

## **DRAFT ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

### **THE PROPOSED PROSPECTING AND EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) 7746 NEAR HELMERINGHAUSEN IN THE //KARAS REGION**



**MEFT Application No.:**

**APP-003485**

**Proponent:**

**Microzone Investment CC**

**P. O. Box 64 Lüderitz**

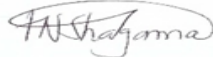
**Namibia**

**08 April 2022**

**DOCUMENT INFORMATION**

Title: Draft Environmental Management Plan (EMP) for the Proposed Prospecting and Exploration Activities on Exclusive Prospecting License (EPL) 7746 near Helmeringhausen in the //Karas Region

**Prepared by:**

<b>Author:</b>	<b>Fredrika N. Shagama (Hydrogeologist &amp; Environmental Consultant / EAP*)</b>
<b>Qualifications:</b>	<p><b>PhD. Student: Civil Engineering (Geotechnics &amp; Hydrogeology)</b>, VSB - Technical University of Ostrava, Czech Republic</p> <p><b>MSc. Geological Engineering</b> (<i>cum laude</i>) with primary focus in Hydrogeology, VSB - Technical University of Ostrava, Czech Republic</p> <p><b>BSc. Geological Engineering</b>, VSB - Technical University of Ostrava, Czech Republic</p>
<b>Professional Affiliations:</b>	<p>International Association of Hydrogeologists (IAH) - Full (online) Member, Membership No.139790</p> <p>Namibian Hydrogeological Association (NHA) – Member</p> <p>Environmental Assessment Professionals of Namibia (EAPAN) - Ordinary Member Practitioner (Membership No. 183)</p>
<b>Contact Details:</b>	<p>Mobile: +264 81 749 9223</p> <p>Email: <a href="mailto:eias.public@serjaconsultants.com">eias.public@serjaconsultants.com</a></p> <p>Postal Address: P. O. Box 27318 Windhoek, Namibia</p>
<b>Signature:</b>	
<b>Date:</b>	08 April 2022

**EAP\* - Environmental Assessment Practitioner**

## **SERJA' STATEMENT OF INDEPENDENCE**

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study and Preparation of this Draft Environmental Management Plan (EMP) for the proposed prospecting and exploration activities near Helmeringhausen in the //Karas Region, Serja Hydrogeo-Environmental Consultants cc declare that we:

- do not have, to our knowledge, any information or relationship with any member from Microzone Investment cc, the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) or the Competent Authority (Ministry of Mines and Energy (MME) that may reasonably have potential of influencing the outcome of this Environmental Assessment and the subsequent Environmental Clearance Certificate applied for.
- have knowledge of and experience in conducting environmental assessments, the Environmental Management Act (EMA) No. 7 of 2007 and its 2012 Environmental Impact Assessment (EIA) Regulation as well as other relevant national and international legislation, guidelines, policies, and standards that govern the proposed project as presented herein.
- have performed work related to the ECC application in an objective manner, even if the results in views and findings or some of these may not be favorable to the Proponent.
- have complied with the EMA and other relevant regulations, guidelines and other applicable laws as listed in this document.
- declare that we do not have and will not have any involvement or financial interest in the undertaking/implementation of the proposed project, other than remuneration (professional fees) for work performed to conduct the ESA and apply for the ECC in terms of the EIA Regulations' requirement as an Environmental Assessment Practitioner (EAP).

**Disclaimer:** Serja Hydrogeo-Environmental Consultants will not be held responsible for any omissions and inconsistencies that may result from information that was not available at the time this document was prepared and submitted for evaluation.



.....

**Signature:**

Fredrika N. Shagama: Managing Member & Principal Environmental Assessment Practitioner

**Date:** 08 April 2022

## TABLE OF CONTENTS

DOCUMENT INFORMATION .....	i
TABLE OF CONTENTS .....	iii
LIST OF FIGURES .....	iii
LIST OF TABLES .....	iii
APPENDICES .....	iv
LIST OF ABBREVIATIONS.....	iv
1 INTRODUCTION.....	1
1.1 Project Background and Location .....	1
1.2 Purpose of the Draft Environmental Management Plan (EMP) .....	2
2 BRIEF DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES.....	3
2.1 Prospecting Stage (Non-Invasive Technique) .....	3
2.2 Planned Exploration Methods (Invasive Techniques).....	3
2.3 Project Resources and Services Infrastructure.....	3
2.4 Duration of Mineral Exploration.....	6
2.5 Decommissioning and Rehabilitation of Disturbed Sites .....	6
3 LEGAL FRAMEWORK: PERMITTING AND LICENSES .....	6
4 EMP IMPLEMENTATION RESPONSIBILITIES .....	9
5 ENVIRONMENTAL MANAGEMENT MEASURES .....	12
5.1 Key identified Potential negative Impacts .....	12
5.2 The Environmental Management Measures and Rehabilitation of Sites .....	12
5.3 The Environmental Monitoring Actions .....	30

## LIST OF FIGURES

Figure 1: Locality Map of EPL 7746 near Helmeringhausen .....	1
---------------------------------------------------------------	---

## LIST OF TABLES

Table 1: GPS coordinates of EPL 7746 .....	2
Table 2: List of legal requirements and permits to the activities of the EPL .....	7
Table 3: The EMP implementation responsibilities onsite .....	10
Table 4: The Environmental and mitigation action plans for the planning, exploration, and site rehabilitation.....	13
Table 5: The Environmental Monitoring .....	30

**APPENDICES**

**Appendix 1:** Chance Finds Procedure (Archaeology & Heritage Action Plan)

**LIST OF ABBREVIATIONS**

<b>DEAF:</b>	Department of Environmental Affairs and Forestry
<b>DWA:</b>	Department of Water Affairs
<b>ECC:</b>	Environmental Clearance Certificate
<b>EIA:</b>	Environmental Impact Assessment
<b>EMA:</b>	Environmental Management Act
<b>EMP:</b>	Environmental Management Plan
<b>EPL:</b>	Exclusive Prospecting License
<b>ESA:</b>	Environmental Scoping Assessment
<b>GG:</b>	Government Gazette
<b>GN:</b>	Government Notice
<b>I&amp;APs:</b>	Interested and Affected Parties
<b>IFC:</b>	International Finance Corporation
<b>MAWLR:</b>	Ministry of Agriculture, Water and Land Reform
<b>MEFT:</b>	Ministry of Environment, Forestry and Tourism
<b>MME:</b>	Ministry of Mines and Energy
<b>PPE:</b>	Personal Protective Equipment

# 1 INTRODUCTION

## 1.1 Project Background and Location

Microzone Investment cc (hereinafter referred to as The *Proponent*), a 100% Namibian owned company has been granted Exclusive Prospecting Licence (EPL) No. 7746 by the Ministry of Mines and Energy (MME) on the 3<sup>rd</sup> of January 2020 and valid until the 2<sup>nd</sup> of January 2023.

