

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Draft environmental management programme

a) Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of EAP are included in part A)

EIM Sustainability Solutions (Pty) Ltd

Name: J. van Wyk

Tel No: 083 276 6282 or 0794945575

E-mail address: jana.g.eim@gmail.com

riaanvw103@gmail.com

Postal Address: 6 Shorten Street

Rynfield

Benoni

1501

b) Description of the Aspects of the Activity

(Confirm that the aspects are covered and included in Part A)

Details are documented in Part A - No 3 (b, c & d)

c) Composite Map

(Provide a map Attached as an Appendix, at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers).

See Map Attached under Appendix D in the Basic Assessment Report.

d) Description of Impact Management objectives including management statements

i. Determination of closure objectives

(Ensure that the closure objectives are informed by the type of environment described)

A closure plan aims to adopt a risk-based approach and implementing action plans over a specified timeframe with the following objectives:

- Compliance with legislative and regulatory requirements:
Identify the legal requirements of the Closure Plan in consultation with the relevant regulatory authorities.
- Physical stability:
Ensure that the physical stability of the mining site is consistent with future usage of the site.
- Chemical stability:
Ensure that a framework is in place to mitigate any impact created by site discharges.
- Biological stability:
Ensure that sufficient site rehabilitation is undertaken to facilitate the medium - term re-establishment of flora at areas disturbed by mining activities.
- Public expectations and site amenity potential:
Undertake ongoing public consultation. Maintain amenity values and potential future uses of the site, particularly access roads.
- Aesthetics of the site:
Ensure that the aesthetic appeal of the affected areas are not compromised and rehabilitate the disturbed mining site.

ii) Volumes and rate of water use required for the operation.

The rose quartz mineral will not be extracted using water. Only About 20 litres of water will be kept on site for employees as drinking water.

iii) Has a water use licence been applied for?

The applicant did not apply for a water use license since no water will be used to extract rose quartz mineral.

iv) Impacts to be mitigated in their respective phases.

Table 13: Measures to rehabilitate the environment that was affected by the undertaking any listed activity.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Site clearance applicable to undisturbed areas only which entails the removal of vegetation and topsoil	Construction	The total area of the site (inside undisturbed areas) will not exceed 1.1ha	<p>This activity can only be mitigated once the mining phase has been completed</p> <p>The removed topsoil will be replaced in the area where it had been cleared.</p> <p>Re-vegetation will take place by introducing indigenous grass species in the area.</p>	<p>Rehabilitation Compliance Plan: Detailed action plans will be developed to determine how the objectives are to be achieved.</p> <p>These action plans will cover the following:</p> <ul style="list-style-type: none"> • Which rehabilitation tasks are to be completed? • Who is the responsible person? • The resources required, and the timeline for delivery. • Milestones will be established to facilitate monitoring and measurements. 	Within six months after completion of the mining activity.

Stockpiling of topsoil	Construction	Total area of activities	<p>Topsoil (top 0.25 m layer of soil& vegetation), where available, will be removed and stockpiled separately at a suitable location so that it may be replaced on the exposed subsoil/ backfilling layers (or where it could serve as a suitable environment for seed germination etc.)</p> <p>The height of the topsoil stockpiles, where applicable, will be restricted to 1.8 meters to prevent and minimise erosion.</p>	<p>Rehabilitation Compliance Plan: Detailed action plans will be developed to determine how the objectives are to be achieved.</p> <p>These action plans will cover the following:</p> <ul style="list-style-type: none"> • Which rehabilitation tasks are to be completed? • Who is the responsible person? • The resources required, and the timeline for delivery. • Milestones will be established to facilitate monitoring and measurements. 	Before minig activities commence.
Restricted blasting	Operational	The total area of activities (inside natural, undisturbed areas) will not exceed 1.1ha	<p>No fuel (in bulk tanks) will be stored on- site by the holder of the mining permit. Oils and other petrochemical substances will be stored in an area of “bunded” design. No major repairs or services will be conducted on site.</p>	<p>Rehabilitation Compliance Plan: Detailed action plans will be developed to determine how the objectives are to be achieved.</p> <p>These action plans will cover the following:</p> <ul style="list-style-type: none"> • Which rehabilitation tasks are to be completed? 	Rehabilitation of the site will take place immediately after completion of the area.

