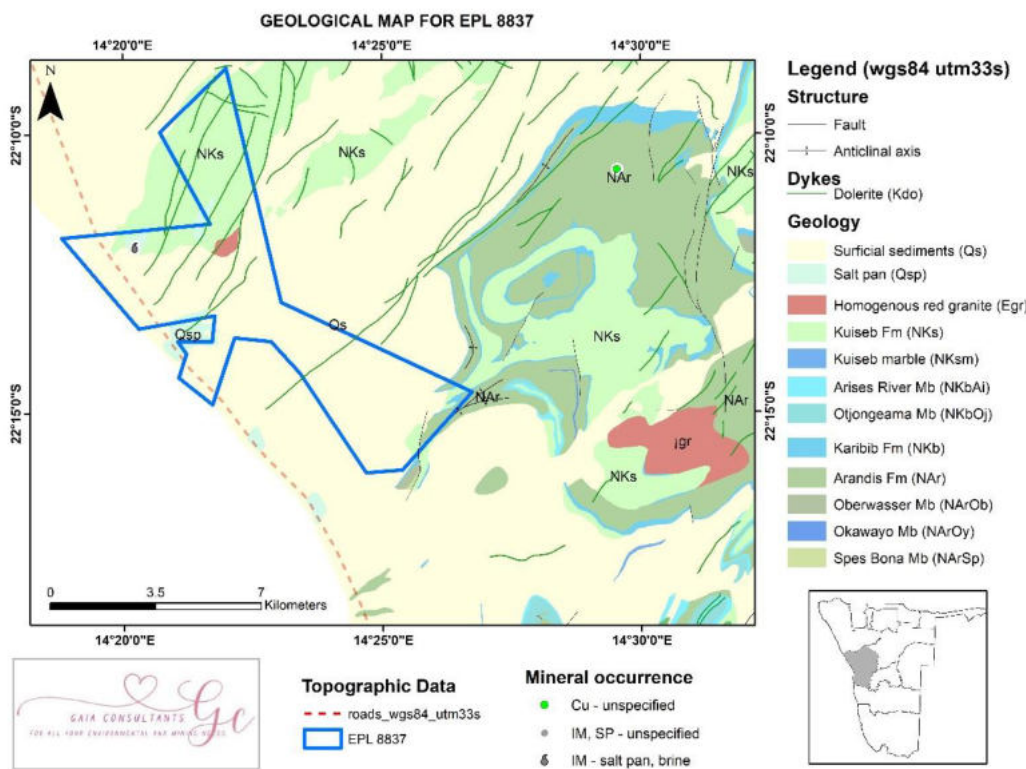


# ENVIRONMENTAL MANAGEMENT PLAN (EMP) EPL 8837



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# 1 INTRODUCTION

The Environmental Management Plan (EMP) presented in this section demonstrates how the Proponent intends to manage all the exploration, possible mining and processing operations within the EPL area that will significantly impact on the receiving environment, or that may potentially be of high risk in the long-term. By implementing this management programmed, the Proponent will minimize the likely negative effects and maximize the positive effects of its operations in the EPL Area. In accordance with the company's Environmental Policy, the Proponent is committed to responsible and sustainable environmental management throughout all exploration, test mining, and processing activities within the EPL area. By adhering to the EMP, the Proponent aims to ensure that its operations align with best environmental practices and contribute to the preservation of the environment while meeting the demands of its exploration and mining objectives.

The Exclusive Prospecting License (EPL) 8837 is located in the Erongo Region, with interest in industrial minerals. The EPL is located south of Henties Bay It covers an area of 4920.2947 Ha within the Dorob National Park as seen in figure 1 below.

