the Proposal

292500 295000 297500

6400000

6397500

6395000

L 63/75

M 63/656

E 63/1134

COOLGARDIE ESPERANCE HWY

Stennets Lake

Lake Gilmore

LAKE KING - NORSEMAN RD

0 2.5 km

Legend

- Mine Development Envelope
- Haul Road Development Envelope
- Mine Disturbance Footprint
- Haul Road Indicative Disturbance Footprint
- Tenement

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
- TENEMENTS SOURCED DMRS 2020
- LOCALITY MAP SOURCED LANDGATE 2006
- AERIAL PHOTOGRAPHY SOURCED LANDGATE

BOTANICA CONSULTING

0 0.2 0.4 0.6 0.8 1 km

Scale: 1:25,000 @ A3

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LOCALITY MAP

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ENVIRONMAPS	BOT1	18/06/2020	0

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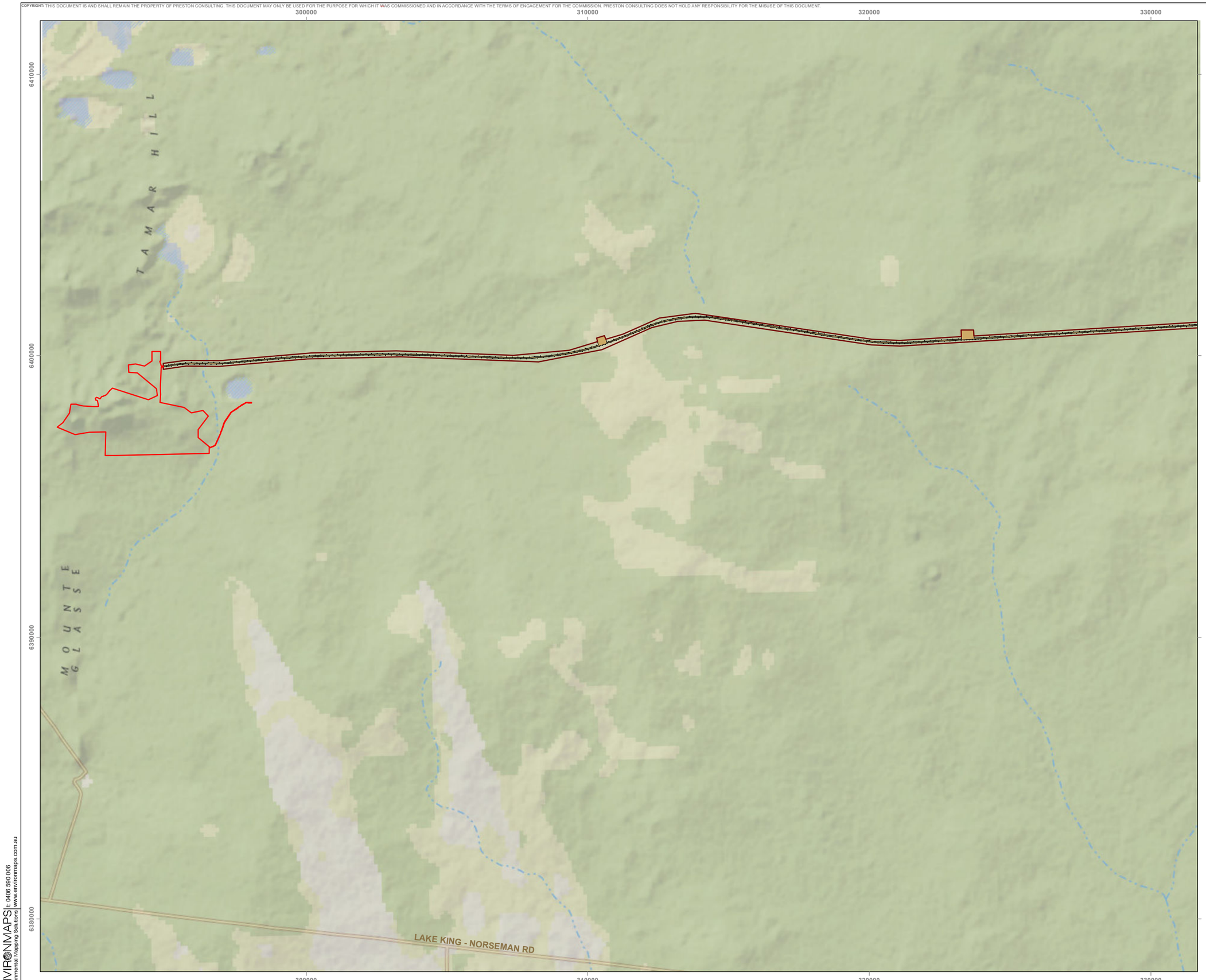
L:\GIS\Jobs\Preston Consulting\PC29000035 - Audalia Resources, Part IV Approvals ERD\F_Figures\BOT1_Figure 1-1 Medcalf Project Disturbance Footprint and Development Envelopes_200618.mxd

Figure 2: Mine DE and indicative disturbance footprint



Legend

- Mine Development Envelope
- Haul Road Development Envelope
- Haul Road Indicative Disturbance Footprint

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
- LOCALITY MAP SOURCED LANDGATE
- BASE DATA OPEN SOURCE NATGEO WORLD MAP

Preston Consulting

0 1 2 3 4 5
Kilometers
Scale: 1:125,000 @ A3

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LOCALITY MAP

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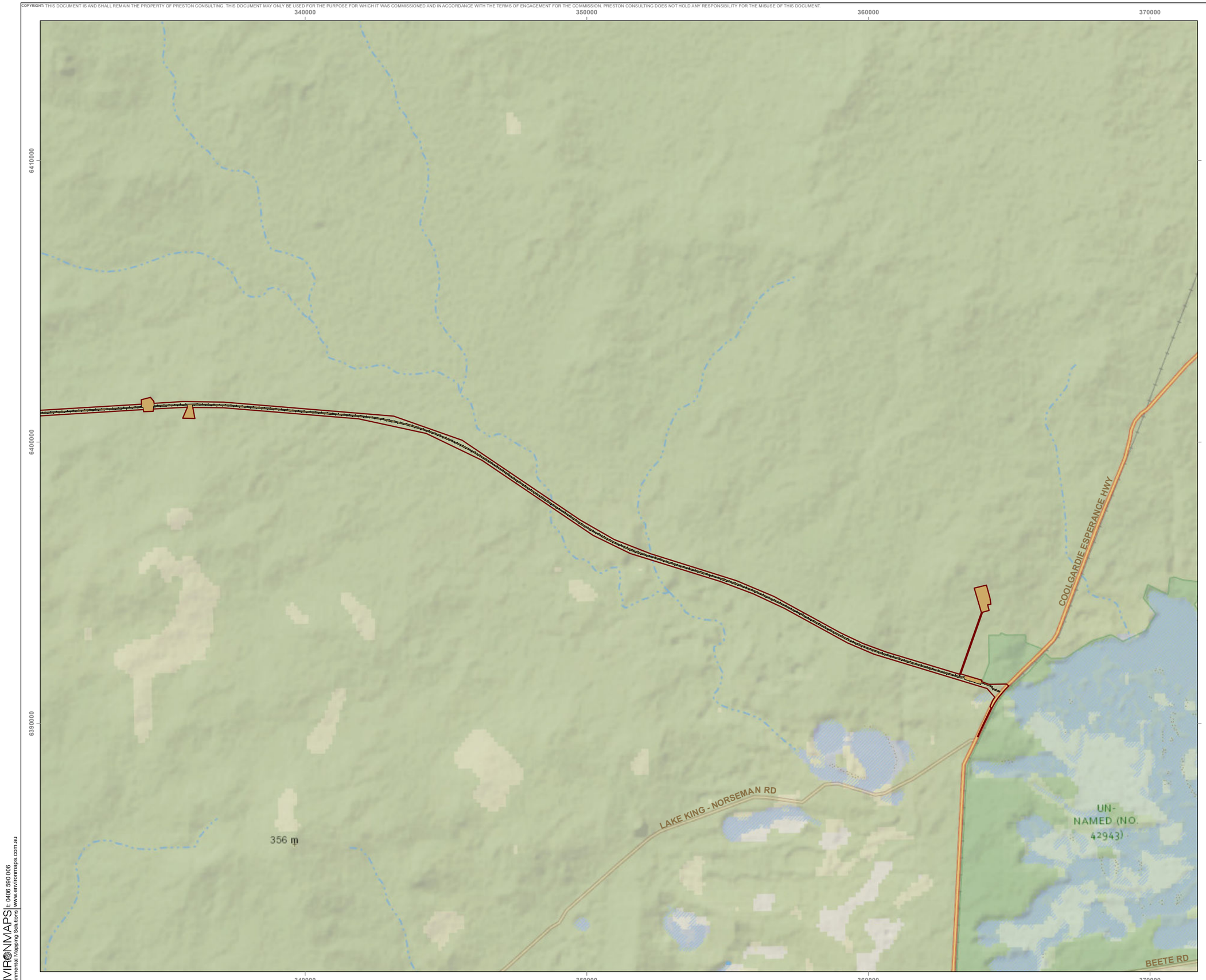
Figure 3: Haul Road DE and indicative layout (1 of 2)



