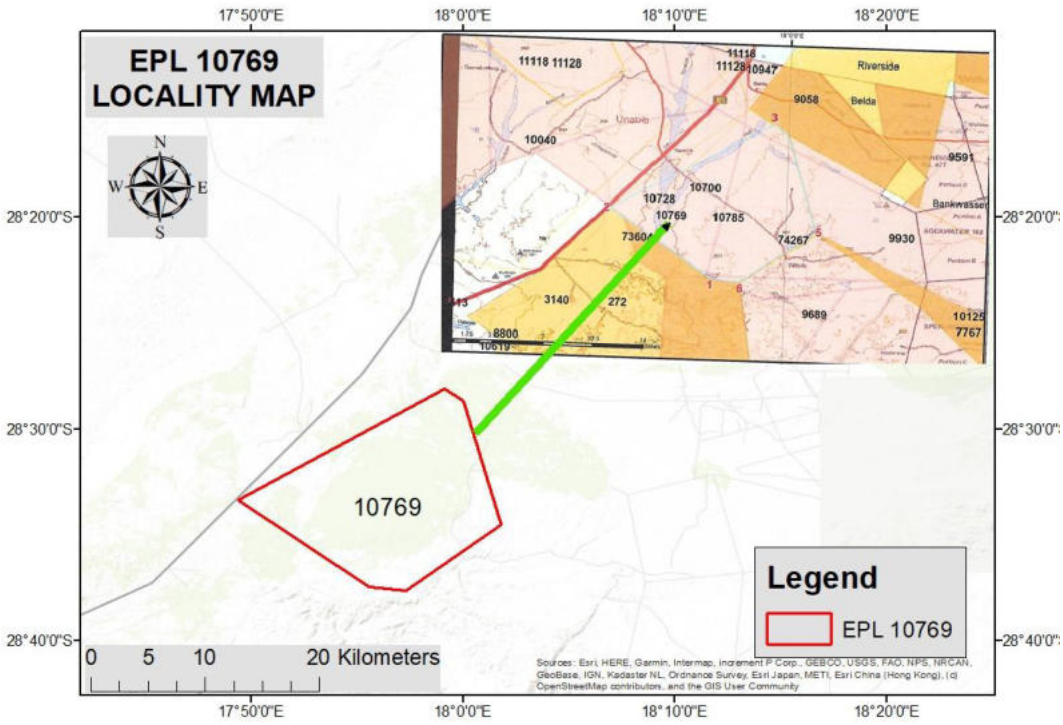
ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED EXPLORATION STUDY FOR DIMENSION STONE AND RARE METALS, INDUSTRIAL MINERALS, PRECIOUS METALS, AND NUCLEAR FUEL MINERALS AT EPL10769, 10KM OUTSIDE THE NOORDOEWER SETTLEMENT, KARASBURG WEST CONSTITUENCY, ||KARAS REGION, NAMIBIA



DOCUMENT REFERENCE NO: 2026 || KALAHARI GEOLOGICAL AND ENVIRONMENTAL SOLUTIONS - EPL NO: 10769

ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE PROPOSED EXPLORATION STUDY FOR DIMENSION STONE AND RARE METALS, INDUSTRIAL MINERALS, PRECIOUS METALS, AND NUCLEAR FUEL MINERALS AT EPL10769, 10KM OUTSIDE THE NOORDOEWER SETTLEMENT, KARASBURG WEST CONSTITUENCY, ||KARAS REGION, NAMIBIA

EMP

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March 2025

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Report status	***Final***		

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ABBREVIATIONS AND ACRONYMS

EMP	Environmental Management Plan
EIA	Environmental Impact Assessment
ECC	Environmental Clearance Certificate
EC	Environmental Commissioner
EPL	Exclusive Prospecting License
MEFT	Ministry of Environment, Forestry and Tourism
DWA	Department of Water Affairs
DEAF	Department of Environmental Affairs and Forestry
ML	Mining License
CENC	Contractor Environmental Coordinator
PM	Project Manager
PP	Project Proponent
I&Aps	Interested and Affected Parties
EAs	Environmental Assessments
ECC	Environmental Clearance Certificate

1. ENVIRONMENTAL MANAGEMENT PLAN

1.1. BACKGROUND

Kalahari Geological and Environmental Solutions Cc proposes non-invasive to low-impact exploration activities on EPL 10769 **for dimension stone, rare metals, industrial minerals, precious metals, and nuclear fuel minerals**. Activities include desktop studies, geophysical surveys, geological mapping, limited trenching, drilling, and bulk sampling for testing. The site is in a hyper-arid, sparsely vegetated area of the //Karas Region, ~10 km from Noordoewer, with access via the B1 highway and farm tracks.

In compliance with the Environmental Management Act, 2007 (Act No. 7 of 2007) and EIA Regulations, 2012 (GN No. 30 of 2012), an Environmental Clearance Certificate (ECC) is required for prospecting and mining-related activities. This EMP, developed following an EIA process, outlines commitments to prevent, minimise, and mitigate adverse impacts while enhancing positive benefits.

1.2. SUMMARY OF THE PROPOSED ACTIVITIES

The environmental issues associated with exploration are mostly local and common to most surface operations. These issues include oil spills, dust or air pollution, impacts on biodiversity, land disturbance, impacts on groundwater aquifers, and socio-economic impacts. The exploration operations, processes and associated activities are as follows:

- Geophysical surveys and geological mapping (non-invasive).
- Limited trenching and drilling (small-scale, localised).
- Bulk sampling for dimension stone testing (minimal excavation).
- Creation/maintenance of access tracks (using existing routes where possible).
- No bulk fuel/oil storage on site; daily mobilisation of equipment.

