

ENVIRONMENTAL SCOPING ASSESSMENT (ESA) STUDY:

THE PROPOSED PROSPECTING AND EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 8241 LOCATED NORTHWEST OF OMARURU IN THE ERONGO REGION, NAMIBIA



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DOCUMENT INFORMATION

Title: Environmental Scoping Assessment (ESA) Study Report for the Proposed Prospecting and Exploration Activities on Exclusive Prospecting License (EPL) No. 8241 Located Northwest of Omaruru in the Erongo Region, Namibia

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SERJA' STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study for Proposed Prospecting and Exploration Activities on Exclusive Prospecting License (EPL) No. 8241 Located Northwest of Omaruru in the Erongo Region, Namibia, Serja Hydrogeo-Environmental Consultants cc declare that we:

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

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



.....
Signature:

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

Date: May 2023

EXECUTIVE SUMMARY

Barbara Tjiroze (hereinafter referred to as the Proponent) applied to be granted the rights to Exclusive Prospecting Licence (EPL) No. 8241 by the Ministry of Mines and Energy (MME) on the 06th of July 2020. The EPL has only been provisionally granted pending an environmental assessment study and an Environmental Clearance Certificate (ECC) to make a final decision on the EPL. The status of this application is shown on the Namibia Mining Cadastre Map Portal ("pending ECC"). The EPL has a potential for Base & Rare Metals, Dimension Stone, Industrial Minerals, and Precious Metals. The EPL covers an area of 19,726.1504-hectare (Ha) and located about 10km northwest of Omaruru in the Erongo Region.

Proposed Project Activities

The project will be carried out using two groups of techniques:

- Non-invasive technique (Desktop Study for both commodities). During the prospecting and exploration phase, the vital components include reviewing existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages. In addition to the literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. These works do not require physical disturbance.
- Invasive techniques (Detailed exploration for Base & Rare Metals, Industrial Minerals, and Precious Metals): This will entail the verification of information collected during the desktop study and survey and obtain more/detailed information about the EPL. The invasive techniques include soil sampling, trenching, and drilling.
- Invasive techniques (Detailed exploration, i.e., drilling for Dimension Stone): Where exploration drilling yields positive results, test quarrying by means of butterfly cutting will be conducted. The exploration test quarrying will only be carried out on select targeted areas of the EPL and shall be performed on as small areas as possible to minimize environmental impacts.

ESA Process and Consultation

The ESA Study for the proposed exploration activities on EPL-8241 was undertaken in accordance with the EMA and its 2012 EIA Regulations. The public was notified through the newspaper adverts placed in 3 newspapers (*The Namibian Sun*, *Die Republikein* and *Allgemeine Zeitung*) dated 28 November 2022 and 05 December 2022. The consultation period initially ran from 28 November 2022 to 06 January 2023, and later extended to end of March 2023 to allow further comments after the consultation meetings. The consultation meetings were held on 17 and 22 March 2023, whereby the representatives of the affected parties raised issues, and concerns associated with the proposed activities. Therefore, I&APs were afforded sufficient time to submit comments and concerns for incorporation into the environmental assessment Report and EMP. The consultation process was conducted in this order:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand delivered to MME during the submission of the ECC application, uploaded on the MEFT (ECC) Portal for project registration and shared with registered I&APs.
- Project Environmental Assessment notices were published in The Namibia Media Holdings' *Market Watch newspapers (Allgemeine Zeitung, Die Republikein, and Namibian Sun)* dated 28 November 2022 & 05 December 2022, briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- The BID was circulated to I&APs, particularly the farm owners as well as other interested members of the public as requested.
- A consultation meeting was scheduled and held with stakeholders / the affected farmers (landowners) on the 17th of March 2023 at 11h30 at Central Hotel Boardroom in Omaruru.
- One of the landowners who was based in Windhoek and could not attend the meeting on the 17th of March had a separate briefing (meeting) in Windhoek on the 22nd of March 2023. The consultation meeting minutes were taken in both meetings and are attached to this Report.
- Two A3 size posters were pasted in Omaruru at the Omaruru Municipality and Spar Supermarket notice boards.