Legend

- Mine Development Envelope
- Haul Road Development Envelope
- Haul Road Indicative Disturbance Footprint

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Kilometers
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Figure 4: Haul Road DE and indicative layout (2 of 2)

2 SCOPE AND PURPOSE

During their assessment of the Proposal, Audalia considered the Proposal would have a significant residual impact from the following actions:

- *M. aquilonaris* (T): disturbance of 1.51 ha of sub-optimal habitat and potential indirect impacts to 2.91 ha of critical habitat;
- *Eucalyptus rhomboidea* (P4): disturbance of 768 individuals and 0.4 ha of population extent. Potential indirect impacts to 430 individuals;
- *Stenanthemum bremerense* (P4): disturbance of 2,049 individuals and 21 ha of population extent. Potential indirect impacts to 1,379 individuals;
- Up to 309 ha of disturbance of the Proposed Bremer Range Nature Reserve; and
- Up to 285 ha of disturbance of the Bremer Range Vegetation Complexes (PEC).

If the Proposal is approved, Audalia predicts that an offset condition will be included in the Ministerial Statement (MS) to counterbalance the significant residual impacts of the Proposal listed above. This Offset Strategy has been prepared in anticipation of this offset condition, in order to detail potential suitable offset measures to counterbalance the significant residual impacts of the Proposal. This Offset Strategy will remain in draft form until accepted by Environmental Protection Authority (EPA) Services after further detailed discussions with EPA Services, Department of Biodiversity, Conservation and Attractions (DBCA), and Department of Mines, Industry Regulation and Safety (DMIRS).

3 STAKEHOLDER CONSULTATION

Audalia has consulted with a range of relevant external stakeholders throughout the planning and construction phases of the Proposal. The core principle of the stakeholder engagement strategy is to identify relevant external stakeholders, and consult with them to identify their concerns, appropriate mitigation strategies and likely environmental outcomes. The outcomes of this stakeholder consultation relevant to this Offset Strategy are summarised in Table 1.

Table 1: Summary of relevant stakeholder engagement

Stakeholder	Date/s	Issues / Topics Raised	Proponent Response / Outcome
Government Stakeholders			
Department of Water and Environmental; Regulation (DWER) – EPA Services	October 2015 August (meeting), December 2017 March (letter), June, July (meeting), October (email), November (email), December (email) 2018 February (email, letter and meeting), March, July, August 2019 February & August 2020	• Environmental survey effort requirements and findings • Pre-referral discussions • Exploration activities • Priority and Threatened Flora populations • Section 38 Referral • Environmental Scoping Document (ESD) • Impacts to proposed Bremer Range Nature Reserve • Methodologies for *M. aquilonaris* studies • Review *M. aquilonaris* study results • *M. aquilonaris* critical habitat boundary • Review of draft Environmental Review Document (ERD)	• Studies conducted as per the requirements of the ESD • Concerns taken on board during draft ERD preparation • Audalia to continue to liaise during Part IV approval process • Audalia to liaise with DMIRS regarding the implementation of proposed offsets
DMIRS	June (letter), July (letter and meeting), August, October (letter) 2014 February (meeting), April (meeting), May (meeting), June (letter), July (meeting), December (meeting) 2015 March (meeting) 2016 September 2017 July (email), November (meeting) 2018 March (teleconference) and August (via DWER) 2020	• Project overview and updates • Mining tenure applications • Priority and Threatened Flora populations • Conservation Management Plan • MP and MCP • Pre-referral discussions • Review of draft ERD	• MCP to be submitted to allow parallel assessment with the Part IV EP Act process • MP and MCP to be prepared in accordance with DMIRS guidelines • Audalia to liaise with DMIRS regarding the implementation of proposed offsets

Stakeholder	Date/s	Issues / Topics Raised	Proponent Response / Outcome
DBCA	July 2013 (letter) March (meeting), April (email), May (letter), August, October (letter) 2014 April (meeting), May (meeting), July (meeting and letter), October 2015 March (meeting), May (letter), June (letter) 2016 January, March, June (email), September (site visit), October (email), November (meeting) 2018 January (meeting), March, July, December 2019 February, July (meetings), August (via DWER) 2020	• Project overview and updates • Priority and Threatened Flora populations • Permit to take Threatened Flora • Update on Mining Plan • Environmental study and survey effort requirements and findings • Pre-referral discussions • Impacts to proposed Bremer Range Nature Reserve • ESD • Methodologies for *M. aquilonaris* studies • Location of dust deposition gauges • Scope of proposed modelling of M. aquilonaris locations • Genetic study for *M. aquilonaris* • Review *M. aquilonaris* study results • *M. aquilonaris* critical habitat boundary • Proposed offsets • Review of draft ERD	• Studies conducted as per the requirements of the ESD • Concerns taken on board during draft ERD preparation • Audalia to continue to liaise during Part IV approval process • Audalia to liaise with DBCA regarding the implementation of proposed offsets
Community and Corporate Stakeholders			
Conservation Council of Western Australia (WA)	Aug 2014 (meeting) May 2015 (meeting) July 2020 (email)	• Project introduction and environmental considerations / issues • Information Pack provided • Offer for meeting or further information • Notification of preparation of draft ERD	Consideration of issues in Proposal design and the preparation of ERD Audalia to meet with stakeholder and / or provide additional information upon request
Wildflower Society of WA	May 2015 (meeting) July 2020 (email)	• Project introduction and environmental considerations / issues • Information Pack provided • Offer for meeting or further information • Notification of preparation of draft ERD	Consideration of issues in Proposal design and the preparation of ERD Audalia to meet with stakeholder and / or provide additional information upon request

4 PROPOSED OFFSETS

4.1 SIGNIFICANT RESIDUAL IMPACTS

After the implementation of mitigation measures described in the Proposal ERD, the Proposal is predicted to have a residual impact on the following environmental values:

- *M. aquilonaris* (T): disturbance of 1.51 Hectare (ha) of sub-optimal habitat and potential indirect impacts to 2.91 ha of critical habitat;
- *Eucalyptus rhomboidea* (P4): disturbance of 768 individuals and 0.4 ha of population extent. Potential indirect impacts to 430 individuals;
- *Stenanthemum bremerense* (P4): disturbance of 2,049 individuals and 21 ha of population extent. Potential indirect impacts to 1,379 individuals;
- Up to 309 ha of disturbance of the Proposed Bremer Range Nature Reserve; and
- Up to 285 ha of disturbance of the Bremer Range Vegetation Complexes (PEC).

4.2 DETAILS OF PROPOSED OFFSETS

Table 2 describes the measures proposed to offset the residual impacts to these values. Noting the early stage of the assessment process these measures may be revised prior to the commencement of the EPA's assessment of the Proposal as a result of detailed discussions with DBCA and DWER.