Activities are short-term (~3 years exploration phase) and small-scale, with potential progression to mining if economically viable.

1.3. PURPOSE AND OBJECTIVES OF THE EMP

EMP is a practical tool to implement EIA recommendations, ensuring compliance, impact minimisation, and benefit enhancement across project phases (exploration, potential operation, decommissioning).

Objectives:

- Ensure full compliance with EMA 2007, EIA Regulations 2012, and other relevant legislation (e.g., Minerals (Prospecting and Mining) Act, 1992).
- Mitigate identified negative impacts (e.g., soil disturbance, dust, waste) to low residual significance.
- Maximise positive impacts (e.g., local employment, economic contributions).
- Provide clear roles, actions, timelines, resources, monitoring, and reporting mechanisms.
- Enable adaptive management for unforeseen events or changes.

1.4. WHAT IS AN EMP

An Environmental Management Plan (EMP) can be defined as “an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced”. EMPs are therefore important tools for ensuring that the management actions arising from Environmental Impact Assessment (EIA) processes are clearly defined and implemented through all phases of the project life-cycle (construction, operation and decommissioning).

1.5. SCOPE OF THIS EMP

To achieve the above objectives, the scope of this EMP will include the following:

- Covers exploration phase (primary focus) and conceptual operational/decommissioning phases.
- Includes mitigation hierarchy: Enhance, Avoid, Minimise/Reduce, Compensate/Restore.
- Applies to proponent, contractors, subcontractors, and all site personnel.

1.6. HIERARCHY OF MITIGATION MEASURES IMPLEMENTATION

This EMP have adopted a hierarchy of methods for mitigating significant adverse effects identified in order of preference and as follows:

i. Enhancement, e.g. provision of new habitats;
ii. Avoidance, e.g. sensitive design to avoid effects on ecological receptors;
iii. Reduction, e.g. limitation of effects on receptors through design changes, and;
iv. Compensation, e.g. community benefits.

1.7. MITIGATION MEASURES IMPLEMENTATION

The EMP provides a detailed plan of action for implementing mitigation measures to minimise the identified negative impacts and maximise the identified positive impacts. The EMP also provides the management actions, roles, and responsibilities requirements for the proponent's implementation of environmental management strategies through contractors and subcontractors who will undertake the exploration activities.

1.8. WHAT ARE THE LEGAL IMPLICATIONS AND OBLIGATIONS UNDER THIS PLAN?

The EMP will be sent to the Directorate of Environmental Affairs and Forestry (DEAF) of the Ministry of Environment, Forestry and Tourism (MEFT) for approval. Once the DEAF is satisfied with the contents of the EMP, they will issue an Environmental Clearance Certificate (ECC) to the Proponent to carry out an exploratory study for **dimension stone, rare metals, industrial minerals, precious metals, and nuclear fuel minerals** in the Noordoewer settlement, Karasburg West Constituency. The ECC is linked with the recommendations of the Environmental Management Plan.

Once the ECC is issued, the EMP becomes a legally binding document, and each role-player, including contractors and subcontractors, is responsible for implementing the relevant sections of the EMP and must abide by the conditions stipulated in this document.

2. DESCRIPTION OF THE EXPLORATION

2.1. GENERAL OVERVIEW

The overall aim of the proposed project (exploration and prospecting activities) is to identify potential economic mineral resources, including base, rare, and precious metals, as well as dimension stones, nuclear fuel, and industrial minerals, within the EPL area. The exploration activities to be undertaken, as assessed in this environmental assessment, are as follows:

i. Initial desktop exploration activities (no fieldwork undertaken);
ii. Regional reconnaissance field-based mapping and sampling activities (subject to the positive results of i.
iii. Initial local field-based mapping and sampling activities (subject to the positive results of i. and ii.
iv. Detailed local field-based activities such as local geological mapping, geochemical mapping and sampling, trenching and drilling of closely

spaced boreholes and bulk sampling (subject to the positive results of i. – iii. Above), and

v. Pre-feasibility and feasibility studies (Subject to positive results of i. – iv. Above).

The scope and scale of the possible fieldwork are very limited, focusing on visiting specific, delineated localities to validate the recommendations from the initial desktop activities.

2.2. Initial Local Field-Based Activities

The following is a description of the proposed initial desktop exploration activities to be implemented by the proponent as assessed in the EIA report:

i. General evaluation of satellites, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data.
ii. Purchase and analysis of existing Government high-resolution magnetics and radiometric geophysical data.
iii. Purchase and analysis of existing Government aerial hyper-spectral, and
iv. Data interpretation and delineating of potential targets for future reconnaissance, regional field-based activities for delineated targets

No fieldwork is envisaged at this stage of the proposed exploration activities, which are expected to last between six (6) and twelve (12) months.

2.3. Regional Reconnaissance Field-Based Activities

The following is a detailed outline of the proposed regional reconnaissance field-based exploration activities to be implemented by the proponent, as assessed in the EIA report

i. Regional geological, geochemical, topographical and remote sensing mapping and data analysis;

ii. Regional geochemical sampling aimed at identifying possible targets based on the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken;

iii. Regional geological mapping aimed at identifying possible targets based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken;

i. Limited field-based support and logistical activities lasting between one (1) and two (2) days, and;

iv. Laboratory analysis of the collected samples, interpretation of the results, and delineation of potential targets for future, detailed site-specific exploration, if the results are positive and support further investigation of the delineated targets.

