Excel Dynamic Solutions (Pty) Ltd

Environmental Scoping Assessment (ESA) for Proposed Exploration Activities on Exclusive Prospecting Licence (EPL) No. 9727 Located Within Central Namib, Erongo Region.

ENVIRONMENTAL ASSESSMENT REPORT: FINALS FOR SUBMISSION

ECC Application Reference: APP- 005389

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Excel Dynamic Solutions (Pty) Ltd

EXECUTIVE SUMMARY

Pointe Noire Investment cc (hereinafter referred to as the Proponent), has applied to the Ministry of Mines and Energy (MME) to be granted an Exclusive Prospecting Licence (EPL) No. 9727. However the approval and granting of EPL No. 9727 requires an Environmental Clearance Certificate (ECC) as well as the commencement of the planned prospecting and exploration works. The 12 081.0677-ha EPL is located north of Langer Heinrich mine within the Central Namib in the Erongo region. The EPL covers (overlies) Farm Jackalswater No. 220, Modderfontein No. 131 and Farm portion Geluk No.116, and a portion that is found within Namib-Naukluft Park. The target commodities for EPL 9727 are **Base & Rare Metals, Industrial Minerals, Nuclear Fuel Minerals and Precious Metals on the EPL.**

EPL 9667 lies within the National Park thus, the regulations stipulated in the National Policy on Prospecting and Mining in Protected Areas (2018) with the intended exploration area (EPL 9727), will be a high priority.

Prospecting and exploration-related activities are among the listed activities that may not be undertaken without an ECC under the Environmental Impact Assessment (EIA) Regulations, Subsequently, to ensure that the proposed activity is compliant with the national environmental legislation, the project Proponent appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

The application for the ECC was compiled and submitted to the competent authority (Ministry of Environment, Forestry and Tourism (MEFT)) as the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project may be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

Brief Project Description

Planned Activities: Proposed Exploration Methods

The Proponent intends to adopt a systematic prospecting and exploration approach to the project as follows:

1. **Non-invasive Technique:**

    - **Desktop Study: Geological mapping**: Mainly entails a desktop review of geological maps and ground observations. This includes the review of geological maps of the area and on-site ground traverses and observations and an update where relevant, of the information obtained during previous geological studies of the area and aero-geophysics survey.
    - **Lithology geochemical surveys**: Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine if enough target commodities are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labeling activity sites) adopting a manual approach or excavator to further investigate the mineral potential. Soil sampling consists of small pits being dug where 1kg samples can be extracted and sieved to collect 50g of material. As necessary, and to ensure adequate risk mitigations, all major excavations will both be opened and closed immediately after obtaining the needed samples or the sites will be secured until the trenches or pits are closed. At all times, the land owners and other relevant stakeholders will be engaged to obtain authorization where necessary.
    - **Geophysical surveys:** This will entail data collection of the substrata (in most cases service of an aero-geophysical contractor will be sourced), by air or ground, through sensors such as radar, magnetic, and electromagnetic sensors to detect any mineralization in the area to ascertain the mineralization. Ground geophysical surveys shall be conducted, where necessary using vehicle-mounted sensors or handheld by staff members, while in the case of air surveys, the sensors will be mounted to an aircraft, which then flies over the target area.

2. **Invasive Technique:**

- **Detailed Exploration Drilling (Invasive Technique):** Should analyses by an analytical laboratory be positive, holes are drilled, and drill samples collected for further analysis. This will determine the depth of the potential mineralization. If necessary new access tracks to the drill sites will be created and drill pads will be cleared in which to set up the rig. Two widely used drilling options may be adopted, these are either Reverse Circulation (RC) drilling and/or diamond drilling. RC drilling uses a pneumatic hammer, which drives a rotating tungsten-steel bit. The technique produces an uncontaminated large-volume sample, which is comprised of rock chips. It is relatively quicker and cheaper when compared to other techniques like Diamond Drilling. However, diamond drilling may also be considered for this exploration program, for better geological control and to perform processing trials. A typical drilling site will consist of a drill-rig, and support vehicles as well as a drill core and geological samples store. A drill core equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility).

Public Consultation

Public Consultation Activities

Regulation 21 of the EIA Regulations details steps to be taken during a public consultation process and these have been used in guiding this process. The public consultation process assisted the Environmental Consultant in identifying all potential impacts and aided in the process of identifying possible mitigation measures and alternatives to certain project activities. The communication with I&APs about the proposed prospecting and exploration activities was done through the following means in this order to ensure that the public is notified and allowed to comment on the proposed project:

- A Background Information Document (BID) containing information about the proposed exploration activities was compiled and delivered upon request to all registered Interested and Affected Parties (I&APs).

- Project Environmental Assessment notices were published in New Era Newspaper and The Namibian Newspaper (13 and 20 December 2024), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting with affected landowners was scheduled for the 22 January 2025 at Ministry of Environment , Forestry and Tourism (MEFT) in Swakopmund and a site visit on the portion that covers the national park and the portion that covers the commercial farm a site visit was conducted on the 25 February 2025.
- The issues, comments and concerns raised were noted and used to form a basis for the ESA Report and EMP.

Potential Impacts identified

The following potential impacts are anticipated:

- **Positive impacts**: Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer; Opens up other investment opportunities and infrastructure-related development benefits; Produces a trained workforce and small businesses that can serve communities and may initiate related businesses; Boosts the local economic growth and regional economic development and; Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.
- **Negative impacts**: Disturbance of the biodiversity (endemic species within the Namib Naukluft Park),generation of dust, impact on water resources, pollution of soil & water resources, waste Generation, occupational health & safety risks, vehicular Traffic Use & Safety, noise & Vibrations, disturbance to archaeological & heritage resources, impacts on local roads, social Nuisance: local property intrusion & disturbance and impacts associated with closure and decommissioning of exploration works.

The potential negative impacts were assessed, and mitigation measures were provided accordingly.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The potential impacts that are anticipated from the proposed project activities were identified, described, and assessed. For the significant adverse (negative) impacts with a medium rating, appropriate management, and mitigation measures were recommended for implementation by the Proponent, their contractors, and project-related employees.

A public consultation meeting was convened on the 22 January 2025 as stipulated by the Environmental Management Act (EMA) of 2007 and its associated 2012 Environmental Impact Assessment (EIA) Regulations (Sections 21 to 24). The face-to-face consultation meeting was held to grant an opportunity for directly affected landowners to express their comments and concerns regarding the proposed project activities. However, no landowners attended this meeting despite public notice being given through the New Era and The Namibian newspapers.

As a result, All issues or concerns raised by the registered Interested and Affected Parties (I&APs) and pre-identified issues formed the basis for this report and the Draft Environmental Management Plan (EMP). Mitigation measures have been incorporated into the report to address and minimize the potential impacts on environmental and social components. Most of the potential impacts were found to be of medium-rating significance. With the effective implementation of the recommended management and mitigation measures, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low). To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the reduced impacts' rating or maintain a low rating but to also ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away too.

It is crucial for the Proponent and their contractors as well as to effectively implement the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. All these would be done to promote environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the area and environment at large.

Recommendations

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures and with more effort and commitment put into monitoring the implementation of these measures.

It is, therefore, recommended that the proposed prospecting and exploration activities be granted an ECC, provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to explore and ensure compliance with these specific legal requirements.
- The Proponent and all their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.
- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per the provision made on the MEFT/DEAF's portal.

Disclaimer

Excel Dynamic Solutions (EDS) warrants that the findings and conclusion contained herein were accomplished following the methodologies outlined in the Scope of Work and Environmental Management Act (EMA) of 2007. These methodologies are described as representing good customary practice for conducting an EIA of a property to identify recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist subject property conditions that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information. The

Consultant believes that the information obtained from the record review and during the public consultation processes concerning the proposed exploration work is reliable. However, the Consultant cannot and does not warrant or guarantee that the information provided by the other sources is accurate or complete. The conclusions and findings outlined in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

Some of the information provided in this report is based on personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
AMSL	Above Mean Sea Level
BID	Background Information Document
CV	Curriculum Vitae
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
ESA	Environmental Scoping Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
GG	Government Gazette

GN	Government Notice
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry, and Tourism
MME	Ministry of Mines and Energy
PPE	Personal Protective Equipment
Reg	Regulation
S	Section
TOR	Terms of Reference

DEFINITION OF TERMS

Alternative	A possible course of action, in place of another would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	That part of the environment that does not originate with human activities (e.g. biological, physical, and chemical processes).
Cumulative Impacts/Effects Assessment	About an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.

Ecological Processes	Processes play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).
Environment	As defined in the Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored.
Exclusive Prospecting Licence	Is a license that confers exclusive mineral prospecting rights over the land of up to 1000 km2 in size for an initial period of three years, renewable twice for a maximum of two years at a time.
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by the activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.
Significant Impact	Means an impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.
Proponent	As defined in the Environmental Management Act, a person who proposes to undertake a listed activity.
Mitigate	Practical measures to reduce adverse impacts.
Fauna	All of the animals that are found in a given area.

Flora	All of the plants are found in a given area.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Nomadic Pastoralism	Nomadic pastoralists live in societies in which the husbandry of grazing animals is viewed as an ideal way of making a living and the regular movement of all or part of the society is considered a normal and natural part of life. Pastoral nomadism is commonly found where climatic conditions produce seasonal pastures but cannot support sustained agriculture.
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette

	according to the Nature Conservation Ordinance number 4 of 1975, as amended
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.
Terms of Reference (ToR)	Written requirements governing full EIA input and implementation, consultations to be held, data to be produced, and form/contents of the EIA report. Often produced as an output from scoping.

1 INTRODUCTION

1.1 Project Background

Pointe Noire Investment cc (hereinafter referred to as the Proponent), has applied to the Ministry of Mines and Energy (MME) to be granted an Exclusive Prospecting Licence (EPL) No. 9727. However the approval and granting of EPL No. 9727 requires an Environmental Clearance Certificate (ECC) as well as the commencement of the planned prospecting and exploration works. 12 081.0677 ha EPL is located north of Langer Heinrich mine within the Central Namib in the Erongo region as shown in (**Figure 1**). The EPL covers (overlies) Farm Jackalswater No. 220, Modderfontein No. 131 and Farm portion Geluk No.116, in addition to the Namib-Naukluft Park. The target commodities for EPL 9727 are **Base & Rare Metals, Industrial Minerals, Nuclear Fuel Minerals and Precious Metals on the EPL.**

EPL 9727 (Coordinates: -22.650 S, 15.262 E) is located about 60 km southeast of Arandis and a protion of the the Namib Naukluft National Park. Thus, the regulations stipulated in the National Policy on Prospecting and Mining in Protected Areas (2018) in relation to the intended exploration area (EPL 9727), will be a high priority.

Section 27 (1) of the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) Regulations, provides a list of activities that may not be carried out without an EIA undertaken and an ECC obtained. Exploration activities are listed among activities that may not occur without an ECC. Therefore, individuals or organizations may not carry out exploration activities without an ECC awarded to the Proponent.