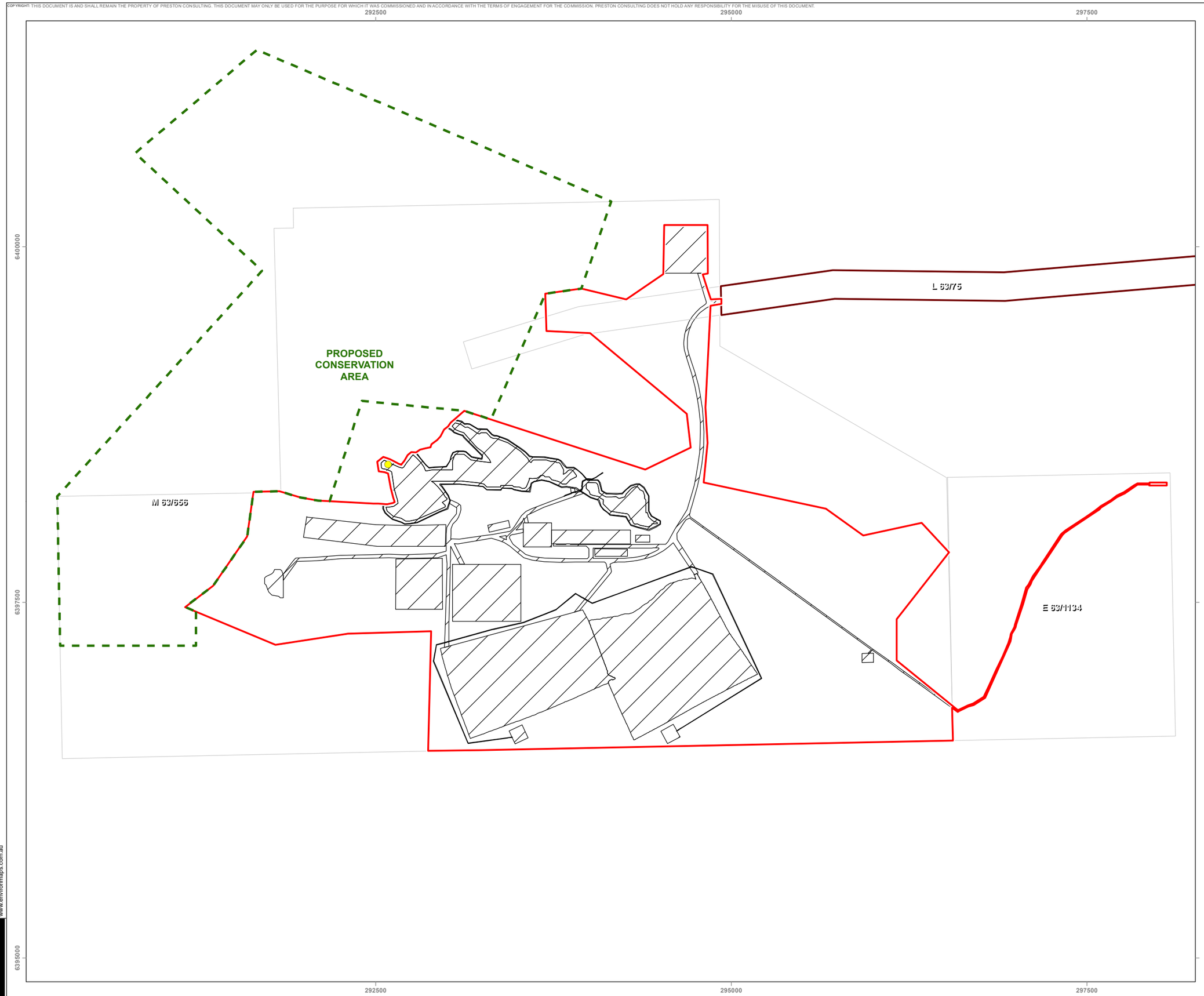
Table 2: Proposed offsets

Offset	Type	Details	Relevant Values
Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for: • *M. aquilonaris* sub-populations 1a, 1d and 1e, and surrounding critical habitat extents • 2 *Eucalyptus rhomboidea* sub-populations • 12 *Stenanthemum bremerense* sub-populations The proposed conservation reserve or other protected area is shown in Figure 5	Direct – preservation of existing habitat	The majority of the *M. aqulionaris* critical habitat lies on Audalia's Mining Act tenure and as such Audalia has a suitable understanding of the mineralisation of the proposed area and the economic implications of a protected area. It is Audalia's position that given the current lack of germination knowledge on the species, the *M. aquilonaris* sub-populations should not be disturbed for mining activities and the development of a reserve or other protected area would reduce the likelihood of this occurring in the future. Audalia proposes to provide funding for DBCA to develop an appropriate reserve or other protected area over *M. aquilonaris* sub-populations 1a, 1d and 1e, and surrounding critical habitat extents, including the management of the reserve for a minimum of 20 years. The offset would ensure protection of 76% of known individuals across three of the five current sub-populations. Audalia notes that sub-population 1b and 1c lie on top of mineralised ore therefore these sub-populations have been excluded from the proposed protected area. The exclusion of mineralised ore from the reserve (or other protected area) is expected to provide more assurity that the reserve (or other protected area) would not be opposed by DMIRS or other mining companies.	*M. aquilonaris, Eucalyptus rhomboidea, Stenanthemum bremerense*

Offset	Type	Details	Relevant Values
		Two *Eucalyptus rhomboidea* and 12 *Stenanthemum bremerense* sub-populations also lie within the proposed conservation reserve or other protected area (Figure 5). The offset would ensure protection of only 260 (1.7%) of known local *Eucalyptus rhomboidea* individuals however will include two of the six local sub-populations (33.3%) and 8 ha of the 12 ha of local population extent (75%). The offset would ensure protection of 29,611 (73.8%) of known local *Stenanthemum bremerense* individuals and will include 12 of the 25 local sub-populations (48%) and 19.1 ha of the 56 ha of local population extent (34.1%).	
Revegetation of previously disturbed vegetation within the *M. aquilonaris* critical habitat boundary (access tracks)	Direct – revegetation of disturbed habitat	There are a number of historic tracks that currently run through the critical habitat boundary. If DBCA deems it suitable, Audalia proposes to cut off the current access to these tracks and rehabilitate the tracks that lie within the critical habitat boundary. Some rehabilitation areas that lie within optimal habitat but outside the sub-populations may be used for germination trials to determine if additional *M. aquilonaris* individuals can become established in these areas. Audalia intends to either fund DBCA to conduct this work or commission experienced consultants to complete the work with direction from DBCA. This work may include provision of suitable access to any conservation reserve created by the above offset.	*M. aquilonaris*
On ground management within *M. aquilonaris* critical habitat and local *Eucalyptus rhomboidea* and *Stenanthemum bremerense* populations	Direct – management of existing and rehabilitated habitat	Audalia intends to either fund DBCA to conduct on ground management of the *M. aquilonaris* critical habitat and surrounds based on a general provision of funds at a rate to be agreed with DBCA), or commission experienced consultants to complete the work with direction from DBCA. The funding is proposed to be for a minimum of 20 years.	*M. aquilonaris, Eucalyptus rhomboidea, Stenanthemum bremerense*
Ongoing *M. aquilonaris*, *Eucalyptus rhomboidea* and *Stenanthemum bremerense* research: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials • Genetic studies	Indirect – improvement of scientific knowledge of the species	Audalia has commissioned significant research work on these species to inform this ERD. It is proposed to continue the longer-term portions of this research such as germination, changes to plant numbers, health and rehabilitation trials. This information will inform the recovery and preservation planning for these species.	*M. aquilonaris, Eucalyptus rhomboidea, Stenanthemum bremerense*
Successful translocation of all impacted *Eucalyptus rhomboidea* and *Stenanthemum bremerense* individuals (numbers to be based on	Direct – replacement of existing population	Audalia is currently undertaking germination trials for *Eucalyptus rhomboidea* and *Stenanthemum bremerense* to allow the replacement of any individuals that are required to be disturbed for the Proposal. These germination trials will continue to inform the target regrowth and establishment of at least the	*Eucalyptus rhomboidea, Stenanthemum bremerense*

Offset	Type	Details	Relevant Values
pre-clearance survey) to rehabilitation areas		same number of individuals impacted by the Proposal. Audalia notes that this offset carries some risk as germination success has not yet been confirmed for either species.	
On ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes PEC	Direct – management of existing habitat and rehabilitation of historic disturbance on closed mining tenements	Audalia intends to either fund DBCA to conduct on-ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes (PEC) or commission experienced consultants to complete the work with direction from DBCA. The funding is proposed to be for a minimum of 20 years and based on a general provision of funds at a rate to be agreed with DBCA.	*M. aquilonaris, Eucalyptus rhomboidea, Stenanthemum bremerense,* Proposed Bremer Range Nature Reserve, Bremer Range Vegetation Complexes PEC

An assessment of the adequacy of these offsets is provided in Section 5.



