

# **Environmental Management Plan (EMP):**

Environmental Scoping Assessment (ESA) for The Proposed Exploration on Exclusive Prospecting License (EPL) No. 8633 Northeast of Arandis in the Erongo Region, Namibia.

# **Final Draft**

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## 1 INTRODUCTION

## 1.1 Project Background

Talyeni Investments (Pty) Ltd (The Proponent) has applied to the Ministry of Mines and Energy (MME) for the Exclusive Prospecting License (EPL) 8633 on the 21 October, 2021. However, the approval and granting of the EPL requires an Environmental Clearance Certificate, before any proposed prospecting and exploration works may occur.

The 5058.1786-ha EPL is located about 17 km northeast of Arandis in the Erongo Region – the locality map is shown in Figure 1.

The target commodities for prospecting and exploration are Base and Rare Metals, Dimension Stone, Industrial Minerals and Precious Metals.

The EPL covers farm Trekkopje No. 120, Vergenoeg No. 92, Velencia No. 122 and Namibplass No.93 (**Figure 2**). The Proponent intends to carry out prospecting and exploration works for Base & Rare metals, Dimension Stone, Industrial Minerals, and Precious Metals.

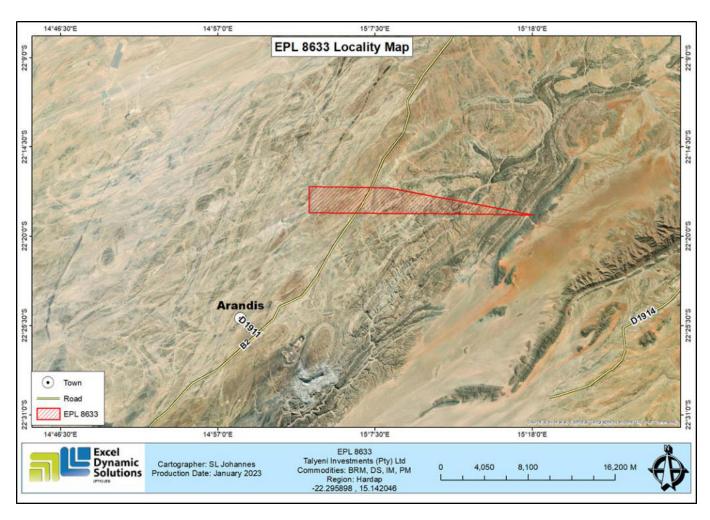


Figure 1: Location of EPL 8633

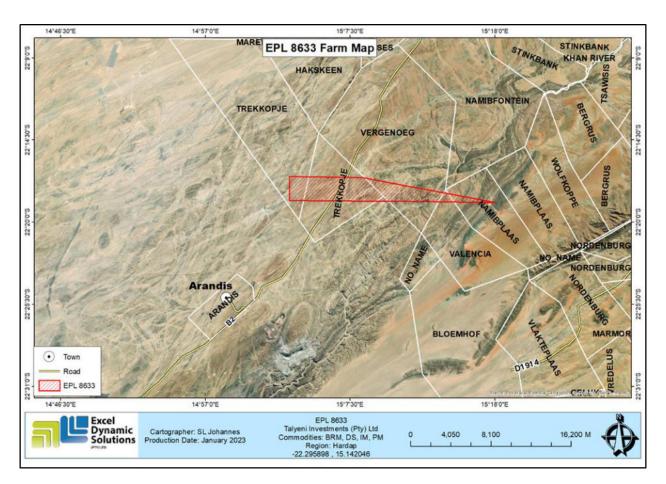


Figure 2: Farm Map



In terms of Section 27 (1) of the Environmental Management Act (EMA) (Act No. 7 of 2007) and in line with Sections 32-37 of the EMA, the proposed prospecting and exploration activities on EPL 8633 form part of the listed activities that may not be conducted without an EIA undertaken and an ECC granted. The relevant listed activities as per EIA regulations are:

- 3.1 The construction of facilities for any process or activities which requires a license, right of other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).
- 3.2 other forms of mining or extraction of any natural resources whether regulated by law or not.
- 3.3 Resource extraction, manipulation, conservation and related activities.

This document has been prepared as a legal requirement of Section 8 of the EMA (Act No. 7 of 2007). The compilation of this EMP is one of the outputs required of the Environmental Consultant by The Proponent. It is required of the Environmental Consultant to comply with the EMA and provide for the following:

- Prepare a detailed Environmental Management Plan to be used as a guideline to monitor compliance to the recommendations stipulated in the EIA, and to assist in managing and monitoring activities throughout the proposed exploration project on the EPL.
- The Environmental Consultant must clarify in the EMP, the roles and responsibilities of the Proponent, the contractors, and any other identified stakeholders.