			<p>The effective use of oil drip trays and petrochemical spill rehabilitation kits are compulsory.</p> <p>Vehicles and other equipment must be inspected on a daily basis for oil leaks.</p> <p>Re – vegetation will be executed via a “hand seeding”- process using indigenous grass species.</p> <p>Reseeding of areas identified for rehabilitation will be undertaken if vegetation cover does not exceed 50% after one year.</p> <p>Dust control will form part of everyday activities.</p> <p>Eradicate any “declared weeds” within the site footprints</p>	<ul style="list-style-type: none"> • Who is the responsible person? • The resources required, and the timeline for delivery. • Milestones will be established to facilitate monitoring and measurements. 	
--	--	--	---	---	--

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph c)

Table 14: Impact management outcomes.

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type (modify, remedy, control or stop through e.g. noise control measures etc)	Standard to be achieved (impact avoided, noise levels, dust levels, rehabilitation, end use objectives etc.)
Site clearance (removal of vegetation and topsoil)	Hydrological changes (surface water drainage). Soil erosion. Dust generation. Loss of vegetation diversity in the area.	Visual, biological and hydrological aspects.	Construction	Dust control and storm water control. Remedy through rehabilitation and re-vegetation after cessation of mining activities. Avoid mining activities within 100 metres of natural drainage areas.	Dust levels controlled as per Mine Health and Safety Act. Rehabilitation.
Stockpiling of topsoil	Soil erosion. A cumulative impact of sedimentation in natural drainage areas may occur.	Biological aspects.	Construction & Operational	Control through restricting stockpile heights to 1.8 metres. Remediate through fertilising soil once replaced for rehabilitation.	Erosion avoided. Rehabilitation.
Mining activities	Soil and water pollution resultant from the disposal of petrochemical substances. Soil erosion. Dust generation. Loss of vegetation diversity in the area.	Visual, biological and hydrological aspects.	Operational	No fuel (in bulk containers) will be stored on- site by the holder of the mining right. Oils and other petrochemical substances will be stored in an area of "bunded" design. No major repairs or services will be conducted on site. The effective use of oil drip trays and petrochemical spill rehabilitation kits are compulsory.	Rehabilitation

				<p>Dust control will form part of everyday activities.</p> <p>Vehicles and other equipment must be inspected on a daily basis for oil leaks.</p> <p>Re – vegetation will be executed via a “hand seeding” - process using indigenous grass species.</p> <p>Reseeding of rehabilitation areas will be undertaken if vegetation cover does not exceed 50% after one year.</p> <p>Eradicate any “declared weeds” within the drill site footprints</p>	
--	--	--	--	--	--

f) Impact Management Actions

(Description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved.)

Table 15: Impact management action

Activity	Potential Impact	Mitigation type	Time Period for Implementation	Compliance with standards
Site clearance (removal of vegetation and topsoil)	<p>Dust generation.</p> <p>Hydrological changes (surface water drainage).</p> <p>Soil erosion.</p> <p>Loss of vegetation diversity in the area.</p>	<p>Dust control and storm water control.</p> <p>Remedy through rehabilitation and re-vegetation after cessation of mining activities.</p>	Construction phase	<p>Impact minimised,</p> <p>Dust levels to comply with Mine Health and Safety Act.,</p> <p>Erosion minimised.</p> <p>Noise levels to comply with Mine Health and Safety Act.</p>

Stockpiling of topsoil	<p>Soil erosion.</p> <p>A cumulative impact of sedimentation in natural drainage areas may occur.</p>	<p>Control through restricting stockpile heights to 1.8 metres.</p> <p>Remediate through fertilising soil (if required) after the topsoil replacement phase</p>	Within six months after completion of the mining phase	Impact avoided.
Restricted blasting	<p>Dust and noise generation.</p> <p>Increase in safety hazard.</p> <p>Potential soil pollution.</p>	<p>No fuel (in bulk containers) will be stored on-site by the holder of the mining right.</p> <p>Oils and other petrochemical substances will be stored in an area of "bunded" design.</p> <p>No major repairs or services will be conducted on site.</p> <p>The effective use of oil drip trays and petrochemical spill rehabilitation kits are compulsory.</p> <p>Vehicles and other equipment must be inspected on a daily basis for oil leaks.</p> <p>Re-vegetation will be executed via a "hand seeding" process using indigenous grass species.</p> <p>Reseeding of rehabilitation areas will be undertaken if vegetation cover does not exceed 50% after one year.</p>	Mitigated during rehabilitation phase. (Concurrent rehabilitation and rehabilitation during the decommissioning phase)	<p>Impact minimised,</p> <p>Dust levels to comply with Mine Health and Safety Act.,</p> <p>Erosion minimised.</p> <p>Noise levels to comply with Mine Health and Safety Act.</p>

		<p>Eradicate any “declared weeds” within the mine site footprints.</p> <p>Dust control will form part of everyday activities.</p>		
--	--	---	--	--

i. Financial Provision

1)Determination of the amount of Financial Provision

Table 16: Indicates which closure components are applicable to the mining operation.