Legend

- Mine Development Envelope
- Haul Road Development Envelope
- Mine Disturbance Footprint
- Haul Road Indicative Disturbance Footprint
- Tenement
- Proposed Conservation
- *Marianthus* Critical Habitat
- *Marianthus aquilonaris* Population - January 2019
- *Marianthus* Optimal Habitat
- *Marianthus* Sub-optimal Habitat

Priority Flora

- *E. rhomboidea* Population - June 2019
- *S. bremerense* Population June 2019

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
- TENEMENTS SOURCED DMRS 2020
- LOCALITY MAP SOURCED LANDGATE
- AERIAL PHOTOGRAPHY OPEN SOURCE

[redacted]

0 200 400 600 800 1,000
metres

Scale: 1:25,000 @ A3

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LOCALITY MAP

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	PC2900035	2/07/2020	0

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Figure 5: Proposed boundary of conservation reserve or other protected area

5 ASSESSMENT OF THE PROPOSED OFFSETS

Offsets are the last of the four steps in the mitigation hierarchy (Avoid, Minimise, Rehabilitate and Offset). They are only applied to counterbalance residual significant impacts when the other steps have already been applied to a Proposal.

Audalia commissioned numerous environmental surveys and studies for the Proposal. The surveys determined that there were key environmental values that required protection, including significant flora, the Bremer Range Vegetation Complexes (PEC) and the proposed Bremer Range Nature Reserve.

Audalia assessed the findings of the surveys and studies and made significant changes to the Proposal design. Some of these changes carried a significant cost (such as reducing the size of the Vesuvius mine pit) – affecting the unit costs of the Proposal. Changes were also made to avoid and minimise construction and operational impacts, such as implementing strict clearing controls, dust mitigation and surface water drainage controls.

The application of these avoidance and minimisation mechanisms in Proposal design and operations has meant that impacts to many key environmental values have been avoided or significantly reduced. Audalia understands that this conclusion is in part based on studies and modelling, and as such monitoring has been committed to in order to verify the study and model outputs.

5.1 WA ENVIRONMENTAL OFFSETS GUIDELINES

The WA Environmental Offsets Guidelines (EPA, 2014) states:

> "In general, significant residual impacts include those that affect rare and endangered plants and animals (such as declared rare flora and threatened species that are protected by statute), areas within the formal conservation reserve system, important environmental systems and species that are protected under international agreements (such as Ramsar listed wetlands) and areas that are already defined as being critically impacted in a cumulative context. Impacts may also be significant if, for example, they could cause plants or animals to become rare or endangered, or they affect vegetation which provides important ecological functions".

Audalia has assessed the residual impacts of the Proposal against the residual impact significance model provided in the WA Environmental Offsets Guidelines (EPA, 2014). The findings of this assessment are provided in Table 3.

Table 3: Assessment against residual impact significant model

Relevant Part IV Environmental Factors	Vegetation and Flora			Terrestrial Fauna			
Part V Clearing Principles	**c -** Rare flora	**d -** TECs	**e -** Remnant vegetation	**f -** Wetlands and waterways	**h -** Conservation areas	**a -** High biological diversity	**b -** Habitat for fauna
Residual impact that is environmentally unacceptable and cannot be offset	No residual impacts are considered to meet this criteria						
Significant residual impacts that will require an offset – *all significant residual impacts to species and ecosystems are protected by statute or where the cumulative impact is already at a critical level*	It is considered likely that the residual impacts to *M. aquilonaris* would meet this criteria	No residual impacts are considered to meet this criteria - no TECs were recorded within the DEs	No residual impacts are considered to meet this criteria – all remaining vegetation will have 97% or more of their pre-European extent remaining	No residual impacts are considered to meet this criteria as no wetlands or waterways that are protected by statute lie within the DEs or would be indirectly impacted by the Proposal	No residual impacts are considered to meet this criteria as no conservation areas that are protected by statute lie within the DEs or would be indirectly impacted by the Proposal	No residual impacts are considered to meet this criteria, while the Great Western Woodland and specifically the Bremer Range are known to have high ecological significance the residual impacts on these areas are not considered significant given the area of intact habitat will remain outside the DEs.	No residual impacts are considered to meet this criteria as no restricted habitats for Threatened Fauna will be impacted and suitable intact habitat will remain outside the DEs.
Significant residual impacts that may require an offset – *any significant residual impacts to potentially threatened species and ecosystems, areas of high environmental value or where the cumulative impact may reach critical levels if not managed*	It is considered likely that the residual impacts to *Eucalyptus rhomboidea* and *Stenanthemum bremerense* would meet this criteria.	It is considered likely that the residual impacts to the Bremer Range Vegetation Complexes PEC would meet this criteria.	No residual impacts are considered to meet this criteria – refer above	No residual impacts are considered to meet this criteria – refer above	It is considered likely that the residual impacts to the proposed Bremer Range Nature Reserve would meet this criteria.	No residual impacts are considered to meet this criteria – refer above	No residual impacts are considered to meet this criteria – refer above

As described in Table 3, based on the findings of the Environmental Impact Assessment in the ERD, Audalia considers that the Proposal's residual impacts to *M. aquilonaris*, *Eucalyptus rhomboidea*, *Stenanthemum bremerense*, the Bremer Range Vegetation Complexes PEC and the proposed Bremer Range Nature Reserve may be considered significant and require offsets.

During the assessment Audalia noted some uncertainty about whether the Proposal impacts the Bremer Range Vegetation Complexes PEC and the proposed Bremer Range Nature Reserve may be considered significant and require offsets. Constituted a significant residual impact that would require offsets. The WA Environmental Offsets Guidelines (EPA, 2014) notes that:

> "There may be cases where there is some uncertainty about whether a significant residual impact will occur, and/or the extent of the impact. An offset may apply in some cases based on an assessment of the risk using a normal risk-based approach, that is considering the 'likelihood' of the impact occurring and the 'consequences' of the impact if it did occur, based on the evidence and information available. Offsets would normally only be applied in cases where there was a significant risk that the impact was likely to occur and there was likely to be a significant consequence".

The indirect impacts described in the ERD are deliberately conservative (appropriately based on the precautionary principle) however it is unlikely that the full scale of indirect impacts would occur. Based on the above, Audalia has committed to ongoing monitoring that will inform and ultimately verify the scale of these residual indirect impacts. The key monitoring is considered to be the dust deposition monitoring and the ongoing Significant Flora Monitoring Programme.

The dust deposition monitoring and Significant Flora Monitoring Programme are committed to in the ERD in Section 5. These monitoring programmes are designed to monitor and compare dust deposition against model predictions, and monitor the health of significant flora populations over the life of the Proposal.

5.2 WA Offsets Template

Audalia has completed a WA Offsets Template as per the requirements of the WA Environmental Offsets Guideline (EPA, 2014), provided in Table 4. Note that only the values that were deemed to require offsets are included (refer to the ERD for the complete list).