# 1.2 Aim of the Draft Environmental Management (EMP)

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the Environmental Assessment (EA). 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. It synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned

responsibilities. Additionally, it provides a link between the impacts identified in the EA process and the required mitigation measures. 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 addressing project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is, therefore, to guide environmental management throughout the different phases of the proposed exploration activities, namely: planning, prospecting & exploration, and decommissioning & rehabilitation.

- Planning phase This is the stage of the proposed project during which the Proponent
  prepares all administrative and technical requirements needed for the actual works on the
  site. The planning phase includes obtaining of the necessary permits and authorizations
  from relevant national and local stakeholders, and facilitating the recruitment and
  procurement processes, in preparation for the exploration activities.
- Prospecting and Exploration phase This is the phase where the Proponent carries out
  prospecting and exploration activities for the target commodities, and undertakes related
  activities on site. It is also the phase during which maintenance of the area, equipment
  and machinery is done by The Proponent.
- Decommissioning and Rehabilitation This is the phase during which the exploration activities on the EPL cease. The decommissioning of exploration operations may be considered due to poor exploration results or a decline in the commodity market price.
   Before the decommissioning phase, The Proponent will need to put site rehabilitation measures in place.

**Environmental Monitoring Requirements:** To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented alongside the mitigation plan.

This draft EMP is for use by The Proponent, employees and/or contractors, to provide management measures to be undertaken during exploration, to address the environmental impacts identified in the scoping report and ensure that the impacts on the environment are avoided, or limited if they cannot be avoided completely.

# 1.3 Appointed Environmental Assessment Practitioner

To fulfill the requirements of the EMA and its 2012 EIA Regulations, the Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent environmental consultant to conduct

the required EA process on their (Proponent's) behalf. This EMP will be submitted as part of an application for the proposed exploration method on the EPL to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT).

# 2 LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES

The content of the EMP must meet the requirements of Section 8 (j) of the EIA Regulations, and the EMP must address the potential environmental impacts of the prospecting and exploration activities on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after project implementation.

The Proponent, therefore, 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 1** below lists the legal requirements of an ESR and 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 1: Applicable legal requirements and permits to the activities of the EPL

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act	Requires that projects with	The EMA and its regulations should inform
EMA (No 7 of 2007)	significant environmental	and guide this EA process.
	impacts are subject to an environmental assessment process (Section 27).  Details principles which are to guide all EIAs.	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),
Environmental Impact	Details requirements for public	Ministry of Environment, Forestry and
Assessment (EIA) Regulations	consultation within a given	Tourism (MEFT), Office of the
GN 28-30 (GG 4878)	environmental assessment	Environmental Commissioner
	process (GN 30 S21).	Tel: +264 61 284 2701
	Details the requirements for what	
	should be included in a Scoping	
	Report (GN 30 S8) and an	
	Assessment Report (GN 30	
	S15).	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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.  Section 54(2): details provisions pertaining to the decommissioning or abandonment of a mine.  Under this Act (Section 51 (1a)), holder of a mineral license cannot exercise any rights on a private land until the holder has entered into an agreement with the owner regarding payment of compensation.	The Proponent should ensure that all necessary permits/authorization for these EPL are obtained from the Ministry of Mines and Energy (MME).  Contact details at the MME (Mining Commissioner)  Tel: +264 61 284 8167  The Proponent should timeously enter into and sign access and land use agreement (consent) with the respective affected farm owners.
Water Act ( Act No 54 of 1956:	Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)).  Provides for control and protection of groundwater (S66 (1), (d (ii)).  Liability of clean-up costs after closure/abandonment of an activity (S3 (I)). (I)).	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Resources Management Act (Act No 11 of 2013)	Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).	These permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, the Wastewater / Effluent Discharge Permits).  Division: Water Policy and Water Law Administration Division  Tel: +264 61 208 7158  Water Environment Division  Tel: +264 61 208 7167
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 license 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 form the MME for the storage of fuel on-site.  Ministry of Mines and Energy: Director – Petroleum Affairs  Tel: +264 61 284 8291
Forestry Act 12 of 2001, Amended Act 13 of 2005	Prohibits the removal of any vegetation within 100 m of a watercourse (Forestry Act S22 (1)). The Act prohibits the removal of and transport of various protected plant species.	Should there be protected plant species, which are known to occur within the project site, these are required to be removed and a permit should be obtained from the nearest Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removal.  Director of Forestry Division  Tel: +264 61 208 7320

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
National Heritage Act No. 76 of	Calls for the protection and	Should any archaeological material, such as
1969	conservation of heritage	bones, old weapons/equipment etc. be
	resources and artefacts.	found on the EPL site, works must stop
		immediately, and the National Heritage
		Council of Namibia must be informed as
		soon as possible. The Heritage Council will
		decide to clear the area or decide to
		conserve the site or material.
		Contact Details at National Heritage
		Council of Namibia
		National Heritage Council of Namibia
		Tel: (061) 301 903

## 2.1 EMP Limitations

This EMP has been drafted with the acknowledgment of the following limitations:

- This EMP has been drafted based on the Environmental Assessment (EA) conducted for targeted prospecting and exploration activities Base & Rare metals, Dimension Stone, Industrial Minerals, and Precious Metals on EPL 8633.
- The mitigation measures recommended in this EMP document are based on the risks/impacts identified in the ESA, based on the project description as provided by the Proponent, site investigation and public input. Should the scope of the proposed project change, the risks/impacts will have to be reassessed and mitigation measures provided accordingly.