The 19,828.3633-hectare (ha) EPL has potential for Base & Rare Metals, Industrial Minerals, Precious Metals and Precious Stones. However, the commodities of interest which the Proponent intends to prospect and explore for and as recommended in the Desktop Geological Report are Base & Rare Metals (Copper and Zinc) and Precious Metals (Gold).

EPL 7746 is located about 22km northeast of Helmeringhausen Settlement in the //Karas Region. It mainly covers three farms, namely Farm Kosos No. 11, Auas North No.8 and Auas South No. 7. The other covered farms include Farm Kumakams No. 68, Volkerust No. 141, Congella Farm No. 10, and Blenheim as shown in **Figure 1**. The approximate coordinates of the EPL are presented in **Table 1**

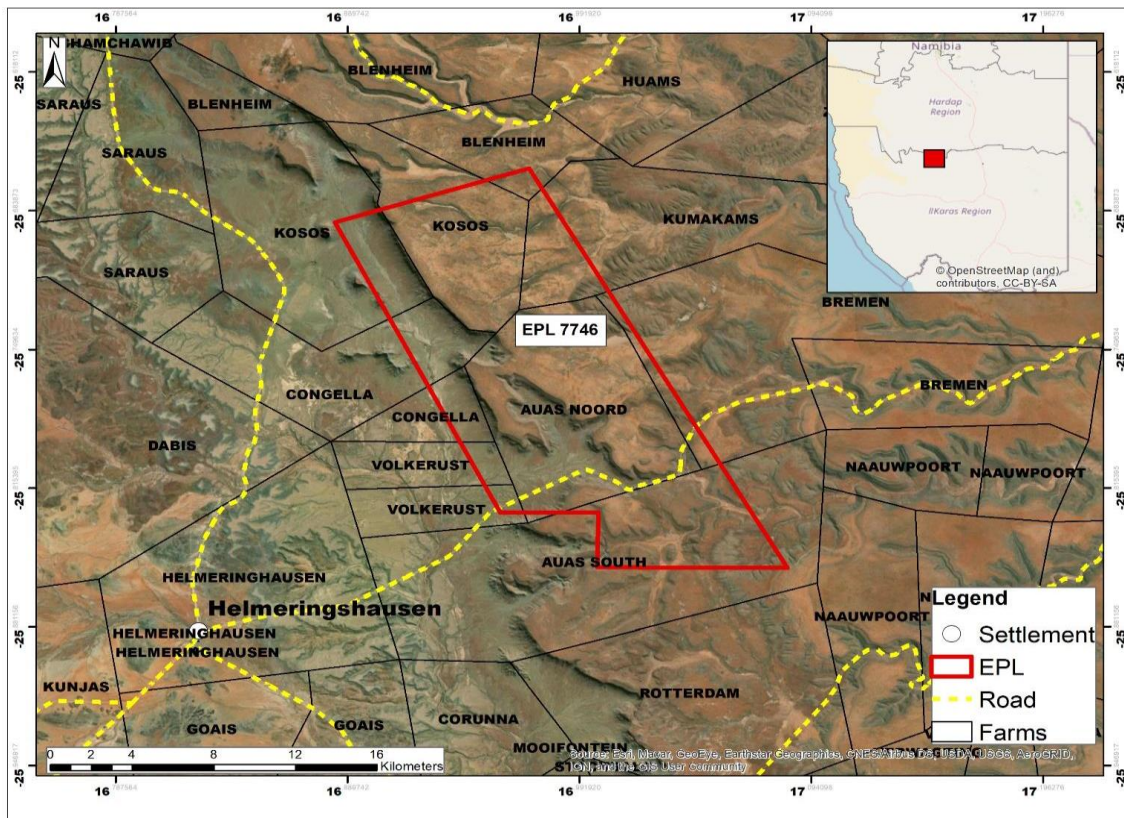


Figure 1: Locality Map of EPL 7746 near Helmeringhausen

Table 1: GPS coordinates of EPL 7746

EPL No.	GPS Coordinates
7746	25°4'17" S 16°53'00" E
	25°39'43" S 16°58'09" E
	25°51'02" S 16°4'57" E
	25°5'05" S 16°59'56" E
	25°49'31" S 16°59'58" E
	25°49'33" S 16°57'20" E

## 1.2 Purpose of the Draft Environmental Management Plan (EMP)

The Draft EMP is developed in accordance with Regulation 8(j) of the EIA Regulations (2012) that it should be included as part of the Environmental Assessment (EA) scoping report. A '**Management Plan**' is defined as:

*"...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored."*

An EMP is one of the most important outputs of the EA process as it synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented during exploration. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and can be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

The EMP is therefore aimed at guiding environmental management throughout the different phases of the proposed exploration activities, namely: planning, prospecting & exploration, and decommissioning & rehabilitation phase:

- **Planning phase** – Preparation of all the administrative and technical requirements needed for the actual works on the ground. The planning would entail obtaining the necessary permitting and authorization from relevant national and local stakeholders (such as affected farm owners), facilitating the recruitment and procurement processes, etc.
- **Exploration phase** – The stage during which actual groundwork (activities) for the targeted commodities and associated activities are conducted within the EPL.

- **Decommissioning and Rehabilitation** – The stage during which the Proponent is rehabilitating the disturbed sites, regardless of the results of exploration activities.

## 2 BRIEF DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

Prior to mobilizing to site and undertaking any groundwork for the proposed activities at the site (EPL 7746), the Proponent will be required to sign land access and use agreements with the affected landowners (farmers) according to Section 52 (1a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992.

The anticipated duration of the proposed prospecting and exploration activities is between anticipated to last between (6) and twenty-four (24) months. However, should the anticipated timeframe turn out to be insufficient or depending on the exploration findings by the end of 24 months, this may be stretched longer to some more months and communicated with the relevant stakeholders and affected landowners.

### 2.1 Prospecting Stage (Non-Invasive Technique)

This stage of the project is known as Non-invasive technique (Desktop Study). During the prospecting and exploration phase, the vital components include reviewing existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages. In addition to the literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. These works do not require physical disturbance.