The scope and scale of the possible fieldwork are very limited to visiting specific, delineated localities in order to validate the recommendations of the initial desktop activities.

2.4. Initial Local Field-Based Activities

The following is a detailed outline of the proposed initial local field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report;

i. Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities;

ii. Local geological mapping aimed at identifying possible targeted resources based on the results of the regional geological analysis undertaken.

iii. Ground geophysical survey (subject to the positive outcomes of i and ii above)

iv. Possible trenching (subject to the outcomes of i–iii above)

v. Field-based support and logistical activities will be very limited, with a focus on site-specific areas for a very short time (maximum five (5) days) and;

vi. Laboratory analysis of the samples collected, interpretation of the results and delineation of potential targets

Scope and scale of the possible field work is very limited, working on specific delineated localities in order to assess the economic viability of the target/s

Detailed Local Field-Based Activities

The following is a detailed outline of the proposed local field-based exploration activities to be implemented by the Proponent as assessed in the EIA report if economic and viable targets are delineated within the EPL area:

i. Access preparation and related logistics to support activities;
ii. Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities;
iii. Local geological mapping aimed at identifying possible targets based on the results of the regional geological analysis undertaken, and
iv. Ground geophysical survey, trenching, drilling and sampling (subject to the positive outcomes of i and ii above)

Scope and scale of the possible field work is likely to be extensive over a localised, specific, delineated locality in order to assess the economic viability of the target/s

2.5. PRE-FEASIBILITY AND FEASIBILITY STUDIES

The following is a detailed outline of the proposed prefeasibility and feasibility studies related to exploration activities to be implemented by the proponent, as assessed in the EIA report, if economic and viable targets are delineated within the EPL area:

i. Detailed site-specific field-based support and logistical activities, surveys, and detailed geological mapping;
ii. Detailed drilling, bulk sampling, and testing for ore reserve calculations;
iii. Geotechnical studies for mine designs;

iv. Mine planning and designs, including all supporting infrastructures (water, energy and access) and test mining activities;
v. EIA and EMP to support the ECC for mining operations, and
vi. Preparation of a feasibility report and application for a mining license

Field-based support and logistical activities will be extensive because local operations will be conducted in a specific area for an extended period (up to one year or more in some instances). The activities will be supported by existing tracks and campsites/ lodging facilities available in the area.

3. ANTICIPATED ENVIRONMENT IMPACTS

The impacts associated with the exploration phase are localised, short-term, and manageable with standard controls, as grouped and indicated below.

3.1. POSITIVE IMPACTS

3.1.1. EMPLOYMENT/JOB CREATION

Unemployment remains a shared responsibility between the government and citizens in Namibia, with private sector initiatives playing a key role in job creation. The project area falls within the Karasburg West Constituency (//Karas Region), which has a population of 17,741 out of the region's total 109,893 (NSA, 2023 Census update 2024). The constituency exhibits a relatively youthful demographic profile, with a high proportion of working-age residents (especially 20–39 years), moderate educational levels (predominantly secondary schooling), and limited access to tertiary education (only 306 individuals with post-secondary qualifications).

The local economy is dominated by agriculture (primarily livestock and subsistence farming), reflected in income sources heavily reliant on salaries/wages from farming and related activities (Fig. 6). While formal employment exists, a significant number of residents (449) report no stable income, highlighting persistent vulnerability and underemployment in the area.

The proposed mineral exploration programme on EPL 10769 aims to create 50–70 direct jobs during the initial three-year exploration phase, with potential for additional temporary and skilled positions if promising results lead to further work. Should economic mineralisation be confirmed, progression to a mining phase could substantially increase local employment opportunities.

ENHANCEMENT MEASURES FOR EMPLOYMENT/JOB CREATION

- Where unskilled labour can be used, the proponent should consider a 'locals first' policy.
- It is proposed that local people, including the community members from Noordoewer settlement, Karasburg West Constituency, should be employed as far as possible, especially where no specific skills are required.
- The Noordoewer settlement, Karasburg West Constituency or the relevant Traditional authority could be requested to assist with the recruitment of construction workers.
- Both men and women should be granted the opportunity to be employed by this project.

3.1.2. SUPPORT FOR LOCAL RETAILERS' SHOPS

Mining is the highest foreign-currency earner and the largest contributor to GDP in the Namibian economy; therefore, the presence of mining activities near local authorities stands to benefit local economies through project-related purchases, for example, in the retail, accommodation, and recreation sectors.

ENHANCEMENT MEASURES FOR SUPPORT TO LOCAL RETAILERS' SHOP

- The proponent and his employees are encouraged to purchase or support local retailers in Noordoewer settlement, Karasburg West Constituency, unless the intended material/product to purchase is not available.

3.1.3. EXPORT TAXES AND VAT PAYMENTS

Export taxes and VAT payments contribute significantly to the national economy. Thus, without these payments, our government will not be able to roll out infrastructure projects, be it water, roads, electricity, or sanitation facilities, nationwide.

ENHANCEMENT MEASURES FOR EXPORT TAXES AND VAT PAYMENTS

- The proponent and his employees are encouraged to make these payments when applicable to support the economic growth of the country.