No.	Closure Component	Applicability	Comment/Motivation
1	Dismantling of processing plant and related structures (Including overland conveyors and power lines)	<i>Not Applicable</i>	A processing plant will not form part of the proposed development
2(A)	Demolition of steel buildings and structures	<i>Applicable</i>	Containers will be used for as storage and office facilities
2(B)	Demolition of reinforced concrete buildings and structures	<i>Not Applicable</i>	Reinforced concrete buildings and structures will not form part of the proposed development
3	Rehabilitation of access roads	<i>Applicable</i>	Any additional access road that might be constructed by the applicant, will be rehabilitated
4(A)	Demolition and rehabilitation of electrified railway lines	<i>Not applicable</i>	No electrified railway lines exist on the mining site
4(B)	Demolition and rehabilitation of non-electrified railway lines	<i>Not applicable</i>	No non-electrified railway lines exist on the site
5	Demolition of housing and/or administration facilities	<i>Not applicable</i>	No Existing housing and/or administration facilities are on the site
6	Opencast rehabilitation including final voids and ramps	<i>Not applicable</i>	Mining is the only proposed invasive activity
7	Sealing of shafts, adits and inclines (Capping of boreholes)	<i>Not applicable</i>	No Capping/ Sealing/filling of boreholes will take place
8(A)	Rehabilitation of overburden and spoils	<i>Applicable</i>	The application includes the creating of overburden and spoils
8(B)	Rehabilitation of processing waste deposits and retention ponds (basic, salt-producing waste)	<i>Applicable</i>	The application includes the creating of processing waste deposits.
8(C)	Rehabilitation of processing waste deposits and retention ponds (acidic, metal-rich waste)	<i>Applicable</i>	The application includes the creating of processing waste deposits.
9	Rehabilitation of subsided areas	<i>Not applicable</i>	This is only applicable to underground mining
10	General surface rehabilitation	<i>Applicable</i>	Erosion control, landscaping, seeding, and ripping of compacted areas are included under this item.
11	River diversions	<i>Not applicable</i>	No river diversions will be applicable
12	Fencing	<i>Applicable</i>	The mining area will require fencing.
13	Water management	<i>Not applicable</i>	The impact of the operation on water quality is unlikely.
14	2 to 3 years of maintenance and aftercare	<i>Applicable</i>	Maintenance components are applicable. This conclusion is based on the applicability of several aspects listed above.
15	Specialist studies	<i>Undetermined</i>	The only specialist studies that will be required are at areas where vegetation struggles to establish. These studies will include soil analysis and soil amelioration proposals. One should also take into account that soil tests are included in the seeding process as provided for in the revegetation process.

Closure components applicable to the proposed mining activities for determining the quantum for financial provision as presented in the 2004 DME Guideline document:

a) Describe the closure objective and the extent to which they have been aligned to the baseline environment described under the Regulation.

The mining activities are comprised of two main phases.

- **Non - invasive mining activities which include:**
 - Investigate all sources for historical data.
 - Geological resource estimation based on the identified outcrop.
 - Feasibility Study

- **Invasive mining activities which include:**
 - Mining will take place in undisturbed areas.
 - Mining site planned will not exceed a combined area of 1.1 ha
 - Rehabilitation activities in the mining area mainly involve the following tasks in an effort to align closure objectives with the baseline environment:
 - i. Rehabilitation of processing wastes deposits and retentions ponds
 - ii. Eradication of declared invader plants.
 - iii. Reintroduction of topsoil at designated areas.
 - iv. Scarification of compacted areas and soil amelioration if applicable.
 - v. Seeding of disturbed areas.
 - vi. Aftercare and maintenance which includes the continual eradication of declared weeds.