# 3 EMP IMPLEMENTATION, ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility at any time, as they deem necessary during the project. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set out in Table 2 below:

Table 2: The persons and institutions responsible for the Implementation of the Draft EMP

Role (Person and or Institution)	Responsibilities
Credula Marianna Barros (The Proponent)	-Managing the implementation of this EMP and updating and maintaining it when necessary.
	-Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions.
Exploration Manager	-Ensuring that the exploration activities of the project are completed on time.
	-Ensuring that relevant commitments contained in the EMP Action Plans are adhered to.
	-Ensuring relevant staff is trained in procedures entailed in their duties.
	-Maintaining records of all relevant environmental documentation for the project.
	-Reviewing the EMP annually and amending the document when necessary.
	-Issuing fines to individuals who may be in breach of the EMP and if necessary, removal of such individuals from the site.
	-Liaise with all relevant interested and affected parties/stakeholders.
	-Development and management of schedules for daily activities
Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer	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:
	-Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) regarding this EMP.
	-Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).

Role (Person and or Institution)	Responsibilities					
	-Advising the Proponent or Exploration/Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP.					
	-Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP.					
	-Undertaking an annual review of the EMP and recommending additions and/or changes to this document.					
Public Relations Officer (PRO)	The PRO will be responsible for the following tasks:					
	-Liaising between the affected landowners, communities and the Proponent.					
	-Ensure effective communication with stakeholders, local communities,					
	traditional authorities, media (if necessary) and the public.					
	-Organising and overseeing public relations activities, Managing public relations issues.					
	-Preparing and submitting public relations reports, if required.					
	-Collaborating with personnel and maintaining project-related open communication among personnel.					
Archaeology: Chance Finds	A. Operator: exercise due caution if archaeological remains are found					
Procedure (CFP) Implementation	B. Site Manager and ECO: secure site and advise management					
Roles	timeously  C. Archaeologist: inspect, identify, advise management, and recover remains.					

## 4 ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES

## 4.1 Management of Key Potential Adverse Environmental Impacts

From the assessment conducted, the following key potential negative impacts have been identified as:

- Potential disturbance of grazing land,
- Physical land / soil disturbance
- Impact on local biodiversity (fauna and flora) and habitat disturbance and potential illegal wildlife hunting (poaching) in the area.
- Potential impact on water resources and soils particularly due to pollution,
- Air quality issue: potential dust generated from the project.
- Potential occupational health and safety risks
- 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
- Potential social nuisance and conflicts.

## 4.2 Aim of the Environmental Management Plan Actions

The aim of the management actions of the EMP is to avoid the above-listed potential negative impacts, where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

Management actions recommended for the potential impacts rated in the ESA carried out for the prospecting and exploration activities were based on the following project stages (phases):

- Planning, Prospecting and Exploration (and site maintenance) phases (Table 3)
- Monitoring (Table 4)
- Decommissioning and Rehabilitation

The responsible person(s) should assess these actions in detail and acknowledge their commitment to the specific management actions detailed in the phases given under the following subsections.

# 4.3 Planning, Prospecting and Exploration Phase Management Action Plans (Mitigation Plan)

The management action plans recommended for this phase are presented in **Table 3** below.

Table 3: Management and mitigation action plans for the planning and exploration phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		Pl	LANNING PHASE			
EMP implementation and training	Lack of EMP awareness and implications thereof	-A Comprehensive Health and Safety Plan for the project activities must be compiled. This will include all the necessary health, safety, and environmental considerations applicable to respective works on sites.  An EMP non-compliance penalty system must be implemented on site.  The Proponent can appoint an ECO to be responsible for managing the EMP implementation and monitoring.	-All required Plans and systems are compiled and in place.  and Environmental Control Officer (ECO) is appointed	Proponent	EMP implementation Plans and Systems	Pre-exploration works
Authorizations	Lack of Agreements, Permits/ Licenses	-All the required agreements and licenses or permits must be applied for and signed, respectively, before commencement of works on the EPL, or as required.  -The permits, agreements referred to herein include: land access and land use agreements,	-Applicable permits and licenses to obtained from relevant authorities and kept on site for records keeping and future inspections.  -Agreements/permits signed and obtained	Proponent	Proponent  Respective authorities and services provider(s)	Prior to exploration works