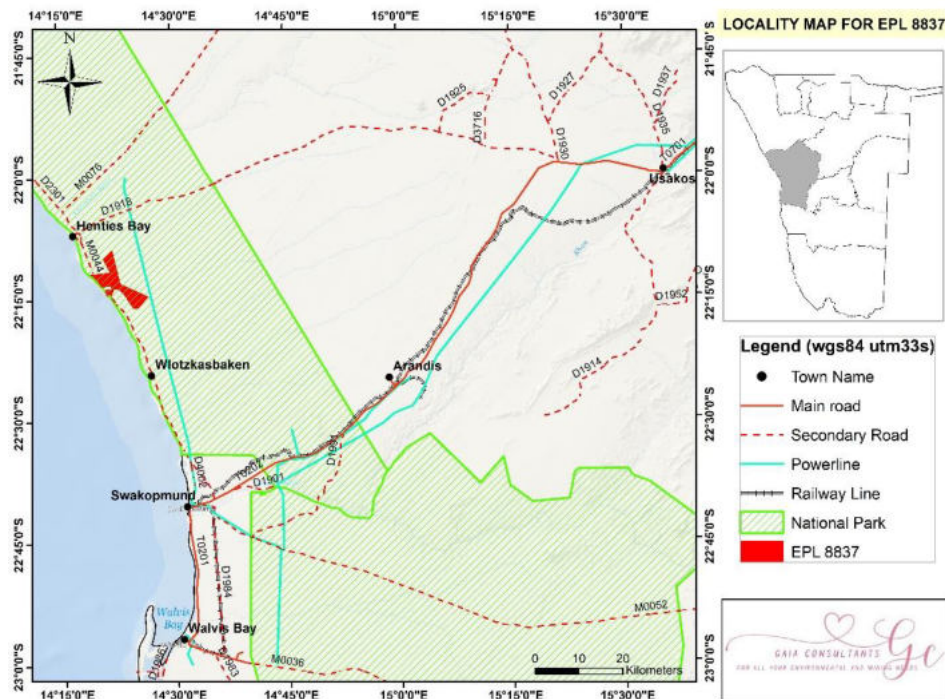


Figure 1 Locality map

## 2 PURPOSE OF DOCUMENT

This document is a crucial component of the Environmental Scoping and Impact Assessment for the Proposed Exploration, conducted in accordance with the Environmental Management Act, 2007 (Act No 7 of 2007). The Environmental Management Plan (EMP) plays a significant role in promoting sustainable development and safeguarding Namibia's natural resources. Its primary objective is to regulate human activities, ensuring minimal negative environmental impacts, and preserving the country's unique ecosystems.

The EMP specifically focuses on protecting the diverse ecosystems of Dorob, which include valuable wildlife, sensitive habitats, and delicate desert environments. By identifying potential environmental risks associated with development projects, the EMP outlines measures to mitigate these risks and enhance the long-term health and resilience of the environment. It provides comprehensive guidelines and management measures to address the environmental effects identified in the Environmental Scoping and Impact Assessment report, along with recommended mitigation actions to address these effects effectively. Through the implementation of the EMP, the goal is to achieve environmentally responsible exploration practices that align with the principles of conservation and sustainable development.

## 3 PROJECT ACTIVITIES

The projected mineral exploration activities are summarized as follows:

**Stage 1:** Desktop Review and Data Interpretation: Conduct a comprehensive review of existing data and past research in the general area. Purchase high-resolution data from the Government and interpret it to identify prospective targets.

**Stage 2:** Reconnaissance Assessment: Conduct field-based activities like regional mapping and sampling to validate prospective targets identified in Stage 1. Proceed to this step only if Stage 1 identifies potential targets for further exploration.

**Stage 3:** Initial Field-Based Activities: Conduct widely distributed geological mapping, sampling, surveying, and possibly widely spaced trenching and drilling. Verify the feasibility of any identified local target based on regional data acquired in Stage 2. The depth and extent of exploration depend on the discovery of viable mineral resources. If the target is not promising, the license may be revoked.

**Stage 4:** Detailed Local Field-Based Operations: Conduct detailed local field-based activities, including site-specific geology mapping, trenching, bulk sampling, surveying, and detailed drilling. Assess the viability of delineated local targets with more precision.

**Stage 5:** Pre-Feasibility and Feasibility Studies: Compile exploration data into a pre-feasibility report if positive results are obtained in Stage 4. If the pre-feasibility results are favourable, conduct a detailed feasibility study on the identified site-specific area. The feasibility study includes detailed site-specific drilling, bulk sampling, laboratory testing, and possibly test mining.

The progression from stage to stage is contingent upon the success of each phase, and the ultimate goal is to identify economically viable mineral resources through systematic exploration and assessment processes.



*Figure 2 site picture*

### **3.1 Access and transport**

To access Dorob National Park, the most common and convenient way is by road. The park is located on Namibia's western coast, around 120 kilometres south of Swakopmund. From Swakopmund, one can travel south on the well-maintained C34 coastal road, which runs parallel to the park. This route allows for easy access via self-drive.

Once inside the park, transportation options are limited due to the predominantly desert and coastal terrain, characterized by sandy and gravel roads. As a result, 4x4 vehicles are the recommended mode of transportation within the park. It is essential to adhere to the park's regulations and guidelines regarding driving and off-road access as the conditions can be challenging at times.

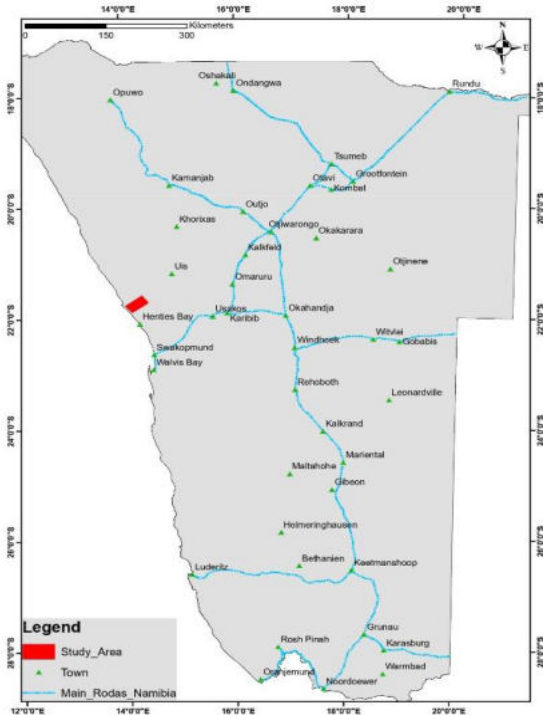


Figure 3 Road network map

## 4 ENVIRONMENTAL ASSESSMENT LEGAL REQUIREMENTS

### 4.1 Environmental Policy and Compliance

The company is dedicated to adhering to all applicable environmental laws, regulations, and permit conditions. As part of its commitment to responsible environmental practices, the company will focus on minimizing its impact on the environment and preserving biodiversity. This will be achieved through thorough planning, the implementation of effective mitigation measures, and the proper rehabilitation of affected areas. By taking these measures, the company aims to conduct its operations in an environmentally sustainable manner, ensuring the protection and conservation of the natural resources and ecosystems.