The issues raised by the I&APs, such as farmers were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the biological, physical and social environmental components.

Impact Assessment

Some key potential positive and negative impacts were identified. The key negative impacts were described, assessed and appropriate management and mitigation measures made for implementation (as provided in the Draft EMP). The potential negative impacts assessed have a medium and some with a slightly high rating significance. The significance of the adverse (negative) impacts cannot be avoided can be reduced to acceptable levels by the effective implementation of the recommended management and mitigation measures accompanied by implementation monitoring.

The summary of the assessed potential adverse impacts (based on impact significance rating) is provided below:

- Physical land / soil disturbance and impact on grazing areas: *pre-mitigation – medium, post-mitigation – low.*
- Biodiversity (fauna and flora); potential illegal harvesting of protected vegetation and wildlife hunting (poaching) and habitat disturbance in the area, impacting tourism: *pre-mitigation – slightly high to medium, post-mitigation – low.*
- Impact on groundwater resources (over-abstraction/use): *pre-mitigation – slightly high to medium, post-mitigation – low.*

- Water and soil pollution: *pre-mitigation - medium, post-mitigation – low.*
- Air quality (compromising surrounding air quality) - *pre-mitigation – medium, post-mitigation – low.*
- Visual impacts due to land scars owing to Dimension Stone exploration activities, resulting in the impact on tourism: *pre-mitigation – slightly high to medium, post-mitigation – low.*
- Occupational and community health, safety and security risks: *pre-mitigation – medium, post-mitigation – low.*
- Vibrations and noise associated with exploration trenching and drilling: *pre-mitigation – medium, post-mitigation – low.*
- Vehicular traffic safety & impact on services infrastructure (e.g., local roads): *pre-mitigation – medium, post-mitigation – low.*
- Environmental pollution (poor waste management): *pre-mitigation – medium, post-mitigation – low.*
- Archaeological and cultural heritage impact: *pre-mitigation – medium, post-mitigation – low.*
- Social nuisance and conflicts due to land use (theft, property damage, etc.) - *pre-mitigation – slightly high to medium, post-mitigation – low.*

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

- All the management and mitigation measures provided herein are effectively and progressively implemented, with commitment on Environmental monitoring through Bi-Annual EMP Compliance reporting by an Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant. The monitoring of this implementation will not only be done to maintain the reduce impacts' rating or maintain low rating but to also ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land access agreements, services provision agreements (water supply and waste disposal) to explore and ensuring compliance with these specific legal requirements.
- The Proponent, and their workers/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. This includes the levelling of stockpiled topsoil, backfilling of exploration trenches and closing/capping of exploration holes.

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APPENDICES

Appendix A: The Copy of Environmental Clearance Certificate (ECC) Application submitted to the Ministry of Environment, Forestry and Tourism and uploaded on the ECC Portal.

Appendix B: Draft Environmental Management Plan (EMP) - *uploaded separately on the Portal as required*

Appendix C: Curriculum Vitae (CV) of the responsible Environmental Assessment Practitioner (EAP) - *uploaded separately on the Portal as required*

Appendix D: EIA Notification in the newspapers: *Allgemeine Zeitung, Die Republikein & Namibian Sun* - *uploaded separately on the Portal as required (under "Proof of Public Consultation" file)*

Appendix E: Consultation Meeting Minutes - *uploaded separately on the Portal as required (under "Proof of Public Consultation" file)*

LIST OF ABBREVIATIONS

BID:	Background Information Document
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DEAF:	Department of Environmental Affairs and Forestry
EAP:	Environmental Assessment Practitioner

ECC:	Environmental Clearance Certificate
EIA:	Environmental Impact Assessment
EMA:	Environmental Management Act
EMP:	Environmental Management Plan
EP:	Equator Principle
EPL:	Exclusive Prospecting License
ESA:	Environmental Scoping Assessment
GG:	Government Gazette
GN:	Government Notice
I&APs:	Interested and Affected Parties
IFC:	International Finance Corporation
MAWLR:	Ministry of Agriculture, Water and Land Reform
MEFT:	Ministry of Environment, Forestry and Tourism
MHSS:	Ministry of Health and Social Services
MME:	Ministry of Mines and Energy
PPE:	Personal Protective Equipment
RC:	Reverse Circulation (drilling technique)
Reg:	Regulation
S:	Section

KEY TERMS (ADOPTED FROM EXCEL DYNAMIC SOLUTIONS)

Alternative - A possible course of action, in place of another that 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 The part of the environment that does not originate with human activities (e.g., biological, physical and chemical processes).