Upon issuance of the ECC, prospecting during the advanced exploration phase will require the Proponent to assess the EPL area through detailed geological mapping, and geophysical surveys.

### 2.2 Planned Exploration Methods (Invasive Techniques)

This stage (Detailed Field Evaluation) following the Non-Invasive techniques will be carried out by simple collection of soil and rock samples from target EPL areas to verify desktop/non-invasive information. These detailed techniques will include activities and as described under subsection:

- Soil sampling,
- Trenching, and
- Exploration drilling (Reverse Circulation (RC) and diamond drilling).

### 2.3 Project Resources and Services Infrastructure

The following services and infrastructure as provided below will be required for the project activities:



- **Human resources:** The prospecting stage will require but not limited to one or two geologists, GIS specialist, and geophysicist to collect the data. During the detailed (invasive) exploration stage, the project crew will consist of about 8 people, comprising 2 skilled (geologist and geotechnician), 2 semi-skilled, 5 casual workers (assistants). However, this number may vary depending on the actual workload and requirement onsite. The workforce requirement will entail the need for geologist(s), drilling personnel, sampling team, supervisor / exploration manager, casual workers to clear the sites and perform other required jobs onsite, cleaner(s), machine operator, truck & light vehicle drivers, etc.
- **Project Crew Accommodation:** Exploration workers will be housed in prefabricated accommodation units (tented camps) during the exploration stage (within the EPL boundaries). However, prior to setting up the accommodation units, an agreement and a consent will need to be reached and signed between the Proponent and the respective landowner. The onsite accommodation is selected to ensure that the exploration crew commences with site work on time (early) and to prevent putting pressure on the local roads to transport workers to and from site daily.
- **Project Equipment, Material, Machinery and Vehicles:** A minimum of two (4X4) pickup trucks (vehicles), and heavy truck, air compressor, drill rigs, and drilling machines, water, and fuel bowser, power generator, dozer (to clear vegetation along planned drilling site access roads), and biodegradable drilling fluids stored in manufacturers approved containers. Equipment and vehicles will be stored at a designated area near the accommodation site (campsite), or a storage site established within the EPL site area.
- **Water supply:** During exploration onsite water will be required for cooling down and washing of equipment, exploration related activities, drinking, cooking, and ablution. For exploration related activities such as cooking, drinking and personal use, about 300 litres of water will be required per week (1,200 litres per month). Exploration drilling, specifically diamond requires a lot of water, and it would require approximately 10 000 to 25 000 litres (10 to 25 m<sup>3</sup>) per day, in instances where for example fractured formations are encountered) per hole drilled. To ensure that the already low potential local groundwater resources are not stressed or significantly impacted by the project activities such as drilling, the Proponent will be carting water from outside the area (where water supply is not a big issue).

It is anticipated that water for domestic use will be supplied through carting from the nearest water supply area (Helmeringhausen Settlement) or upon reaching an agreement with the respective farm owner to supply portable water for the exploration crew (workers).
- **Fuel supply (For Cooking):** The Proponent will provide a 10kg liquid gas cylinder to be used for food preparation by the site workers. Therefore, no firewood will be collected on the farms or neighbouring land for this purpose.

- **Fuel Supply (machinery and equipment):** Diesel will be used for machinery and equipment and power the site generators. A trailer mounted and bunded 200-litre fuel (diesel or petrol) tank will be onsite to ensure an uninterrupted fuel supply to machinery.
- **Accessibility (roads):** The EPL is accessible from the C14 from Helmeringhausen from the south of the EPL and then via local access roads to and from farms. There is only one access road in the EPL (D414) in the farms cutting across the EPL on the south. Therefore, it is anticipated that new access tracks will be created in some areas of the EPL to access the target sites for exploration and enable the movement of pick up (4x4) and heavy truck and, drill rig.
- **Waste management**
  - Sewage: Portable ablution facilities with septic tanks will be provided on site and wastewater will be transported offsite to the nearest waste treatment facility.
  - General and domestic waste: enough waste bins (containers) will be made available at both exploration sites and campsites for waste storage. The bins will be emptied into the main onsite container for disposal at the nearest approved landfill site, upon reaching a waste disposal agreement with the relevant local authority.
  - Hazardous waste: All vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel/oils will be carefully stored in a standardized container until such a time that it can be disposed of at the nearest approved hazardous waste management facility.
- **Health and Safety**
  - Adequate and appropriate Personal Protective Equipment (PPE)** will be provided to every project personnel and visitor/inspector while on and working at site and visiting the site, respectively.
  - First aid:** A minimum of two first aid kits will be readily available at exploration and camp sites to attend to potential minor injuries, while major injuries will need to be attended to further by transporting the injured to the nearest health centre for treatment.
  - Potential Accidental Fire Outbreaks:** A minimum of basic firefighting equipment, i.e., two fire extinguishers will be readily available in vehicles, at the working sites and campsite (accommodation units).
  - Open exploration trenches and boreholes:** The trenches dug for sampling will be temporary fenced off to prevent potential injuries of both people and livestock and wildlife on the farms. Once sampling is completed, the trenches will be progressively backfilled and levelled. Similarly, for exploration boreholes that are no longer required after rock samples, they will be backfilled and closed off.

## 2.4 Duration of Mineral Exploration

The exploration programmes are based on an iterative, results-driven and phased nature. Therefore, it is not possible at an early stage of exploration to give exact areas for future drilling or an exact duration of the exploration activities (Resilient Environmental Solutions, 2019). Soil sampling programmes for instance may last from between one week to a month at a time over specific areas, until the explored area is fully sampled as desired. Drilling programmes may initially range from two weeks to a month at a time, depending on the planned programme or based on the results of the programme. The Proponent undertakes to work with all relevant stakeholders to keep them informed of exploration progress to facilitate site visits and access to ongoing field exploration programmes.

In general terms, the minerals exploration activities can take up to a maximum of seven years, with different projects at various stages of the exploration phase (Resilient Environmental Solutions, 2019).

## 2.5 Decommissioning and Rehabilitation of Disturbed Sites

Once the exploration activities on the EPL come to an end, the Proponent will need to put site rehabilitation measures in place. To ensure the project activities are ceased in an environmentally friendly manner and site is rehabilitated by carrying out the following:

- Dismantling and removal of campsites and associated infrastructures from the project site and area,
- Carrying away all exploration equipment and vehicles, and
- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner),

Further decommissioning and rehabilitation practice onsite will include:

- Backfilling of pits and trenches used for sampling,
- Closing and capping of exploration boreholes to ensure that they do not pose a risk to both people and animals in the area, and
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left close to their original state as much as possible.