Table below lists the requirements of an EMP as stipulated in the EIA Regulations, primarily on specific approvals and permits that may be required for the exploration, sampling and test mining activities.



ENVIRONMENTAL MANAGEMENT PLAN (EMP) EPL 8837

Legislation/Policy/ Guideline	LAW/ORDINANCE	APPLICABILITY
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EAs.	The EMA and its regulations should inform and guide this EA process. Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue. Contact details at the Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT)
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 48 (3): In order to enable the Minister to consider any application referred to in section 47 the Minister may (b) require the person concerned by notice in writing to (i) carry out or cause to be carried out such environmental impact studies as may be specified in the notice. Section 54 (2): details provisions pertaining to the decommissioning or abandonment of a mine	
Petroleum Products and Energy Act No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 liters or less in any container kept at a place outside a local authority area”	<i>The Proponent should obtain the necessary authorization forms the MME for the storage of fuel on-site.</i>
Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	

Forestry Act 12 of 2001, Amended Act 13 of 2005	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22(1)). The Act prohibits the removal of and transport of various protected plant species.	<i>Should there be protected plant species, which are known to occur within the project sites, these are required to be removed, a permit should be obtained from the nearest Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removing them.</i>
National Heritage Act No. 76 of 1969	Call for the protection and conservation of heritage resources and artefacts.	<i>Should any archaeological material, e.g. bones, old weapons/equipment etc. be found on the EPL 8837, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material.</i>
Road traffic and transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public road and the regulations pertaining to road transport, including the licensing of vehicles and drivers.	

Table 1 Regulatory requirements

## 5 SUMMARY OF THE RECEIVING ENVIRONMENT

The area falls within the Dorob National Park, the park is a diverse and unique ecosystem characterized by a variety of vegetation types. The park encompasses a range of landscapes, including coastal plains, sand dunes, gravel plains, and rocky outcrops, which contribute to the rich plant diversity found within its boundaries. Dorob National Park was proclaimed in 2010 and covers the central Namib Desert. This area is known as an angler's paradise, with kabeljou, galjoen and steenbras being the most prized species. Extensive lichen fields are found north of Wlotzkasbaken and Cape Cross, while the Messum Crater in the north contains San rock paintings and archaeological sites from Damara nomads. The Ugab River and the Skeleton Coast Park border it to the north. The Omaruru River bisects it, while the Swakop River is situated just south of its boundary. The towns of Henties Bay and Swakopmund are found within its boundaries, along with the hamlet of Wlotzkasbaken. The Cape Cross Seal Reserve is a separate reserve in the northern section of the area.

Furthermore, the park is home to various mining activities housing a sizeable number of Exploration prospecting licenses.

### **5.1 Climate**

Dorob National Park experiences a unique and diverse climate due to its coastal position and desert environment. The park falls under a coastal desert climate, which is characterized by arid conditions influenced by its proximity to the ocean. Temperatures in Dorob National Park can vary significantly between day and night due to its desert climate. During the day, temperatures can reach scorching highs, often exceeding 30°C (86°F) or more, especially during the summer months. The park receives very limited rainfall throughout the year. The region is known for its extreme aridity, with average annual rainfall typically below 50 mm (2 inches) and can even be much lower in some years.

Due to the proximity of the park to the cold waters of the Atlantic Ocean can lead to the occurrence of coastal fog, especially in the early mornings. This fog, known as "desert fog," provides a vital water source for some desert-adapted plants and animals. Furthermore, strong winds are common in Dorob National Park, especially along the coast. These winds play a crucial role in shaping the sand dunes and influencing the park's unique landscape.

### **5.2 Fauna and flora**

**Vegetation:** The park's flora mainly consists of desert-adapted plants, including succulents, resilient shrubs, and hardy grasses. Vegetation is often sparse and adapted to survive in the arid conditions.

**Wildlife:** Despite the harsh conditions, Dorob National Park is home to a surprising variety of wildlife. Desert-adapted animals, such as oryx, springbok, brown hyenas, and various bird species, can be found in the park.

### **5.3 Geological Setting**

The exploration license covers an area of approximately an area of 4920.2947 Ha within the Dorob National Park. The park is situated in the Namib Desert and is characterized by arid conditions with sparse vegetation. The geology of the area consists of sandstones and shale formations with potential for base metal mineralization.