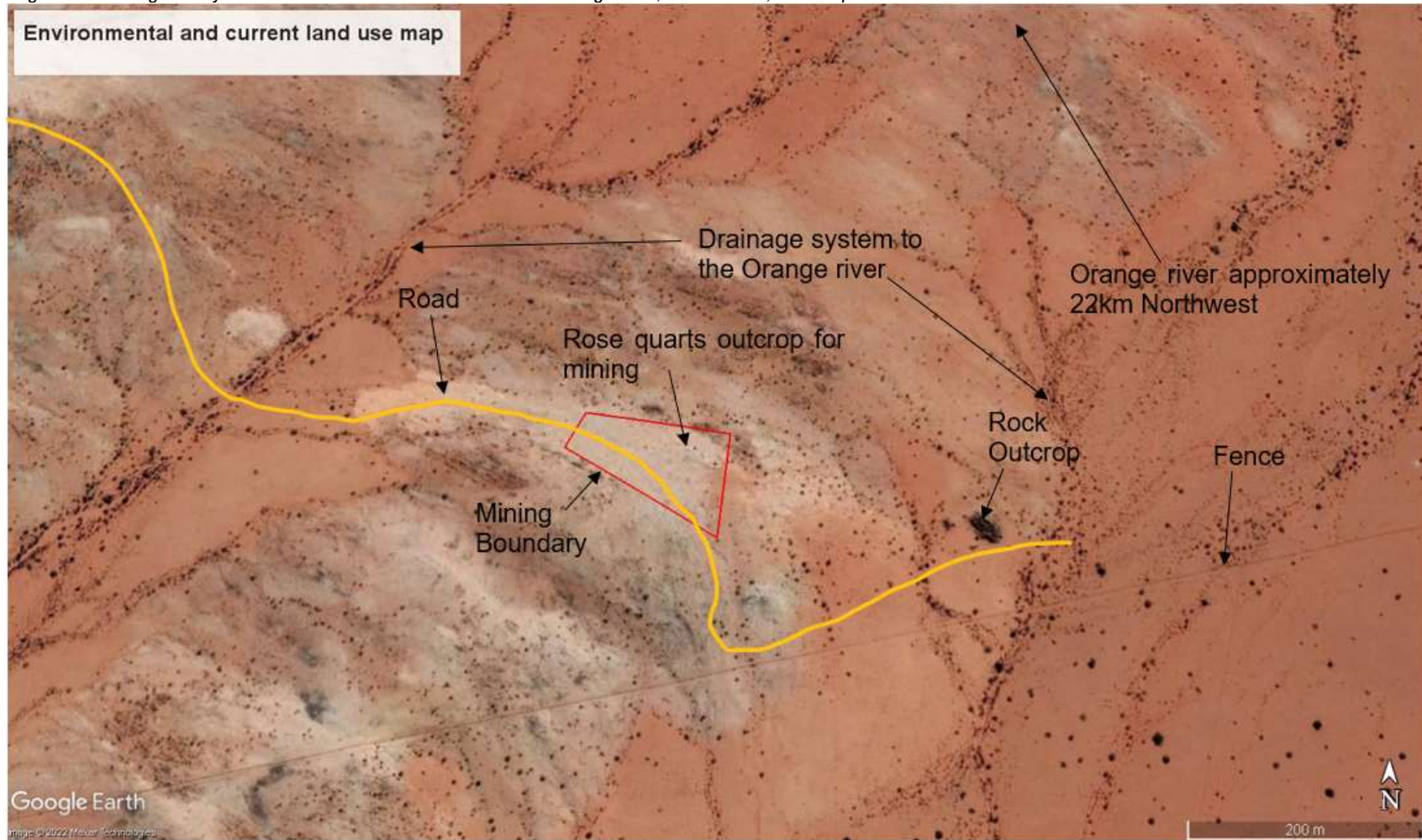
b) Confirm specifically that the environmental objectives in relation to closure have been consulted with the landowner and also interested and affected parties.

Environmental objectives identified and discussed in the Draft BAR which will be presented to the landowner and registered I&AP's during the Basic Assessment Report and EMPR review period.

c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the mining activities, including the anticipated mining area at the time of closure.

Based on the fact that restricted blasting will take place within designated zones the scale and aerial extent of the exact positions of mining are not currently available.