3.2. NEGATIVE IMPACTS

3.2.1. LIQUID WASTE: USED OIL OR OIL SPILLAGE AND WASTEWATER

Liquid waste management is a well-recognised challenge in mineral exploration and mining worldwide. Used oil and hydrocarbon spills pose significant risks due to their persistence and toxicity; once released, hydrocarbons can coat soils, rocks, and vegetation, impairing soil function, plant health, and wildlife habitats (Richards, 2009). In sensitive environments, oil can infiltrate wetlands, marshes, or aquifers, causing long-term ecological damage.

In exploration activities, water is primarily used for drill-bit cooling, dust suppression, and equipment cleaning. While much of this water is recycled where possible, poorly managed wastewater can contaminate surface or groundwater if containment systems fail or spills occur. Global incidents highlight the importance of robust maintenance, containment, and spill-response protocols to prevent such releases.

For this low-impact exploration programme on EPL 10769, liquid waste volumes are expected to be minimal due to the small scale of activities (limited drilling rigs, vehicles, and personnel).

Risk: Minor leaks from vehicles/drills; low-volume wastewater (<25 L/day).

MITIGATION MEASURES EXPLORATION PHASE

- No on-site storage of fuels, oils, or hazardous liquids will be permitted; all supplies will be transported daily or stored off-site in bunded facilities.

- Implement a strict preventive maintenance programme for all vehicles, drilling rigs, and equipment to minimise leaks; maintenance must occur only in designated, impermeable areas (preferably off-site).
- Install drip trays under stationary machinery and vehicles to capture minor leaks.
- Collect and remove all used oil, oily rags, drip-tray contents, and other hydrocarbon waste as hazardous waste for disposal at a licensed facility by a registered hazardous-waste contractor.
- Ensure all wastewater (drill-water, wash water) is contained in portable tanks or lined sumps for evaporation or authorised off-site disposal; no direct discharge to ground or drainage lines.
- Maintain spill kits on site (absorbents, booms, PPE) and train personnel in immediate spill response procedures.

3.2.2. SOLID WASTE: WIRES, DRILL BITS AND HUMAN WASTE

Solid waste generation is a common aspect of mineral exploration. In small-scale programmes, wastes typically include metal scraps (wires, drill bits, discarded tools), packaging (plastic, paper), and domestic/human waste from camp facilities. Improper management can lead to littering, soil contamination, visual pollution, and risks to wildlife (e.g., ingestion of plastics or sharp objects).

Risk: Litter accumulation; minor soil/health risks

MITIGATION MEASURES EXPLORATION PHASE

- Waste disposal sites should be established on-site where paper, plastic and wire should be kept during the exploration and operation period.
- The collected solid waste should be disposed of at the Grootfontein Town Council solid waste disposal sites.

- During the construction phase, human waste should be collected in on-site mobile toilets for workers. Once these facilities are full, the collected waste should be disposed of at the Grootfontein Council human waste disposal site.
- Prior to the disposal of the above-mentioned waste, the Contractor must enter into an agreement with Grootfontein Town Council for permission to use their facility.
- Management of solid waste generated during the operation phase would include collection, transportation, and disposal in a manner so as to cause minimal environmental impact.
- It will be made mandatory for waste to be segregated right at the source of waste generation. Segregated waste would be collected from the exploration site and amenity areas.
- Waste disposal sites for usage during the operation period to be included in the design of the exploration project. If possible, a mobile waste disposal drum should be assigned at the project site.
- To handle human waste during project operations, a permanent ablution facility will be erected at the irrigation field, with proper lining of the collector to prevent infiltration of human waste into underground aquifers.
- Prior to the disposal of the waste as mentioned above by the Contractor/the proponent must enter into an agreement with the Grootfontein Town Council for permission to use their facility.
- Reusable and recyclable waste will be disposed of by selling to scrap dealers and private contractors for resale.
- Non-degradable waste will be transferred to the municipal solid waste management system.

3.2.3. LAND AND SOIL DISTURBANCE: ON-SITE

Exploration activities (drilling, trenching, access tracks) will disturb surface soils and shallow bedrock in a rugged, semi-mountainous terrain with flat valley sections. Topsoil is typically thin and a scarce resource in arid environments.

Risk: Erosion, topsoil loss from drilling/trenching/tracks.

MITIGATION MEASURES EXPLORATION PHASE

- Existing roads shall be used as far as practicable.
- Should there be a need to construct a new access road, the following must be adhered to:
    - The route shall be selected so that the minimum number of bushes or trees are felled, and existing fence lines shall be followed as far as possible.
    - Watercourses and steep gradients shall be avoided as far as is practicable.
    - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.
- In order to protect the structural integrity and biological productivity of topsoil. The following must be followed:
    - The topsoil from 0 to 30cm is to be removed and stockpiled and used during the rehabilitation process.
    - The topsoil in the immediate vicinity of the sampling site should be removed and stored for re-cultivation during decommissioning.
    - It is recommended that topsoil be removed down to the subsoil, where it is significantly thicker than 0.5m, as topsoil is always a scarce resource, and even if this lower material does not contain seed and is poorer in soil organisms, it has been found to be useful in reclamation.
    - Where topsoil is less than 150mm thick, the unconsolidated material beneath should also be removed and treated as topsoil.
- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.
- Land markings and pits induced during sampling shall be restored to the original landform and, as much as possible, to their visual state. Furthermore, this

mitigation measure shall extend and apply to any disturbance induced by any access road. Raking or dragging with tyres could help restore vehicle tracks.

- In the case of dual or multiple uses of access roads by other users, arrangements for multiple responsibilities must be made with the other users. If not, the maintenance of access roads will be the responsibility of the holder of the mining permit.