Figure 4 Vegetation

## 6 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The Environmental Impact Assessment (EIA) findings identified several potential impacts associated with the proposed mineral exploration activities.

These impacts include:

1. **Air:** Exploration activities such as drilling, trenching, and road construction may generate dust and noise, potentially impacting air quality and wildlife behaviour.
2. **Water:** Improper handling and disposal of hydrocarbon products and hazardous materials could lead to water pollution through spills and leakages. Water abstraction from local boreholes may also affect groundwater recharge and levels.
3. **Soil:** Vegetation clearance and exploration activities may cause erosion and topsoil loss, impacting soil quality and natural habitats.
4. **Biodiversity:** Habitat disturbance and road construction can affect wildlife roaming patterns and potentially lead to biodiversity loss in the area.
5. **Communities:** The project may provide employment opportunities for the local community during exploration, but there could be job retrenchment once activities are decommissioned.
6. **Cultural Heritage:** The project area lies in an area of inferred archaeological sensitivity, and exploration activities may impact potential archaeological and heritage sites.

The EIA emphasizes the importance of public participation, implementing the Environmental Management Plan (EMP), and adhering to relevant laws and regulations to mitigate these potential impacts and ensure sustainable development. The EMP provides measures to minimize negative environmental effects and promote the conservation of natural resources and ecosystems.

## 7 ENVIRONMENTAL MANAGEMENT PRINCIPLES

Everyone will be expected to conduct all of their activities in an environmentally and socially responsible manner. This includes all consultants, contractors, and subcontractors, as well as transport drivers, visitors, and anybody else involved in the mineral exploration project who enters the exploration regions.

The Proponent will ensure that all project participants adhere to the following principles:

1. **Environmental Preservation:** The primary principle should be the preservation of the unique and fragile ecosystem of Dorob National Park. The activities should be conducted with the utmost care to minimize disturbance to wildlife, vegetation, and natural habitats.
2. **Compliance with Regulations:** Adherence to all relevant national and international regulations, including environmental laws and permits. The participants should comply with the guidelines set by the Ministry of Environment, Forestry, and Tourism to ensure environmental protection.
3. **Stakeholder Engagement:** Engage with local communities, environmental groups, and stakeholders to seek their input and address concerns. Community participation and consultation are essential to building trust and ensuring the project's social acceptance.
4. **Sustainable Water Management:** Prioritize responsible water management practices, considering the limited water resources in the park. Minimize water consumption and implement water conservation measures.

5. **Biodiversity Conservation:** Protect and conserve the rich biodiversity of the national park. Avoid exploration activities in sensitive areas and implement measures to avoid harm to endangered species and their habitats.
6. **Rehabilitation and Reclamation:** Develop a comprehensive plan for site rehabilitation and reclamation after exploration activities are complete. Ensure that disturbed areas are restored to their natural state to the greatest extent possible.
7. **Waste Management:** A waste management plan will be implemented to properly handle and dispose of exploration-related waste. Minimize waste generation and prioritize recycling and responsible waste disposal practices.
8. **Air Quality Management:** Implement measures to control dust emissions and other air pollutants generated during exploration activities. Monitor air quality to ensure compliance with standards and regulations.
9. **Energy Efficiency:** Strive for energy efficiency by utilizing modern and environmentally friendly equipment and practices. Explore the use of renewable energy sources wherever feasible.
10. **Transparency and Accountability:** Maintain transparency in all aspects of the project and be accountable for any potential environmental impacts. Regularly report on the project's environmental performance and progress in implementing mitigation measures.
11. **Continuous Improvement:** Emphasize continuous improvement in environmental management practices. Regularly review and update environmental plans and procedures based on new information and lessons learned.

By adhering to these principles, the activities can be conducted in a manner that respects the natural environment, supports sustainable development, and protects the park's ecological integrity for future generations.

## **8 KEY POTENTIAL ENVIRONMENTAL ASPECTS**

### **8.1 Roles and responsibilities for environmental management**

The environmental aspects which may be affected by the proposed project have been categorized into negative and positive impacts as an extension of the preceding sections. This section summarizes the objectives, indicators to be observed, schedules to be adhered to and roles and responsibilities of various stakeholders to the EMP.

#### **8.1.1 Communication between Parties**

Emphasis will be put towards open communication between all parties, in order to reach a proactive approach towards potential environmental issues deriving from the project. This approach should guarantee that environmental impacts are anticipated and prevented, or minimized, rather than adopting a negative policing approach after negative impacts have already occurred.

The importance of a proactive approach cannot be over-emphasized, particularly in relation to preventing unnecessary tracks, and damage to vegetation (i.e., protected and endemic species) as these impacts cannot easily be remedied.

#### **8.1.2 The Exploration Operating Company**

The company is ultimately responsible for all stages of the project and the impacts resulting from those activities. The responsible persons will be the company's Environmental Control Officer (ECO) and Managing Director to ensure that:

- The EMP and its environmental specifications are included in contractual documents and it is required that contractors, and subcontractors, consultants etc. do meet the EMP requirements;
- The company and all its subcontractors, consultants etc. comply with all Namibian legislation and policies and any relevant International Conventions;
- Compliance with the environmental specifications is enforced on a day-to-day basis;
- Environmental audits are conducted periodically by a suitably qualified ECO to confirm that the environmental requirements are properly understood and effectively implemented;

- The Site Manager must commission tree surveys well in advance of planned road construction so that the necessary site visits by forestry personnel and forestry permits are acquired; and,
- Open and effective communication is maintained between all parties concerning environmental management on the project.