## 3 LEGAL FRAMEWORK: PERMITTING AND LICENSES

The Proponent has the responsibility to ensure that the exploration activities as well as the EA process conform to the principles of the EMA and must ensure that employees act in accordance with such principles. **Table 2** below lists the requirements of an EMP as stipulated by Section 8 (e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required of the EPL.

Table 2: List of legal requirements and permits to the activities of the EPL

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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 and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner
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).	Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner  <b>Mr. Timoteus Mufeti</b>  Tel: +264 61 284 2701
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 48 (3): 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.	The Proponent should ensure that all necessary permits/authorization for these EPL are obtained from the Ministry of Mines and Energy (MME).  Contact person and details at the MME (Mining Commissioner)  <b>Mr. Erasmus Shivolo</b>  Tel: +264 61 284 8167  <b>The Proponent should consult and enter into agreements with the respective farmers as per the contact list provided to them by the Environmental Consultant. Ensure compliance to farmers' condition of land use.</b>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	Section 52 (1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.	<b>The Proponent should timely enter into and sign access and land use agreement (consent) with the respective affected farm owners.</b>
Water Resources Management Act (No 11 of 2013)	Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner. <b>Therefore, a Groundwater Abstraction &amp; Use Permit should be applied for. This is for drilling water abstracted from a borehole or dam.</b>	<b>The permit should be applied from the Ministry of Agriculture, Water and Land Reform (MAWLR)</b> <b>Department of Water Affairs (DWA)</b> <b>Contact: Mr. Franciskus Witbooi</b> <b>Division: Water Policy and Water Law Administration Division</b> <b>Tel: 061 208 7158</b>
	For any project wastewater planned for discharge into the environment, <b>a discharge permit should be applied for and obtained.</b>	<b>MAWLR, DWA' Water Environment Division</b> <b>Contact: Ms. Elise Mbandeka</b> <b>Tel: +264 61 208 7167</b>
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site. <b>Mr. Carlo Mcleod</b> (Ministry of Mines and Energy: Acting Director – Petroleum Affairs)  Tel: +264 61 284 8291

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
National Heritage Act No. 76 of 1969	Call for the protection and conservation of heritage resources and artefacts.	<p>Should any archaeological material, such as bones, unknown graves, old weapons/equipment etc be found on the EPL site, 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.</p> <p>Contact Details at National Heritage Council (NHC) of Namibia</p> <p><b>Mrs. Erica Ndalikokule – NHC Director</b></p> <p><b>OR</b></p> <p><b>Ms. Agnes Shiningayamwe (Regional Heritage Officer) – National Heritage Council of Namibia</b></p> <p><b>Tel: (06) 301 903</b></p>

#### 4 EMP IMPLEMENTATION RESPONSIBILITIES

Microzone Investment (the Proponent) is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility or part of it to someone else at any time, as they deem necessary. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set in **Table 3**.

**Table 3: The EMP implementation responsibilities onsite**

Role	Responsibilities
Microzone Investment (Proponent) or their Representative	<p>-Managing the implementation of this EMP and updating and maintaining it when necessary.</p> <p>-Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions.</p>
Department of Environmental Affairs & Forestry (DEAF, MEFT))	<p>-The DEAF is responsible for enforcing compliance with the EMA, its regulations and full implementation of this EMP. The competent authority also reviews biannual reports and grant ECC renewal after 3 years.</p>
Exploration / Site Manager (as appropriate)	<p>This individual will be responsible to ensure that the exploration activities of the project are completed on time. The Manager's duties and responsibilities will include:</p> <ul style="list-style-type: none"> <li>-Ensure that relevant commitments contained in the EMP Action Plans are adhered to.</li> <li>-Ensure relevant staff is trained in procedures entailed in their duties.</li> <li>-Maintain records of all relevant environmental documentation for the project.</li> <li>-Reviewing the EMP annually and amending the document when necessary.</li> <li>-Issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site.</li> <li>-Cooperate with all relevant interested and affected parties/stakeholders.</li> <li>-Development and management of schedules for daily activities</li> </ul>
Environmental Control Officer (ECO)	<p>The Proponent may assign the responsibility of ensuring EMP compliance throughout the project life cycle to a designated member of staff or external qualified and experienced person, referred to in this EMP as the Environmental Control Officer (ECO). The ECO will have the following responsibilities:</p>

Role	Responsibilities
	<ul style="list-style-type: none"> <li>-Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&amp;APs) regarding this EMP.</li> <li>-Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).</li> <li>-Advising the Proponent or Exploration/Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP.</li> <li>-Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP.</li> <li>-Undertaking an annual review of the EMP and recommending additions and/or changes to this document.</li> <li>-Ensuring that the exploration activities on site are conducted in accordance with the International System organization (ISO) standard 14001: 2015.</li> </ul>
Public Relations Officer (PRO)	<p>The PRO will be responsible for the following tasks:</p> <ul style="list-style-type: none"> <li>-Liaising between the affected farmers (property owners) and the Proponent.</li> <li>-Ensure effective communication with stakeholders (affected farmers), media (if necessary) and the public.</li> <li>-Organising and overseeing public relations activities, Managing public relations issues.</li> <li>-Preparing and submitting public relations reports, if required.</li> <li>-Collaborating with personnel and maintaining project-related open communication among personnel.</li> </ul>



## 5 ENVIRONMENTAL MANAGEMENT MEASURES

### 5.1 Key identified Potential negative Impacts

The key potential negative impacts identified, described, and assessed in the Environmental Scoping Assessment Report and for which the management measures (action plans) have been provided are listed below:

- **Potential disturbance of grazing areas,**
- **Physical land / soil disturbance**
- **Impact on local biodiversity (fauna and flora);** potential illegal harvesting of protected vegetation and wildlife hunting (poaching) and habitat disturbance in the area.
- **Potential impact on water resources and soils particularly due to pollution,**
- **Air quality issue:** potential dust generated from the project activities such as drilling, possibly trenching and movement of heavy trucks on unpaved access roads.
- **Potential occupational & social health and safety risks** (trenches and drilled holes risk to livestock, game and people).
- **Vehicular traffic safety and impact on services infrastructure** such as local roads
- **Vibrations and noise** associated with drilling activities may be a nuisance to locals.
- **Environmental pollution** (solid waste and wastewater).
- **Archaeological and heritage resources impact** (during trenching and drilling)
- **Potential social nuisance and conflicts** (theft, damage to properties, etc).