Figure 22: Mining activity will be restricted to area of 1.1ha within the general, undisturbed, area depicted below.



d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The rehabilitation plan is compatible with the closure objectives since proposed mining operation will not contribute significantly to the cumulative environmental impact of the existing or past land uses, in addition to the fact that the extent and the intensity of the proposed mining activities and impacts can be easily mitigated.

e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

Section 41 of the MPRDA (Mineral and Petroleum Resources Development Act of 2002) and regulations 53 and 54 promulgated in terms of the MPRDA deal with financial provision for mine rehabilitation and closure. Page 5 of the DME guideline document implies that the guideline is generic in nature and does not answer all possible questions or deal with all situations relating to financial provision, rehabilitation and mine closure. Further advice and/ or experience may also be required, based on circumstances that prevail at specific mining sites, in order to fully assess the quantum for financial provision.

According to the guideline document, the relevant sections documented within the MPRDA (Act 28 of 2002) which deal with the financial provision are as follows:

- “Section 41(1), requires that an applicant for a prospecting right, mining right or mining permit must, before the Minister approves the environmental management plan or environmental management programme (EMP) in terms of Section 39(4), make the prescribed “financial provision” for the rehabilitation or management of negative environmental impacts,”
- “Section 41(2) provides that, if the holder of a prospecting right, mining right or mining permit fails to rehabilitate or manage, or is unable to undertake such rehabilitation or to manage, any negative impact on the environment, the Minister may, upon written notice to such holder, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question,”
- “Section 41(3) requires the holder of a prospecting right, mining right or mining permit to annually assess his or her environmental liability and increase his or her financial provision to the satisfaction of the Minister, and”
- “Section 45, allows the Minister to recover costs in the event of urgent remedial measures.”

Table 17: Basic information used for formulating the rehabilitation cost for < 1.1ha

Envisaged surface disturbances within undisturbed areas only	< 1.1ha (max)
Planned disturbance per year (m ²)	< 1.1ha (max)

The calculation of the quantum of the financial provision is documented in Table 26 and is based on the fact that the site will not be transformed to a significant extent. The existing estimate totals R10 000.00.

Table 18: Calculation of the quantum

No	Description	Unit	Quantity	Master Rate	Amount (rands)
1	Demolition of buildings	m3	0	N/A	0
2	Rehabilitation of access roads	m2	50	39,4	1970
3	Backfilling of mining area	m3	1,1	3500	3850
4	River Diversions	ha	0	N/A	
5	Fencing	m	0	N/A	
6	Water Management	ha	0	N/A	
7	General surface Rehabilitation	ha	1,1	1900	2090
8	Maintenance and aftercare	ha	1,1	1900	2090
					10000

f) Confirm that the financial provision will be provided as determined

As documented in the declaration, the financial provision will be provided as determined

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

g) Monitoring of Impact Management Actions

h) Monitoring and reporting frequency

i) Responsible person

j) Time period for implementing impact management actions

k) Mechanisms for monitoring compliance

Table 19: Mechanisms for monitoring compliance.

Source activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities (for the execution of the monitoring programmes)	Monitoring and reporting frequency and time periods for implementing impact management actions
Site clearing (removal of topsoil and vegetation) applicable to activities in natural/undisturbed areas.	Erosion and loss of biodiversity on the site	Visually assess area for sections that will be prone to erosion processes as part of scheduled site investigations	Due to the extent of this small-scale operation, the project manager will take responsibility for the internal monitoring programme. External Monitoring and reporting will be executed by an independent environmental specialist.	Identify areas susceptible to erosion after rainfall events. Implement erosion control measures within 2 working days after site has been cleared. Repair erosion control structures (if required) within 5 days after rainfall events. Report on erosion and biodiversity in Annual Environmental Performance report by independent consultant.
Establishment of topsoil/ growth medium stockpiles	Soil erosion invader plants/ declared weeds species.	Ensure that soil stockpiles do not exceed 1.80 metres in height. Ensure that stockpiles are vegetated with indigenous grass seed mixes. Identify declared weeds on the site.	Mine manager	Monitor soil stockpile heights on a weekly basis Stockpile soil in designated sections on the same day when site clearing takes place. Monitor the site for declared weeds and eradicate declared weeds

Source activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities (for the execution of the monitoring programmes)	Monitoring and reporting frequency and time periods for implementing impact management actions
				<p>on a monthly basis.</p> <p>Report on soil erosion and the control of declared weeds in Annual Environmental Performance report by independent consultant.</p>

l) Indicate the frequency of the submission of the performance assessment / environmental audit report.