### **8.1.3 Site Managers**

Day-to-day responsibility for environmental management will be assigned to the (Environmental Control Officer (ECO) and Manager Field Operations (MFO) for the duration of the project to:

- Be familiar with the contents of the EMP and applicable sections of the EIA and the measures recommended therein;
- Monitor compliance with the environmental specifications on a daily basis and enforce the environmental compliance on-site by communicating the ECO's directions to all personnel involved;
- In the event of any infringements leading to environmental damage, personnel need to consult with the ECO and seek advice on any remedial measures to limit or rectify the damage;
- Maintain a record (photographic and written) of "before-and-after" conditions on site;
- Facilitate communication between all role players in the interests of effective environmental management

### **8.1.4 Environmental Control Officer (ECO)**

The proponent must appoint a suitably qualified ECO who is responsible to:

- Undertake environmental audits of overall compliance with the environmental specifications. This should be done at least bi-annually for the project area,
- Submit a site inspection report to the Managing Director and MFO;
- Advise the MFO on interpretation and implementation of the environmental specifications as required; and, make recommendations for remedial action in cases of non-compliance with the environmental specifications.



- The report should be submitted to the MEFT periodically at the time interval stipulated by law.

#### **8.1.5 Contractors**

The contractors will have the responsibility to:

- Familiarize themselves with the requirements of the EMP and comply with the environmental specifications within;
- Notify the ECO through the MFO timeously in advance of any actions that might have significant negative impacts. Mitigatory measures should be discussed and implemented before negative impacts arise;
- Conduct or arrange for environmental training for employees and sub-contractors;
- Undertake rehabilitation measures where required as far as possible, rehabilitation measures should be carried out progressively and not left till the end of the project.

### **9 ENVIRONMENTAL SPECIFICATIONS**

#### **9.1 Compliance with the Environmental Specifications**

The activities will be conducted in an environmentally and socially responsible manner. The contractor and all personnel on-site will comply with the environmental specifications contained in this section.

#### **9.2 Training and Awareness**

All site personnel and site contractors will receive the training to equip them with the necessary knowledge to comply with the environmental specifications. The MFO will ensure that an appropriate level of training is provided at all levels of site personnel.

#### **9.3 Stakeholder Relations**

All site personnel will maintain good relations with the landowners and members of the public. Any complaints received by the ECO will be addressed.

#### **9.4 Permits**

All relevant permits shall be obtained from relevant authorities.

The removal or relocation of rare and endangered plants will be conserved, and should it be removed or relocated it shall be done with the required permits from the Directorate of Forestry.

### **9.5 Road Safety**

The access roads can be dangerous at times due to dust from passing vehicles, poor camber, patches of loose sand, careless drivers and other external factors. All drivers must be aware of these hazards and take precautions to avoid them. Such precautions will include, but not be limited to:

- Complying with speed limits;
- Reducing speed considerably when visibility is poor;

Being wary of other vehicles

- Travelling with lights on even in daylight;
- Slowing down for animals and birds on the road; and,
- Being cautious of other road users– taking into account reduced visibility due to dust.

### **9.6 Access Tracks**

No new tracks will be made unless there are no pre-existing tracks, any new tracks or extensions should be established with the permission of the Municipality and other landowners.

The selected access and site roads will be clearly marked. A single road only will be used to and from each destination. Turning points for vehicles will also be pre-selected and marked. Particular care will be taken to avoid damage to plants.

Any elevated sites, or sites away from existing tracks, will be accessed on foot rather than by a vehicle.

### **9.7 Conservation of Biodiversity**

Damage to protected species will be avoided at all costs.

### **9.8 Wildlife Poaching**

No animal or bird is to be captured, killed or harmed in any way. Anyone caught violating this law will face suspension from the project and could be liable for prosecution. In a likewise manner, domestic livestock on farms may also not be harmed.

### **9.9 Soil Management and Erosion Control**

During any excavating and clearing the Contractor shall take care to remove as little topsoil as possible. All soil within 100mm of the cleared surface level shall be regarded as topsoil. Remove and separately stockpile any subsoil material that can be used for site backfilling. Topsoil shall be stockpiled (and seeded) in areas within the site boundary and approved by the Project Engineer in conjunction with the Environmental Consultant, for reuse and restoration. Avoid handling soil when wet as this may result in the loss of soil structure and compaction. Soils should not be handled during windy conditions, which may lead to the loss of soil through wind erosion. Soil erosion must always be prevented. Where evidence of soil erosion can and/or is taking place, this should be reported by the Contractor to the Project Engineer or Environmental Consultant. Suitable erosion measures should be implemented in areas sensitive to erosion such as near water supply points, edges of slopes, etc. All the necessary precautions in terms of design and construction of earthworks, cuts, and fills must be taken.