3.2.4. BIODIVERSITY (FAUNA AND FLORA)

The project area lies in the Nama-Karoo Biome with low botanical value vegetation (dwarf shrubland, sparse grasses). Fauna is limited and mostly mobile. Impacts are expected to be minor due to the small footprint and short duration.

Risk: Minor trampling/clearing in low-value Nama-Karoo vegetation.

MITIGATION MEASURES EXPLORATION PHASE

- Rules pertaining to safeguarding against poaching and the collection of plant and plant products must be established and enforced.
- Remove (e.g. capture) unique fauna and sensitive fauna before commencing with the development activities and relocating to a less sensitive/disturbed site if possible.
- Where it is clear that certain large species will be destroyed, consideration should be given to offering to rescue the individuals involved and relocate them to nearby gardens in Grootfontein.
- Prevent and discourage fires – especially during the exploration phase(s) – as this could easily cause runaway field fires and could affect the local fauna, and could also cause further problems (e.g. loss of grazing & domestic stock mortalities, etc.) for the neighbouring farmers.
- The mining area must be clearly demarcated by means of beacons at its corners, and along its boundaries, if there is no visibility between the corner beacons and

the exploration of and prospecting for any mineral shall only take place within this demarcated mining area.

- Disturbed areas must be kept to a minimum
- Barriers/barricades confining driving trucks must be erected to avoid stray driving and trampling on the habitat
- Avoid damage to protected or high-use-value trees during mining and usage of heavy machines.
- Disturbance of marginal vegetation in the mountains should be limited.
- Avoid disturbance of invertebrates on-site and along the gravel road stretch.
- During operation, avoid the creation of multiple road strips, which could result in the disturbance of breeding sites for various mammals.
- Preferably, workers should be transported in/out to the exploration site on a daily basis to avoid excess damage to the local environment (e.g. fires, wood collection, poaching, etc.).

3.2.5. AIR POLLUTION

Dust will arise from vehicle movement on gravel tracks, drill cuttings, and minor earthworks in an already arid, naturally dusty environment. Epidemiological studies indicate that workers exposed to construction process dust are at increased risk of asthma symptoms, chronic bronchitis, nasal inflammation, and impaired lung function (Camici et al., 1978; Angotzi et al., 2005; Leikin et al., 2009).

Risk: Fugitive dust from vehicles/drilling in arid conditions.

MITIGATION MEASURE EXPLORATION PHASE

- The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.

- The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
- All gravel roads in exploration areas should have a speed limit of 60km/h for light vehicles and 30km/h for heavy vehicles in order to minimize the amount of dust generated by vehicles.
- Transportation of raw materials required for construction will be carried out during non-peak hours.
- Dust covers will be provided on trucks used for the transportation of materials prone to fugitive dust emissions.
- Covering scaffolding and cleaning of vehicles that can reduce dust and vapor emissions will be used.
- Measures such as the use of wet processes, enclosure of dust-producing processes under negative air pressure (slight vacuum compared to the air pressure outside the enclosure),
- Exhausting air containing dust through a collection system before emission to the atmosphere, and exhaust ventilation should be used in the workplace.
- Use of personal protective equipment for proper dust control for respiratory protection, and it should be used only where dust control methods are not yet effective or are inadequate.
- Direct skin contact should be prevented by gloves, wearing respiratory protection during the cleanup,

3.2.6. ARCHAEOLOGICAL IMPACT

Heritage resources may be impacted through unintentional destruction or damage during exploration activities. No known heritage sites or artefacts have been recorded within EPL 10769. However, subsurface chance finds (e.g., artefacts, graves) remain possible in any excavation. Therefore, this impact can be rated as medium to low if no mitigation measures are in place. At the sites, there are no known heritage areas or artefacts deemed to be impacted by the exploration activities. However, there may be

unknown archaeological remains within the EPL area; hence, the Proponent is required to follow the chance find procedures and consult the Heritage Council immediately. Upon implementation of the necessary measures, the impact will be low.

Risk: Chance finds during excavation.

The Proponent should consider having a qualified and experienced archaeologist on standby during the exploration and sampling phase and, as required, throughout the entire operational phase. This action will be to assist in the possibility of uncovering sub-surface graves or other cultural/heritage objects and advise the Proponent accordingly. Identified graves or any archaeologically significant objects on the site should not be disturbed; they should be reported to the project Environmental Officer or the National Heritage Council offices. If the discovery of unearthed archaeological remains is to be uncovered, the following measures (chance find procedure) shall be applied:

- Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manager to be informed
- Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary
- If work cannot proceed without damage to findings, the Site Manager is to inform the Environmental Manager, who will get in touch with an archaeologist for advice
- Archaeological specialist is to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains) - Inform the police if the remains are human, and
- Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as appropriate.

3.2.7. NOISE ON SITE

Noise emissions are commonly associated with all earthmoving equipment and drilling activities. The main noise sources are associated with drilling, breaking, crushing and handling–moving, screening, and transport of equipment or materials to or from the exploration site.

Risk: Drilling/vehicle noise affecting workers/fauna.

MITIGATION MEASURES EXPLORATION PHASE

- Reduction of noise from drilling rigs by using downhole drilling or hydraulic drilling;
- Installation of proper sound barriers and/or noise containment, with enclosures and curtains at or near the source equipment.
- Use of rubber-lined or soundproof surfaces on processing equipment (e.g. screens, chutes, transfer points, and buckets);
- Use of rubber-belt transport and conveyors;
- Installation of natural barriers at facility boundaries (e.g. Vegetation curtains or soil berms);
- Optimisation of internal-traffic routing, particularly to minimize vehicle-reversing needs (reducing noise from reversing alarms) and to maximize distances to the closest sensitive receptors;
- Workers working near high-noise mining machinery will be provided with ear muffs/ earplugs.