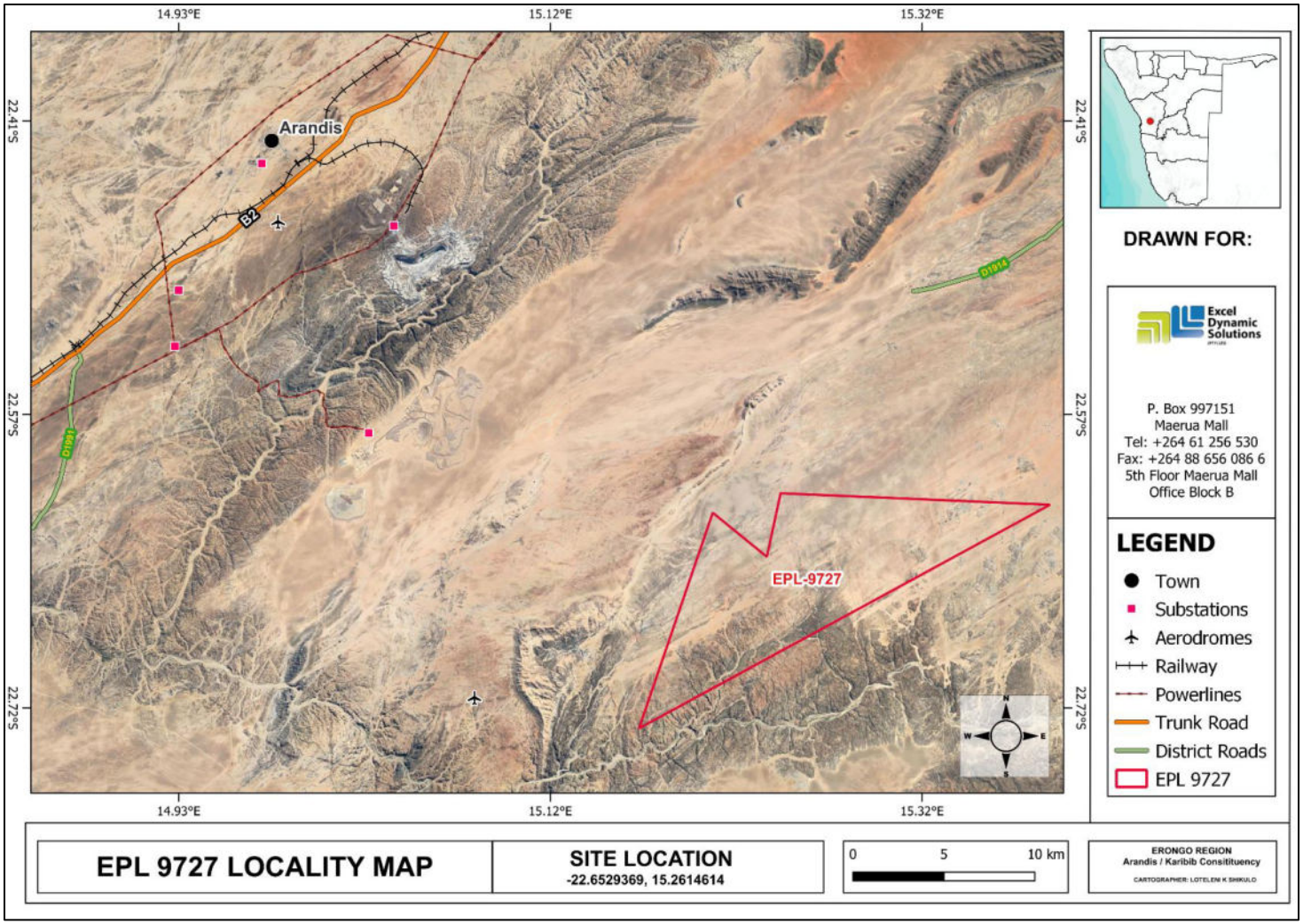


Figure 1: Locality map for EPL No. 9727

1.2 Terms of Reference, Scope of Works, and Appointed EA Practitioner

Excel Dynamic Solutions (Pty) Ltd (EDS) has been appointed by the Proponent to conduct an environmental assessment (EA) and subsequently apply for an Environmental Clearance Certificate (ECC) for exploration activities on the EPL. No formal Terms of Reference (ToR) were provided to EDS by the Proponent. In the absence of such guidelines, the consultant proceeded by adhering to the stipulations outlined in the Environmental Management Act (No. 7 of 2007) (EMA) and its associated Environmental Impact Assessment (EIA) Regulations (GN. No. 30 of 2012) to carry out the study.

The EIA project is headed by Ms. Aili Iipinge an experienced EAP. The consultation process and reporting are done by Mr. Mandume Leonard and Ms. Aili Iipinge .Ms. Iipinge's CV is presented in **Appendix C.**

1.3 Motivation for the Proposed Project

The mining industry constitutes a significant pillar of the Namibian economy, contributing substantially to national development and livelihood improvement. Primarily driven by the private sector, mineral exploration activities hold immense potential to stimulate economic growth and diversification. These activities not only generate temporary employment opportunities but also provide tax revenue that fuels social infrastructure development.

The minerals sector is a key contributor to foreign exchange earnings and a substantial component of the Gross Domestic Product (GDP). Moreover, the industry fosters the development of a skilled workforce and small businesses, which can serve local communities and spur related economic activities. These associated industries include the manufacturing of exploration and mining equipment, the provision of engineering and environmental services, and others.

Mineral exploration is integral to Namibia's long-term development plans, such as Vision 2030, National Development Plan 5 (NDP5), and the Harambee Prosperity Plans (HPPs) I & II. Consequently, successful exploration on EPL-9727, leading to the discovery of target commodities, would align with these national development objectives.

1.4 Motivation for Exploration activities for EPL 9727 in the Protected Area: Namib Naukluft National Park

The EPL 9727 is located within the Naukluft National Park, one of the largest national parks in Africa. Given that the EPL is situated within a protected area, the National Policy on Prospecting and Mining in Protected Areas will be applicable during the exploration phase of the project. Rehabilitation must be prioritized in accordance with the stipulations outlined in the *Mining and Prospecting in Protected Areas and National Monuments Act* (1999).

EPL 9727 is in close proximity to other active EPLs, such as EPL 7167, owned by Resource Five Hundred (Pty) Ltd, and EPL 7996, owned by Chives Investment (Ptd) Ltd, as well as active Mining Licenses (ML) No. 171 and ML 172. ML 171 is jointly owned by Swakop Uranium (Pty) Ltd (90%) and Epangelo Husab Uranium (Pty) Ltd (10%), while ML 172 is wholly owned by Langer Heinrich Uranium (Pty) Ltd. These active mining licenses are also located within the Namib Naukluft National Park. Given these circumstances, the consultant is confident that the issuance of an ECC is feasible, provided that the proposed management measures and action plans are effectively implemented and monitored on-site.

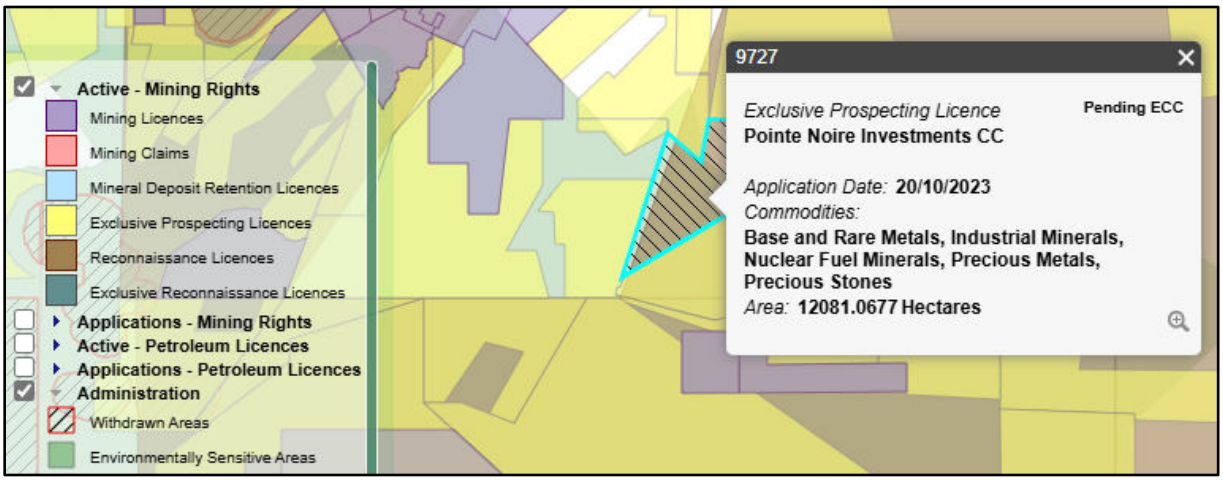


Figure 2: Location of the EPL No. 9727 within the Namib Naukluft National Park (Source: Namibia Mining Cadastre)

Table 1 presents different characteristics of Protected Areas as stipulated in the National Policy on Prospecting and Mining in Protected Areas (2018) in relation to the area (EPL 9727). The Consultant understands that the policy is also aimed at establishing “no go areas” where

exploration and mining will not be permitted due to high conservation and/or aesthetic and tourism value, based upon the best available information.

1.5 Namibia's Approach towards exploration and Mining in a National Park

Any mining development in a National Park must be balanced against the risk that it could jeopardize the potential for long-term sustainable development. Prospecting and exploration of minerals, elements and rocks stated in the Minerals (Prospecting and Mining) Act of 1992 are permitted as such developments are in the national interest. The targeted commodity groups are listed in the Minerals Act. The National Policy on Prospecting and Mining in Protected Areas developed in 2018 states that granting of an Exclusive Prospecting and Mining Licenses is permitted in Protected Areas and National Monuments upon presenting a plan of activities that will be carried out using best practice, taking into account long-term national benefits and conservation efforts.

The Policy of the Conservation of Biotic Diversity and Habitat Protection was drafted by MEFT in 1994 to ensure adequate protection of all species and subspecies, of ecosystems, and of natural life-support processes.

1.6 Namib Ecology Integrity

The ecological integrity and diversity of fauna and flora of the Western Namib is well addressed in the Strategic Environmental Management Plan (SEMP) developed in 2009 as a result of the Strategic Environmental and Socio-Economic Assessment of the Uranium industry "rush". The annual SEMP report (2014) indicated that the integrity and diversity of the Western Namib biodiversity is not compromised by the exploration and mining activities. The report went further to explain that ecological integrity means that ecological processes are maintained, key habitats are protected, rare and endangered and endemic species are not threatened. The SEMP limits are defined through Environmental Quality Objectives and aim to;

- Improve Namibia´s and the Erongo region's sustainable socio-economic development and outlook without undermining the growth potential of other sectors
- Promote local employment and integration of society;

- Ensure that key infrastructure is adequate and well maintained, thus enabling economic development, public convenience and safety;
- Ensure that the integrity of all aquifers remains consistent with the existing natural and operational conditions (baseline). This requires that both the quantity and quality of groundwater are not adversely affected by prospecting and mining activities;
- Ensure workers and the public do not suffer significant increased health risks from the exploration and mining activities;
- Safeguard the natural beauty of the desert and ensure its sense of place are not compromised unduly by the exploration and mining activities;
- Identify ways of avoiding conflicts between the tourism industry and prospecting/mining, so that both industries can coexist in the Western Namib;
- Protect the ecological integrity and diversity of fauna and flora of the Central Namib. All efforts are taken to avoid impacts to the Namib and where this is not possible, disturbed areas are rehabilitated and restored to function after mining/development;
- Maintain and enhance Namibia's international image because of environmentally, socially and financially responsible mining operations;
- Ensure that exploration and mining and all related infrastructure developments will have the least possible negative impact on archaeological and paleontological heritage resources.

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

Prospecting and exploration of minerals are the first components of any potential mining project. These are carried out to acquire the necessary data required for further decision-making and investment options. These activities are anticipated to last for about three years. The exploration process includes three phases - prospecting, exploration, and the decommissioning of works.

2.1 Prospecting Phase (Non- Invasive Techniques)

2.1.1 Desktop Study

This mainly entails a desktop review of geological maps of the area, on-site ground traverses and observations, and an update, where relevant, of the information obtained during previous geological studies of the area.

2.1.2 Geophysical surveys

Geophysical surveys entail data collection of the substrata by air or ground, through sensors such as radar, magnetic, and/or electromagnetic sensors, to detect and ascertain any mineralization in the area. Ground geophysical surveys shall be conducted, where necessary, using vehicle-mounted sensors or handheld by staff members, while in the case of air surveys, the sensors are mounted to an aircraft, which navigates over the target area.

2.1.3 Lithology geochemical surveys

Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine the sufficiency of the mineral and the feasibility of mining the mineral. Additionally, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labeling activity sites) adopting a manual approach or excavator to further investigate the mineral potential.

Soil sampling consists of small pits being dug, where 1kg samples can be extracted and sieved to collect about 50g of material. As necessary, and to ensure adequate risk mitigation, all major excavations will be closed immediately after obtaining the needed samples, or the sites will be secured until the trenches or pits are closed. The landowner and other relevant stakeholders will be engaged to obtain authorization where necessary.

2.1.4 Exploration Phase (Invasive Techniques)

The selection of the potential mineralization model and exploration targets will be based on the local geology, and the trenching, drilling, and assay results of the samples collected. The planned exploration activities are aimed at delineating the mineral deposits and determining whether the deposits are economically feasible mining resources.

No explosives will be used during exploration phase

2.1.5 Detailed Exploration (Drilling)

The techniques involved herein include soil survey, rock sampling, trenching, and/ or pitting and detailed exploration drilling. Once the target areas have been selected and verified under the prospecting phase, detailed exploration works will follow. The preferred drilling technique for this exploration programme is Reverse Circulation (RC) Drilling. RC It is relatively quick and cheap when compared to other techniques like Diamond Drilling. However, if found to be necessary, diamond drilling may also be considered for this exploration programme, during advanced stages of exploration if large amounts of sample material are required for analysis and to perform processing trials. The selection of the potential mineralization model and exploration targets are based on the local geology, trenching, drilling, and assay results of the samples collected.

Reverse circulation (RC) drilling is achieved by blowing compressed air down the annulus of a drill rod; the differential pressure creates air lift pushing water and cuttings up the inner tube that is inside each rod. The drill cuttings travel up the inside of the drill rod and are collected in a sample bag on the surface. Samples are collected every metre and the number of samples is therefore dictated by the depth of the hole. Generally, a RC drilling program will see multiple holes drilled at 60-90° inclination and can range from 60 to 500m in depth. RC drilling does not require a significant amount of water, as compared to diamond core drilling. For RC drilling, water is often required and used down the hole to cool the drill bit and reduce dust, and assist with the transportation of sample bits to the surface.

Diamond (Core Drilling) there are two main types of core drilling: soft and hard coring. This refers to the type of lithology each method is suited for. Soft coring is used when taking a core sample of unconsolidated material and can reach depths of 152.5 m (or more—but this is what is typical for environmental industry projects). Soft coring uses a punch core system. This involves

using two containers, one nested inside the other. The inner container is pushed out in front to capture the core sample, then the outer container is extended to provide casing, so the hole does not collapse. This method protects the integrity of the sample from the air or fluid used when progressing the outer container. Hard coring is used when the subsurface consists of materials as hard or harder than sandstone. Much greater depths can be reached with this type of coring; depths up to 1524 m reached. Hard coring also uses two nested containers, but the outer container is extended before the inner container. This means the sample is washed with the drilling fluid or air, but because the core sample is of competent rock, there is no danger in it being disturbed or contaminated. Hard coring is sometimes referred to as Diamond Coring, as drill bits with small diamonds embedded are used in difficult lithology to cut through rock.