### **9.10 Air pollution / Dust emission**

Excavations and other clearing activities should only be done during permissible weather conditions to avoid drifting of sand and dust into neighbouring areas. Soil and sand stockpiles shall be in sheltered areas not exposed to the wind. Retention of vegetation where possible will reduce dust travel. Dust suppression using water sprayers during dry periods. Restricting vehicle speeds to minimize dust. It is recommended to practice dust monitoring per month in order to take note of the dust emitted at different distances and directions around the project area during operations. Should any incidence occur in terms of spilling, they shall report it immediately to the Developer and the Contractor shall be responsible for containing and cleaning up the spillage. The Contractor (Developer) shall ensure that correct mitigation of the pollution is undertaken

### **9.11 Noise pollution**

Noise levels shall be kept within acceptable limits. Noisy activities must be limited to between 06h00 to 18h00 to avoid disturbance of adjacent landowners. Noisy activities should not be allowed on weekends and public holidays unless specific arrangements have been made with the proponent and provided that neighbours have been timeously notified. Vehicles and operating equipment must be regularly serviced. Marking disturbance areas and buffer zones to avoid unnecessary impacts

### **9.12 Waste Management**

Hazardous waste will be controlled, sorted, and disposed of, while non-hazardous garbage will be disposed of in a nearby permitted landfill site. Scrap and waste steel will be sold to recyclers. Wastes to be contained in animal-proof drums with a solid lid, and drums be in an enclosed fence, to prevent windblown debris from escaping, and scavenging animals from rummaging through the waste. Furthermore, no waste will be buried on site and all waste will be collected and disposed in approved facilities.

### **9.13 Fire Prevention**

Ensure an Emergency Response Plan, no fires are to be left unattended. Charcoal sourced from farmers should be 100% cured to avoid combustion. The burning of charcoal at minimal scale should be conducted during the day on less windy days with full supervision to avoid fly ashes to neighbouring land.

### **9.14 Archaeological Sites**

Dorob National Park is not primarily known for its archaeological sites. Instead, the park is renowned for its diverse ecosystems, coastal landscapes, and rich biodiversity. However, it's important to note that all archaeological remains are protected under the National Heritage Act (2004) and are not to be destroyed, disturbed, or removed. Therefore, as stipulated in the Act any archaeological finds, must be reported to the Heritage Council. The same applies to rock art sites. The ECO will be notified without delay of any archaeological finds.

### **9.15 Health and Safety**

All company personnel will receive a detailed induction upon joining the project and on a regular basis and be provided with the necessary PPE attire to prevent potential injuries and

excessive inhalation of dust or harmful gases. Eating, drinking, and smoking while working with any materials that may contain radioactive or hazardous substances is forbidden. Good personal hygiene is encouraged (e.g., washing hands before eating) to prevent ingestion of potentially hazardous or radioactive materials. Marking disturbance areas and buffer zones to avoid unnecessary impacts. Installing sediment controls around boreholes and access roads and implementing a spill response plan and providing spill kits at all work sites

### **9.16 Work Stoppage**

The MFO will have the right to order work to stop in the event of environmental specification infringements that could result in damage to plants, wildlife, or personnel. Work will continue once the situation is rectified and brought to a state of compliance.

In the event of such work stoppage, the Contractor will not be entitled to claim for delays or standing time.

### **9.17 Compliance Monitoring**

During exploration activities, the company ECO will conduct site compliance inspections at least once a month. After each inspection the ECO will compile an EMP compliance report for regular submission to the MFO and biannually to the MEFT or as required.

## **10 ENVIRONMENTAL CODE OF CONDUCT**

The Code of Conduct outlined in this section of the EMP applies to, sub-contractors, visitors, permanent and temporal workers. Therefore, anybody within the boundaries of the project site must adhere to the Environmental Code of Conduct as outlined in this section of the EMP. The Environmental Coordinator (ENC) will implement on-site environmental guidelines and has the authority to issue warnings as well as 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.

### **10.1 Site closure and rehabilitation**

Rehabilitation is the process of repairing the damage done by exploration activities therefore, it is important develop a rehabilitation and reclamation plan to restore exploration-disturbed

areas to their original or a suitable alternative state. Rehabilitation plan has been developed with a main aim of returning disturbed environment close to its pre exploration state. Implement progressive rehabilitation practices, including soil stabilization, re-vegetation, and erosion control, to minimize long-term environmental impacts.

All waste (such as hazardous and domestic) waste will be transported offsite for disposal in licensed landfills. Disturbed or/and contaminated areas will be cleaned up, treated where necessary and restored to its pristine state. Demolition of camping structures will be ensured.

## **11 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

By adopting responsible exploration practices and implementing effective environmental management measures, it will be possible to minimize the negative impacts during exploration in Dorob National Park. Mitigating environmental impacts ensures the preservation of the park's unique environment and its ecological and recreational value for present and future generations. By implementing these measures, the proponent aims to ensure that exploration activities in Dorob National Park have minimal negative impact on the environment and contribute to the conservation of the park's unique ecosystem and biodiversity.