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		compensation agreements (if necessary), rehabilitation commitment agreements, and petroleum storage permits (if necessary).	from on time, min. 2 months prior to plan commencement date of works.			
Communication between the Proponent and other neighbouring land users and custodians	Lack of communication (proper liaison) between other land users and Proponent with regards to land use	-The Proponent may appoint a Public Relation Officer (PRO)/representative to liaise with the land users.  -A clear communication procedure/plan which include a grievance mechanism must be implemented.	-Ongoing Farmers' Engagement & Consultation throughout the project cycles, when and as required.  PRO contact details to be provided to the affected landowners	Proponent	PRO Complaint's logbook	PRO appointment (Prior to project activities) and their responsibilities throughout the project activities
Employment	Creation of employment opportunities	Preference for employment of general and semi-skilled workers should be prioritised towards local residents Employment of non- residents, especially should be justified,	-Number of locals employed for exploration activities	Proponent in collaboration with the Exploration Manager (if necessary)	Record of employees	Pre-project activities and when necessary, throughout

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Equal opportunities must be provided for both men and women, when and where possible.				
Specialized procurement of services	Contractors and services	-The Proponent must use locally derived services where practically possible	Number of hired contractors.	Proponent  Exploration	Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
				Manager		
		PROSPECTINO	AND EXPLORATION PI	HASE		
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings must 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.	Compliance monitoring conducted bi-annually and should be recorded.	ECO	Bi-annual reports	Throughout the exploration phase and as required
		-The implementation of this EMP must be monitored.				
		The site must be inspected, and a compliance audit done throughout the project cycle.			Records of EMP	
		An EMP non-compliance penalty system must be implemented on site.			training conducted.	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Communication between the Proponent and other neighbouring land users and custodians	Lack of communication (proper liaison) between farmers and Proponent with regards to land use	-The PRO/project representative contact details must be shared with all affected parties prior to undertaking activities, for easy communication during exploration activities.  -The Proponent must compile a clear communication procedure /	-PRO is part of the project personnel.  -Ongoing Farmers'/ affected parties' Engagement & Consultation throughout the project	PRO	Complaint's logbook  PRO contact details to be provided to the affected land users.	Throughout the exploration activities
		plan which should include a grievance and response mechanism.	cycles, when and as required		Records of farmers' consultation	
			-Community/farmers' grievances addressed to their satisfaction		Land access agreement conditions	
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land, due to exploration activities must be avoided.	-Limited cleared sites -Less access tracks	Proponent / Exploration Manager	Grievance logbook	Throughout the phases
		-Vegetation found on the site, but not in the targeted exploration areas must not be removed.  -Workers should refrain from driving off-road and creating unnecessary tracks that may contribute to soil erosion and loss of grazing land.	-No complaints from farmers regarding significant land/vegetation clearing	ECO		
		-Environmental awareness on the importance of the preservation of				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		grazing land for local livestock should be provided to the workers.				
Water Resources Use	Over- abstraction (water demand and availability)	-The Proponent should be water conscious and consider voluntary water use reduction by sticking to their proposed threshold volumes or less, when possible.  -The Proponent must aim to use water efficiently, recycle and reuse where necessary and possible.  -Water used to cool off operational equipment may be captured and used for the cleaning of project equipment, if possible.  -Water conservation awareness and training on water saving measures must be provided to all project workers, to promote water conservation  -An efficient recycling system that decreases water usage at exploration sites  -Diverting water filled with impurities away from water bodies to fend off contamination  -establish water management system that runs during	Water supply agreements  Proof/ recording/ quantification of water saving efforts.  Water supplier  -Water permits  -inspection of water storage tanks on site	Proponent  Exploration Manager	Water supplying agreements  Proponent	Once off supply agreement  Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		exploration and long after the completion of all exploration activities				
Soils	Physical soil/land disturbance and loss of topsoil	-Overburden must be handled efficiently during operations to avoid erosion when subjected to erosional processes.  -Stockpiled topsoil and drill material must be used to backfill the excavated and disturbed site areas/spots.  -Soils that are not within the intended and targeted footprints of the site must be left undisturbed and soil conservation measures implemented as far as possible.  -Project vehicles and machinery must stick to access roads provided for project operations, and avoid unnecessary creation of further tracks on site, resulting in soil compaction.  -Exploration vehicles and equipment must have designated sites for parking/storage in order to avoid soil disturbance	No proliferation of informal vehicle tracks.  No new erosion gullies.	ECO	Proponent  All personnel  Complaint's logbook	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Sites of operation must be rehabilitated after completion of works onsite.				