The required performance assessment/ environmental audit report will be compiled on an annual basis or otherwise as instructed by the DMR.

m) Environmental Awareness Plan

1) Manner in which the applicant intends to inform his or her employees/contractors of any environmental risk which may result from their work.

Employees/ Contractors will receive “induction training” before the mining activity commences. Environmental training and awareness will form part of induction training. The scale and workforce of the operation are small. Therefore any environmental and health and safety related risks are easily manageable.

By complying with the Mine Health and Safety Act, 1996 (Act No 29 of 1996), safety and awareness training will also be conducted. To ensure their understanding, employees will confirm in writing that they have received and understood the training objectives.

2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

• *Environmental Risks associated with equipment, machinery, and vehicles*

Petrochemical spill incidents will be reported and addressed immediately by use of petrochemical spill rehabilitation kits which are to be kept on site at all times. Vehicles and machinery will be serviced on a regular basis and oil trays will be placed under oil leaking vehicles when parked. Equipment will not be serviced on site and no fuel tanks are planned to be kept on site since bulk fuel supplies are not required.

Rehabilitation kits can fit inside the cabin of standard vehicles and comprise the following items:

▪ 1 x 5L Petrochemical Absorbent	▪ 5 x Absorbent Pads
▪ 1 x 1.2m Sock (To contain spillages)	▪ 1 x 200mm x 400mm Pillow
▪ 1 x Pair of Goggles	▪ 1 x Pair of Nitrile Gloves
▪ 1 x Chemical Resistant Apron	▪ 1 x Brush and Pan
▪ 1 x Dust Mask	▪ 2 x Disposal Bags and Ties

- *Airborne Pollutants*

The mining operation is subjected to the regulations contained in Mine Health and Safety Act. Since dust will be generated on the site, all employees and authorised visitors that are subjected to areas where dust is generated, will be issued with PPE (Personal Protective Equipment). Employees that do not wear PPE will be subjected to disciplinary processes.

In order to reduce the impact of dust, the manager will use water to suppress sections where dust may be a risk.

- *Noise*

Earthmoving machinery is known for producing sound levels (vibrations) that exceed 75 decibels. Depending on the size and age of the earthmoving machine, sound levels exceeding 85 decibels are regularly recorded.

All employees and visitors that are in close range of blasting, excavators, front-end loaders or articulated dumper trucks will be required to wear Personal Protective Equipment.

Blasting and earthmoving will be limited to normal working hours (06:30 – 17:30) during weekdays. On Saturdays working hours will be from 06:30 – 15:00. No work will take place on public holidays or Sundays.

- *Erosion control*

Areas on site which are susceptible to erosion processes, are usually visible after rainfall events. Small erosion gullies will form on steep angles and where vegetation was cleared. Without the implementation of erosion control measures small gullies will erode further which might affect the land use and land capability of the receiving environment.

Topsoil or other soils allocated for future rehabilitation will be stockpiled on the site (within designated areas) not exceeding the height of 1.8 meters.

- *Rehabilitation plan*

A rehabilitation and environmental management plan during the operational and post-operational phases will include the following actions:

- Spreading of stockpiled topsoil over backfilled sections.
- Establish fertile soil conditions through proven soil amelioration practices to sustain micro-organisms, plant species and to improve biodiversity.
- The construction of erosion control berms where required.

- Reintroduction of endemic flora in the area and required water quality that would sustain ecosystems and promote biodiversity,
- The removal or eradication of invader/ exotic flora.
- Annual site monitoring will form part of the process of identifying environmental risks and reports on the sustainability of rehabilitation.

n) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually)

Financial provision will be reviewed annually and forwarded to the Department of Mineral Resources – Northern Cape as prescribed in terms of Section 41(3) of the MPRDA.

The rehabilitation/ mitigation or closure cost estimates will form part of the annual environmental performance assessments as prescribed in terms of Regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

2. UNDERTAKING

The EAP hereby confirms

The correctness of the information provided in the reports

- a) The inclusion of comments and inputs from stakeholders and I& IPs ☐

Note: This is a draft document that is made available to registered interested or affected parties. Comments or concerns will be documented in the final report.

- b) The inclusion of inputs and recommendations from the specialist reports where relevant and ☒

- c) That the information provided by the EAP to interested and affected parties and responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein ☒

Signature of the:



Environmental Assessment Practitioner

EIM Sustainability Solutions (Pty) Ltd

Name of Company

14/04/2022

Date

- END -