The following table provides a large-scale summary overview of all the major environmental impacts, mitigation, and monitoring methods.

Impacts	Mitigation measures	Monitoring methods
<p><b>Impacts on Archaeological Sites</b></p>	<p>Buffer zones will be created around the sites.</p> <p>Adhere to practical guidelines provided by an archaeologist to reduce the archaeological impact of mineral exploration activities.</p> <p>All archaeological sites to be identified and protected before further exploration commences.</p> <p>Notices/information boards will be placed on sites.</p> <p>Employees will be trained regarding the protection of these sites.</p>	<p>An archaeologist will inspect any identified archaeological sites before commencing with the mineral exploration activities.</p>
<p><b>Impacts on Fauna</b></p>	<p>Some habitat areas such as trees of the riverbeds and tunnels outcrops will be avoided wherever possible.</p> <p>A fauna survey will be conducted to determine the effect of fragmented habitat on game species should the need arise.</p> <p>No animals shall be killed, captured or harmed in any way. No foodstuff will be left lying around as these will attract animals which might result in human-animal conflict. Care will be taken to ensure that no litter is lying around as these may end up being ingested by wild animals.</p>	<p>Regular monitoring of any unusual signs of animal habitat.</p>
<p><b>Impact on Vegetation</b></p>	<p>Environmental considerations will always be adhered to before clearing roads, trenching and excavating.</p>	<p>Environmental education awareness, and regular monitoring of any unusual signs of animal habitat.</p>

	<p>Paths and roads will be aligned to avoid root zones. Permeable materials will be used wherever possible. The movement of vehicles in riverbeds, rocky outcrops and vegetation sensitive areas will be avoided.</p> <p>The movement of vehicles will be restricted to certain tracks only. Areas with species of concern will be avoided.</p> <p>Ministry of Environment and Tourism will be informed of any protected species which will be transplanted in consultation with MET.</p>	
<b>Impacts on Socio-Economic</b>	<p>The population change can be mitigated by employing people from the local community and encouraging the contractors to employ local individuals.</p> <p>The perception of risks will be mitigated by putting up safety signs wherever possible and ensuring that all employees and visitors to the site undergo a safety induction course.</p>	Public meetings will be held by the proponent whenever necessary
<b>Visual Impacts</b>	Environmental considerations will be adhered to at all times before clearing roads, trenching and excavating.	Employees will be trained on the importance of minimizing visual impacts.
<b>Generation of Solid Waste</b>	Commit to the management of solid waste life cycle by all the employees and contractors of the site.	Transportation of solid waste to a registered site for disposal.
<b>Noise</b>	Disturbance to fauna that roam the area will be minimized by training the employees on ways to minimize noise.	Restriction duration of noise pollution.



<b>Air quality</b>	<p>All staff on should be equipped with dosimeters that measure exposure levels to radiation.</p> <p>All staff must be made aware of the health risk and obliged to wear dust masks.</p>	
<b>Use of Natural Resources</b>	<p>The bulk of the power supply to the exploration site will be sourced from the proponent's own generator.</p> <p>The proponent will drill a borehole as a water source.</p>	The proponent will use water efficiently and recycle wherever possible.
<b>Environmental impacts</b>	Proposed mitigation measures	Monitoring plan
<b>Oil leaks and spills</b>	<p>Contactors should have a sealed designated area where maintenance is carried out to prevent percolation of contaminants.</p> <p>Oil products should be handled carefully on bounded surfaces; in case it leaks.</p> <p>Vehicles and equipment should be well maintained to prevent oil leaks.</p>	Absence of oil spills and leaks on site.
<b>First aid</b>	A well-stocked first aid kit shall be maintained by qualified personnel.	Contents of the first aid kits.
<b>Visual</b>	Environmental considerations will always be adhered to before clearing roads, trenching and excavation.	Employees to be trained on how to minimize impacts that can easily be identified with the eye.
<b>Archaeology and Cultural heritage</b>	<p>Buffer zones will be created around the sites.</p> <p>All archaeological sites to be identified and protected before development commences.</p> <p>The Proponent should consider having a qualified and experienced Archaeologist on standby during the entire operational phase. This action will be to assist on the possible uncovering of sub-surface cultural/heritage objects and advise the Proponent accordingly.</p>	Register of all archaeological sites identified.

	Identified archaeological significant objects on the site should not be disturbed but are to be reported to the project Environmental officer or National Heritage Council offices.	
<b>Occupational health and safety</b>	Provide personal protective equipment's, train workers on personal safety, and how to handle equipment's and machines. A well-stocked first shall be maintained by qualified personnel. Report any accidents/ incidences and treat and compensate affected workers. Provide sufficient and suitable sanitary conveniences which should be kept clean. Clean sanitary facilities.	Workers using personal protective equipment's. Availability of a well-stocked first aid box.
<b>Fauna</b>	Some habitat areas such as the river and tunnel outcrops will be avoided wherever possible. A fauna survey will be conducted to determine the effect of fragmented habitat to game species should the need arise. No animals shall be killed, capture or harmed in any way. No food stuff shall be left lying around as this will attract animals which may result in human-animal conflict.	Regular monitoring of any unusual signs of animal habitat.
<b>Alien invasive plants</b>	Ensure vehicles and equipment are clean of invasive plants and seeds. Eradicating alien plants using area management plan. Contain neighboring infestations and restrict movement of invasive plants from adjacent lands Educating everyone on site on types of invasive plants.	Regular monitoring of any signs of alien plants.