Table 4: WA offsets policy template

Existing Environment / Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and Minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely Offset Success	Time Lag	Offset Quantification
***M. aquilonaris* (T)** – Disturbance of 1.51 ha of sub-optimal habitat within the critical habitat boundary Reduction in flora and/or habitat health as a result of indirect impacts Disturbance and indirect impacts to pollinator habitat	**Avoid**: DEs were revised to avoid: • All current individuals • All current areas of occupancy (sub-populations) • All optimal habitat • All catchment areas upslope of current areas of occupancy **Minimise**: • Implement industry best practice management measures for flora and vegetation • Ensure ground disturbance does not exceed the 1.51 ha of sub-optimal habitat limit proposed in the Key Proposal Characteristics • Implement additional ground disturbance measures for any ground disturbance within critical habitat • Implement the Dust Management Plan • Implement preventive measures to minimise the risk and impact of hydrocarbon spills • Comply with Water Quality Protection Guidelines and guidance notes • Implement additional controls upslope of *M. aquilonaris* critical habitat • Implement Significant Flora Monitoring Programme • Conduct an additional *M. aquilonaris* pollinator survey during peak flowing season	Direct disturbance not able to be rehabilitated as disturbance is limited to mine pit and abandonment bund. Surrounding vegetation to be rehabilitated with stripped topsoil and seeded if required.	<u>Can the environmental values be rehabilitated/Evidence?</u> No - disturbance is limited to mine pit and abandonment bund which cannot be rehabilitated back to previous value <u>Operator experience in undertaking rehabilitation?</u> N/A <u>What is the type of vegetation being rehabilitated?</u> N/A <u>Time lag?</u> N/A <u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u> N/A	<u>Extent</u> 1.51 ha of sub-optimal habitat and potential indirect impacts to 2.91 ha of critical habitat <u>Quality</u> • Vegetation is in good to very good condition • Sub-optimal habitat <u>Conservation Significance</u> Threatened species <u>Land Tenure</u> Mining Act tenure <u>Time Scale</u> N/A According to the significance framework, residual impact is considered to be significant because a specially protected species under the *Biodiversity Conservation Act* (BC Act) is impacted.	Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for *M. aquilonaris* sub-populations 1a, 1d and 1e, and surrounding critical habitat extents.	Medium – DMIRS consent not yet obtained and some sub-population areas lie outside Audalia's Mining Act tenure	<u>Can the values be defined and measured?</u> Yes - value to *M. aquilonaris* can be measured <u>Operator experience/Evidence?</u> DBCA will manage the land <u>What is the type of vegetation being revegetated?</u> N/A	Secures critical habitat upon agreement – no time delay	Offset would ensure protection of 76% of known individuals across three of the five current sub-populations, as well as improve / maintain the quality of all current sub-populations and Bremer Range, and expand current knowledge on the species.
					Revegetation of previously disturbed vegetation within the critical habitat boundary (access tracks).	Low - sites occur on Audalia Mining Act tenure and Unallocated Crown Land (UCL)	<u>Can the values be defined and measured?</u> Yes - value to *M. aquilonaris* can be measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> Previously disturbed vegetation within the critical habitat boundary (access tracks).	Expected to be several years before any new *M. aquilonaris* individuals become established (may be reliant on fire events)	
					On ground management within critical habitat (weeds and feral fauna)	Low - sites occur on Audalia Mining Act tenure and UCL	<u>Can the values be defined and measured?</u> Yes - value to *M. aquilonaris* can be measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	No time delay, can be implemented immediately	
					On ground management of broader Bremer Range	Low – Bremer Range occurs on UCL	<u>Can the values be defined and measured?</u> No - value to *M. aquilonaris* cannot be clearly measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	No time delay, can be implemented immediately	

Existing Environment / Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and Minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely Offset Success	Time Lag	Offset Quantification
					Ongoing research: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials	Low - sites occur on Audalia Mining Act tenure and UCL	<u>Can the values be defined and measured?</u> No - value to *M. aquilonaris* cannot be measured in this case <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	Expected to be several years before the results provide data that is useful for the protection of the species.	
***Eucalyptus rhomboidea* (P4)** – Disturbance of 768 individuals and 0.4 ha of population extent Reduction in flora and/or habitat health as a result of indirect impacts	**Avoid**: DEs were revised to avoid more than 79% of records within the study areas **Minimise**: • Implement industry best practice management measures for flora and vegetation • Ensure ground disturbance does not exceed the limit proposed in the Key Proposal Characteristics: 0.4 ha of population extent • Conduct additional significant flora searches of final proposed mine and infrastructure disturbance footprints • Prepare and implement a Mine and Infrastructure Plan • Implement additional ground disturbance measures for any ground disturbance within population boundaries • Implement the Dust Management Plan • Implement preventive measures to minimise the risk and impact of hydrocarbon spills • Comply with Water Quality Protection Guidelines and guidance notes	Direct disturbance not able to be rehabilitated as disturbance is limited to mine pit and abandonment bund. Surrounding vegetation to be rehabilitated with stripped topsoil and seeded if required.	<u>Can the environmental values be rehabilitated/Evidence?</u> No - disturbance is limited to mine pit and abandonment bund which cannot be rehabilitated back to previous value <u>Operator experience in undertaking rehabilitation?</u> N/A <u>What is the type of vegetation being rehabilitated?</u> N/A <u>Time lag?</u> N/A <u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u> N/A	<u>Extent</u> 768 individuals and 0.4 ha of population extent. Potential indirect impacts to 430 individuals <u>Quality</u> Vegetation is in good to very good condition <u>Conservation Significance</u> Priority 4 species <u>Land Tenure</u> Mining Act tenure <u>Time Scale</u> N/A According to the significance framework, residual impact is considered to be significant because a potential future specially protected species under the BC Act is impacted.	Successful translocation of all impacted individuals (numbers to be based on pre-clearance survey) to rehabilitation areas	Medium – suitable germination trials not yet completed however this species is expected to be able to be germinated (Western Botanical, 2018)	<u>Can the values be defined and measured?</u> Yes - value can be measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake the offset if preferred, or Audalia consultants or local land care groups may be engaged <u>What is the type of vegetation being revegetated?</u> Woodland / shrubland	Expected to be ten years before any new individuals / populations become established	Offset would ensure protection of two of the six known local sub-populations, , as well as improve / maintain the quality of the current sub-populations and Bremer Range, and expand current knowledge on the species.
					Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for two *Eucalyptus rhomboidea* sub-populations and surrounding critical habitat extents.	Medium – DMIRS consent not yet obtained and some sub-population areas lie outside Audalia's Mining Act tenure	<u>Can the values be defined and measured?</u> Yes - value to *Eucalyptus rhomboidea* can be measured <u>Operator experience/Evidence?</u> DBCA will manage the land <u>What is the type of vegetation being revegetated?</u> N/A	Secures critical habitat upon agreement – no time delay	
					On ground management (weeds and feral fauna) of local populations	Medium – some local populations occur outside of Audalia Mining Act tenure	<u>Can the values be defined and measured?</u> Yes - value can be measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	No time delay, can be implemented immediately	
					On ground management of	Low – Bremer Range occurs on UCL	<u>Can the values be defined and measured?</u>	No time delay, can be implemented immediately	

Existing Environment / Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and Minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely Offset Success	Time Lag	Offset Quantification
	• Implement additional controls upslope of population boundaries				broader Bremer Range		No - value cannot be clearly measured Operator experience/Evidence? Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged What is the type of vegetation being revegetated? N/A		
					Ongoing research: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Population health monitoring • Rehabilitation trials • Genetic studies	Low – research sites would be located on Audalia Mining Act tenure and UCL	Can the values be defined and measured? No - value cannot be measured in this case Operator experience/Evidence? Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged What is the type of vegetation being revegetated? N/A	Expected to be several years before the results provide data that is useful for the protection of the species.	
***Stenanthemum bremerense* (P4)** – Disturbance of 2,049 individuals and 21 ha of population extent Reduction in flora and/or habitat health as a result of indirect impacts	**Avoid**: DEs were revised to avoid more than 88% of records within the study areas **Minimise**: • Implement industry best practice management measures for flora and vegetation • Ensure ground disturbance does not exceed the limit proposed in the Key Proposal Characteristics: 21 ha of population extent • Conduct additional significant flora searches of final proposed mine and infrastructure disturbance footprints • Prepare and implement a Mine and Infrastructure Plan • Implement additional ground disturbance measures for any ground disturbance within population boundaries	Direct disturbance not able to be rehabilitated as disturbance is limited to mine pit and abandonment bund. Surrounding vegetation to be rehabilitated with stripped topsoil and seeded if required.	Can the environmental values be rehabilitated/Evidence? No - disturbance is limited to mine pit and abandonment bund which cannot be rehabilitated back to previous value Operator experience in undertaking rehabilitation? N/A What is the type of vegetation being rehabilitated? N/A Time lag? N/A Credibility of the rehabilitation proposed (evidence of demonstrated success) N/A	Extent 2,049 individuals and 21 ha of population extent. Potential indirect impacts to 1,379 individuals Quality Vegetation is in good to very good condition Conservation Significance Priority 4 species Land Tenure Mining Act tenure Time Scale N/A According to the significance framework, residual impact is considered to be significant because a potential future specially protected species under the BC Act is impacted.	Successful translocation of all impacted individuals (numbers to be based on pre-clearance survey) to rehabilitation areas	Medium – suitable germination trials not yet completed however this species is expected to be able to be germinated (Western Botanical, 2018)	Can the values be defined and measured? Yes - value can be measured Operator experience/Evidence? Varied – DBCA may undertake the offset if preferred, or Audalia consultants or local land care groups may be engaged What is the type of vegetation being revegetated? Woodland / shrubland	Expected to be several years before any new individuals / populations become established	Offset would ensure protection of 12 of the 25 known local sub-populations,, as well as improve / maintain the quality of the current sub-populations and Bremer Range, and expand current knowledge on the species.
					Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for 12 *Stenanthemum bremerense* sub-populations and surrounding critical habitat extents.	Medium – DMIRS consent not yet obtained and some sub-population areas lie outside Audalia's Mining Act tenure	Can the values be defined and measured? Yes - value to *Stenanthemum bremerense* can be measured Operator experience/Evidence? DBCA will manage the land What is the type of vegetation being revegetated? N/A	Secures critical habitat upon agreement – no time delay	
					On ground management (weeds and feral	Medium – some local populations occur outside	Can the values be defined and measured? Yes - value can be measured	No time delay, can be implemented immediately	