Soils and water resources	Soils and water resources pollution	-Oil and wastewater spill control preventive measures must be in place on site to management soil contamination, preventing and minimizing the contamination from reaching water bodies.  -All project employees must be sensitized to the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.  -The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of oil spills. This includes keeping spill response procedures and a well-stocked cache of easily accessible supplies.  -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) training and mentor new workers as they get hired.  -Project machines and equipment must be equipped with drip trays to contain possible oil spills when operated on site.	No complaints of pollutants on the soils and eventually in the water due to exploration activities  No visible oil spills on the ground or pollution spots.  -Waste containers provided at exploration work sites and campsites	ECO	Complaint's logbook  Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Polluted soils must be removed immediately and put in a designate waste type container for later disposal.				
		-Drip trays must be readily available to ensure that accidental fuel spills along fuel storage facilities or fuel-consuming equipment are caught and cleaned up on time				
		-Heavily polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.				
		-Washing and servicing of equipment contaminated by hydrocarbons must take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.				
		-Sewage and ablution wastewater must be treated as according to the instructions of the facility manufacturers.				
Biodiversity	Loss of Fauna and Flora	Fauna:	No disturbance to unmarked areas.  No complaints from locals regarding	ECO	Barricading tape (to indicate working areas)	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Poaching of wildlife on the farms and surrounding areas is strictly prohibited.	unauthorised vegetation removal or cutting down of trees.		Complaint logbook	
		-Project workers must refrain from killing or snaring livestock that may be found on and around the site.	No complaints of wildlife hunting by the project personnel.			
		-Access roads (even existing ones) must be utilized appropriately in a manner that disturbs minimal land areas as possible, to minimize faunal habitat destruction.	No intentional disturbance and destruction of site vegetation and faunal species			
		<ul> <li>-Any faunal breeding sites discovered on the site should not be disturbed.</li> <li>-Environmental awareness on the importance of faunal preservation should be provided to the workers and contractors.</li> </ul>	Visible preservation of onsite vegetation			
		Flora: -The Proponent should avoid unnecessary removal of vegetation				
		-Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity on the site.				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to vegetation.				
		-Design access roads appropriately in a manner that disturbs as little vegetation as possible.				
		-Vegetation clearing must be kept to a minimum and within the EPL footprint.				
		-Vegetation found on the site, but not in the targeted areas should not be removed but left to preserve biodiversity on the site.				
		-Environmental awareness on the importance of floral biodiversity preservation should be provided to the workers and contractors.				
_	Illegal hunting of wildlife	-No wildlife hunting is permitted.  -Workers on site must refrain from killing/poaching or intentionally disturbing wildlife, or any faunal species found on site and around the EPL site.	-Incident reports of illegal hunting of wildlife by the Project workers -Contact details of the Anti-poaching Police Unit provided and visible onsite	ECO	Complaint's logbook  -Anti-poaching Police Unit -ECO	During site set up, and throughout exploration phase
		-The No-tolerance-to-Poaching Policy should be developed and applicable to all site personnel.				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Land Use	Conflict between land uses and exploration activities	-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.  -At any point during the project, the activities of project workers and vehicles must be limited to the actual active sites only. No unnecessary wandering or loitering is permited on other parts of the EPL.  -The Proponent must ensure that their activities comply with the conditions set by the competent, regulatory and relevant authorities such that the proposed exploration activities do not severely impact the different existing activities around the EPL.	Land access and use permits/authorizations.  Compliance with conditions set within operational permits by relevant and affected authorities.  Little to no complaints of significant interference from the neighbouring land users	Proponent  ECO	Proponent  Relevant authorities (MEFT, MME, etc.)	Throughout the exploration phase
Road use and safety	Increase in vehicular traffic flow	-Vehicles must be driven only on existing access roads and the temporary access roads created on site to facilitate operations; construction of new tracks must be kept to a minimum.	No complaints from members of the public regarding vehicular traffic issues related to the project activities.	Proponent ECO	Number of project vehicles on site Names of drivers	Throughout exploration phase  Site access
		-The transportation of project materials, equipment and machinery must be kept at a	All personnel operating the project vehicles and machinery are		Frequency of water carting	permit (s) to be applied for and obtained prior to commencement

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		minimum, to reduce pressure on local roads.  -Heavy truck loads must comply with the maximum allowed limit while transporting materials and equipment/machinery on the public and access roads.  -Drivers of all project vehicles must be in possession of valid and appropriate driving licenses.  Vehicle drivers must adhere to the road safety rules.  -Drivers must drive slowly (30km/hour or less) on site, and be on the lookout for livestock, wildlife and pedestrians.  -Project vehicles must be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles.	appropriately licensed and possession of valid driving licenses.  Demarcated areas for parking, offloading, and loading zones are on sites.  If required, site access road permits obtained, and requirements fulfilled.  No creation of unnecessary tracks on site.			of exploration works
Local services and infrastructure	Overuse and maintenance	-Heavy vehicles transporting material and services to site must be scheduled to travel minimally and at efficient schedules, to avoid unnecessary frequent travel to site, unless in cases of emergencies.	-Visible efforts of maintaining access and community roads by the Proponent	Proponent Exploration Manager	Road clearing machinery (bull dozers)	Throughout the exploration phase, when necessary