Pitting: Pitting is usually employed to test shallow, extensive, flat-lying bodies of mineralization such as a buried heavy mineral placer. The main advantage of pitting over a pattern-drill programme on the same deposit is that pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of variable grade distribution, which are a characteristic feature of such deposits. In areas where the ground is wet, or labour is expensive, pits are best dug with a mechanical excavator. Pits dug to depths of 3–4 m are common and with large equipment excavation to 6 m can be achieved. In wet, soft ground any pit deeper than 1 m is dangerous. Diggers excavate rapidly and pits 3–4 m deep can be dug, logged, sampled, and re-filled within an hour. In cooler and moister weather conditions, thick lateritic soil forms ideal conditions for pitting.

In-fill drilling: The results of in-fill drilling are intended to support an update to a higher classification of the Mineral Resource estimate. The metallurgical test-work results will improve understanding of blending designs in the exploration schedules for the product offtake specifications.

The selection of the potential mineralization model and exploration targets will be based on the local geology, trenching, drilling and assay results of the samples collected

Other aspects of the proposed exploration operations include:

2.1.6 Accessibility to Site

The EPL is accessible via the D1914 road connecting to the C28 from Swakopmund, or alternatively, via the D1992 road linking to the B2 from Central Namibia. Overall, all vehicles must use existing road tracks, and all new access routes to the exploration sites should be identified and agreed upon with the relevant stakeholders (landowner , farm owner the National park management).

2.1.7 Material and Equipment

The requirements of the exploration program in terms of vehicles and equipment include (4X4) vehicles, a truck, water tanks, drill rigs and drilling machines, and a power generator. Equipment and vehicles will be stored at a designated area near the accommodation site or a storage site established within the EPL area.

2.1.8 Services and Infrastructure

- **Water:** Water for the exploration operations on the EPL will be obtained from Arandis Town Council. Estimated monthly water consumptions are at 10 000 liters, but will not exceed 80,000 liters, which includes water for drinking, sanitation, cooking, dust control, drilling, as well as washing of equipment, alternatively water will be source from the nearest town and brought to project site. The estimated monthly water consumptions are 3 500 liters. This includes water for drinking, sanitation, cooking, dust control (if necessary), drilling, as well as washing of equipment. Alternatively , the proponent will enter into agreement with the farm owners to source water from the exixting boreholes within the farm or apply for a new borehole once all the permitting and agreement have reached.
- **Power supply:** Power required during the operation phase will be provided by diesel generators. About 2000 liters of diesel will be used per day.
- **Fuel (diesel for generators and other equipment):** The fuel (diesel) required for exploration equipment will be stored in a tank mounted on a mobile trailer, and drip trays will be readily available on this trailer and monitored to ensure that accidental fuel spills are cleaned up as soon as they have been detected/observed. Fuel may also be stored in a bunded diesel bowser on site, and in jerry cans placed on plastic sheeting to avoid unnecessary contamination of soils.

2.1.9 Waste Management

The site will be equipped with secured waste bins for each type of waste (i.e., domestic, hazardous, and recyclable). Depending on the amount generated, waste will be sorted and collected as regularly as possible and taken to the nearest certified landfill site. An agreement will need to be reached with different waste management facility operators/owners and authorization or permits will be obtained before utilizing these facilities, in the case of production of any hazardous waste.

- **Sanitation and human waste**: Portable ablution facilities will be used, and the sewage will be disposed of according to the approved disposal or treatment methods of the waste products.
- **Hazardous waste**: Drip trays and spill control kits will be available on-site to ensure that oil/fuel spills and leaks from vehicles and equipment are captured on time and contained correctly before polluting the site.

The waste produced on-site can also be categorized as mineral or non-mineral waste:

- **Mineral Waste:** Consists of solid products of exploration and mineral concentration to acquire the targeted minerals. Mineral waste will potentially be produced throughout the project exploration phase. This waste will be stripped and dumped in allocated areas as stipulated in the EMP.
- **Non-mineral Waste:** Consists primarily of auxiliary materials that will support the exploration phase. This includes but is not limited to items such as empty containers, plastic, etc., and other domestic waste. This waste will be collected, sorted, and taken to the dumpsite as regularly as necessary.

2.1.10 Safety and Security

- **Storage Site**: Temporary storage areas for exploration material, equipment, and machinery will be required at the campsite and/or exploration sites. Security will be supplied on a 24-hour basis at the delegated sites for storage. A temporary support fence surrounding the storage site will be constructed to ensure people and domestic animals are not put at risk.
- **Fire management:** A minimum of basic firefighting equipment, i.e., fire extinguishers will be readily available in vehicles, at the working sites and camps. The exploration crew is required to have the contact details of the nearest fire station at hand in case of a larger scale of fires at the site.

- **Health and Safety**: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at the site. A first aid kit will be readily available on-site to attend to potential minor injuries.

2.1.11 Accommodation

The exploration crew will be accommodated onsite, on-site accommodation is considered essential due to the considerable distance to the nearest towns. A campsite will be set up for the exploration crew near the exploration sites. Prior the establishment of the accommodation camp, appropriate arrangements will be made with the landowner(s). All exploration activities will be conducted during daylight hours.

2.2 Decommissioning and Rehabilitation Phase

Once the exploration activities on the EPL come to an end, the Proponent will need to put site rehabilitation measures in place. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. An unfavorable economic situation or unconvincing exploration results might force the Proponent to cease the exploration program before the predicted closure. Therefore, it is best practice for the Proponent to ensure the project activities cease in an environmentally friendly manner and the site is rehabilitated.

3 PROJECT ALTENATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section highlights the different ways in which the project can be undertaken, and identifies alternatives that may be the most practical, but least damaging to the environment.

Once the alternatives have been established, these are examined by asking the following three questions:

- What alternatives are technically and economically feasible?
- What are the environmental effects associated with the feasible alternatives?
- What is the rationale for selecting the preferred alternative?

The alternatives considered for the proposed development are discussed in the following subsections.

3.1 Types of Alternatives Considered

3.1.1 The "No-go" Alternative

The “no action” alternative implies that the status quo remains, and nothing happens. Should the proposal of exploration activities on the EPL be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is to be discontinued, the current land use for the proposed site will remain unchanged.

This no-go option is considered and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative is undertaken to establish what benefits might be lost if the project is not implemented. The key losses that may never be realized if the proposed project does not go ahead include:

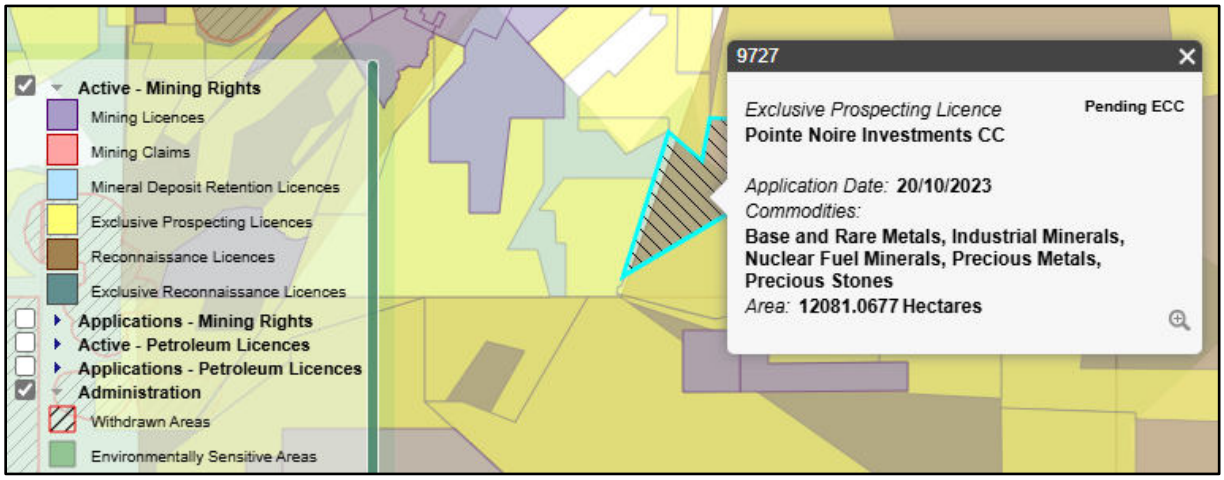
- Loss of foreign direct investment.
- About ten (10) temporary job opportunities for local members will not be realized.
- No realization of local business supports through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.
- Loss of potential income to the local and national government through land lease fees, license lease fees, and various tax structures.
- Improved geological understanding of the site area regarding the targeted commodities.
- Socio-economic benefits such as skills acquisition for local members would be not realized.

Considering the above losses, the “no-action/go” alternative may not necessarily be considered a viable option for this project, although, in the case where parts of the project site are considered environmentally sensitive and/or protected, one or several sections of the site may be identified as no-go zones.

3.1.2 Exploration Location

The prospecting/exploration location is dependent on the geological setting (regional and local), the economic geology, and the exploration and mining history of the EPL area. Therefore, finding an alternative location for the planned exploration activities is not possible. This means that the mineralization of the target commodities is area-specific, and exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (an ore-forming mechanism). The tenement has a sufficient surface area for future related facilities, should an economic mineral deposit be defined.

Furthermore, the national mineral resources' potential locations are also mapped and categorized by the Ministry of Mines and Energy, on exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses, and exclusive reconnaissance licenses. Available information on EPL No 9727 (**Figure 2**) and other licenses are available on the Namibia Mining Cadastral Map here https://portals.landfolio.com/namibia/.



3.1.3 Exploration Methods

Both invasive and non-invasive exploration activities are expected to take place. The combination of prospecting methods (non-invasive techniques) has no alternatives therefore, these will be implemented as presented. However, the invasive techniques (drilling) may present some options/alternatives to carrying out the project. Drilling provides most of the information for the final evaluation of a prospect and will ultimately determine if the prospect is mineable. Commonly in mineral exploration drilling, two methods are utilized. These are reverse circulation (RC) drilling and Diamond (Core) drilling, depending on the type of mineral sought after. If any other alternative

viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

Both invasive and non-invasive exploration activities are anticipated for the project. The non-invasive techniques, which involve a combination of prospecting methods, are essential and will be implemented as outlined, with no feasible alternatives. In contrast, invasive techniques, such as drilling, may offer certain options or alternatives for project execution. Drilling is crucial in providing the data necessary for the final evaluation of a prospect and ultimately determining its economically viability. In mineral exploration, two primary drilling methods are typically employed: reverse circulation (RC) drilling and diamond (core) drilling, depending on the specific type of mineral being explored. Should alternative exploration methods emerge that are more effective and/or efficient, while still adhering to environmental measures in place, they may be considered and implemented. . **Table 1** shows the exploration methods that will be employed during the exploration phase.

Table 1: Alternatives (Exploration Methods)

Invasive Exploration Method (Alternatives Considered)	**Process**	**Advantages**
Pitting and trenching	-Pits and trenches can be a quick, cheap way of obtaining lithological and structural information in areas of shallow cover. -Pitting is usually employed to test shallow, extensive, flat-lying bodies of	- Quick, cheap way of obtaining lithological and structural information in areas of shallow cover. -Pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of

Invasive Exploration Method (Alternatives Considered)	Process	Advantages
	mineralization such as a buried heavy mineral placer. -The main advantage of pitting over a pattern-drill programme on the same deposit is that pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of variable grade distribution, which are a characteristic feature of such deposits. -Trenches are usually employed to expose steep dipping bedrock buried below shallow overburden and are normally dug across the strike of the rocks or mineral zone being tested (Marjoribanks, 1997).	variable grade distribution, which are a characteristic feature of such deposits. -Trenches are an excellent adjunct to RC drilling programmes, where the structural data from trench mapping are needed to complement the lithological information obtained from the drill cuttings (Marjoribanks, 1997).
Reverse Circulation (RC) Drilling	-Crushed rock is collected in the form of drill chips and powdered samples, brought to surface through the drilling rods by compressed air. This is in contrast to conventional drilling (Rotary Air Blow Drilling) that puts the air inside the rods and the cuttings outside. Here the air passes downwards through the	-Compared to diamond drilling, RC requires less water. Therefore, RC drilling will put less pressure on water supply and use. The major differences between RC and diamond

Invasive Exploration Method (Alternatives Considered)	Process	Advantages
	annular space between the inner shaft and the outer tube. -Water is often used down the hole to cool the drill bit and reduce dust as well as assisting with the transportation of sample bits to the surface. -RC drilling is designed for drilling through and crushing hard rock. -RC drilling is fundamentally different from diamond drilling, both in terms of equipment and sampling. One major difference is that RC drilling creates small rock chips instead of solid core. The RC method: -Allows full recovery of samples continuously -Quick installation -There is no contact between the walls and cuttings taken at the bottom. -The penetration rate is fast (Technidrill, 2020)	drilling are in the rate of penetration and cost per meter. RC drilling is much faster than diamond core drilling, and much less expensive. -Unlike diamond drilling, this process creates rock chips that can be analysed, rather than a solid, cylindrical piece of rock. -Some types of information, such as structural details, are not possible to obtain in the absence of solid rock. Despite this disadvantage, much valuable information can still be obtained from the rock chips. For example, the chips are much easier to examine under a microscope. Testing of fluorescence and effervescence are easily

Invasive Exploration Method (Alternatives Considered)	Process	Advantages
Infill drilling	The progress of an exploration project mostly depends on the result of the primary boreholes. Therefore, primary exploration boreholes must intersect high-grade mineralization zones with considerable thickness. On the other hand, the infill boreholes are designed based on obtained results from the primary boreholes (Fatehi, *et al.,* 2017). Therefore, infill drilling is intended to support an update to a higher classification of the Mineral Resource estimate. The metallurgical test-work results will improve understanding of blending designs in the exploration schedules for the product offtake specifications (Canyon Resources, 2021).	accomplished (Earth Science Australia, 2020). It is for these reasons that RC will be the most preferred method and is mainly used. However, RC drilling would be combined with Diamond drilling where necessary for more reliable data collection and analysis. Diamond drilling would be more applicable where deeper holes are required than is possible using RC drilling. In-fill drilling would also be applied to support an update to a higher classification of the Mineral Resources estimate.
Diamond (Core) drilling	-Diamond drilling uses a diamond bit, which rotates at the end of a drill rod (or pipe). The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface.	