4. ENVIRONMENTAL MANAGEMENT PLAN ORGANIZATION AND IMPLEMENTATION

During the exploration phase, contractors and the site-in-charge will be responsible for implementing all the mitigation measures listed above. In the operational phase, work will continue alongside post-monitoring. In the preceding sections, the environmental aspects which may be affected by the proposed project have been categorised into negative and positive impacts. As an extension of the preceding sections, this section summarizes the objectives, indicators to be observed, schedules to adhere to, and the roles and responsibilities of various stakeholders to the EMP. The following tables list the mitigation measures to be undertaken during the exploration & operational phases, respectively, and indicate the agency responsible for implementation.

The following abbreviations are used to indicate who is responsible for what impact mitigation objective:

- **Contractor Environmental Coordinator** **CENC**
- **Site Foreman** **SF**
- **Project manager** **PM**
- **Project Proponent** **PP**
- **Environmental Commissioner** **EC**

Table 1: Project Planning and Implementation

Objectives	Indicators	Schedule	Responsibility
Establish a strong environmental protocol from project implementation to final closure to ensure the least possible impact on	Resources (Financial, human, equipment and safety gear) are provided for the awareness, meetings, monitoring, and reporting.	At the beginning of the exploration phase.	PP

the environment	Expedite the appointment of a senior person to assume the responsibility of an environmental coordinator (ENC).	At the planning stage or at the beginning of the implementation phase of the exploration phase	PP
To maximise the economic spin-off into the local economy.			

Table 2: Mitigation measures during the exploration phase

No	Affected Environmental Parameters	Likely adverse impacts in the absence of mitigation measures	Nature of the impact	Proposed mitigation measures	
				Action to be taken	**Implementing agency**
1	Land Environment	Impact on fauna and flora	Significant and permanent if not controlled	Avoid construction within 20m of the main drainage line(s). Avoid disturbance of marginal vegetation Remove (e.g. capture) unique fauna	**Contractor/CENC**
		Generation of solid waste and debris. Aesthetically unpleasant. Health problems of laborers	Temporary	Segregation to facilitate reuse/ recycling. Recyclable wastes will be segregated and sent for recycling. Adequate facilities for the storage of these waste materials on site	**Contractor/CENC**
2	Air Quality	Traffic congestion Increase air pollution risks	Significant and temporary	Idling of the trucks and dumpers on the roads will not be allowed. Raw materials will be procured from the nearest material supplier. Material will be	**Project manager/Contractor/CENC**

				brought in batches so that there is no sudden increase of traffic volume at one particular time. On-site use of Concrete batching plant. Use of dust covers over construction material during transportation. Keeping all stationary equipment downwind. Stabilization of dust-prone areas by sprinkling water	
3	Noise Quality	Increase in noise levels causing a nuisance to the nearby Community Members/farm	Significant and temporary	Prohibition for use of equipment emitting noise of greater than 90 dB (A) for 8 hour operation. Prohibition of noise from construction activities during nighttime. Provide workers	**Project manager/Contractor/CENC**

				on machinery with earmuffs/ earplugs. Provision of temporary barricading around site	
4	Water Environment	Surface and groundwater pollution due to fuel spillage. Turbidity and suspended solids due to soil erosion. Blocking of natural drains due to the deposition of construction materials.	Significant and temporary	Mining to be carried out before periods of strong winds and erosion protection measures to be taken. Mining materials to be stored in enclosures. Cleaning of drains on regular basis to avoid blockage. No accumulation of stagnant water	**Contractor/CENC**
5	Other Impacts	Soil erosion, additional exposure to noise/ air pollution	Significant and permanent	Construction of necessary scaffolding and retaining structure for protection from waste material and water. Tree plantation to enhance bio aesthetic value.	**Contractor/CENC**

				Guidelines for planting saplings of trees to be strictly followed.	
6	Spillage of oil management	Contamination of surface and groundwater	Significant and permanent	Contain spillage and remove the contaminated soil. Accessibility to spill prevention and response equipment, such equipment should be visible and accessible to all employees at any given time.	**Contractor/CENC**

5. MONITORING ENVIRONMENTAL MANAGEMENT PLAN

Monitoring the EMP performance for the proposed project by the Contractor emphasises early detection, reporting, and corrective action. It is divided into three parts, namely:

- Monitoring of project activities and actions to be undertaken by the Environmental Coordinator (ENC) appointed by the Contractor.
- The Environmental Coordinator (ENC) shall report all incidents and situations which have the potential of jeopardising compliance with statutory provisions as well as provisions of this EMP to the Project Proponent.
- The Environmental Coordinator (ENC) shall take corrective, prompt measures, adequate and long-lasting in addressing non-compliance activities or behaviour.

To ensure compliance with the Contractor ENC with the EMP, it is highly recommended that the proponent appoint an External Environmental Expert to oversee its implementation. The tables (5-9) below are to be used by the Contractor's ENC for monitoring purposes.