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-The Proponent should consider frequent maintenance of local roads to ensure that the roads are in a good condition for all roads users.				
Health and safety	General health and safety associated with project activities in both phases	-As part of their induction, project workers must be provided with awareness training of the risks of mishandling equipment and materials on site, as well as health and safety risk associated with their respective jobs.  -When working on site, employees must be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, and hard hat.  -Heavy vehicle, equipment and fuel storage site must be properly secured, and appropriate warning signage placed where visible.  -Drilled boreholes no longer in use or to be used later after being drilled must be properly marked for visibility and capped/closed off.  -Ensure that after completion of drilling, the drill cuttings are put	Comprehensive health and safety plan for all exploration activities compiled.	Exploration Manager ECO	Occupational Health and Safety Personnel Health and Safety Trainings  First aid kits  Trained worker to administer first aid	Throughout the exploration phase and trainings offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		back into the holes, and the holes filled and levelled.				
		-An emergency preparedness plan must be compiled, and all personnel appropriately trained.				
		-Workers must not be allowed to consume intoxicants prior to and during working hours, or allowed on site when under the influence, as this may lead to mishandling of equipment, resulting in injuries and other health and safety risks.				
		-The site is to be equipped with cautionary signs at any potential danger or risk area identified on site.				
	Accidental fire outbreak	-Portable fire extinguishers must be provided on site.	No wildfires recorded (due to presence of workers)	Proponent	Fire extinguishers (1 per vehicle) and 1 per working site	Throughout exploration phase
		-No open fires to be created by project personnel on site.	·	ECO	Ç	
		-Potential flammable areas and structures such as fuel storage tanks should be marked with clearly visible signage.				
Archaeology and heritage	Accidental disturbance and destruction of archaeological	-A "No-Go-Area" should be put in place where there is evidence of archaeological site, historical, rock paintings, cave/rock shelter or	-Preservation of all artefacts and objects that are discovered on and around project site	Proponent	Salvage equipment  Archaeologist	As and when required, i.e., prior to site set