Invasive Exploration Method (Alternatives Considered)	Process	Advantages
	-The diamond bit is rotated slowly with gentle pressure while being lubricated with water ("mud circulation") to prevent overheating. As a result, this drilling method is known to use a huge amount of water compared to RC, thus may put pressure on water supply sources. - Drill cuttings obtained with RC drilling can be analysed directly to provide a limited amount of information, and their locations are less precise. Core samples, on the other hand, will identify actual veins of materials and give you their precise location (BG Drilling, 2016). Therefore, for accuracy's sake, diamond drilling would provide better result. In other words, RC results are reliable but may not be accurate. - As diamond is one of the strongest materials in the world, it has no trouble drilling through most surfaces. Therefore, it works well across a wider range of ground types and conditions.	

Invasive Exploration Method (Alternatives Considered)	Process	Advantages
	-Time-consuming and more effort is required to obtain the drill core. -Low initial investment, but generally more expensive to meters drilled because of the limitation of the speed.	

The final drilling technique would be determined by the mineralization type. However, based on the information presented in the Table above regarding the detailed exploration methods, it was found and pre-determined that Reverse Circulation (RC) drilling would be preferable as much as possible given its efficiency in terms of costs, operating speed and environmental friendliness (water demand), compared to Diamond drilling.

Although RC drilling is known to have its shortcomings, particularly the lack of solid drill recovery and inaccuracy, it is usually combined with Diamond drilling for the exploration of some minerals, if the borehole(s) needs to be deeper than what RC can achieve

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES, AND GUIDELINES

Prospecting and exploration activities have legal implications associated with certain applicable legal standards. A summary of applicable and relevant international policies and Namibian legislation, policies, and guidelines for the proposed development is given in this section (**Table 1**). This summary serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF, of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed prospecting and exploration activities.

4.1 The Environmental Management Act (No. 7 of 2007)

This EIA was carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30).

The EMA has stipulated requirements to complete the required documentation to obtain an ECC for permission to undertake certain listed activities. These activities are listed under the following Regulations:

- *3.1 The construction of facilities for any process or activities which requires a license, the right of other forms of authorization, and the renewal of a license, right, or other forms 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.*

The National Policy on Prospecting and Mining in Protected Areas

This Policy was developed in 2018 to complement various regulations and policies relevant to prospecting and mining, in order to ensure minimal negative impacts on the environment (referred to in Table 1).

The Parks and Wildlife Management Bill (2008)

The bill aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous

biological resources, and the management of protected areas, in order to conserve biodiversity and in order to contribute to national development.

Integrated Coastal Management Act (draft)

The core objective of this proposed Act is to establish a system of integrated coastal management in Namibia in order to promote the conservation of the coastal environment, maintaining the natural attributes of the coastal landscapes and seascapes, and ensuring the sustainable development and use of the natural resources within the coastal zone that is also socially, economically and ecologically justifiable. A permanent Coastal Management Authority will be established to realize this and other objectives. Functions and powers of the CMA would include, among other, to explore possible regulations for coastal zone use and enforcement capacity for such regulations.

Other legal obligations that are relevant to the proposed activities of EPL No. 9727 and related activities are presented.

Table 2: Applicable local, national and international standards, policies and guidelines governing the proposed prospecting and exploration activities

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended: **Government of the Republic of Namibia**	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure	By implementing the environmental management plan, the establishment will be conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	to protect the beauty and character of Namibia…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: "…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."	
Minerals (Prospecting and Mining) Act (No. 33 of 1992): **Ministry of Mines and Energy (MME)**	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 52(1) mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilized for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough, etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance. Section 54 requires a written notice to be submitted to the Mining	The Proponent should enter into a written agreement with landowners before exploring their land. On commercial land, the Proponent should engage the farmers for land use consent and on the land that belongs to the national park , the proponent needs to engage with the National park management. An assessment of the impact on the receiving environment should be carried out. The Proponent should include as part of their application for the EPL,

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	Commissioner if the holder of a mineral license intends to abandon the mineral license area. Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the measures to be taken to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities. The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.
The National Policy On Prospecting and Mining in Protected Areas	Requires that, where necessary a Memorandum of Understanding is developed between prospecting and mining Companies, the MET and the MME to set out additional implementation mechanisms.	The Proponent should maintain the integrity of ecosystems and natural resources, and avoiding degradation of areas highly sensitive for their ecological, social and/or cultural heritage value
Nature Conservation Amendment Act, No. 3	National Parks are established and gazetted following the Nature	The Proponent will be required to enhance the

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
of 2017: **Ministry of Environment, Forestry and Tourism (MEFT)**	Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework concerning the permission of entering a state-protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PAs and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	conservation of biodiversity and the maintenance of the ecological integrity of protected areas and another State land in the Project Site area. The Proponent will also be required to comply with the existing and planned local operational management plans (farms and National park).
The Parks and Wildlife Management Bill of 2008**: Ministry of Environment, Forestry and Tourism (MEFT)**	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and contribute to national development.	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Mine Health & Safety Regulations, 10th Draft: **Ministry of Health and Social Services (MHSS)**	Makes provision for the health and safety of persons employed or otherwise present in the mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations concerning their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001): **Ministry of Mines and Energy (MME)**	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under the authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 liters or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorization from the MME for the storage of fuel on-site.
The Regional Councils Act (No. 22 of 1992): **Ministry of Urban and Rural Development (MURD)**	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning perspective, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanization patterns,	The relevant Regional Councils are IAPs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Erongo Regional Council; therefore, they should be consulted.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	natural resources, economic development potential, infrastructure, land utilization pattern and sensitivity of the natural environment.	
Water Act 54 of 1956**: Ministry of Agriculture,Fisheries, Water and Land Reform (MAFWLR)**	The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act No 54 of 1956 is still in force: 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 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority. The permits and license required thereto should be obtained from MAWLR's relevant Departments (these permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, Wastewater / Effluent Discharge Permits).
Water Resources Management Act (No 11 of 2013)**: Ministry of Agriculture,Fisheries, Water and Land Reform (MAFWLR)**	The Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services, and provides for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	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).	
National Heritage Act No. 27 of 2004**: Ministry of Education, Arts, and Culture (MEAC)**	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with this act's requirements. The necessary management measures and related permitting requirements must be taken. This is done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be incorporated into the Draft EMP.
The National Monuments Act (No. 28 of 1969)**: Ministry of Education, Innovation, Youth, Sports, Arts, and Culture (MEIYSAC)**	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969)**: Ministry of Agriculture,Fisheries Water and Land Reform (MAFWLR)**	The Act makes provision for the prevention and control of soil erosion and the protection, improvement, and conservation of soil, vegetation, and water supply sources and resources,	Duty of care must be applied to soil conservation and management measures must be included in the EMP.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	through directives declared by the Minister.	
Forestry Act (Act No. 12 of 2001**: Ministry of Environment, Forestry and Tourism (MEFT)**	The Act provides for the management and use of forests and forest products. Section 22. (1) provides: "Unless otherwise authorized by this Act, or by a license issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a dune or drifting sand or a gully unless the cutting, destruction or removal is done to stabilize the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919)**: Ministry of Health and Social Services (MHSS)**	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Health and Safety Regulations GN 156/1997 (GG 1617)**: Ministry of Health and Social Services (MHSS)**	Details various requirements regarding the health and safety of labourers.	
Public and Environmental Health Act No. 1 of 2015**: Ministry of Health and Social Services (MHSS)**	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health, and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels. Public and environmental health should be preserved and remain uncompromised.
Atmospheric Pollution Prevention Ordinance (1976)**: Ministry of Health and Social Services (MHSS)**	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
		place and implemented on-site.
Hazardous Substance Ordinance, No. 14 of 1974: **Ministry of Health and Social Services (MHSS)**	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal, and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment
Road Traffic and Transport Act, No. 22 of 1999: **Ministry of Works and Transport (Roads Authority of Namibia)**	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access to existing roads, the relevant permits will be required.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.
Labour Act (No. 6 of 1992): **Ministry of Labour, Industrial Relations and**	Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety, and enhanced labour market services for	The Proponent should ensure that the prospecting and exploration activities do not compromise the

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Employment Creation (MLIREC)	the benefit of all Namibians. This ministry insures the effective implementation of the Labour Act No. 6 of 1992.	safety and welfare of workers.

4.2 International Policies, Principles, Standards, Treaties, and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are listed in **Table 2** below.

Table 3: International Policies, Principles, Standards, Treaties and Convention applicable to the project

Statute	Provisions	Project Implications
Equator Principles	A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The principles apply to all new project financings globally across all sectors.	These principles are an attempt to: '…encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and local-based upliftment

Statute	Provisions	Project Implications
	Principle 1: Review and Categorization Principle 2: Environmental and Social Assessment Principle 3: Applicable Environmental and Social Standards Principle 4: Environmental and Social Management System and Equator Principles Action Plan Principle 5: Stakeholder Engagement Principle 6: Grievance Mechanism Principle 7: Independent Review Principle 8: Covenants Principle 9: Independent Monitoring and Reporting Principle 10: Reporting and Transparency	and empowering interactions.'
The International Finance Corporation (IFC) Performance Standards	The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of the IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on	The Performance Standards are directed toward clients, guiding how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business sustainably, including stakeholder engagement

Statute	Provisions	Project Implications
	Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below. Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts Performance Standard 2: Labour and Working Conditions Performance Standard 3: Resource Efficient and Pollution Prevention and Management Performance Standard 4: Community Health and Safety Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	and disclosure obligations of the Client (Borrower) concerning project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.

Statute	Provisions	Project Implications
	Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities Performance Standard 8: Cultural Heritage Performance Standard 9: Financial Intermediaries (FIs) Performance Standard 10: Stakeholder Engagement and Information A full description of the IFC Standards can be obtained from http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1	
The United Nations Convention to Combat Desertification (UNCCD) 1992	Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. The convention's objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and	The project activities should not be such that they contribute to desertification.

Statute	Provisions	Project Implications
	environmental sustainability United Nations Convention.	
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, to ensure their conservation and sustainable use. Promote the protection of ecosystems, and natural habitats, and the maintenance of viable populations of species in natural surroundings.	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimized.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

Relevant international Treaties and Protocols ratified by the Namibian Government

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.
- Convention on Biological Diversity, 1992.
- World Heritage Convention, 1972.

5 ENVIRONMENTAL AND SOCIAL BASELINE

The project activities will be undertaken in specific environmental and social conditions. The understanding of these conditions helps in identifying the sensitive environmental features that may need to be protected through the implementation of certain management and mitigation measures. The summary of selected physical, biological and social baseline information of the project area is provided below as per the site visit conducted by the Environmental Consultant and relevant published reports and books.

The climatic conditions of the project area are described using the available nearest data for the area obtained from the Climate Data, IQAir and Meteoblue websites (2024).

5.1 Biophysical Environment

5.1.1 Climate

The proposed Namibia's climate is predominantly semi-arid, categorized under the BWK (Arid Desert Cold) classification within the Köppen-Geiger system. This classification refers to "cold desert climate" with low rainfall, hot summers, and cold winters. The EPL, located within this climatic regime, experiences this desert like conditions.

The proposed EPL area, situated in the Erongo region of Namibia, shares this climatic character. The climate in this region is characterized by hot, dry summers and mild, dry winters. Temperatures can reach up to 30.2°C in March and drop to 11.1°C in August. Rainfall is scarce throughout the year, with an average of only one rainy day per month during the summer months. Humidity is low, ranging from 30% to 58%, and sunshine is abundant, averaging 9.8 to 11.6 hours per day.

In Arandis, the most frequent wind direction is from the west, with speeds ranging from 5 to 20 km/h. Winds from the southwest and northwest are also common, with speeds typically between 2 and 10 km/h. Winds from the east and southeast are less frequent, and generally weaker, with speeds usually below 5 km/h. Strong winds, exceeding 40 km/h, are rare.