Existing Environment / Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and Minimise	**Rehabilitation Type**	**Likely Rehab Success**		**Type**	**Risk**	**Likely Offset Success**	**Time Lag**	**Offset Quantification**
	• Implement the Dust Management Plan • Implement preventive measures to minimise the risk and impact of hydrocarbon spills • Comply with Water Quality Protection Guidelines and guidance notes • Implement additional controls upslope of population boundaries				fauna) of local populations	of Audalia Mining Act tenure	<u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A		
					On ground management of broader Bremer Range	Low – Bremer Range occurs on UCL	<u>Can the values be defined and measured?</u> No - value cannot be clearly measured <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	No time delay, can be implemented immediately	
					Ongoing research: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Population health monitoring • Rehabilitation trials • Genetic studies	Low – research sites would be located on Audalia Mining Act tenure and UCL	<u>Can the values be defined and measured?</u> No - value cannot be measured in this case <u>Operator experience/Evidence?</u> Varied – DBCA may undertake some of the offset, Audalia consultants or local land care groups may also be engaged <u>What is the type of vegetation being revegetated?</u> N/A	Expected to be several years before the results provide data that is useful for the protection of the species.	
Proposed Bremer Range Nature Reserve – Up to 309 ha of disturbance Reduction in vegetation health as a result of indirect impacts	**Avoid**: Not able to avoid impacts **Minimise**: • Implement industry best practice management measures for flora and vegetation • Conduct additional significant flora searches of final proposed mine and infrastructure disturbance footprints • Prepare and implement a Mine and Infrastructure Plan • Implement the Dust Management Plan • Ensure all surface water crossings are designed	• All disturbance areas apart from the mine pit and TSF slopes will be will be respread with topsoil (or ripped and seeded if topsoil is no longer viable) and rehabilitated • Other Priority Flora will be included in the rehabilitation seed mix if seed is available and germination is likely to be successful • Flowering plants will be included in seeding to ensure pollinator habitat is adequately reinstated • All depressions will be shaped to prevent the formation of new semi-permanent water sources	<u>Can the environmental values be rehabilitated/Evidence?</u> Partially - disturbance of mine pit and abandonment bund cannot be rehabilitated back to previous value, however remaining disturbance (>260 ha) is expected to be able to be rehabilitated such that the values of the reserve is reinstated <u>Operator experience in undertaking rehabilitation?</u> Audalia will utilise experienced operators to conduct the rehabilitation works <u>What is the type of vegetation being rehabilitated?</u> Woodland and shrubland <u>Time lag?</u>	<u>Extent</u> 309 ha (0.61% of extent) <u>Quality</u> Vegetation is in good to very good condition <u>Conservation Significance</u> Proposed nature reserve <u>Land Tenure</u> Mostly UCL <u>Time Scale</u> 13 – 23 years According to the significance framework, residual impact is	Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) over 767.7 ha of the Proposed Bremer Range Nature Reserve.	Medium – DMIRS consent not yet obtained and some of the proposed area lie outside Audalia's Mining Act tenure	<u>Can the values be defined and measured?</u> Yes - value to Proposed Bremer Range Nature Reserve can be measured <u>Operator experience/Evidence?</u> DBCA will manage the land <u>What is the type of vegetation being revegetated?</u> N/A	Secures area upon agreement – no time delay	Offset would ensure additional funding is available to preserve the values of the proposed Nature Reserve and protect 767.7 ha (1.52% of extent).
					On ground management, including rehabilitation of historic disturbance on closed mining tenements	Low – occurs primarily on UCL	<u>Can the values be defined and measured?</u> Yes - value can be measured <u>Operator experience/Evidence?</u> Varied – Audalia proposes to fund DBCA to undertake the	No time delay, can be implemented immediately	

Existing Environment / Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and Minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely Offset Success	Time Lag	Offset Quantification
	to minimise the potential for erosion or sedimentation of downstream vegetation • Implement preventive measures to minimise the risk and impact of hydrocarbon spills • Comply with Water Quality Protection Guidelines and guidance notes	• All surface water drainage diversions will be rehabilitated to a natural form • All surface water crossings will be reinstated by removing drainage infrastructure and reshaping as required	Expected to be up to ten years before any rehabilitation areas become established Credibility of the rehabilitation proposed (evidence of demonstrated success) There are very few rehabilitation sites in the area however mine site rehabilitation methods are well established	considered to be significant because a proposed nature reserve is impacted.			offset, however Audalia consultants or local land care groups may also be engaged What is the type of vegetation being revegetated? N/A		
Bremer Range Vegetation Complexes PEC - 285 ha of disturbance Reduction in PEC health as a result of indirect impacts	**Avoid**: Not able to avoid impacts **Minimise**: As listed for Proposed Bremer Range Nature Reserve above	As listed for Proposed Bremer Range Nature Reserve above	Can the environmental values be rehabilitated/Evidence? Partially - disturbance of mine pit and abandonment bund cannot be rehabilitated back to previous value, however remaining disturbance (>235 ha) is expected to be able to be rehabilitated such that the values of the PEC is reinstated Operator experience in undertaking rehabilitation? Audalia will utilise experienced operators to conduct the rehabilitation works What is the type of vegetation being rehabilitated? Woodland and shrubland Time lag? Expected to be up to ten years before any rehabilitation areas become established Credibility of the rehabilitation proposed (evidence of demonstrated success) There are very few rehabilitation sites in the area however mine site rehabilitation methods are well established	Extent 285 ha (0.32% of extent) Quality Vegetation is in good to very good condition Conservation Significance PEC Land Tenure Mostly UCL Time Scale 13 – 23 years According to the significance framework, residual impact is considered to be significant because a proposed nature reserve is impacted.	Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) over 767.7 ha of the Bremer Range Vegetation Complexes PEC.	Medium – DMIRS consent not yet obtained and some of the proposed area lie outside Audalia's Mining Act tenure	Can the values be defined and measured? Yes - value to Bremer Range Vegetation Complexes PEC can be measured Operator experience/Evidence? DBCA will manage the land What is the type of vegetation being revegetated? N/A	Secures area upon agreement – no time delay	Offset would ensure additional funding is available to preserve the values of the PEC and protect 767.7 ha (1.51% of extent)..
					On ground management, including rehabilitation of historic disturbance on closed mining tenements	Low – PEC primarily occurs on UCL	Can the values be defined and measured? Yes - value can be measured Operator experience/Evidence? Varied – Audalia proposes to fund DBCA to undertake the offset, however Audalia consultants or local land care groups may also be engaged What is the type of vegetation being revegetated? N/A	No time delay, can be implemented immediately	

5.3 OFFSET PRINCIPLES

In WA, government decision making processes in relation to the use of environmental offsets are underpinned by six principles. These are set out in the Environmental Offsets Policy (Government of WA, 2011). The Proposal and proposed offset has been assessed against each of these principles, provided in Table 5.