Aspect Imp	pact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
or obje site	jects and	past human dwellings. It can be a demarcation by fencing off or avoid the site completely by not working closely or near the known site.	-No-Go Areas avoided			up, and during exploration.
		-On-site personnel and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work.				
		-During the prospecting and exploration works, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP).		ECO Operator		
		-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. The Proponent should keep a buffer of 50 meters on all the archaeological/cultural sites observed within the project site and broader area throughout their stay (duration of their presence) in		Foreman Superintended	Flag tapes  GPS (site marking)	
		the area.			GPS (site marking)	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-A landscape approach of the site management must consider culture and heritage features in the overall planning of exploration infrastructures within and beyond the license boundaries.		Archaeologist		
		-The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting exploration works.				
		-Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should be complied.				
		-An archaeologist or Heritage specialist should be onsite to monitor all significant earth moving activities that may be implemented as part of the proposed project activities.				
		-During removal of topsoil and subsoil at exploration sites, the sites should be monitored for subsurface archaeological				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		materials by a qualified Archaeologist.				
		-Show overall commitment and compliance by adapting "minimalistic or zero damage approach".				
		-In addition to these recommendations above, there should be a controlled movement of the contractor, exploration crews, equipment, setting up of camps and everyone else involved				
		in the prospecting and exploration activities to limit the proliferation of informal pathways, gully erosion and disturbance to surface and sub-surface artefacts such as stone tools and other buried materials etc.				
Littering and waste management (general waste	Environmental Pollution	-Workers should be sensitized to dispose of waste in a responsible manner and not litter.	No visible litter around the project area	ECO	Waste storage containers	Throughout exploration phase
and sanitation)		-After each daily works, the Proponent must ensure that there is no waste left on the site.	Provision of sufficient waste storage containers			
		-All domestic and general project waste produced daily should be contained until such that time it will be transported to designated waste sites in nearby town.	Waste management awareness		Waste disposal permits to municipalities	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-No waste may be buried or burned on site or anywhere else.  -The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste.			Environmental, Health and Safety Statements and Policy	
		-Sewage waste should be stored as per the available sanitation system supplied on site and regularly disposed of at the nearest treatment facility				
		-Oil spills should be taken care of by removing and treating soils affected by the spill.				
		-A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.				
		-Careful storage and handling of hydrocarbons on site is essential, therefore should be enforced.				
		-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.				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-An emergency plan should be available for major/minor spills at the site during exploration (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.				
	Wastewater generated by exploration workers living on-site.	-Provision of toilet facilities for workers (mobile/portable chemical toilet if possible).  -Emptying of chemical toilets according to the manufacturer's specifications.	Adequate toilet and basic ablution facilities on site.	Proponent	Chemical toilets  Sewage removal operator  waste treatment agents/chemicals	Throughout exploration phase
Air Quality	Dust generation	-Exploration vehicles must not drive at a speed more than 30 km/h, to avoid dust generation around the area.  -Dust control measures may be considered to suppress dust, in the event that there are local complaints of high levels of dust generation.  -Dust masks, eye protective glasses and other respiratory personal protective equipment	No complaints from the public about vehicle emissions and dust generation.  Visible efforts to curb dust	ECO	Complaint's logbook  Dust suppressant (Water)	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		(PPE) such as face masks should be provided to the workers on site drilling areas, where they are exposed to dust.  -Excavating equipment should be regularly maintained to ensure drilling and excavation efficiency and so to reduce dust generation and harmful gaseous emissions.				
Noise	Nuisance	-Noise from project vehicles and equipment on the working sites of the EPL should be at acceptable levels.  -Exploration hours should be restricted to between 08h00 and 17h00, or at the times agreed upon in writing between the Proponent and land owners, in order to limit noise pollution and vibrations generated by exploration equipment.  -When operating the drilling machinery onsite, workers must be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to noise.  -All drilling activity and noise-producing activity on site must be schedule and conducted with	Complaints from farmers and neighbouring land users about excessive noise.	ECO	Complaint's logbook  Noise protective equipment for workers	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline	
		consideration for the tranquility of any nearby residents.					
Social nuisance	Local properties disturbance and values	-The Proponent should inform their workers on the importance of respecting the farmers' properties by not trespassing or vandalising houses and fences, or snaring and killing livestock and wildlife.	No complaints from farmers about property theft, disturbance, or intrusion	ECO	Grievance logbook	Throughout the exploration	
		-Any workers or site employees found guilty of intruding private property must be dealt with as per their employer' (Proponent)'s code of employment conduct			Land access agreement conditions	phase	
		-Project workers must respect the private property, and community values and norms.					
		-No trespassing on private property.					
		-Workers are not allowed to kill or in any way disturb livestock and wildlife on farms.					
		No worker should, without permission, cut down or damage trees belonging to land owners					
	PROGRESSIVE REHABILITATION AND DECOMMISSIONING PHASE						
Rehabilitation	Disturbance and damaging of land	-All drilled boreholes and excavated pits related to the	Capped boreholes and backfilled pits	Proponent	Excavators and other backfilling/demolishing machinery	Progressive rehabilitation done	

Aspect Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
	project activities should be capped and backfilled, respectively.  -All waste generated and stored on site during exploration activities should be disposed of at the respective nearest solid waste management sites.  -The stockpiled topsoil must be levelled soon after completion of works at sites.  -Any temporary setup on site must be dismantled, and the area rehabilitated as far as practicable, to its original state.  -Explored areas on worksites should be progressively rehabilitated by d backfilling.  -Provision of both financial and technical resources for progressive rehabilitation.	No sign of waste or littering seen on site and around site areas.  Carrying away of waste, and removal of vehicles and equipment from site  No stockpiled topsoil (topsoil is levelled after completion of each work)  Campsite dismantled and materials taken away from site.  Visible signs of stockpiled topsoil		Record of pits excavated, and boreholes drilled (if any)  Waste containers on sites  Photo records of backfilled sites  Records of finances set aside for decommissioning activities	throughout the exploration phase and complete decommission and rehabilitation done after completion of exploration works.

# 4.4 Monitoring Action Plans (Monitoring Plan)

To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented. The monitoring action plan recommended for proposed exploration works are presented in **Table 4** below.

**Table 4: Monitoring Action Plan** 

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Archaeology	Presence or	-To prevent destruction of artefacts and	ECO	Daily	Unearthing of	Cease all activities on
and Heritage	unearthing of	sites, the preservation of all artefacts	Archaeologist		archaeological or	site and wait for NHC
	archaeological	and sites that are discovered within the	7 ii on a oo logiot		cultural heritage	to inspect site and give
	or cultural	site boundary or around the project site			resources	further instructions /
	heritage	area should be effectively done.				actions
	resources	-Inspect records of findings.				
Soils	Loss of topsoil	-All measures should be considered to present the loss of topsoil	ECO and Exploration Manager	weekly	Proliferation of new vehicle tracks	Rehabilitation of affected areas
Monitoring	EMP non- compliance	-The ECO, Proponent and Contractor must monitor the implementation of this EMP to ensure compliance.  The ECO(s) must conduct site inspections throughout the exploration period, and after completion.	ECO	Daily	Increase in health, safety and environmental damage incidence	Daily safety talks, Remedy the consequences
Biodiversity	Loss of biodiversity	-Comply with any no-go zones and avoid areas sensitive to any type of disturbance.	ECO	Weekly	Vegetation clearance outside of marked areas.	Rehabilitation of affected areas to the satisfaction of the ECO

