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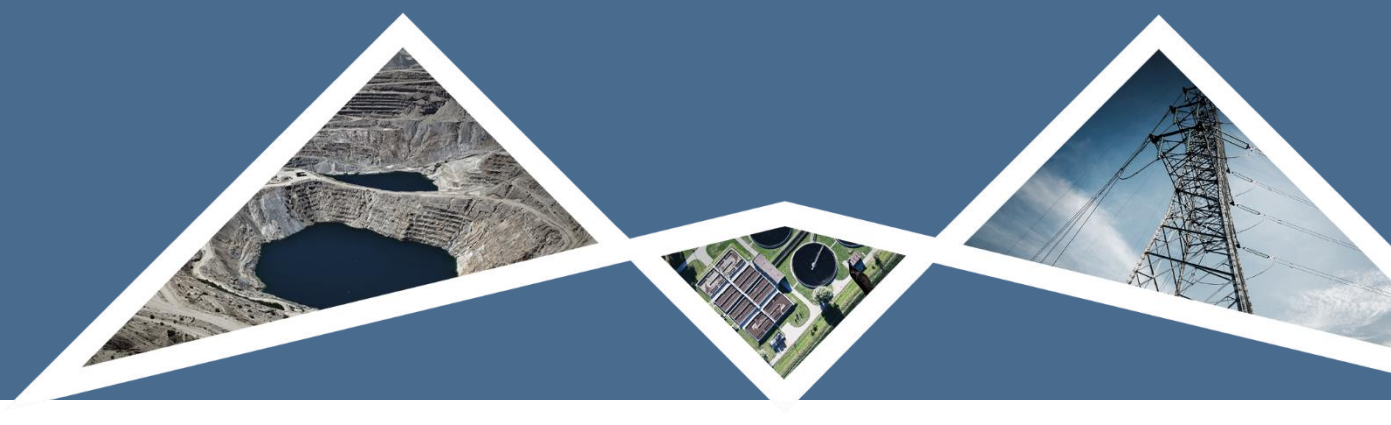
IMPACT ASSESSMENT METHODOLOGY

BLACK MOUNTAIN MINING: GROOT KOLK POSPECTING RIGHTS PROJECT, NORTHERN CAPE



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1 INTRODUCTION

The impact significance rating methodology, as provided by EIMS, is guided by the requirements of the NEMA EIA Regulations 2014 (as amended). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/ likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S). The impact assessment will be applied to all identified alternatives. Where possible, mitigation measures will be recommended for impacts identified.

1.1 DETERMINTATION OF ENVIRONMENTAL RISK

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$\boldsymbol{C = \frac{(E + D + M + R) * N}{4}}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 1 below.

Table 1: Criteria for Determining Impact Consequence

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),

Aspect	Score	Definition
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/ scored as per Table 2.

Table 2: Probability Scoring

Probability	1	Improbable (the possibility of the impact materializing is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

ER= C x P

Table 3: Determination of Environmental Risk

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	Probability					

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 4.

Table 4: Significance Classes

Environmental Risk Score	
Value	**Description**
< 9	Low (i.e. where this impact is unlikely to be a significant environmental risk).
≥9 - <17	Medium (i.e. where the impact could have a significant environmental risk),
≥17	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/mitigated.

1.2 IMPACT PRIORITISATION

Further to the assessment criteria presented in the section above, it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

In addition, it is important that the public opinion and sentiment regarding a prospective development and consequent potential impacts is considered in the decision-making process.

In an effort to ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/mitigation impacts are implemented.

Table 5: Criteria for Determining Prioritisation

Public Response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response.
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/ definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable Loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 5. The impact priority is therefore determined as follows:

Priority = PR + CI + LR

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Refer to Table 6).

Table 6: Determination of Prioritisation Factor

Priority	Ranking	Prioritisation Factor
3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

Table 7: Final Environmental Significance Rating

Environmental Significance Rating	
Value	**Description**
< 10	Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥10 <20	Medium (i.e. where the impact could influence the decision to develop in the area).
≥ 20	High (i.e. where the impact must have an influence on the decision process to develop in the area).

The significance ratings and additional considerations applied to each impact will be used to provide a quantitative comparative assessment of the alternatives being considered. In addition, professional expertise and opinion of the specialists and the environmental consultants will be applied to provide a qualitative comparison of the alternatives under consideration. This process will identify the best alternative for the proposed project.