Table 5: Assessment of the proposed offset against the six principles

No.	Principle	Assessment outcome
1	Environmental offsets will only be considered after avoidance and mitigation options have been pursued.	Audalia has applied the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate. Audalia's primary measure to meet this policy requirements was site selection and design, which avoided an minimised disturbance within several key flora habitat areas. The Development Envelope was reduced via a Section 43A accepted by the EPA on the 4 November 2020.
2	Environmental offsets are not appropriate for all projects.	It is acknowledged that offsets are not appropriate for all projects. As the Proposal may result in significant residual impacts on threatened and priority flora species, the proposed Bremer Range Nature Reserve and a PEC, an offset is considered to be required. The offsets proposed are considered to be appropriate to counterbalance the residual impacts on these environmental values.
3	Environmental offsets will be cost effective, as well as relevant and proportionate to the significance of the environmental value being impacted.	The proposed offsets have been designed to be cost-effective by targeting the retention and conservation of existing environmental values, and translocation of *Eucalyptus rhomboidei* and *Stenanthemum bremerense*. The offsets are cost-effective as Audalia will be active in the area during the duration of the offset implementation so logistical costs will be minimal. The required translocation studies and implementation is an extension of germination work already commissioned by Audalia (through DBCA) therefore Audalia has reasonable knowledge of the associated costs. The use of the proposed offsets for the Proposal is considered to be relevant and proportionate to the significance of the environmental value being impacted.
4	Environmental offsets will be based on sound environmental information and knowledge.	The proposed offsets have been designed to be cost-effective by targeting the retention and conservation of existing environmental values, and translocation of *Eucalyptus rhomboidei* and *Stenanthemum bremerense*. The values of the areas to be retained for conservation are well known given the level of ecological surveys and studies that Audalia have completed in the area. Although initial advice from Western Botanical (2018) indicates that germination is likely to be achievable, Audalia acknowledges that the proposed translocation of *Eucalyptus rhomboidei* and *Stenanthemum bremerense* is not yet based on sufficient environmental knowledge given that germination studies are still being completed. Nevertheless, the protection of these species within the proposed conservation area is expected to be the key offset mechanism for these species and suitable to counterbalance the residual impacts of the Proposal. The translocation offset is therefore supplementary and not essential to counterbalance the residual impacts of the Proposal on *Eucalyptus rhomboidei* and *Stenanthemum bremerense.*
5	Environmental offsets will be applied within a framework of adaptive management.	The combination of proposed offsets site will provide significant opportunities within the framework of adaptive management. The proposed offset site can potentially be used as a trial or pilot site for new approaches to threat reduction, and being under the management of DBCA or other management authority, will be consistently subject to new, more effective management techniques as these become best practice. The remaining offsets have been designed to be adaptive, utilising Audalia's improved experience in revegetation and germination during the first years of operation at the Proposal. This allows information and knowledge captured during operation to be used in an adaptive manner.
6	Environmental offsets will be focused on	The proposed offsets have been designed to utilise improved information as it becomes available during the first years of operation at the Proposal. This allows information and knowledge captured during operation (regarding

No.	Principle	Assessment outcome
	longer term strategic outcomes.	germination, translocation and revegetation) to be used to inform strategies to achieve solid strategic outcomes.

6 OBJECTIVES, TARGETS AND COMPLETION CRITERIA

Table 6 sets out the objectives, targets and completion criteria for the proposed offsets.

Table 6: Objectives, targets and completion criteria

Objective	Target	Completion Criteria
Counterbalance the significant residual impact to *Marianthus aquilonaris* as a result of implementation of the Proposal.	The proposed Offset Site is added to conservation estate or otherwise protected (i.e. under Section 19 of the Mining Act)	• Conservation and Parks Commission acceptance of the Offset Site into conservation estate or DMIRS protect site under Section 19 of the Mining Act • Agreement with DBCA regarding management and funding • Approval of Offset Strategy
	Previously disturbed vegetation within the *Marianthus aquilonaris* critical habitat boundary (access tracks) is revegetated	• DBCA acceptance of revegetation area as suitably rehabilitated
	To maintain and / or improve *Marianthus aquilonaris* critical habitat	• DBCA agreement on proposed management actions • Restrict access to the site (public, introduced grazers and feral animals) • Eradicate target weed species
	Improve the scientific knowledge of *Marianthus aquilonaris*	The following ongoing *Marianthus aquilonaris* research is conducted over the life of the Proposal: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials • Genetic studies
Counterbalance the significant residual impact to *Eucalyptus rhomboidea* as a result of implementation of the Proposal.	The proposed Offset Site is added to conservation estate or otherwise protected (i.e. under Section 19 of the Mining Act)	• Conservation and Parks Commission acceptance of the Offset Site into conservation estate or DMIRS protect site under Section 19 of the Mining Act • Agreement with DBCA regarding management and funding • Approval of Offset Strategy
	To maintain and / or improve local *Eucalyptus rhomboidea* populations	• DBCA agreement on proposed management actions • Restrict access to the site (public, introduced grazers and feral animals) • Eradicate target weed species
	Improve the scientific knowledge of *Eucalyptus rhomboidea*	The following ongoing *Eucalyptus rhomboidea* research is conducted over the life of the Proposal: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials • Genetic studies
	All impacted *Eucalyptus rhomboidea* individuals to be	Successful translocation of all impacted *Eucalyptus rhomboidea* individuals (numbers to be based on pre-clearance survey) to rehabilitation areas

Objective	Target	Completion Criteria
	replaced with translocated individuals	
Counterbalance the significant residual impact to *Stenanthemum bremerense* as a result of implementation of the Proposal.	The proposed Offset Site is added to conservation estate or otherwise protected (i.e. under Section 19 of the Mining Act)	• Conservation and Parks Commission acceptance of the Offset Site into conservation estate or DMIRS protect site under Section 19 of the Mining Act • Agreement with DBCA regarding management and funding • Approval of Offset Strategy
	To maintain and / or improve local *Stenanthemum bremerense* populations	• DBCA agreement on proposed management actions • Restrict access to the site (public, introduced grazers and feral animals) • Eradicate target weed species
	Improve the scientific knowledge of *Stenanthemum bremerense*	The following ongoing *Stenanthemum bremerense* research is conducted over the life of the Proposal: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials • Genetic studies
	All impacted *Stenanthemum bremerense* individuals to be replaced with translocated individuals	Successful translocation of all impacted *Stenanthemum bremerense* individuals (numbers to be based on pre-clearance survey) to rehabilitation areas
Counterbalance the significant residual impact to the Proposed Bremer Range Nature Reserve as a result of implementation of the Proposal.	To maintain and / or improve the values of the Proposed Bremer Range Nature Reserve	• DBCA agreement on proposed management actions • Restrict access to the site (public, introduced grazers and feral animals) • Eradicate target weed species
Counterbalance the significant residual impact to the Bremer Range Vegetation Complexes PEC as a result of implementation of the Proposal.	To maintain and / or improve the values of the Bremer Range Vegetation Complexes PEC	• DBCA agreement on proposed management actions • Restrict access to the site (public, introduced grazers and feral animals) • Eradicate target weed species

7 MONITORING

Routine monitoring is necessary to ensure the proposed offsets are effective in counterbalancing the significant residual impacts on the environmental values. Table 7 provides a framework for the monitoring required, however final monitoring requirements and timings will be determined during agreements with the Conservation and Parks Commission / DBCA or other relevant parties.

Table 7: Offset monitoring schedule

Offset	Monitoring	Timing
Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for: • *M. aquilonaris* sub-populations 1a, 1d and 1e, and surrounding critical habitat extents • 2 *Eucalyptus rhomboidea* sub-populations • 12 *Stenanthemum bremerense* sub-populations The proposed conservation reserve or other protected area is shown in Figure 5	Plant counts within each sub-population	Annually
	Searches throughout protected area for *Eucalyptus rhomboidea* and *Stenanthemum bremerense*	Approximately 12 months after a fire event
	Sub-population health monitoring	Annually
	Weed infestation, including: • Area of impact • Species list • Location of weed infestation	Annually
	Evidence of access by public or introduced fauna	Annually
	Evidence of unauthorised disturbance (access etc.)	Annually
Revegetation of previously disturbed vegetation within the *M. aquilonaris* critical habitat boundary (access tracks)	Revegetation area health monitoring	Every 6 months for the first 3 years following rehabilitation, then annually
	Weed infestation, including: • Area of impact • Species list • Location of weed infestation	Every 6 months for the first 3 years following rehabilitation, then annually
	Evidence of access by public or introduced fauna	Annually
	Evidence of unauthorised disturbance (access etc.)	Annually
On ground management within *M. aquilonaris* critical habitat and local *Eucalyptus rhomboidea* and *Stenanthemum bremerense* populations	Plant counts within each sub-population	Annually
	Sub-population health monitoring	Annually
	Weed infestation, including: • Area of impact • Species list • Location of weed infestation	Annually
	Evidence of access by public or introduced fauna	Annually
	Evidence of unauthorised disturbance (access etc.)	Annually
Ongoing *M. aquilonaris*, *Eucalyptus rhomboidea* and *Stenanthemum bremerense* research	Germination trials – reporting results	At least annually
	Plant counts within each local sub-population	Annually
	Regional searches of optimal habitat for *M. aquilonaris*, *Eucalyptus rhomboidea* and *Stenanthemum bremerense*	Approximately 12 months after a fire event
	Local sub-population health monitoring	Annually