Current air quality in Arandis, the nearest town to the project area, registers as "Moderate" on the US Air Quality Index (AQI) with a value of 63. The region is primarily impacted by PM2.5 pollution, fine particulate matter with diameters of 2.5 micrometers or less. The sources of these pollutants may include emissions from active mines, residential and commercial combustion, or vehicular emissions.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	19.9 °C (67.8) °F	20.6 °C (69) °F	21 °C (69.8) °F	20.7 °C (69.3) °F	19.2 °C (66.5) °F	17.8 °C (64.1) °F	17.9 °C (64.2) °F	15.9 °C (60.6) °F	16 °C (60.9) °F	16.9 °C (62.5) °F	18.1 °C (64.6) °F	18.9 °C (66) °F
Min. Temperature °C (°F)	15.8 °C (60.4) °F	16.5 °C (61.8) °F	16.5 °C (61.7) °F	15.7 °C (60.3) °F	13.6 °C (56.5) °F	12 °C (53.6) °F	12 °C (53.6) °F	9.9 °C (49.9) °F	10.3 °C (50.5) °F	11.5 °C (52.7) °F	12.7 °C (54.9) °F	14.1 °C (57.4) °F
Max. Temperature °C (°F)	24.9 °C (76.7) °F	25.6 °C (78) °F	26.5 °C (79.7) °F	26.5 °C (79.6) °F	25.5 °C (77.9) °F	24.5 °C (76.1) °F	24.6 °C (76.3) °F	22.4 °C (72.2) °F	22.4 °C (72.4) °F	23.1 °C (73.6) °F	24 °C (75.2) °F	24.3 °C (75.7) °F
Precipitation / Rainfall mm (in)	5 (0)	7 (0)	5 (0)	4 (0)	1 (0)	0 (0)	0 (0)	1 (0)	1 (0)	1 (0)	1 (0)	3 (0)
Humidity(%)	72%	72%	67%	59%	52%	44%	42%	54%	62%	66%	67%	70%
Rainy days (d)	1	1	1	1	0	0	0	0	0	0	0	0
avg. Sun hours (hours)	8.1	8.1	8.8	9.0	8.8	8.8	8.9	8.4	8.3	8.4	9.0	8.7

Figure 11: The Climate charts- EPL 9727 (source: climate-data, 2022)

5.1.2 Landscape and Topography

The EPL is located within a central-western plain, which is characterized by a dissected topography and prominent erosional features. The region exhibits considerable topographic variation landscape ranging from 619 to 719 meters, where the flat terrain is interrupted by numerous inselbergs, primarily consisting of small granite hills. The landscape is shaped by rugged terrains, as well as the escarpment. These geological features give rise to steep slopes, with gradients exceeding 1 degree. The general orientation of these slopes is predominantly westward, descending from the escarpment toward the coastal plain. **Figure 4** below shows the Topography for the project area.

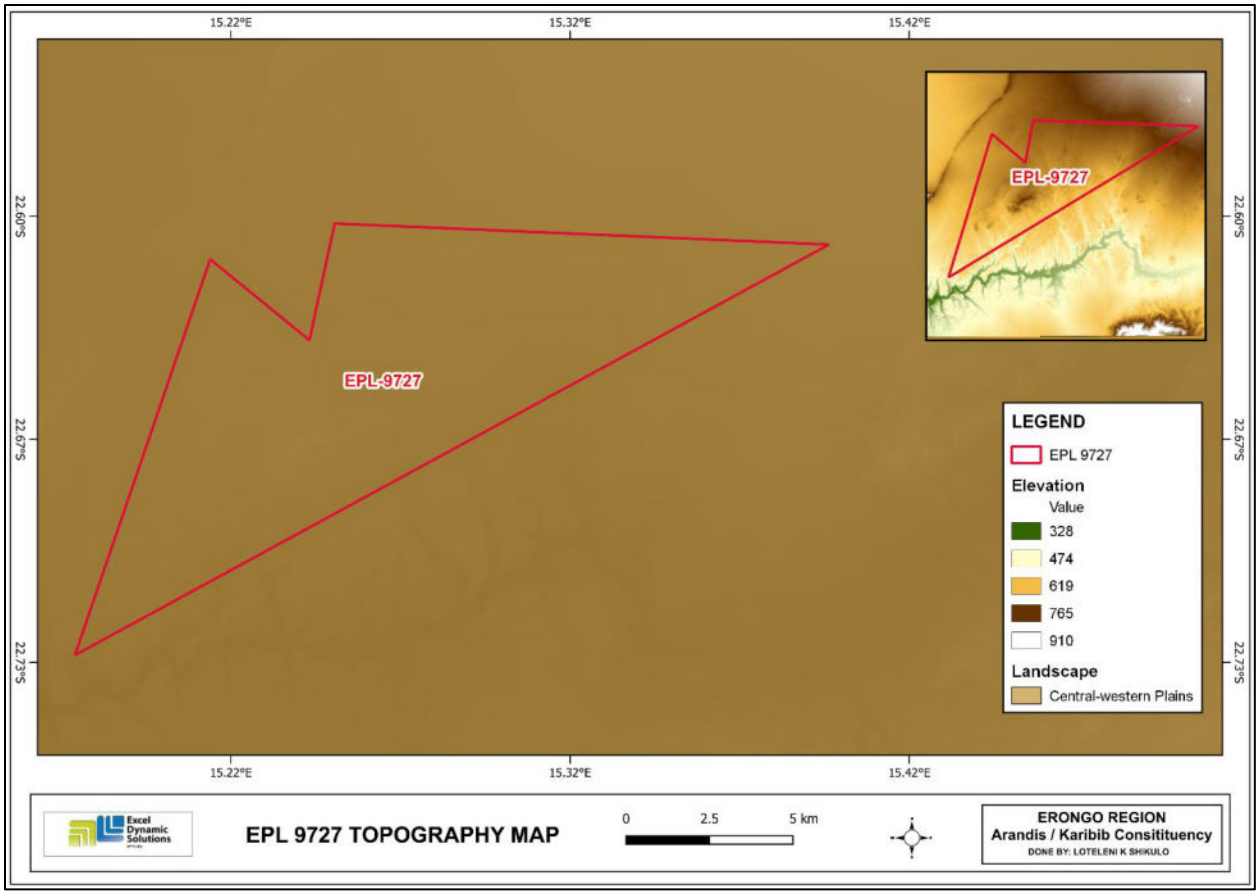


Figure 3: Landscape and Topographic map of the project area

Figure 4: Landscape on EPL No. 9727

5.1.3 Geology

The geology of this region is shaped by the underlying Gondwana and, earlier, the Rodinia supercontinent, which include the Swakop Group, Damara Granites, and Abbabis Metamorphic Complex. The interaction of these geological formations has created the Erongo region's unique landscape, featuring rugged mountains, fertile valleys, and mineral-rich deposits. The EPL is predominantly composed of rock types such as quartzite, conglomerate schist, marble, granite, diorite, and mica. A geological map of the project area is presented in **Figure 4**.

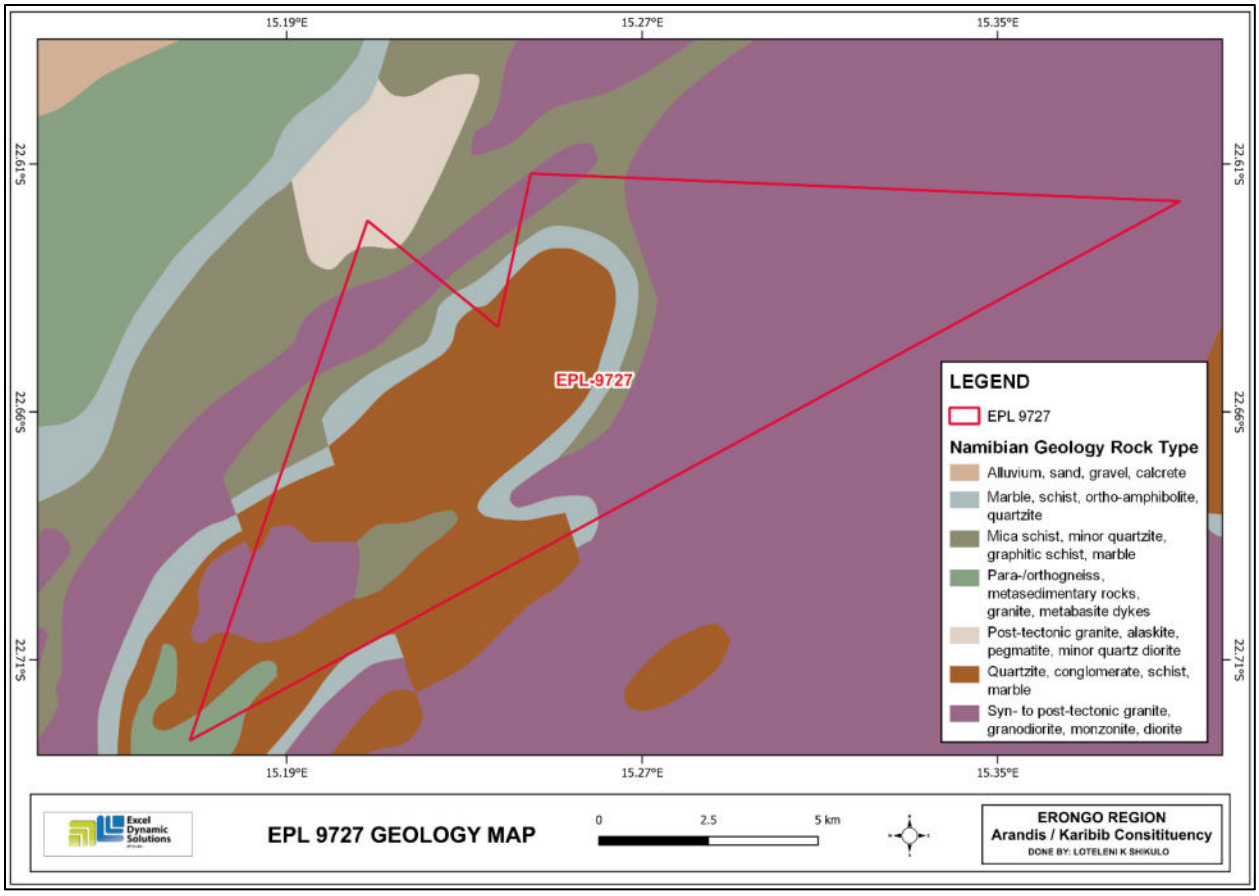


Figure 5: A map of the general geology of the project area

5.1.4 Soil

The soil profile on EPL No 9727 is Eutric regosols and rock outcrops, eutric regosols which are notably nutrient-rich soils, particularly with regard to base saturation, Typically exhibiting a relatively simple soil profile, Eutric regosols often show minimal horizon development. They are generally shallow and well-drained, occurring in environments subject by recent geological formations or areas undergoing active erosion and deposition processes. **Figure 5** below shows the soil types in the project area. The other portion of the EPL is covered by Rock Outcrops. According to Kruger et al. (2013), the outcrop is part of the Damara Orogen, which formed during the Proterozoic era between 2.0 and 0.6 billion years ago. The Damara Orogen is characterized by its complex geological structure, which includes folded and faulted rocks as well as large-scale intrusions of granitic and gabbroic rocks.

It is notable that during the operational phase of the project, soil sampling may be conducted**.** *Therefore, the Soil Conservation Act (No 76 of 1969) should be taken into account to ensure that soils are conserved in a way that does not promote soil erosion.* (Refer to the EMP).

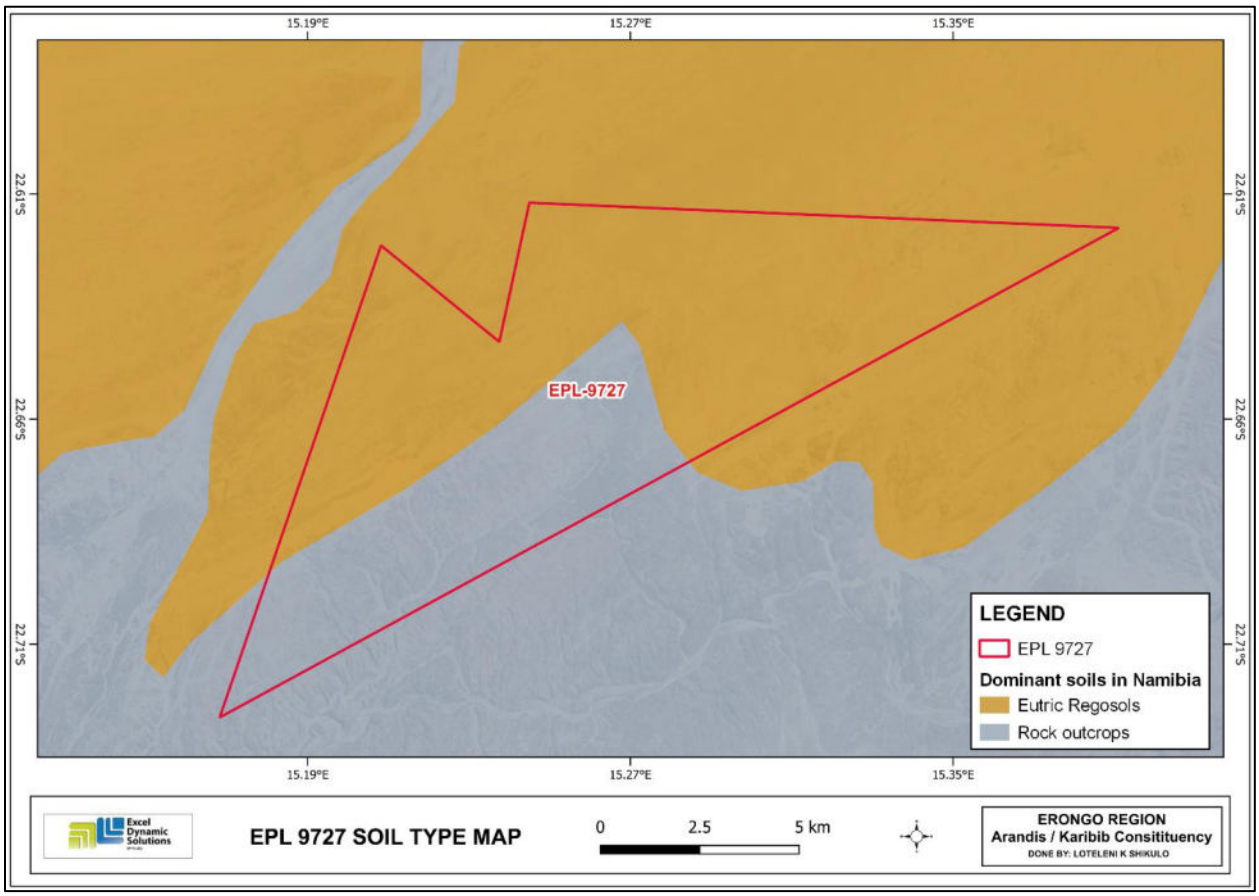


Figure 6: shows the dominant soil types found within the EPL

Figure 7: Soil Profile on EPL No. 9727

5.1.5 Water Resources: Groundwater and Surface Water

Water is a scarce resource in this region, and as a result, according to groundwater is classified into two categories: Class C, which is suitable for animal consumption, and Class D, which is not considered safe for human use. The primary sources of water in this area are groundwater and desalinated water. Groundwater is sourced from the Omdel (Omaruru Delta), which is not located within the EPL, as the geological formations in the area have limited potential for water storage. desalinated water is supplied by the Erongo desalination plant, also known as the Orano desalination Plant, which serves as a key water provider for several uranium mines along the coast.