### 5.2 The Environmental Management Measures and Rehabilitation of Sites

The management actions are aimed at avoiding the above-listed potential negative impacts, where possible, and where it is impossible to avoid these impacts, measures are provided to reduce the impacts' significance.

The Management action plans (measures) recommended for the potential impacts rated in the ESA Study were based on the following project stages (phases):

- Planning, Prospecting and Exploration phases (**Table 4**).
- Decommissioning and Rehabilitation (**Table 4**), and
- Monitoring (**Table 5**).

Table 4: The Environmental and mitigation action plans for the planning, exploration, and site rehabilitation

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
<b>Planning Phase</b>					
EMP implementation and training	Lack of EMP awareness and implications thereof	<p>-A Comprehensive Health and Safety Plan for the project activities should be compiled.</p> <p>-An EMP non-compliance penalty system should be implemented on site.</p> <p>-The Proponent should appoint an Environmental Control Officer (ECO) to be responsible for managing the EMP implementation and monitoring.</p>	<p>-All required EMP implementation Plans, and Systems are compiled and in place.</p> <p>ECO is appointed</p>	Proponent	Pre-exploration
Authorizations	Lack of Agreements, Permits/ Licenses	<p>-All the required agreements and licenses or permits should be applied for and signed, respectively before commencement of work on the EPL, or as required.</p> <p>-The permits, agreements referred to herein include:</p> <p>(a) Land access by the farm owners (landowners).</p> <p>(b) Waste management disposal permits from the relevant facility operator/owner</p> <p>(c) Water supply agreements or groundwater abstraction &amp; use permit (if abstracting drilling water directly from a borehole)</p> <p>(d) Onsite fuel storage permit from MME for any petroleum stored onsite</p>	<p>-Applicable permits and licenses to obtained from relevant authorities.</p> <p>-Agreements/permits signed and obtained from on time, <b>min. 2 months prior to planned commencement date of works.</b></p>	<p>Proponent</p> <p>Farm owners</p> <p>Respective authorities and services provider(s)</p>	Pre-exploration

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Communication between the Proponent and landowners	Lack of communication (proper liaison) between landowners and Proponent with regards to land use/access	<p>-The Proponent should appoint a Public Relation Officer (PRO) to liaise with the land users.</p> <p>-A clear communication procedure/plan which should include a grievance mechanism should be developed.</p>	<p>A PRO is appointed</p> <p>Ongoing Farmers' Engagement &amp; Consultation throughout the project cycles, when and as required.</p> <p>PRO contact details to be provided to the landowners</p> <p>Complaint's logbook</p>	Proponent	PRO appointment (Prior to project activities) and their responsibilities throughout the project activities
Employment	Creation of employment opportunities	<p>-Un and semi-skilled labour should be sourced from the local communities.</p> <p>-Preference of local people for employment for jobs should be implemented, i.e., permanent residents from the farms should be employed for the unskilled labour preferentially to out-of-area people (outsiders) where possible. Out-of-area employment should be justified, for example by the unavailability of local skills only.</p> <p>-Equal opportunity should be provided for both men and women, when and where possible.</p>	-Number of locals employed for exploration activities	Proponent in collaboration with the Drilling contractors	Pre-exploration and when necessary, throughout

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Specialised procurement of services	Contractors and services	-All services related to exploration activities such as trenching and drilling that the Proponent may need, preference should be given to local providers of such services. If not available locally, the services search should be extended to a regional level (//Karas Region), nationally and lastly, internationally.	Number of hired contractors. Record of hired or contracted companies or services providers	Proponent  Exploration Manager	Pre-exploration
<b>Prospecting and Exploration Phase</b>					
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all new workers on site. -All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work. -The implementation of this EMP should be monitored. The site should be inspected, and a compliance audit done throughout <b>the project activities, monthly.</b> An EMP non-compliance penalty system should be implemented on site.	Compliance monitoring conducted bi-annually and should be recorded.  -The ECC is renewed every 3 years -Bi-annual reports -Records of EMP training conducted.	ECO  DEAF (for ECC renewal)	Throughout the exploration phase
Communication between the Proponent and landowners	Lack of communication (proper liaison) between landowners and Proponent with regards to land use/access	-The PRO should be introduced to the farm owners and his or her contact details provided to them prior to undertaking activities for easy communication. -The Proponent should compile a clear communication procedure / plan which should include a grievance and response mechanism.	PRO is part of the project personnel.  -Records of farmers' consultation  -Community/farmers' grievances addressed to their satisfaction	PRO	Throughout exploration

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
			-Complaint's logbook -Land access agreement conditions		
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land, due to exploration activities should be avoided.  -Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity and grazing land.  -Workers should refrain from driving off road and creating unnecessary tracks that may contribute to loss of grazing land.  -Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.	-Limited cleared sites  -Less access tracks  -No complaints from farmers regarding significant land/vegetation clearing	Proponent Exploration Manager  ECO	Throughout exploration
Water Resources Use	Over-abstraction (water demand and availability)	-Fresh water abstracted from boreholes or supplied by carting should be used efficiently, and recycling and re-using of water on certain site activities should be encouraged.  -The Proponent should cart water for drilling from elsewhere outside the site area to relieve pressure of the available resources. Agreements for water supply should be made between the willing water supplier and the Proponent.  -If the carted water is directly abstracted from a certain borehole or boreholes, the Proponent should apply for a Groundwater Abstraction & Use Permit from the Department of Water Affairs of MAWLR.	Water supply agreements  Proof/ recording/ quantification of water saving efforts.  Water supplier  Water supplying agreements	Proponent	Once off supply agreement