1.3 SPECIALIST INVESTIGATIONS

It is important to note that in identifying, describing, and assessing the impacts, specialist sub-consultants were consulted and appointed to undertake an individual specialist study. These studies informed the findings of this Basic Assessment and are appended as follows:

- Appendix E1- Heritage Impact Assessment Report;

- Appendix E2- Desktop Palaeontological Impact Assessment Report;
- Appendix E3- Desktop Hydrogeological Assessment Report;
- Appendix E4- Desktop Biodiversity Assessment Report.

2 IMPACT IDENTIFICATION

Impacts that are likely to occur as a result of the proposed project are described and assessed in this section. Table 8 provides a summary of the impacts identified for each phase of the proposed project.

Table 8: Impacts Identified

Impact	Phase
1.Job Creation	Planning and Construction
2.Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.	Planning
3.Destruction of, and fragmentation of, portions of the vegetation community;	Construction
4.Loss of ESA and sections of area classed as moderate and highest biodiversity importance;	Construction
5.Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities;	Construction
6.Continued disturbance of vegetation communities (including portions of an ESA and a section classed as moderate and highest biodiversity importance)	Operation
7.Encroachment by alien invasive plant species;	Operation
8.Displacement of avifauna by the airborne survey;	Operation
9.Disturbance and mortalities of herpetofauna due to assaying (Rock chips and Soil sampling);	Operation
10.Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the drilling and access roads;	Operation
11.Further impacts due to the spread and/or establishment of alien and/or invasive species;	Closure & Decommissioning
12.Displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances (such as dust, vibrations, poaching and noise);	Closure & Decommissioning
13.Degradation of aquifers;	Construction
Impacts on existing groundwater users;	Construction and Operation
14.Impacts on surface water features (e.g. streams, rivers, wetlands, saltpans) – which may be recharged by groundwater;	Construction
15.Impact on potential burial grounds and graves;	Construction
16.Impact on structures older than 60 years;	Construction
17.Impact on archaeological resources;	Construction
18.Impact on palaeontological resources;	Construction
19.Noise;	Construction
20.Pollution of Soils and Compacting;	Construction
21.Air Quality;	Rehab & Closure
22.Deterioration and damage to existing access roads and tracks;	Construction

Impact	Phase
23.Safety and security risks to landowners and lawful occupiers;	Construction
24.Interference with existing land uses;	Construction
25.Generation and disposal of waste; and	Construction
26.Erosion due to improper rehabilitation	Operation

Impacts 2-18 have been described and assessed in the relevant specialist reports and impacts 1,19-26 are described below.

2.1 PLANNING AND DESIGN PHASE IMPACTS

2.1.1 JOB CREATION

During the Planning and Design phase, employment opportunities will arise for the design and assessment of the proposed project as input would be required from a variety of professionals, such as engineers, environmental consultants and the regional and national authorities responsible for reviewing the applications made in terms of the relevant legislation.

Impact Name	**Job Creation**				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	1	1	Magnitude	2	2
Extent	1	1	Reversibility	1	1
Duration	2	2	Probability	3	3
Environmental Risk (Pre-mitigation)					4,50
Mitigation Measures					
n/a					
Environmental Risk (Post-mitigation)					4,50
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					4,50

2.2 CONSTRUCTION PHASE IMPACTS

2.2.1 JOB CREATION

During the construction phase of the project, employment opportunities will be created for the various professionals and staff that will be responsible for the prospecting activities.

Impact Name	Job Creation				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	1	1	Magnitude	2	2
Extent	1	1	Reversibility	1	1
Duration	2	2	Probability	3	3
Environmental Risk (Pre-mitigation)					4,50
Mitigation Measures					
n/a					
Environmental Risk (Post-mitigation)					4,50
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					4,50

2.2.2 NOISE

It is anticipated that the proposed project may generate noise during the construction phase due to the operation of construction equipment and vehicles. Noise associated with any drilling activities is also anticipated to cause some disturbance to the surrounding residences as well as fauna.