Table 3: Checklist items

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
1.1	ECC obtained and is valid (copy on site)				PP/ECO		
1.2	Approved EMP on site and all personnel inducted				ECO		
1.3	Environmental induction training completed & register signed				ECO		

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
	(Table 11 style)						
1.4	ECO/ENC appointed and on-site contact details displayed				PP		
1.5	Chance-find procedure briefed; archaeologist on call if required				ECO		
1.6	Topsoil stripping/stockpile plan prepared				ECO/SF		
1.7	Waste management plan (segregation, licensed disposal sites) agreed				ECO		
1.8	Spill kits, drip trays, PPE (dust masks, ear protection) on site				Contractor		
1.9	Local recruitment policy documented & consultation with councillors held				PP		

Table 4: Waste management

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
2.1	No on-site bulk fuel/oil storage; daily transport only				ECO		
2.2	Drip trays under all stationary				SF		

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
	equipment/vehicles						
2.3	Solid waste segregated (general, hazardous, recyclables); bins/drums not overflowing				ECO		
2.4	No litter around site, tracks, or camp				ECO		
2.5	Portable toilets provided, serviced regularly; no direct discharge				Contractor		
2.6	Hazardous waste (used oil, rags, drill bits) stored securely & removed by licensed contractor				ECO		
2.7	No burning or burying of waste on site				ECO		

Table 5: Land/soil disturbance and biodiversity

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
2.8	Activities confined to demarcated footprint; no off-track driving				SF/ECO		
2.9	Topsoil stripped & stockpiled separately (0–30 cm);				Contractor		

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
	mounds <2 m high & stabilised						
2.10	No unnecessary vegetation clearing; protected species avoided				ECO		
2.11	Barriers/tape used to prevent stray vehicle movement				SF		
2.12	No poaching, plant collection, or feeding wildlife				All		

Table 6: Air quality, dust and noise

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
2.13	Dust suppression (water spray) is applied when needed				Contractor		
2.14	Vehicle speed limits enforced (30 km/h heavy, 60 km/h light)				SF		
2.15	Workers wearing dust masks / respirators during dusty tasks				ECO		
2.16	Operations limited to 08:00–17:00;				SF		

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
	no night work						
2.17	Hearing protection provided & used near drills/equipment				Contractor		

Table 7: General site management

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
2.18	Spill kits accessible & personnel trained in use				ECO		
2.19	No unauthorised access; site demarcated & signposted				SF		
2.20	Daily ECO visual inspection completed & logged				ECO		

Table 8: Weekly and monthly monitoring and compliance

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
3.1	Weekly documented ECO inspection report filed				ECO		
3.2	Non-compliances/incidents reported to PP & MEFT (if required)				ECO		

3.3	Corrective actions tracked & closed out				ECO/PP		
3.4	Monthly compliance summary submitted (if ECC condition)				PP/ECO		
3.5	Environmental complaints register updated & resolved				ECO		

Table 9: Decommissioning and rehabilitations

Item No.	Checklist Item	Compliance (Y/N/P)	Date Checked	Evidence / Comments	Responsible	Action Required	Date Resolved
4.1	Final site inspection with ECO & MEFT representative				PP/ECO		
4.2	All drill/trench holes backfilled & sealed				Contractor		
4.3	Topsoil replaced & recontoured to original slopes				Contractor		
4.4	Tracks raked/ripped; no new erosion features				Contractor		
4.5	All waste, equipment, infrastructure removed				ECO		
4.6	Rehabilitated areas declared no-go zones				ECO		
4.7	Closure report & photos submitted to MEFT				PP/ECO		

6. ENVIRONMENTAL CODE OF CONDUCT

The Code of Conduct outlined in this section of the EMP applies to, and is not limited to, subcontractors, visitors, and permanent and temporary workers. Therefore, anyone who finds themselves within the proponent's boundaries must adhere to the Environmental Code of Conduct as outlined in this section of the EMP.

The Contractor ENC will implement on-site environmental guidelines and has the authority to issue warnings and discipline any person who transgresses environmental rules and procedures. Persistent transgression of environmental rules will result in a disciplinary hearing, and thereafter, continued noncompliance behaviour will result in permanent removal from the construction sites.

Natural environment management guidelines

a. Never feed, tease or play with, hunt, kill, destroy or set devices to trap any wild animal (including birds, reptiles and mammals), livestock or pets. Do not bring any wild animals or pets to the construction sites.
b. Do not pick any plant or take any animal out of the construction area EVER. You will be prosecuted and asked to leave the project area.
c. Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be placed in the correct bins or bags provided.
d. Protect the surface material by not driving over it unnecessarily;
e. Do not drive over, build upon, or camp on any sensitive habitats for plants and animals;
f. Do not cut down any part of living trees/bushes for firewood;
g. Do not destroy bird nests, dens, burrow pits, termite hills, etc. or any other natural objects in the area.

Vehicle use and access guidance

i. Never drive any vehicle without a valid license for that particular vehicle, and do not drive any vehicle that appears not to be roadworthy;
ii. Never drive any vehicle when under the influence of alcohol or drugs;

iii. DO NOT make any new roads without permission. Stay within demarcated areas.
iv. Avoid U-Turns and large turning circles. 3-point turns are encouraged. Do not ever drive on rocky slopes;
v. Stay on the road, do not make a second set of tracks and do not cut corners;
vi. DO NOT SPEED - 30 km per hour for normal vehicles and 20km per hour for heavy trucks on gravel roads and around the site;
vii. No off-road driving is allowed;
viii. Vehicles may only drive on demarcated roads;
ix. Adhere to speed limits and drive with headlights switched on along any gravel road.