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off exploration equipment should be captured and used for the cleaning of project equipment, if possible.</p> <p>-Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site.</p> <p>-Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable.</p>	<p>Water storage tanks on site</p>	<p>Exploration Manager</p>	<p>Throughout the exploration phase</p>
<p>Soils</p>	<p>Physical soil/land disturbance and loss of topsoil</p>	<p>-Stockpiled topsoil and drill materials should be used to backfill the excavated and disturbed site areas/spots.</p> <p>-The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position, should be returned. This is to avoid unnecessary stockpiling of site soils which would leave them prone to erosion.</p> <p>-Soils that are not within the intended footprints of the site areas should be left undisturbed and soil conservation implemented as far as possible.</p> <p>-Project vehicles/machinery should stick to access roads provide and not to unnecessarily create further tracks on and around the site by driving everywhere resulting in soil compaction.</p> <p>-Effective stabilisation of altered landforms to minimise soil erosion.</p>	<p>No proliferation of informal vehicle tracks.</p> <p>No new erosion gullies.</p>	<p>ECO</p>	<p>Throughout exploration</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Soils and water resources	Soils and water resources pollution	<ul style="list-style-type: none"> <li>-Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies.</li> <li>-All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel handling procedures.</li> <li>-The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible.</li> <li>-Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired.</li> <li>-Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site.</li> <li>-Polluted soil should be removed immediately and put in a designate waste type container for later disposal.</li> <li>-Drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the exploration sites are cleaned on time (soon after the spill has happened).</li> <li>-Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.</li> </ul>	<ul style="list-style-type: none"> <li>No complaints of pollutants on the soils and eventually in the water due to exploration activities</li> <li>No visible oil spills on the ground or pollution spots.</li> <li>Complaint's logbook</li> <li>Waste containers</li> <li>Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.</li> </ul>	ECO	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.</p> <p>-Toilet water should be treated using chemical portable toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.</p>			
Biodiversity	Loss of Fauna and Flora	<p><b><u>Fauna (animals)</u></b></p> <p>-The project workers should refrain from killing or snaring the farm livestock that may be found on and around the site.</p> <p>-Workers should refrain from disturbing, killing or stealing farm animals and killing small soil and rock outcrops' species found on sites.</p> <p>-Exploration trenches and boreholes should be secured (temporary fencing) and backfilled and capped after sampling is completed to prevent injuries to animals after falling in.</p> <p>-Environmental awareness on the importance of biodiversity preservation should be provided to the workers-Breeding sites for faunal species that are found within the site and nearby should not be disturbed.</p> <p>-Breeding sites for fauna occurring on the EPL should not be destroyed nor disturbed.</p> <p><b><u>Flora (vegetation):</u></b></p>	<p>No disturbance to unmarked areas.</p> <p>No complaints from locals regarding unauthorised vegetation removal or cutting down of trees.</p> <p>No complaints of wildlife hunting by the project personnel.</p> <p>No intentional disturbance and destruction of site vegetation and faunal species</p> <p>Barricading tape (to indicate working areas)</p>	ECO	Throughout the exploration phase



Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations.</p> <p>-Vegetation found on the site, but not in the targeted exploration site areas or access route should be left undisturbed to preserve biodiversity on the site.</p> <p>-Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the surrounding vegetation.</p> <p>-No onsite vegetation should be cut or used for firewood related to the project's operations.</p> <p>-Access roads should be created in a manner that disturbs minimal vegetation.</p> <p>-Environmental awareness on the importance of faunal and floral biodiversity preservation should be provided to the workers and contractors.</p>	<p>Visible preservation of onsite vegetation</p>		
<p>Illegal hunting</p>	<p>Illegal hunting of wildlife</p>	<p>-The Poaching (illegal hunting) of wildlife on the farms and surrounding areas is strictly prohibited.</p> <p>-The No tolerance to Poaching Policy should be developed and applicable to all site personnel.</p>	<p>Incident reports of illegal hunting of wildlife by the crew.</p> <p>Contact details of the Anti-poaching Police Unit provided and visible onsite</p>	<p>ECO</p>	<p>During site set up, and throughout exploration</p>
<p>Land Use</p>	<p>Conflict between land uses and exploration activities</p>	<p>-Exploration activities should not in any way hinder the existing land uses within the EPL but rather promote co-existence throughout the project operations while respecting other land users.</p>	<p>Land access and use permits/authorizations.</p> <p>Compliance with conditions set within</p>	<p>PRO Proponent</p>	<p>Throughout the exploration phase</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-The project workers and vehicles should be limited to the actual EPL active sites only but not unnecessarily wander and drive around other land uses sites, respectively.</p> <p>-The Proponent should ensure that their activities comply with the conditions set by the competent, regulatory, and affected authorities such that the proposed exploration activities do not severely impact the different existing activities around the EPL.</p>	<p>operational permits by relevant and affected authorities.</p> <p>Little to no complaints of significant interference from the neighbouring land users</p>	<p>ECO</p> <p>Relevant authorities (MEFT, MME, etc.)</p>	
Road use and safety	Increase in vehicular traffic flow	<p>-Mitigations and recommendation to minimize impact on road safety and related vehicular traffic issues.</p> <p>-Project related goods and services should be delivered to site once or twice a week to reduce the daily movement of trucks and pressure on local roads.</p> <p>-Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules.</p> <p>-Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as people.</p> <p>-The Proponent should ensure that the site access roads are well equipped with temporary road signs.</p> <p>-Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults.</p> <p>-Vehicle drivers should only make use of designated site access roads provided and as agreed.</p>	<p>No complaints from members of the public regarding vehicular traffic issues related to the project activities.</p> <p>All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses.</p> <p>Demarcated areas for parking, offloading, and loading zones are on sites.</p>	<p>Proponent</p> <p>ECO</p>	<p>Throughout exploration phase</p> <p>Site access permit (s) to be applied for and obtained prior to commencement of exploration works</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol.</p> <p>-No heavy trucks or project related vehicles should be parked outside the project site boundary or demarcated areas for such purpose.</p> <p>-Deliveries from and to site should be done optimally during weekdays and between the hours of 8am and 5pm.</p> <p>-The site access road(s) should be maintained to an unacceptable standard for the vehicles.</p>	<p>No creation of unnecessary tracks on site.</p>		
Local roads	Overuse and maintenance	<p>-The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies.</p> <p>-The Proponent should consider frequent maintenance of local roads on the farms to ensure that the roads are in a good condition for other roads users such as farmers, and travellers from and outside the area.</p>	<p>-Visible efforts of maintaining access and community roads by the Proponent</p>	Proponent	Throughout exploration, when necessary
Occupational Health and safety	General health and safety associated with project activities in both phases	<p>-During inductions, project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.</p> <p>-Project workers should be properly equipped with adequate and appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.</p>	<p>Comprehensive health and safety plan for all exploration activities compiled.</p> <p>Occupational Health and Safety Personnel</p> <p>Health and Safety Trainings</p> <p>First aid kits</p>	<p>Proponent</p> <p>Exploration Manager</p> <p>ECO</p>	Throughout exploration and trainings offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.</p> <p>-The drilled exploration holes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.</p> <p>-Trenches should be temporarily fenced off during sampling, and once completed, they should be backfilled thereafter</p> <p>-Drill cuttings and excavated materials should be put back into the hole and the holes filled and levelled, and trenches backfilled respectively.</p> <p>-An emergency preparedness plan should be compiled, and all personnel appropriately trained.</p> <p>-Workers should not be allowed to enter the working sites when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.</p> <p>-Warning signage should be erected at hazardous site areas such as open trenches.</p> <p>-The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs clearly written in the local languages, i.e., Afrikaans and English.</p>	<p>Trained worker to administer first aid</p>		