Impact Name	Noise				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	1	1
Extent	1	1	Reversibility	2	2
Duration	2	2	Probability	3	2
Environmental Risk (Pre-mitigation)					-4,50
Mitigation Measures					
Noise-generating activities associated with construction activities should be kept to a minimum. Blasting permits (obtained from DMR for borrow pits and quarries and from the Chief Inspector of Explosives Unit (SAPS) for earthworks in the road alignment). Compliance with the appropriate legislation/ any local by-laws and regulations regarding the generation of noise must be adhered to; All the relevant permits must be obtained prior to commencement of blasting activities; Noises that could cause a major disturbance (e.g. blasting) should only be carried out in areas located in close proximity to communities and/or residences during normal working hours. Should noise-generating activities have to occur at night (e.g. drilling of blast holes), communities and/or landowners in the vicinity of the drilling should be warned about the noise well in advance and the activities should be kept to a minimum. Compliance with the appropriate legislation with respect to noise will be mandatory. Notification of surrounding residential and businesses but be done at least one week prior to blasting activities.					

Environmental Risk (Post-mitigation)	-3,00
Degree of confidence in impact prediction:	High
Impact Prioritisation	
Public Response	1
Low: Issue not raised in public responses	
Cumulative Impacts	1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.	
Prioritisation Factor	1,00
Final Significance	-3,00

2.2.3 AIR QUALITY (DUST GENERATION)

The proposed project may have impact on the air quality in the surrounding area. It is expected the following on site activities may result in dust generation: clearance of vegetation, the presence of loose building materials and excavated material stockpiles that may be blown by the wind.

Impact Name	**Air Quality**				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	1	1
Extent	2	1	Reversibility	2	2
Duration	1	1	Probability	3	2
Environmental Risk (Pre-mitigation)					-4,50
Mitigation Measures					
• Dust emission should be within acceptable levels and dust control mechanisms must be in place from start to the end of mining activities and must be strictly adhered to. • Use of suitable dust suppression measures such as water spraying; • All stockpiles of fine material must be covered; • Limit clearance of vegetation. • Construction vehicles much be well serviced and in roadworthy condition.					
Environmental Risk (Post-mitigation)					-2,50
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					-2,50

2.2.4 DETERIORATION AND DAMAGE TO EXISTING ACCESS ROADS AND TRACKS

The presence of more vehicles than normal on site may lead to deterioration of existing access roads.

Impact Name	**Deterioration and damage to existing access roads and tracks**				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	2	1
Extent	2	1	Reversibility	3	2
Duration	1	1	Probability	4	4
Environmental Risk (Pre-mitigation)					-8,00
Mitigation Measures					
Rehabilitation of disturbed areas. Maintenance of access roads during and after construction.					
Environmental Risk (Post-mitigation)					-5,00
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					-5,00

2.2.5 SAFETY AND SECURITY RISKS TO LANDOWNERS AND LAWFUL OCCUPIERS

The presence of construction equipment on site may increase the crime in the prospecting area.

Impact Name	**Safety and security risks to landowners and lawful occupiers**				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	2	2
Extent	2	2	Reversibility	3	3
Duration	1	1	Probability	3	2
Environmental Risk (Pre-mitigation)					-6,00
Mitigation Measures					
• The Applicant through the Project Manager shall ensure: o That reasonable measures are taken to ensure the safety of all site staff; o Adequate access control must be implemented in site camp and site; o Awareness training should be provided to construction staff on safety, health and environmental matters; o Provide appropriate Personal Protective Equipment (PPE) where required; o Compliance with the Occupational Health and Safety Act (Act No. 85 of 1993) and associated regulations; o The Applicant and Contractor must ensure that he/she has the contact details of the nearest emergency rooms (hospitals) to the site, of both private and public hospitals. Appropriate signage and barriers must be provided for open trenches and other dangerous hazardous locations on site where deemed necessary. The ECO has the discretion to request additional safety measures.					
Environmental Risk (Post-mitigation)					-4,00

Degree of confidence in impact prediction:	High
Impact Prioritisation	
Public Response	1
Low: Issue not raised in public responses	
Cumulative Impacts	1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.	
Prioritisation Factor	1,00
Final Significance	-4,00

2.2.6 INTERFERENCE WITH EXISTING LAND USES

The proposed application areas are currently used for grazing of sheep and cattle. The prospecting activities may temporarily affect the availability of some areas for this use during construction phase.