Offset	Monitoring	Timing
	Rehabilitation trial area health monitoring	At least every 6 months for the duration of the trial
	Genetic studies – reporting results	At completion
Successful translocation of all impacted *Eucalyptus rhomboidea* and *Stenanthemum bremerense* individuals (numbers to be based on pre-clearance survey) to rehabilitation areas	Germination trials – reporting results	At least annually
	Rehabilitation / translocation trial area health monitoring	At least every 6 months for the duration of the trial
	Target plant counts within each translocated sub-population	Annually
	Species composition within each translocated sub-population	Annually
	Translocated sub-population health monitoring	At least every 6 months until established, then annually
	Weed infestation, including: • Area of impact • Species list • Location of weed infestation	Every 6 months for the first 3 years following translocation, then annually
	Evidence of access by public or introduced fauna	Annually
	Evidence of unauthorised disturbance (access etc.)	Annually
On ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes PEC	Weed infestation, including: • Area of impact • Species list • Location of weed infestation	Annually
	Evidence of access by public or introduced fauna	Annually
	Evidence of unauthorised disturbance (access etc.)	Annually

8 FUNDING ARRANGEMENTS

Funding arrangements are to be agreed with DWER and DBCA however regardless of the management structure Audalia will provide funding for the following:

- The development and management of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) shown in Figure 5 for a period of 20 years;
- Revegetation of previously disturbed vegetation within the *M. aquilonaris* critical habitat boundary (access tracks);
- On ground management within M. aquilonaris critical habitat and local *Eucalyptus rhomboidea* and *Stenanthemum bremerense* populations for a period of 20 years;
- Ongoing *M. aquilonaris*, *Eucalyptus rhomboidea* and *Stenanthemum bremerense* research, including:
    - Ongoing germination trials;
    - Annual plant counts;
    - Regional searches after fire events;
    - Sub-population health monitoring;
    - Rehabilitation trials;
    - Genetic studies;
- The translocation of all impacted *Eucalyptus rhomboidea* and *Stenanthemum bremerense* individuals to rehabilitation areas; and
- On ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes PEC for a period of 20 years.

9 MANAGEMENT, ROLES AND RESPONSIBILITIES

Table 8 details the management structure proposed for each offset.

Table 8: Management of proposed offsets

Offset	Management / Responsibility
Provision of funding and support (to address any DMIRS concerns) for the development of a conservation reserve or other protected area (i.e. under Section 19 of the Mining Act) for: • *M. aquilonaris* sub-populations 1a, 1d and 1e, and surrounding critical habitat extents • 2 *Eucalyptus rhomboidea* sub-populations • 12 *Stenanthemum bremerense* sub-populations The proposed conservation reserve or other protected area is shown in Figure 5	DBCA would be an appropriate management authority for the conservation reserve or other protected area, however alternative management structures could include: • Managed by Audalia under direction of DBCA; or • Managed by a landcare group under direction of DBCA The management of the reserve would be for a minimum of 20 years.
Revegetation of previously disturbed vegetation within the *M. aquilonaris* critical habitat boundary (access tracks)	If DBCA deems it suitable, Audalia would be an appropriate management authority to cut off the current access to these tracks. DBCA, Audalia or a specialised rehabilitation group could manage the rehabilitation of the tracks that lie within the critical habitat boundary.
On ground management within *M. aquilonaris* critical habitat and local *Eucalyptus rhomboidea* and *Stenanthemum bremerense* populations	DBCA would be an appropriate management authority to conduct on-ground management of the *M. aquilonaris* critical habitat and surrounds, however alternative management structures could include: • Managed by Audalia under direction of DBCA; or • Managed by a landcare group under direction of DBCA The management is proposed to be for a minimum of 20 years.
Ongoing *M. aquilonaris*, *Eucalyptus rhomboidea* and *Stenanthemum bremerense* research: • Ongoing germination trials • Annual plant counts • Regional searches after fire events • Sub-population health monitoring • Rehabilitation trials • Genetic studies	Audalia has commissioned significant research work on these species to inform this ERD. It is proposed that Audalia continue to manage the longer-term portions of this research (under direction and with advice from DBCA) such as germination, changes to plant numbers, health and rehabilitation trials.
Successful translocation of all impacted *Eucalyptus rhomboidea* and *Stenanthemum bremerense* individuals (numbers to be based on pre-clearance survey) to rehabilitation areas	Audalia and DBCA are currently undertaking germination trials for *Eucalyptus rhomboidea* and *Stenanthemum bremerense* to allow the replacement of any individuals that are required to be disturbed for the Proposal. These germination trials will continue to inform the target regrowth and establishment of these species. Once confirmed it is proposed that Audalia would manage the translocation process on site (under direction and with advice from DBCA)
On ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes PEC	DBCA would be an appropriate management authority for the on ground management of the Proposed Bremer Range Nature Reserve and Bremer Range Vegetation Complexes PEC, however alternative management structures could include: • Managed by Audalia under direction of DBCA; or • Managed by a landcare group under direction of DBCA The funding is proposed to be for a minimum of 20 years.

Table 9 identifies the key roles and responsibilities for the implementation of offsets.

Table 9: Roles and responsibilities

Role	Responsibility
Audalia (corporate)	Development of the Offset Strategy, funding of offset works for 20 years and obtaining protection for the identified offset site
DBCA or suitable landcare group	Implementation of management and monitoring actions and/or providing direction to Audalia and landcare group as required
Suitable landcare group	Implementation of management and monitoring actions if not managed by DBCA
Audalia Environment / Conservation Manager	Overseeing the monitoring, management and reporting on the status of the proposed offsets under Audalia's management
Audalia Site Manager	Onsite compliance with the Offset Strategy
Technical Officers	Carrying out routine monitoring and management

10 REVIEW AND REVISION

This Offset Strategy is to be reviewed at least every three years, or more frequently under the following circumstances:

- Following a significant environmental incident that threatens the success of the proposed offsets;
- When there is a need to improve performance in an area of environmental conservation;
- When there are changes to activities that are being managed under this Offset Strategy; or
- When there are new activities that should be managed under this Offset Strategy.

The review is to assess whether the Offset Strategy is achieving its objectives and the requirements of approval conditions. The review is to consider environmental monitoring records, response actions taken and the results of any internal and external audits. During the review process, the reasons for varying the Offset Strategy are to be documented. The review may be initiated by any party that has a management responsibility for the implementation of the offsets.

11 CONCLUSION

Audalia has assessed the impacts of the Proposal against the Residual Impact Significance Model (EPA, 2014a) and has determined that the Proposal is likely to result in a significant residual impact to several environmental values.

If approved, Audalia predicts that an offset condition will be included in the MS to counterbalance the significant residual impacts of the Proposal. This draft Offset Strategy provides additional detail regarding the offsets proposed by Audalia for the Proposal.

The suitability of the proposed offsets have been assessed against the six offset principles set out in the Environmental Offsets Policy (GoWA, 2011) and the WA Offsets Template. The proposed offsets are considered to be relevant and proportionate to the significance of the environmental value being impacted.

12 ABBREVIATIONS

Term	Meaning
Audalia	Audalia Resources Limited
BC Act	*Biodiversity Conservation act 2016* (WA)
DBCA	Department of Biodiversity, Conservation and Attractions
DE	Development Envelope
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental; Regulation
EP Act	*Environmental Protection Act 1986* (WA)
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ERD	Environmental Review Document
ESD	Environmental Scoping Document
ha	Hectare
km	Kilometre
MS	Ministerial Statement
PEC	Complexes Priority Ecological Community
UCL	Unallocated Crown Land
WA	Western Australia