Surface water is extremely rare in Namibia, typically appearing only in ephemeral rivers during the rainy season, and these rivers are dry for the remainder of the year. The EPL area is situated within the Swakop catchment, which includes major ephemeral rivers such as the Swakop and the Khan, both of which flow westward. The EPL lies the rock bodies with little water within a low vulnerability rate for groundwater pollution potentials. **Figure 8** shows the hydrological map around the EPL.

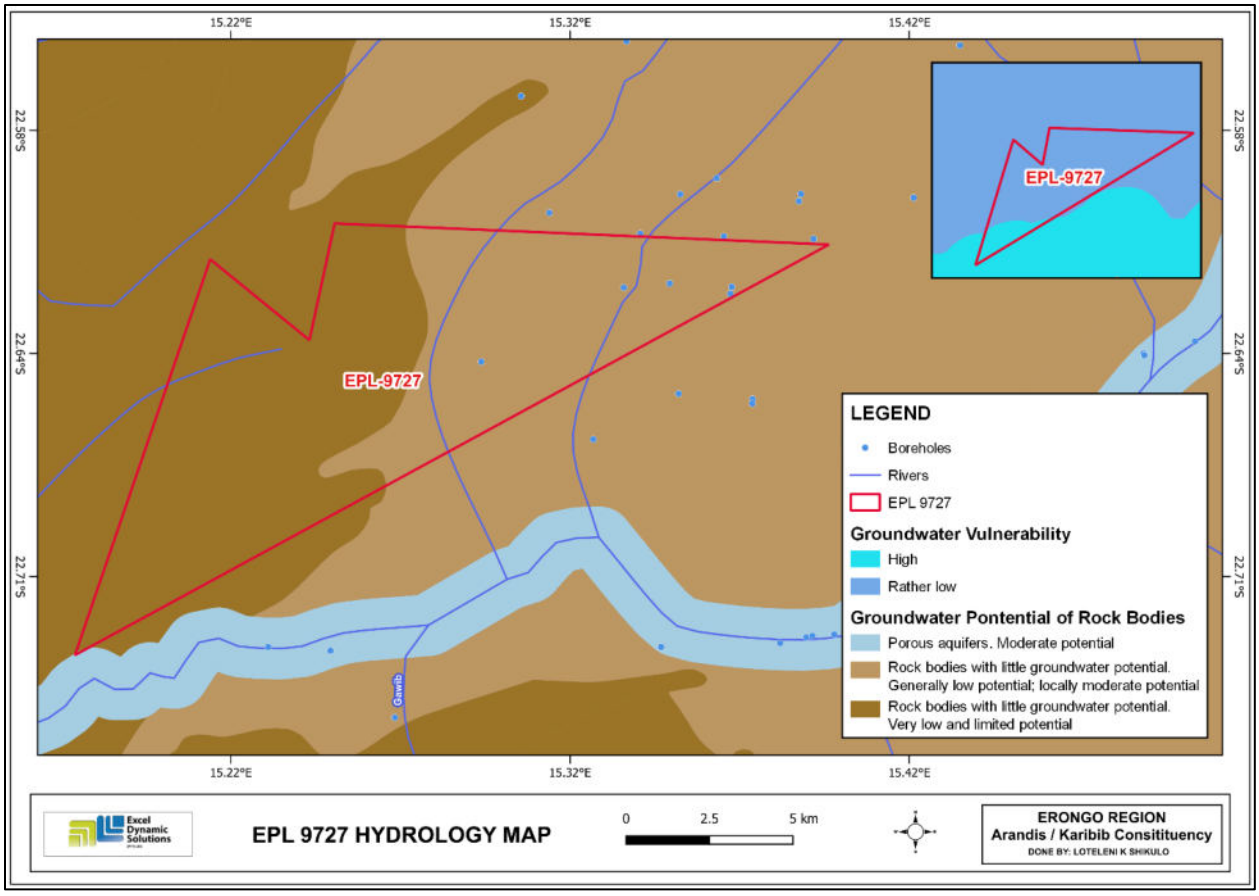


Figure 8: Shows Hydrology map for the project area

5.1.6 Flora and Fauna

5.1.6.1 Flora

The distribution and composition of vegetation in a given region are predominantly influenced by climatic conditions, underlying geology, and soil characteristics. The EPL is situated within the Namib desert biome, specifically classified as the central desert vegetation type. This vegetation type is characterized by sparse shrubs and grasses. The land cover is mainly composed of sparse vegetation and lichens, which fall under the Welwitschia floristic group, a category that encompasses up to 200 co-occurring species. Plant productivity in this region is exceptionally low, with rates of less than 1,000 kg/ha. Notably, some of the plant species in this area exhibit

drought resistance, such as the succulent species Commiphora, Dollar bush-*Zygophyllum stapffii,* Pencil Bush-*Arthraerua leubnitziae*, and few camelthorn trees.

There are Sensitive vegetation in the area Lithops, an appedices with the list of species found within the EPL is attached herewith.

In accordance with the Forestry Act of 2001, a forestry permit (harvesting permit) is required for the removal of any significant plant species within the EPL area. The proponent must comply with the regulations established by the Forestry Act, which pertain to the conservation of plant diversity and the preservation of vegetation structure. Figure 9 shows the vegetation map.

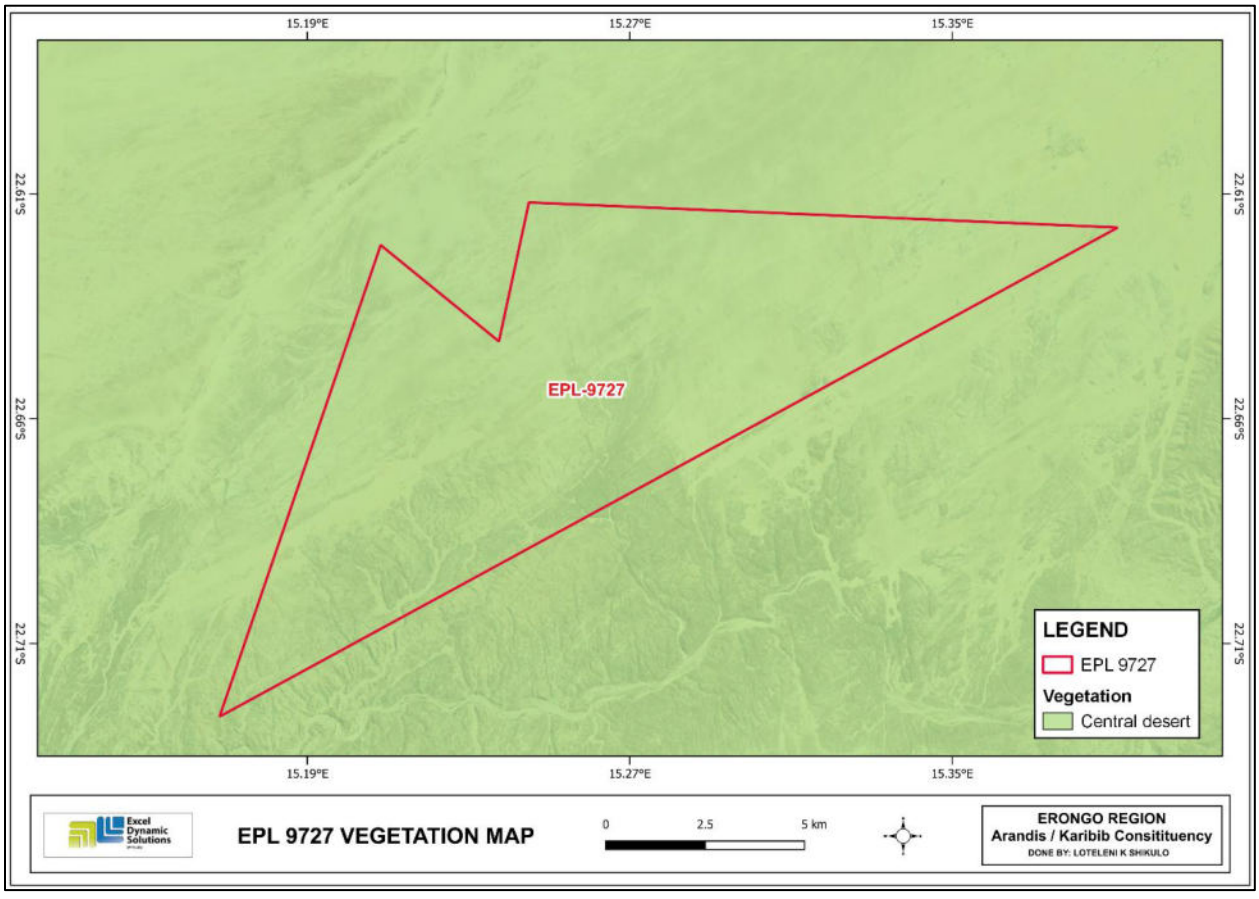


Figure 9: Vegetation map for the proposed project

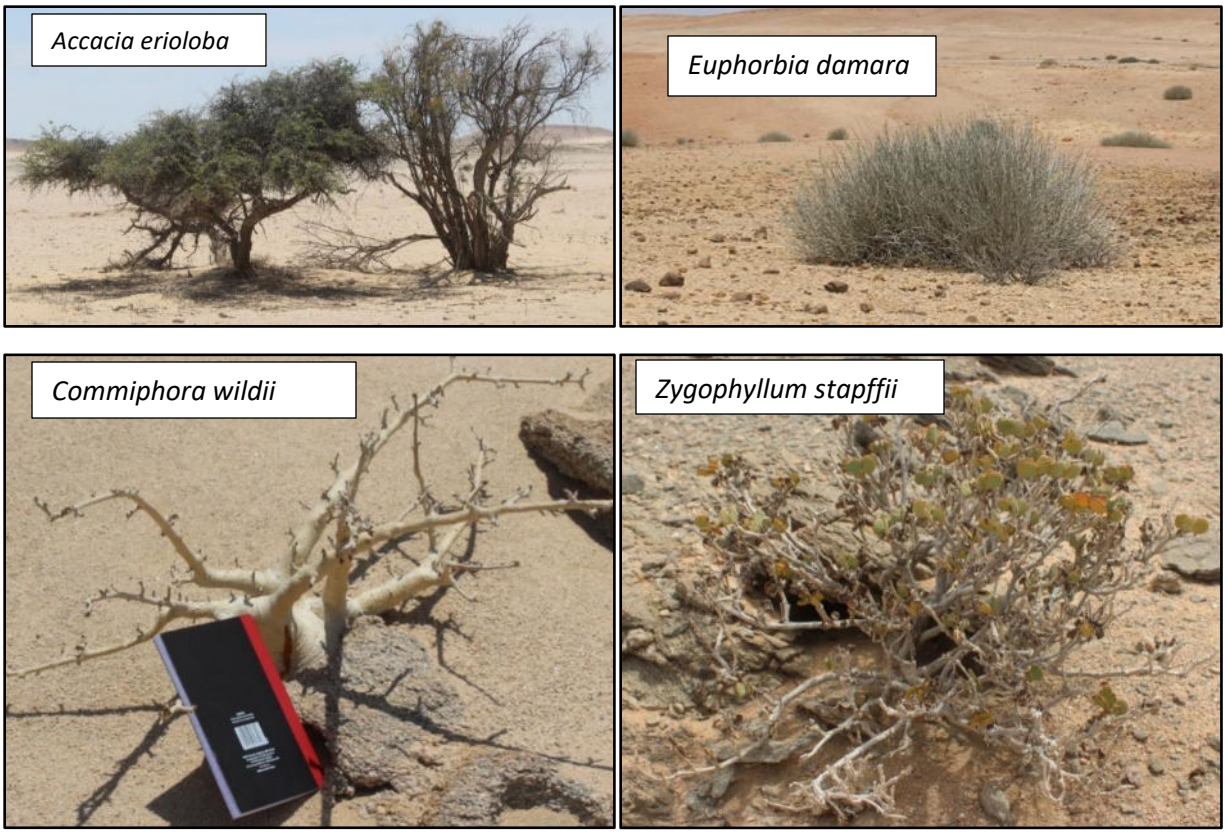


Figure 10 plant species observed within the EPL

5.1.6.2 Fauna

The region is home to a variety of reptiles, including lizards, snakes, and tortoises. Large mammals such as oryx, springbok, ostriches, zebra, and kudu are commonly found in the area, particularly along riverbeds and waterholes. Smaller mammals, including rodents, hares, Squirrels are also present Many of these reptiles are well-adapted to the dry environment, with specialized adaptations to conserve water and regulate body temperature. Birdlife is diverse, with numerous species of sociable weavers, raptors, passerines, and waterbirds inhabiting the area.