Impact Name	**Interference with existing land uses**				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	1	1
Extent	2	1	Reversibility	2	2
Duration	2	1	Probability	4	4
Environmental Risk (Pre-mitigation)					-7,00
Mitigation Measures					
Consultation with landowners Finalize agreements with landowners before commencing with prospecting activities. Adequate communication and notification of interested and affected parties regarding scheduling of prospecting activities.					
Environmental Risk (Post-mitigation)					-5,00
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					2
Medium: Issue has received a meaningful and justifiable public response					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,17
Final Significance					-5,83

2.2.7 GENERATION AND DISPOSAL OF WASTE

During the prospecting activities, minimal waste may be generated from consumption of food on site, fuelling of vehicle, placement of ablution facilities etc.

Impact Name	**Generation and disposal of waste**
Alternative	**Alternative 1**
Environmental Risk	

Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
Nature	-1	-1	Magnitude	2	2
Extent	1	1	Reversibility	2	2
Duration	1	1	Probability	4	3
Environmental Risk (Pre-mitigation)					-6,00
Mitigation Measures					
Implement an integrated waste management system. Compliance with EMPr measures					
Environmental Risk (Post-mitigation)					-4,50
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					-4,50

2.3 OPERATIONAL PHASE IMPACTS

2.3.1 JOB CREATION

During the operational phase of the project, employment opportunities will be created for the contractors and professionals during prospecting.

Impact Name	Job Creation				
Alternative	Alternative 1				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	1	1	Magnitude	2	2
Extent	1	1	Reversibility	1	1
Duration	2	2	Probability	3	3
Environmental Risk (Pre-mitigation)					4,50
Mitigation Measures					
n/a					
Environmental Risk (Post-mitigation)					4,50
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					4,50

2.3.2 EROSION DUE TO IMPROPER REHABILITATION

The

Impact Name	Erosion due to improper rehabilitation				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	2	1
Extent	2	1	Reversibility	3	3
Duration	2	1	Probability	2	2
Environmental Risk (Pre-mitigation)					-4,50
Mitigation Measures					
Rehabilitation monitoring by ECO until vegetation is established to a satisfactory level.					
Environmental Risk (Post-mitigation)					-3,00
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.					
Prioritisation Factor					1,00
Final Significance					-3,00

2.4 REHABILITATION PHASE IMPACTS

2.4.1 JOB CREATION

During the Rehabilitation phase, it is anticipated that relevant specialists will be appointed for the re-establishment of vegetation in the disturbed areas that will not have any project related permanent infrastructure.

Impact Name	Job Creation				
Alternative	**Alternative 1**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	1	1	Magnitude	2	2
Extent	1	1	Reversibility	1	1
Duration	2	2	Probability	3	3
Environmental Risk (Pre-mitigation)					4,50
Mitigation Measures					
n/a					
Environmental Risk (Post-mitigation)					4,50
Degree of confidence in impact prediction:					High

Impact Prioritisation	
Public Response	1
Low: Issue not raised in public responses	
Cumulative Impacts	1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	1
Low: Where the impact is unlikely to result in irreplaceable loss of resources.	
Prioritisation Factor	1,00
Final Significance	4,50