Control of dust guidance

a. Do not make new roads or clear any vegetation unless instructed to do so by your Contractor, the Environmental Coordinator, or the Site Manager;
b. Do not try to disturb the surface of the natural landscape as little as possible.
c. Do not speed on gravel roads and around the construction sites, and adhere to the speed limits.
d. Apply water to suppress dust where the generation of the dust on either gravel roads or construction sites is beyond control.

Health and safety guidance

a. Drink lots of water every day, but only from the freshwater supplies;
b. Take the necessary precautions to avoid contracting the HIV/AIDS virus;
c. Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or obtaining permission of team leader;
d. Never climb over any fence or trespass on private property without permission of the landowner or consultation with the Environmental Coordinator or Site Manager.
e. Report to your Contractor if you see a stranger or unauthorised person in the construction area;
f. Do not remove any vehicle, machinery, equipment or any other object from the construction campsite or along with the profile or at a seismic testing station without permission of your Contractor or Site Manager;

g. Wear protective clothing and equipment required and according to instructions from your Contractor or Site Manager;
h. Does not engage in sexual relations with minors and also adheres to zero tolerance for spreading HIV/AIDS.

Preventing pollution and dangerous working conditions guidance

I. Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground;
II. Never allow any hazardous substance to soak into the soil;
III. Immediately tell your Contractor or Environmental Coordinator when you spill or notice any spillage of hazardous substance anywhere in the field or camp;
IV. Report to your Contractor or Environmental Coordinator when you notice any container, which may hold a hazardous substance, overflow, leak or drip;
V. Immediately report to your Contractor or Environmental Coordinator when you notice overflowing problems or unhygienic conditions at the ablution facilities, vehicles, equipment and machinery, containers and other surfaces.

Disposal of solid and liquid waste guidance

a. Learn to know the difference between the two main types of waste, namely: General Waste; and Hazardous Waste.
b. Learn how to identify the containers, bins, drums or bags for the different types of wastes. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble;
c. Never burn or bury any waste on the camp or in the field;
d. Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Coordinator/ Site Manager if the containers, drums, bins or skips are nearly full;
e. Never litter or throw away any waste on the site, in the field or along any road.
f. No illegal dumping;
g. Littering is prohibited.

Dealing with environmental complaints guidance

a. If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to the Environmental Coordinator
b. If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor.

Environmental Personnel Register

Table 11 presents the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her, or is in possession of the training material.

Table 10: Environmental Personnel Register

Date	Name	Company	Signature

7. SITE CLOSURE AND REHABILITATION

In the context of the proposed project, rehabilitation refers to the process of returning disturbed land and soil to some degree of its pristine state. The scope of the proponent's site rehabilitation emphasises backfilling, sampling/drilling holes, and covering them with topsoil in areas disturbed by exploration/mining/quarrying activities. These will include, but are not limited to, the access road, vehicle tracks around the site, and the removal and restoration of areas covered by stockpiles and rock piles. Furthermore, this section outlines rehabilitation objectives and proposes rehabilitation commitments which the proponent shall adhere to.

7.1. OBJECTIVES OF THE SITE CLOSURE AND REHABILITATION

- Reduction or elimination of the need for a long-term management program to control and minimise the long-term impacts.
- Clean up, treatment or restoration of disturbed and/or contaminated areas.

In addition, the following rehabilitation measures are important and should be implemented wherever necessary:

- A site inspection will be held after completion of the mining process to determine the nature and scope of the rehabilitation work to be undertaken. The rehabilitation will be done to the satisfaction of both the proponent and MET.
- The rehabilitation work should commence soon after the end of the active mining period.
- The access road and all vehicle tracks should be rehabilitated by raking or dragging with tyres or tree branches (other suitable methods) behind a vehicle.
- With regard to both biological productivity and erosion, topsoil is arguably the most important resource in the project area; for that reason, the recovered topsoil and subsoil should be utilised to reconstruct the original soil profile.
- All waste shall be removed, and potential hazards, particularly pits, shall be closed and left in a safe disposition.

- All rehabilitated areas shall be considered no-go areas, and the environmental coordinator shall ensure that none of the staff members enters the area after rehabilitation.

8. CONCLUSION AND RECOMMENDATIONS

8.1. CONCLUSION

EPL 10769 is situated approximately 10 km outside the Noordoewer Settlement, in the Karasburg West Constituency, ||Karas Region. The proposed exploration activities will be conducted in full compliance with the Environmental Impact Assessment Regulations of 2012 (promulgated under the Environmental Management Act, 2007). The assessment of both positive and negative impacts associated with the proposed exploration study, including potential testing of mining activities, has identified several high-impact outcomes. Overall, the positive impacts of the proposed exploration outweigh the negative ones at local, regional, national, and global scales. This EMP provides a robust, compliant framework for low-impact exploration on EPL 10769. With diligent implementation, residual impacts will be negligible, while socio-economic benefits (jobs, local spending) are optimised.

8.2. RECOMMENDATIONS

The proposed exploration phase on EPL 10769 may proceed provided that all provisions of the EMP and all issued permits are complied with. Recommended actions to be implemented by the proponent as part of the management of the likely impacts through implementations of the EMP are:

- Appoint ECO promptly and resource implementation adequately.
- Conduct workforce inductions and regular training.
- Integrate monitoring into company systems.
- Renew ECC as required; submit compliance reports.
- Proceed only upon ECC issuance.

It is hereby recommended that the proponent take all necessary steps to implement the EMP recommendations and ensure the successful completion of the proposed

exploration project for EPL no. 10769, situated 10Km outside Noordoewer settlement, Karasburg West Constituency, in the ||Karas Region.

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