Figure 11 Fauna stopped on site during the site visit

5.2 Heritage and Archaeology

5.2.1 Local Level and Archaeological Findings

Archaeological sites in Namibia are protected under the National Heritage Act of 2004 (No. 27 of 2004). Evidence shows that the emergence of modern humans and their ancestors have lived in Namibia for more than one million years, and there are fossil remains of lineal hominin ancestors as early as the Miocene Epoch (Kinahan, 2017). Namibia has a relatively complete sequence covering the mid-Pleistocene to the Recent Holocene period, represented by thousands of archaeological sites mainly concentrated in the central highlands, escarpment, and the Namib Desert.

Abundant evidence has been found of human occupation since at least the mid-Pleistocene (Shackley, 1985). Erongo Region is among the archaeologically sensitive landscapes in Namibia.

The region is home to 7 declared national monuments in the country and other non-designated archaeological sites, making it archaeologically and historically sensitive.

During the site visit , Archeological significant infrastructure such as the old water reservoir , dry stone wall , cave , rock painting , rock shelter were observed during the site visit , thus a further Heritage impact assessment was conducted by a specialist .But there is a probability that other archaeological significances may be discovered or un-earthed during exploration activities Therefore, it is important that the recommended measures outlined in the EMP, must be adhered to the chance if find to be employed incase there is any discovery.

All archeological sensitive were recorded and marked as waypoint and plotted in an archeological map presented below.

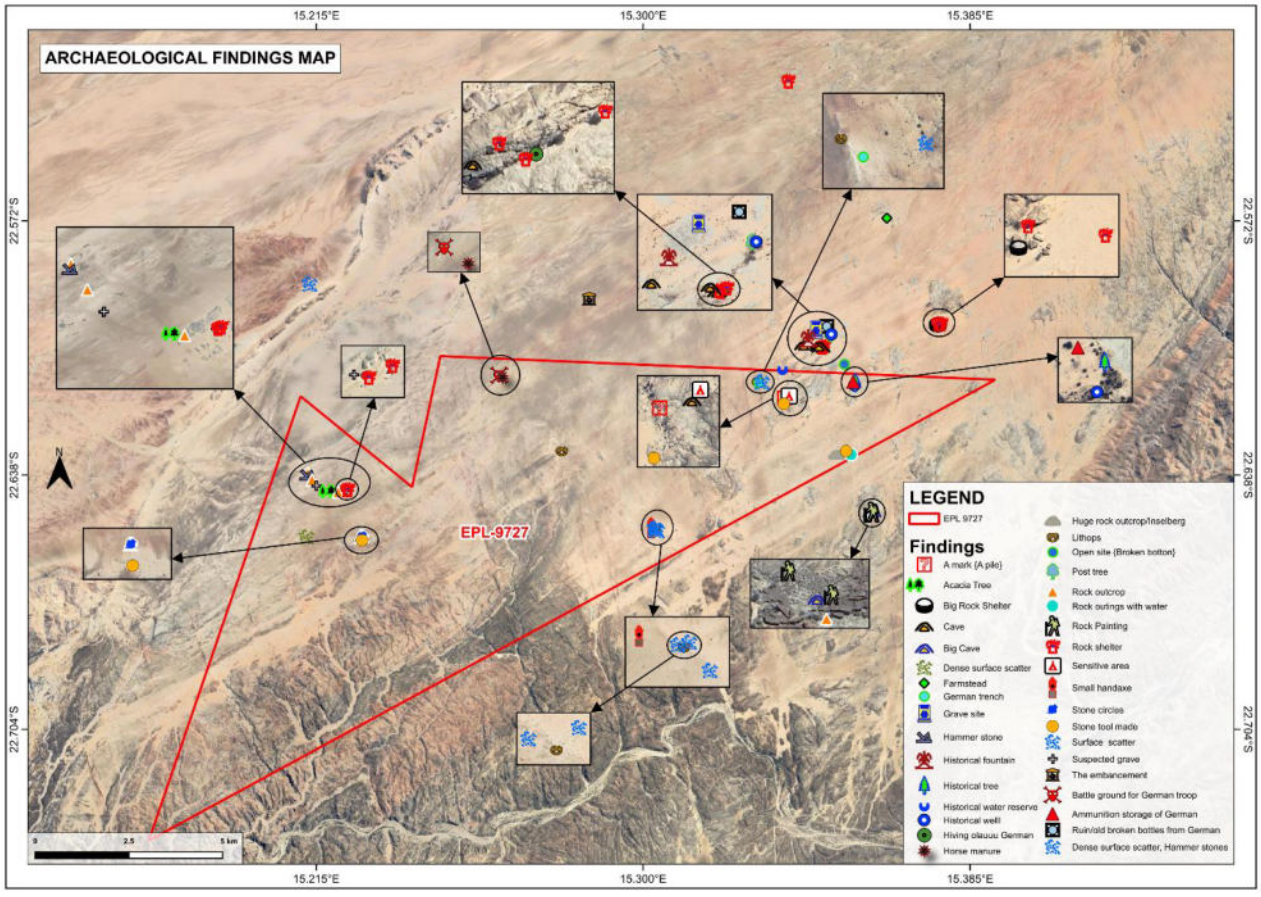


Figure 12 Archeological sensitive infrastructure within the EPL

5.3 Surrounding Land Uses

The EPL falls within commercial land areas and a national park as shown in **Figure 8**. The Proponent is required to secure a signed agreement from the affected landowners to gain access to the areas of interest for prospecting and exploration investigations as per Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. Section 52 (1) The holder of the mineral license shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral license –

    (a) In, on, or under any and until such holder has agreed in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waived any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

Section 2.2.3 of the Draft Minerals Policy of Namibia states that the License Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for mining purposes.

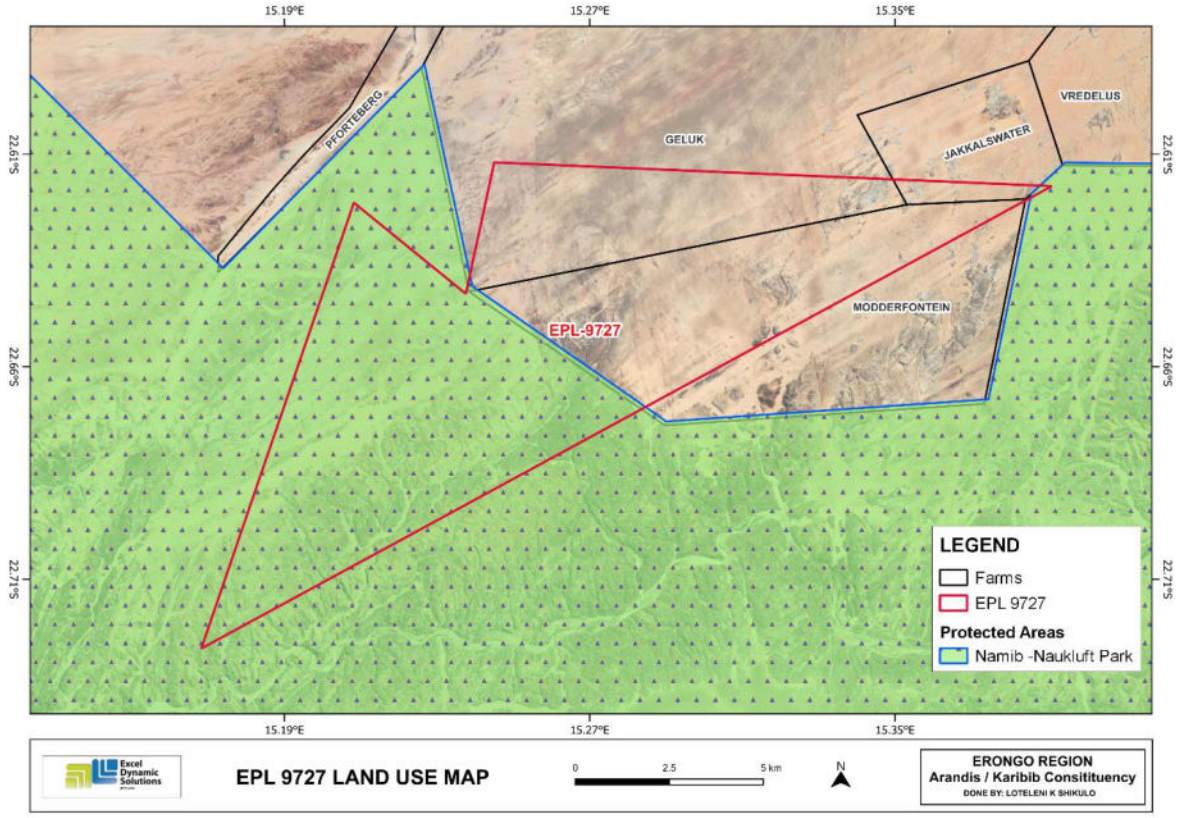


Figure 13: Map showing land use within and surrounding the EPL

6 PUBLIC CONSULTATION PROCESS

Public consultation is an important component of an Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process, thus assisting the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this scoping study has been done following the EMA and its EIA Regulations.

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities, local leaders, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed exploration activities were placed in two widely read national newspapers in the region (New Era Newspaper and The Namibian Newspaper). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 3** below and the complete list of I&APs is provided in **Appendix D**.

Table 4: Summary of Interested and Affected Parties (I&APs)

National (Ministries and State-Owned Enterprises)
Ministry of Environment, Forestry and Tourism
Ministry of Mines and Energy
Ministry of Health and Social Services
Regional, Local, and Traditional Authorities
Erongo Regional Council
Arandis Constituency
General Public
Landowners /Interested members of the public
Namibia Community-Based Tourism Association

6.2 Communication with I&APs

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs

concerning the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed exploration works was compiled, and upon request delivered to all new registered Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices were published in New Era Newspaper and The Namibian Newspaper (13 and 20 December 2024), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting with affected landowners was scheduled for the 22 January 2025 at Ministry of Environment, Forestry and Tourism (MEFT) in Swakopmund .
- A site notice was placed at Swakopmund MEFT office
- All issues, comments and concerns raised were noted and used to form a basis for the ESA Report and EMP.

Figure 14: Public notices placed at Swakopmund MEFT office, Erongo Region

Figure 15: Consultation meeting held at Swakop MEFT office

Issues raised by I&APs have been recorded and incorporated in the environmental report and EMP. The summarized issues raised during the public meeting are presented in **Table 4** below. The issues raised and responses by EDS are attached under **Appendix G**

Table 5: Summary of main issues raised, and comments received during public meeting engagements

Issue	Concern
Archeological and ecological sensitivity of the EPL	The EPL lies in an archeological and ecological sensitive area.
Rehabilitation	The client must rehabilitate the sites after exploration.

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

Proposed developments/activities are usually associated with different potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control while maximizing the positive impacts of the development. The potential positive and negative impacts that have been identified from the prospecting activities are listed as follows:

Positive impacts:

- Creation of jobs for the locals (primary, secondary, and tertiary employment).
- Producing a trained workforce and small businesses that can service communities and may initiate related businesses.
- Boosting local economic growth and regional economic development.
- Open up other investment opportunities and infrastructure-related development benefits.

Negative impacts:

- Land degradation and Biodiversity Loss
- Generation of dust
- Water Resources Use
- Soil & Water Resources Pollution
- Waste Generation
- Occupational Health & Safety risks
- Vehicular Traffic Use & Safety
- Noise & Vibrations
- Disturbance to Archaeological & Heritage Resources
- Impacts on local Roads
- Social Nuisance: local property intrusion & disturbance
- Social Nuisance: Job seeking & differing Norms, Culture & values

- Impacts associated with closure and decommissioning of exploration works

7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is following Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity), and probability (likelihood of occurring), as presented in **Table 5**, **Table 6**, **Table 7,** and **Table 8**, respectively.

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact.
- Assessment of the pre-mitigation significance of the impact; and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were applied in this impact assessment:

7.2.1 Extent (spatial scale)

The extent is an indication of the physical and spatial scale of the impact. **Table 5** shows the rating of impact in terms of the extent of spatial scale.

Table 6:Extent or spatial impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
The impact is localized within the site boundary: Site only	The impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond site boundary: Regional	The impact extends National or international boundaries

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured concerning the lifetime of the project. **Table 6** shows the rating of impact in terms of duration.