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	Potential increase of prevalence of HIV and AIDS, as well as other sexually transmitted diseases (STDs) prevalence	<p>-The workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections.</p> <p>-Provision of condoms and sex education through distribution of pamphlets and health trainings. These pamphlets can be obtained from local health facilities.</p>	<p>No new infections recorded linked to mine workers</p> <p>Occupational health and safety personnel</p> <p>Sex and Health Education/Awareness</p> <p>Provision of condoms at the campsite</p>	<p>Proponent</p> <p>ECO</p>	Throughout exploration
	Accidental fire outbreak	<p>-Portable fire extinguishers should be provided on site.</p> <p>-No open fires to be created by project personnel on farms.</p> <p>-Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage.</p>	<p>No wildfires recorded (due to presence of workers)</p> <p>Fire extinguishers (1 per vehicle) and 1 per working site</p>	<p>Proponent</p> <p>ECO</p>	Throughout exploration
Archaeology and heritage	Accidental disturbance of archaeological or heritage objects	<p>-The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act No. 27 of 2004 in event significant heritage and culture features are discovered while conducting exploration works.</p> <p>-On-site personnel and contractor crews must be sensitized to exercise and recognize “chance finds heritage” in the course of their work.</p> <p>-During the prospecting and exploration works, it is important to take note and recognize any significant</p>	<p>Preservation of all artefacts and objects that are discovered on and around project site</p> <p>Salvage equipment</p> <p>Archaeologist</p>	Proponent	As and when required, i.e., prior to site set up, and during exploration.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP).</p> <p>-The footprint impact of the proposed prospecting and exploration activities should be kept to minimal to limit the possibility of encountering chance finds within the EPL boundaries.</p> <p>-When the removal of topsoil and subsoil on the site for exploration purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist.</p>	<p>Flag tapes</p> <p>GPS (site marking)</p>	<p>ECO</p> <p>Operator</p> <p>Archaeologist</p>	
<p>Littering and waste management (general waste and sanitation)</p>	<p>Environmental Pollution</p>	<p>-Workers should be sensitized to dispose of waste in a responsible manner and not to litter.</p> <p>-After each daily works, the Proponent should ensure that there are no wastes left on the sites.</p> <p>-All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites.</p> <p>-No waste may be buried or burned on site or anywhere else.</p> <p>-The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste.</p> <p>-Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility</p> <p>-Oil spills should be taken care of by removing and treating soils affected by the spill.</p>	<p>No visible litter around the project area</p> <p>Provision of sufficient waste storage containers</p> <p>Waste management awareness</p>	<p>ECO</p> <p>Waste storage containers</p> <p>Waste disposal permits to municipalities</p> <p>Environmental, Health and Safety Statements and Policy</p>	<p>Throughout exploration phase</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.</p> <p>-Ensure careful storage and handling of hydrocarbons on site is essential.</p> <p>-An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.</p>			
	<p>Wastewater generated by exploration workers living on-site.</p>	<p>-Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.</p> <p>-Provision of toilet facilities for workers (mobile/portable chemical toilet if possible).</p> <p>-Emptying of chemical toilets according to the manufacturer's specifications.</p>	<p>Adequate toilet and basic ablution facilities on site.</p>	<p>Proponent</p> <p>ECO</p> <p>Chemical toilets</p> <p>Sewage removal operator</p> <p>waste treatment agents/chemicals</p>	<p>Throughout exploration phase</p>
<p>Air Quality</p>	<p>Dust generation</p>	<p>-Exploration vehicles within the EPL should not be driven at a speed more than 40 km/h to avoid dust generation.</p>	<p>No complaints from the public about vehicle</p>	<p>ECO</p>	<p>Throughout exploration phase</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-The Proponent should ensure that the exploration schedule is limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area.</p> <p>-When and if the project reaches the advanced stages of exploration, a reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and near exploration sites to suppress the dust that may be emanating from certain exploration areas on the EPL.</p> <p>-Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers on site drilling areas, where they are exposed to dust.</p> <p>-Excavating equipment should be regularly maintained to ensure drilling and excavation efficiency and so to reduce dust generation and harmful gaseous emissions.</p>	<p>emissions and dust generation.</p> <p>Visible efforts to curb dust</p> <p>Complaint's logbook</p> <p>Dust suppressant (Water)</p>		
Noise	Nuisance	<p>-Noise from operations' vehicles and equipment on the sites should be at acceptable levels.</p> <p>-Exploration hours should be restricted to between 07h30 and 17h00 to avoid noise and vibrations generated by exploration equipment and the movement of vehicles before or after hours.</p> <p>-No noise making exploration activities such as drilling should take place within 500m of the farmhouses.</p> <p>-When operating the drilling machinery onsite, workers should be equipped with personal protective equipment</p>	<p>Complaints from farmers about excessive noise.</p> <p>Complaint's logbook</p> <p>Noise protective equipment for workers</p>	<p>ECO</p> <p>PRO</p>	Throughout exploration



Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		(PPE) such as earplugs to reduce exposure to excessive noise.			
Social nuisance	Local properties disturbance and values	<p>-The project workers and contractors should be informed of the importance of respecting the farmers' properties by not trespassing or injuring / killing their livestock and wildlife.</p> <p>-Any worker or contractor found guilty of trespassing should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct.</p> <p>-The workers/contractors should be advised to respect the local's private properties, values, and norms.</p> <p>-No worker should be allowed to wander in people's private yards or fences (no-go areas) without permission.</p> <p>-The cutting down or damaging of vegetation belonging to the affected farmers or neighbouring farms is strictly prohibited.</p>	<p>No complaints from farmers about property theft, disturbance, or intrusion</p> <p>Grievance logbook</p> <p>Land access agreement conditions</p>	ECO	Throughout the exploration phase
<b>Progressive Rehabilitation and Decommissioning Phase</b>					
Rehabilitation	Disturbance and damaging of land site land	<p>-All drilled boreholes and excavated pits related to the project activities should be capped and backfilled, respectively.</p> <p>-All waste generated and stored on site during exploration activities should be disposed of at the respective nearest solid waste management sites.</p> <p>-The stockpiled topsoil should be levelled soon after completion of works at sites.</p>	<p>Capped boreholes and backfilled pits</p> <p>Excavators and other backfilling/demolishing machinery</p>	Proponent	Progressive rehabilitation done throughout the exploration phase and complete decommission and rehabilitation