<b>Loss of vegetation</b>	Environmental considerations will be adhered to at all times before clearing roads, trenching and excavating. The movement of vehicles in riverbeds, rocky outcrops and vegetation sensitive area will be avoided. The movement of vehicles will be restricted to certain areas.	Warning signs on site Restored vegetation

Table 2 Environmental impacts and mitigation aspects

## 12 PROJECT MONITORING PLAN

The project monitoring is conducted under the EMP includes:

### 12.1 Project readiness monitoring

Monitoring to check progress on project readiness and close gaps through corrective actions.

### 12.2 Operational monitoring

This is required as part of the operations of the subproject and will be undertaken by the relevant government department or a nominated private sector operator.

### 12.3 EMP and Environmental quality compliance monitoring

To be conducted by the Project Management Consultants to verify EMP compliance during project implementation. To be conducted by a competent authority or person appointed by the proponent, involving the collection and analyses of air quality, noise and water quality data at designated monitoring locations for assessing compliance with applicable environmental quality and emission standards.

## 13 CONCLUSION

This comprehensive Environmental Management Plan (EMP) outlines the proactive measures to be employed in mitigating the environmental impacts arising from the proposed activities. The plan is specifically tailored to manage all aspects of the exploration and test mining operations within the EPL Area, which have the potential to significantly influence the surrounding environment. By implementing the EMP as outlined in this report, the project

aims to minimize any adverse effects and maximize the positive outcomes, thereby enhancing the overall ecosystem services and value of the EPL 8837 and its neighbouring regions.

The Environmental Impact Assessment (EIA) will be conducted in strict compliance with the Environmental Regulations of 2012, and the project proponent is committed to adhering to all relevant provisions. As exploration commences, priority will be given to employing local individuals from nearby towns and communities, fostering economic growth and development in the region.

The EMP encompasses a robust approach and methodology, ensuring that all potential environmental impacts are carefully evaluated and appropriately addressed. By adopting this comprehensive strategy, the project seeks to strike a harmonious balance between exploration activities and environmental preservation. The overarching goal is to safeguard the natural resources, protect sensitive habitats, and ensure the conservation of biodiversity within the area.

Through diligent implementation and consistent monitoring of the EMP, the project endeavours to establish a sustainable framework that promotes responsible environmental management throughout the exploration and test mining phases. The integration of community engagement and adherence to environmental regulations further solidifies the project's commitment to environmental stewardship and sustainable development.

## REFERENCES

- Bendi, M. (2003). *Namibia: Mining Overview*. Retrieved April 10, 2023
- Environmental Management Act 7 of 2007
- Kandjoze, O.M. 1994. Satellite image aided remapping of area 2114DD in the Namib Desert. Unpubl. M.Sc. thesis, Univ. Helsinki, 91pp.
- Keller P. 1991. The occurrence of Li-Fe-Mn phosphate minerals in granitic pegmatites of Namibia. *Communs geol. Surv. Namibia*. 7. p. 21-35.
- Kinahan, J. 2021. Archaeological desk assessment of EPL 7547, Erongo Region, Namibia.
- Klein, J.A. 1980a. Geological report on area 2115A. Open File Report, Geol. Surv. S.W. Afr./Namibia, Windhoek, 39pp.
- Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2002. Atlas of Namibia, Cape Town: David Phillips Publishers.
- Mendelsohn, J., Jarvis, A., Roger, S., & Roberstson, T. (2012). *The coast of Kunene and the Skeleton Coast Park: Namibia's coast*. Windhoek: Namibian Coast Conservation and Management (NACOMA) project, Ministry of Environment and Tourism.
- MET. (2007). Retrieved from <https://www.namibiahc.org.uk>
- Miller, R. McG. 1983a. The Pan-African Damara Orogen of South West Africa/Namibia, 431-515. In: Miller, R. McG. (Ed.), Evolution of the Damara Orogen of South West Africa/Namibia. *Spec. Publ. geol. Soc. S. Afr.*, 11, 515pp Mining Africa. 2017, Available at <https://www.miningafrika.net/mining-countries-africa/namibia/#:~:text=Mining%20is%20the%20most%20important,fuel%20mineral%20exporter%20in%20Africa.> (Download date: 10 May 2023)
- Miller, R.McG. and Burger, A.J. 1983. U-Pb zircon age of the early Damaran Naauwpoort Formation, 267-272. In: Miller, R.McG. (Ed.), Evolution of the Damara Orogen, South West Africa/Namibia. *Spec. Publ. geol. Soc. S. Afr.*, 11, 515pp.
- Mining Minnesota, 2014. Exploration drilling best management practices, Duluth: Mining Minnesota.
- Ministry of Environment, Forestry and Tourism.