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
		Clear only footprint areas to maintain as	Workers involved in			
		much of the remaining natural	this phase			
		vegetation on site and to prevent loss of				
		habitat (if so, advised by MEFT).				
Health and	Health and	-Workers must be trained to handle	ECO	Daily/Weekly	Health and safety	Remedy the
Safety	safety of the	material and equipment on site to avoid			incident	consequences
	workers	injuries.				
		-Exploration equipment and material				
		transported to site should be securely				
		fastened to the vehicles to prevent	Worker Involved in			
		falling of equipment and injuries while	this phase			
		transporting.				
		- All project workers must be provided				
		with appropriate personal protective				
		equipment (PPE) to prevent serious				
		injuries or fatalities.				
		-Workers must not be allowed to				
		consume intoxicants prior to and during				
		working hours, as this may lead to				
		mishandling of equipment, which may				
		result in injuries and other health and				
		safety risks.				

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Neighbouring land users to the site  Waste	Disturbance  Environmental Pollution	Exploration schedule should be limited to normal working hours, between 08h00 and 17h00, to ensure generated noise does not become nuisance to the neighbors.  -The site must be kept tidy at all times. All domestic and general waste produced should be cleaned up and contained daily to prevent environmental pollution.  -Separate waste containers for hazardous and domestic / general	ECO  Exploration Manager  ECO  All workers involved	Weekly  Daily	A logged complaint about excessive noise  Visible litter around project site  A logged complaint	Revision of site activities  Clean-up of the affected areas and ensuring exploration workers utilise waste containers provided.
		waste must be provided on site to avoid mixing of waste.	in this phase.			
Transport	Transportation of workers to and from site	-Project workers must be transported in suitable passenger vehicles to and from site to ensure workers safety.  -No off-road driving	ECO	Daily	A logged complaint about bad form of transport affecting occupational safety and health of workers	
Vehicular traffic safety	Increase in local traffic flow.	-All drivers of project vehicles must be in possession of valid and appropriate driving licenses to operate such vehicles.	ECO	Weekly	A logged complaint about traffic increase or damage to roads	Find alternative access roads for the team. Rehabilitation of affected roads

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
		-Project vehicles must be in a road				
		worthy condition and serviced regularly,				
		to avoid accidents due to mechanical				
		faults of vehicles.				
		-Vehicle drivers must not be allowed to				
		operate vehicles while under the				
		influence of any intoxicants.				
		-No heavy trucks or project related				
		vehicles should be parked on				
		biologically sensitive areas.				

## 4.5 Decommissioning and Rehabilitation

Successful rehabilitation requires careful consideration of the local ecological context, in combination with the rehabilitation goals. The most important steps in undertaking a successful rehabilitation are planning and environmental awareness (environmental education) on the importance of progressive rehabilitation (or post-activity rehabilitation,) and its importance to the environment. Furthermore, successful implementation of the planned rehabilitation will depend on a few factors - the rehabilitation program, characteristics of the site, nature of disturbance, rehabilitation methods, as well as resource availability.

Rehabilitation of the EPL site may include the re-vegetation of areas with species consistent with surrounding vegetation, refilling of trenches in such a way that subsoil is replaced first, and topsoil replaces last, and where necessary, revegetation of the sites, if clearing has widely occurred due to exploration activity.

## Site Specific Rehabilitation Plan

To ensure that they do their best to rehabilitate the disturbed areas, the Proponent needs to:

- Utilize stockpiled subsoil and topsoil to back fill the excavated pits/trenches.
- Make financial provision that will be used for post-exploration rehabilitation program.
- Backfill all pits and trenches.
- Level topsoil that was stockpiled for exploration purposes.
- Remove project vehicles and equipment from the site and taken to designated parking facility off site.
- All project support structures such as ablution facilities (toilet and washroom system), and storage containers/tanks shall be demolished, and the waste taken to designated waste sites. The site areas on which these structures were set up will be rehabilitated to preexploration state.
- All accumulated waste (hazardous, solid, and general) up until the cessation of exploration activities must be removed site and transported to designate off site waste management facilities.

**APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)** 

Areas of proposed development activity 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 / Technical Office +264 61 301 903)

• National Museum (061 276800),

National Forensic Laboratory (061 240461).

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:

**Operator:** To exercise due caution if archaeological remains are found

**Foreman:** To secure site and advise management timeously

**Superintendent:** To determine safe working boundary and request inspection

**Archaeologist:** To inspect, identify, advice management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

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- 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.