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Any temporary setup on site should be dismantled, and the area rehabilitated as far as practicable, to their original state.</p> <p>-Explored areas on worksites should be progressively rehabilitated by stockpiling and backfilling.</p> <p>-Provision of both financial and technical resources for progressive rehabilitation.</p>	<p>No sign of waste or littering seen on site and around site areas.</p> <p>Carrying away of waste, and removal of vehicles and equipment from site</p> <p>No stockpiled topsoil (topsoil is levelled after completion of each work)</p> <p>Campsite dismantled and materials taken away from site.</p> <p>Visible signs of stockpiled topsoil</p> <p>Record of trenches excavated, and boreholes drilled</p> <p>Waste containers on sites</p> <p>Photo records of backfilled sites</p> <p>Records of finances set aside for decommissioning activities</p>		<p>done after completion of exploration works.</p>

### 5.3 The Environmental Monitoring Actions

To ensure that the implementation of recommended environmental management measures is working and produces the desired results (minimizing the "medium" and uphold the "low" significance ratings of impacts), certain key impacts will need to be monitored and reported on. The environmental aspects to be monitored are shown in **Table 5**. The "Observation, compliance status and Recommended Action" columns will be completed for every monitoring done on site.

Monitoring reports are to be compiled by the project ECO, audited by an Independent Environmental Consultant, and submitted to the DEAF for archiving on a bi-annual basis (every 6 months throughout the project operations) or as required by the Environmental Commissioner (as per the ECC conditions). The environmental components or features provided in the Table will be updated accordingly once the project commences.

**Table 5: The Environmental Monitoring**

Environmental Feature	Management Actions/Monitoring Objectives	Frequency	Observations	Compliance Status	Recommended Action
Soils	-All measures should be considered to prevent the loss of topsoil -Inspect for fuel spills and clean up immediately.	Weekly			
Monitoring	-The ECO or Contractor should monitor the implementation of the EMP, to ensure compliance.	Daily			
	-The ECO or Site Manager should inspect the site throughout the exploration period and after completion.	Daily			
Biodiversity	-Clear only minimal access tracks, when necessary, to maintain as much of the remaining natural vegetation on site and to prevent habitat loss outside areas of interest for exploration.	Weekly			

Environmental Feature	Management Actions/Monitoring Objectives	Frequency	Observations	Compliance Status	Recommended Action
	<p>-No equipment should be left leaning on or on top of shrubs or trees on site, during and after exploration work.</p> <p>-No poaching of wildlife onsite or surroundings.</p>	Weekly			
Health and Safety	<p>-Exploration workers should be trained on how to properly handle materials and equipment on site (if they do not have the skills) to avoid injuries.</p>	Daily/Weekly			
	<p>-Exploration equipment and materials transported to site should be securely fastened to the vehicles (trucks and cars). This is to ensure that the materials and equipment do not fall off the vehicles and cause injury during transportation.</p>	Daily/Weekly			
	<p>-The Proponent and ECO should ensure that all personnel are provided with appropriate personal protective equipment (PPE), such as gloves, safety boots, safety glasses and hard hats always during exploration (operation) hours on site.</p>	Daily/Weekly			

Environmental Feature	Management Actions/Monitoring Objectives	Frequency	Observations	Compliance Status	Recommended Action
	-No employee should be allowed to consume alcohol or any other intoxicants prior to and during working hours as this may lead to mishandling of equipment which may result into injury and/or other health and safety risks.	Daily/Weekly			
Trenches	-Trenches are temporarily fenced off if sampling is not completed within the same day of trenching.  -All trenches should be backfilled upon completion of sampling.	Daily			
Exploration holes	-All holes are backfilled, closed, and capped	As soon as sampling/logging is completed	-		•
Neighbours to the site (noise)	-Exploration works schedule should be limited from 07h30 and 17h00 for sites 500m away from the farmhouses to ensure that noise generated during operation does not disturb residents during home/sleeping hours.	Weekly			
Waste	-The exploration sites should be always kept tidy.	Daily			
	-All domestic and general construction waste produced daily should be collected and contained daily to prevent environmental pollution.	Daily			

Environmental Feature	Management Actions/Monitoring Objectives	Frequency	Observations	Compliance Status	Recommended Action
	-Avoid combining of hazardous and non-hazardous waste by providing separate waste containers (bins) for hazardous and domestic / general waste must be provided on site to	Daily			
Vehicular traffic safety	-All drivers of the project vehicles should be in possession of valid and appropriate driving licenses to operate such vehicles.	Weekly			
	-Project vehicles should be in a road worthy condition and regularly serviced to prevent accidents due to mechanical faults.	Weekly			
	-Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol or any other intoxicants.	Weekly			
	-No heavy trucks or project related vehicles should be parked next to the residents' properties or obstruct the local traffic in any way.	Daily			

# Appendix 1: Chance Finds Procedure (CFP) After Kinahan, 2020

Areas of proposed activities are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

**Scope:** The “*chance finds*” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

**Compliance:** The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “*a person who discovers any archaeological .... object .....must as soon as practicable report the discovery to the Council*”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Manager/Supervisor must report the finding to the following competent authorities:

- **National Heritage Council of Namibia (061 244 375)**
- **National Museum (061 276 800)**
- **National Forensic Laboratory (061 240 461).**

**Archaeological material must NOT be touched.** Tempering with the materials is an offence under the Heritage act and punishable upon conviction by the law.

## Responsibility:

<b>Operator:</b>	To exercise due caution if archaeological remains are found
<b>Foreman:</b>	To secure site and advise management timeously
<b>Superintendent:</b>	To determine safe working boundary and request inspection
<b>Archaeologist:</b>	To inspect, identify, advise management, and recover remains

## Procedure:

### Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

a) Report findings, site location and actions taken to superintendent

b) Cease any works in immediate vicinity

Action by superintendent

a) Visit site and determine whether work can proceed without damage to findings

b) Determine and mark exclusion boundary

c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.