Appendix 1: Impact Significance Rating Table

Impact Assessment Calculations

IMPACT DESCRIPTION			PRE - MITIGATION							POST - MITIGATION								IMPACT PRIORITISATION				
Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitigation ER	Confidence	Public response	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score
Erosion due to improper rehabilitation	Alternative 1	Rehab and closure	-1	2	2	2	3	2	-4,5	-1	1	1	1	3	2	-3	High	1	1	1	1,00	-3,00
Job Creation	Alternative 1	Planning	1	1	2	2	1	3	4,5	1	1	2	2	1	3	4,5	High	1	1	1	1,00	4,50
Job Creation	Alternative 1	Construction	1	1	2	2	1	3	4,5	1	1	2	2	1	3	4,5	High	1	1	1	1,00	4,50
Job Creation	Alternative 1	Operation	1	1	2	2	1	3	4,5	1	1	2	2	1	3	4,5	High	1	1	1	1,00	4,50
Job Creation	Alternative 1	Decommissioning	1	1	2	2	1	3	4,5	1	1	2	2	1	3	4,5	High	1	1	1	1,00	4,50
Job Creation	Alternative 1	Rehab and closure	1	1	2	2	1	3	4,5	1	1	2	2	1	3	4,5	High	1	1	1	1,00	4,50
Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	Alternative 1	Planning	-1	3	2	3	3	3	-8,25	-1	3	2	2	2	2	-4,5	Medium	1	1	2	1,17	-5,25
Destruction of, and fragmentation of, portions of the vegetation community	Alternative 1	Construction	-1	4	4	4	4	4	-16	-1	2	3	3	3	3	-8,25	Medium	1	1	2	1,17	-9,63
Loss of ESA and sections of area classed as and highest biodiversity importance	Alternative 1	Construction	-1	4	3	4	4	4	-15	-1	3	3	3	3	3	-9	Medium	1	1	2	1,17	-10,50
Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities.	Alternative 1	Construction	-1	4	3	4	3	3	-10,5	-1	3	3	2	2	3	-7,5	Medium	1	1	2	1,17	-8,75
Continued disturbance of vegetation communities (including portions of ESA and a section classed as highest biodiversity importance) and encroachment by alien invasive plant species	Alternative 1	Operation	-1	4	4	4	4	4	-16	-1	3	3	4	3	3	-9,75	Medium	1	1	2	1,17	-11,38
Displacement of avifauna by the airborne survey	Alternative 1	Operation	-1	4	3	3	4	5	-17,5	-1	3	3	3	3	3	-9	Medium	1	1	2	1,17	-10,50
Disturbance and mortalities of herpetofauna due to assaying (Rock chips and Soil sampling);	Alternative 1	Operation	-1	3	3	3	4	3	-9,75	-1	3	3	3	3	3	-9	Medium	1	1	2	1,17	-10,50
Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the drilling and access roads.	Alternative 1	Operation	-1	3	3	3	4	4	-13	-1	3	3	3	2	2	-5,5	Medium	1	1	2	1,17	-6,42
Further impacts due to the spread	Alternative 1	Decommissioning	-1	4	3	4	4	3	-11,25	-1	3	3	3	3	3	-9	Medium	1	1	2	1,17	-10,50
Displacement, direct mortalities ar	Alternative 1	Decommissioning	-1	4	4	3	3	3	-10,5	-1	3	2	3	2	2	-5	Medium	1	1	2	1,17	-5,83
Air Quality	Alternative 1	Rehab and closure	-1	2	1	1	2	3	-4,5	-1	1	1	1	2	2	-2,5	High	1	1	1	1,00	-2,50
Degradation of aquifers;	Alternative 1	Construction	-1	3	4	4	3	3	-10,5	-1	3	2	2	2	2	-4,5	Low	3	2	3	1,83	-8,25
Impacts on existing groundwater users;	Alternative 1	Construction	-1	3	2	4	3	3	-9	-1	3	2	2	2	2	-4,5	High	1	2	3	1,50	-6,75
Impact on potential burial grounds and graves;	Alternative 1	Construction	-1	1	5	1	5	2	-6	-1	1	5	2	5	1	-3,25	Medium	1	1	3	1,33	-4,33
Impact on palaeontological resources	Alternative 1	Construction	-1	1	5	3	5	2	-7	-1	1	5	2	5	1	-3,25	High	1	1	1	1,00	-3,25
Impact on structures older than 60 years	Alternative 1	Construction	-1	1	5	3	5	2	-7	-1	1	5	2	5	1	-3,25	Medium	1	1	2	1,17	-3,79
Impact on archaeological resources;	Alternative 1	Construction	-1	1	5	3	5	2	-7	-1	1	5	2	5	1	-3,25	High	1	1	2	1,17	-3,79
Safety and security risks to landowners and lawful occupiers	Alternative 1	Operation	-1	2	1	2	3	3	-6	-1	2	1	2	3	2	-4	High	1	1	1	1,00	-4,00
Generation and disposal of waste	Alternative 1	Construction	-1	1	1	2	2	4	-6	-1	1	1	2	2	3	-4,5	High	1	1	1	1,00	-4,50
Impact on Surface Water Sources	Alternative 1	Construction	-1	3	3	4	3	2	-6,5	-1	3	2	2	2	2	-4,5	Low	3	2	1	1,50	-6,75
Noise	Alternative 1	Construction	-1	1	2	1	2	3	-4,5	-1	1	2	1	2	2	-3	High	1	1	1	1,00	-3,00
Pollution and Compacting of Soils	Alternative 1	Construction	-1	1	1	1	3	3	-4,5	-1	1	1	1	2	2	-2,5	High	1	1	1	1,00	-2,50