Table 7:Duration impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	The impact is quickly reversible, and short-term impacts (0-5 years)	Reversible over time; medium-term (5-15 years)	Impact is long-term	Long-term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

7.2.3 Intensity, Magnitude/severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These ratings were also taken into consideration during the assessment of severity. **Table 7** shows the rating of impact in terms of intensity, magnitude, or severity.

Table 8:Intensity, magnitude, or severity impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration, high quantity of deaths, injury or illness / total	Substantial deterioration, death, illness or injury, loss of habitat/diversity or resource,	Moderate deterioration, discomfort, partial loss of habitat/biodiversity or resource,	Low deterioration, slight noticeable alteration in habitat and biodiversity.	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration.

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
	loss of habitat, total alteration of ecological processes, extinction of rare species	severe alteration or disturbance of important processes	moderate alteration	Little loss in species numbers	

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 8** shows impact rating in terms of probability of occurrence.

Table 9:Probability of occurrence impact rating

Low (1)	Medium/Low (2)	Medium (3)	Medium/High (4)	High (5)
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	A possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, and continuous. High risk or vulnerability to natural or induced hazards.

7.2.5 Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact “without mitigation” is the main determinant of the nature and degree of mitigation required. As stated in the introduction to this section, for this assessment, the significance of the impact without prescribed mitigation actions is measured.

Once the above factors (**Table 5**, **Table 6**, **Table 7,** and **Table 8**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

SIGNIFICANCE POINTS (SP) = (MAGNITUDE + DURATION + SCALE) X PROBABILITY

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate, or low significance, based on the following significance rating scale (**Table 9**).

Table 10:Significance rating scale

Significance	***Environmental Significance Points***	***Colour Code***
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	1 to 30	L
Neutral	0	N
Low (negative)	-1 to -30	L
Medium (negative)	-30 to -60	M
High (negative)	-60<	H

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse+ Impact

Neutral – Impacts are neither beneficial nor adverse

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a period to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the exploration phases is done for pre-mitigation and post-mitigation.

The risk/impact assessment is driven by three factors:

Source: The cause or source of the contamination.

Pathway: The route taken by the source to reach a given receptor

Receptor: A person, animal, plant, ecosystem, property, or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.

A pollutant linkage occurs when a source, pathway, and receptor exist together. Mitigation measures aim firstly, to avoid risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

This assessment focuses on the three project phases namely, prospecting, exploration (and possible analysis), and decommissioning. The potential negative impacts stemming from the proposed activities of the EPL are described and assessed and mitigation measures are provided thereof. Further mitigation measures in a form of management action plans are provided in the Draft Environmental Management Plan.

7.3 Assessment of Potential Negative Impacts

The main potential negative impacts associated with the operation and maintenance phase are identified and assessed below:

7.3.1 **Land Degradation and Loss of Biodiversity**

Fauna: The trenching, pitting and drilling activities carried out during exploration would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and trees. Endemic species are most at risk, since even the slightest disruption in their habitat can result in extinction.

The presence and movement of the exploration workforce and operation of project equipment and heavy vehicles would disturb livestock and wildlife present in the National Park. The proposed activities may also carry the risk of potential illegal hunting of local wildlife .This could lead to reduction of specific faunal species, which may limit tourism (sightseeing and safari) activity in the area.

Additionally, if the exploration sites are not rehabilitated, they could pose a high risk of injuries to animals by falling into holes and pits.

Flora: Direct impact of exploration works on flora will mainly occur through clearing for exploration access routes and associated infrastructure. The dust emissions from drilling may also affect surrounding vegetation through the fall of dust, if excessive. Some loss of vegetation is an inevitable consequence of the development. However, given the abundance of the shrubs and site-specific areas of exploration on the EPL, the impact will be localized, therefore manageable.

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating**.** The impact is assessed in **Table 10** below.

Table 11:Assessment of the impacts of exploration on grazing areas

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -4	M: -3	M: -4	M/H: 5	M: -55
Post mitigation	L/M: -2	L/M: -2	L/M: -4	L/M: 3	L: -24

7.3.1 Generation of Dust (Air Quality)

Dust emanating from site access routes when transporting exploration equipment and supply to and from the site may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust, even if it is not anticipated to be low. Additionally, activities carried out as part of the exploration works such as drilling would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 11** below.

Table 1: Assessment of the impacts of exploration on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Post mitigation	L - 2	L - 2	L- 2	L - 1	L - 6

7.3.2 Water Resources Use

Water resources are impacted by project developments/activities in two ways - through pollution (water quality) or over-abstraction (water quantity) or at times both.

The abstraction of more water than can be replenished from low groundwater potential areas would negatively affect the local farmer that depend on the same low potential groundwater resource (aquifer).

The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Exploration activities use a lot of water, mainly for drilling. However, this depends on the type of drilling methods employed (diamond drilling is more water-consuming compared to drilling methods such as reverse circulation for instance) and the type of mineral being explored.

The drilling method to be employed for this project's exploration activities is Reverse Circulation. Given the low to medium groundwater potential of some project site areas, the Proponent may consider carting some of the water volumes from outside the area and storing in industry-standard water reservoirs/tanks on site. The exact amounts of water required for proposed operations would be dependent on the duration of the exploration works and the number of exploration boreholes required to make a reliable interpretation of the commodities explored. The exploration period is temporally limited, therefore, the impact will only last for the duration of the exploration activities, and ceases upon their completion.

Without the implementation of any mitigation measures, the impact can be rated as medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low as presented in **Table 13** below.

Table 12: Assessment of the project impact on water resource use and availability

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 3	L/M - 4	M/H - 4	M - 40
Post mitigation	L/M - 1	L/M - 1	L - 2	L/M - 3	L - 12

7.3.3 Soil and Water Resources Pollution

The proposed exploration activities are associated with a variety of potential pollution sources (i.e., lubricants, fuel, and wastewater) that may contaminate/pollute soils, and eventually, surface and groundwater. The anticipated potential source of pollution to water resources from the project activities would be hydrocarbons (oil) from project vehicles, machinery, and equipment as well as potential wastewater/effluent from exploration-related activities.

The spills (depending on volumes spilled on the soils) from machinery, vehicles, and equipment could infiltrate into the ground and pollute the fractured or faulted aquifers on site, and with time reach further groundwater systems in the area. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small. Therefore, the impact will be moderately low.

Pre-implementation of any mitigation measures, the impact significance is medium to high and upon implementation, the significance will be reduced to moderate. The impact is assessed in **Table 14** below.

Table 13: Assessment of the project impact on soils and water resources (pollution)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 5	M/L - 3	M/L - 3	M - 4	M - 44
Post mitigation	L - 3	M - 3	L - 3	L/M - 3	L - 27

7.3.4 Waste Generation

During the prospecting and exploration program, domestic and general waste is produced on-site. If the generated waste is not disposed of responsibly, land pollution may occur on the EPL or around the sites. The EPL is in an area of moderate sensitivity to pollution. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the exploration program needs to have appropriate waste management for the site. To prevent these issues, any hazardous waste that may have an impact on animals, vegetation, water resources, and the general environment should be handled cautiously. Without any mitigation measures, the general impact of waste generation has a medium significance. The impact will reduce to low significance,

upon implementing the mitigation measures. The assessment of this impact is given in **Table 15** below.

Table 14: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	M - 6	M - 5	M – 50
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

7.3.5 Occupational Health and Safety Risks

Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These may result from accidental injury, owing to either minor (i.e., superficial physical injury) or major (i.e., involving heavy machinery or vehicles) accidents. The site safety of all personnel is the Proponent's responsibility and should be adhered to as per the requirements of the Labour Act (No. 11 of 2007) and the Public Health Act (No. 36 of 1919). The heavy vehicle, equipment, and fuel storage area should be properly secured to prevent any harm or injury to the project workers or local animals.

The use of heavy equipment, especially during drilling, and the presence of hydrocarbons on sites may result in accidental fire outbreaks, which could pose a safety risk to the project personnel, equipment, and vehicles. It may also lead to widespread veld fires if an outbreak is not contained and if machinery and equipment are not properly stored, the safety risk may be a concern for project workers and residents.

The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating will be reduced to low. This impact is assessed in **Table 16** below and mitigation measures are provided.

Table 15: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/L - 2	M - 6	M/H - 4	M – 44

Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.3.6 Noise and vibrations

Prospecting and exploration work (especially drilling) may be a nuisance to surrounding communities due to the noise produced by the activity. Excess noise and vibrations can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to a low rating, mitigation measures should be implemented. This impact is assessed in **Table 18** below.

Table 16: Assessment of the impacts of noise and vibrations from exploration

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	M - 6	M/H - 3	M – 30
Post mitigation	L - 1	L/M - 2	L - 2	L/M -2	L - 10

7.3.7 Disturbance to Archaeological and Heritage Resources

The Erongo region contains archeological/cultural significant sites, and there is a possibility of unveiling/discovering new archeological and/or cultural materials in the proposed project area. If such Materials are found, the areas must be mapped out and coordinates taken to establish “No-Go-Areas”, due to their sensitivity and then documented. They may be protected either by fencing them off or demarcation for preservation purposes, or excluding them from any development i.e., no exploration activities should be conducted near these recorded areas through the establishment of buffer zones.

This impact can be rated as medium significance if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be reduced to a lower rating. The impact is assessed in **Table 19**.

Table 17: Assessment of the impacts of exploration on archaeological & heritage resources

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	M - 6	M/H - 4	M – 52
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.3.8 Impact on Local Roads/Routes

Exploration projects are usually associated with the movements of heavy trucks and equipment or machinery that use local roads. Heavy vehicles traveling on local roads exert pressure on the roads and may make the roads difficult to use. This will be a concern if maintenance and care is not taken during the exploration phase. The impact would be short-term (during exploration only) and therefore, manageable.

Without any management and or mitigation measures, the impact can be rated as medium and to reduce this rating to low, the measures will need to be effectively implemented. The assessment of this impact is presented in **Table 20**.

Table 18: Assessment of exploration of local services (roads and water)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H - 4	M - 3	M - 6	M - 3	M – 39
Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

7.3.9 Social Nuisance: Local Property intrusion and Disturbance/Damage

The presence of some non-resident workers may lead to social annoyance to the local farmers. This could particularly be a concern if they enter or damage local private property. The private properties of the locals may include houses, fences, vegetation, livestock, wildlife, or any properties of economic or cultural value to land users. The damage or disturbance to properties may not only be private but local public properties. The unpermitted and unauthorized entry to private property may cause crashes between the affected property (land) owners and the Proponent.

The impact is rated as of medium significance. However, upon mitigation (post-mitigation), the significance will change from a medium to a low rating. The impact is assessed below **(Table 21)**.

Table 19: Assessment of the social impact of local property damage or disturbance

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 2	M - 3	M - 4	M/H - 3	M – 27
Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

7.4 Cumulative Impacts Associated with Proposed Exploration

According to the International Finance Corporation (2013), cumulative impacts are defined as "impacts that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future impacts".

Like many other exploration projects, some cumulative impacts to which the proposed project and associated activities potentially contribute, are the:

- **Impact on road infrastructure:** The proposed exploration activity contributes cumulatively to various activities such as farming activities and traveling associated with tourism and local daily routines. The contribution of the proposed project to this cumulative impact is however not considered significant, given the short duration, and spatial extent of the intended mineral exploration activities.
- **Use of water**: While the contribution of this project will not be significant, mitigation measures to reduce water consumption during exploration are essential.

7.5 Mitigations and Recommendations for Rehabilitation

The rehabilitation of explored (disturbed) sites will include but not be limited to the following:

- Backfilling of trenches and or pits in such a way that subsoil is replaced first, and topsoil replaced last.
- Closing off and capping of all exploration drilling boreholes. The boreholes should not only be filled with sand alone, as the wind may scour the sand and re-establish the holes.
- Carrying away all waste generated from the site.

- Transporting all machinery and equipment as well as vehicles to designated offsite storage facilities.

8 RECOMMENDATIONS AND CONCLUSION

8.1 Recommendations

The potential positive and negative impacts of the proposed exploration activities on EPL No. 9727 were identified and assessed and appropriate management and mitigation measures (to negative impacts) were made thereof for implementation by the Proponent, their contractors, and project-related employees.

Mitigation measures for identified issues have been provided in the Environmental Management Plan, for the Proponent to avoid and/or minimize their significant impacts on the environmental and social components. Most of the potential impacts were found to be of medium-rating significance. With effective implementation of the recommended management and mitigation measures, a reduced rating in the significance of adverse impacts is expected from Medium to Low. To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO). The monitoring of implementation will not only be done to maintain a low rating but also to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away.

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures and with more effort and commitment put into monitoring the implementation of these measures.

It is, therefore, recommended that in the case of granting an ECC for this project, the proposed prospecting and exploration activities may be granted an ECC, provided that:

- All the management and mitigation measures provided in the EMP are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to explore and ensure compliance with these specific legal requirements.
- The Proponent and all project workers and contractors must comply with the legal requirements governing the project and ensure that all required permits and or approvals are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.

8.2 Conclusion

It is crucial for the proponents and their contractors to effectively implement the recommended management and mitigation measures, to protect the biophysical and social environment throughout the project duration. This would be done to promote environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the project area and environment at large. It is also to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed accordingly. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing mineral exploration and related activities.

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