Cumulative Impacts/Effects Assessment - In relation to an activity, means the impact of an activity that in it 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 which 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 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 (Draft EMP) - 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 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) - In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed 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.

Fauna and Flora - The animals and plants found in an 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).

Proponent - Organization (private or public sector) or individual intending to implement a development proposal. Barbara Tjiroze is the individual Proponent for this EIA Study.

Public Consultation/Involvement - A range of techniques that 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 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.

1 INTRODUCTION

1.1 Project Background and Location

Barbara Tjiroze (hereinafter referred to as the Proponent) applied to be granted the rights to Exclusive Prospecting Licence (EPL) No. 8241 by the Ministry of Mines and Energy (MME) on the 06th of July 2020. The EPL has only been provisionally granted pending an environmental assessment study and an Environmental Clearance Certificate (ECC) to make a final decision on the EPL. The status of this application is shown on the Namibia Mining Cadastre Map Portal (“pending ECC”) <https://portals.landfolio.com/namibia/> - Figure 1-1. The EPL has a potential for Base & Rare Metals, Dimension Stone, Industrial Minerals, and Precious Metals.

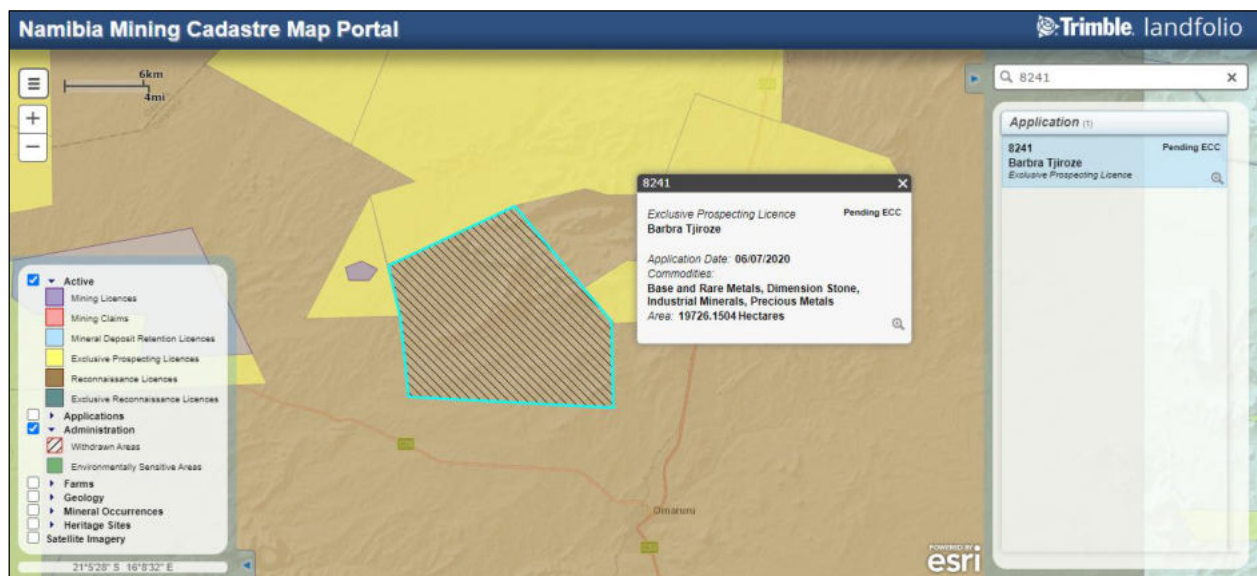


Figure 1-1: The status of EPL-8241 on the Namibia Mining Cadastre Map Portal (<https://portals.landfolio.com/namibia/>)

The EPL covers an area of 19,726.1504-hectare (Ha) and located about 10km northwest of Omaruru in the Erongo Region as shown in Figure 1-2.

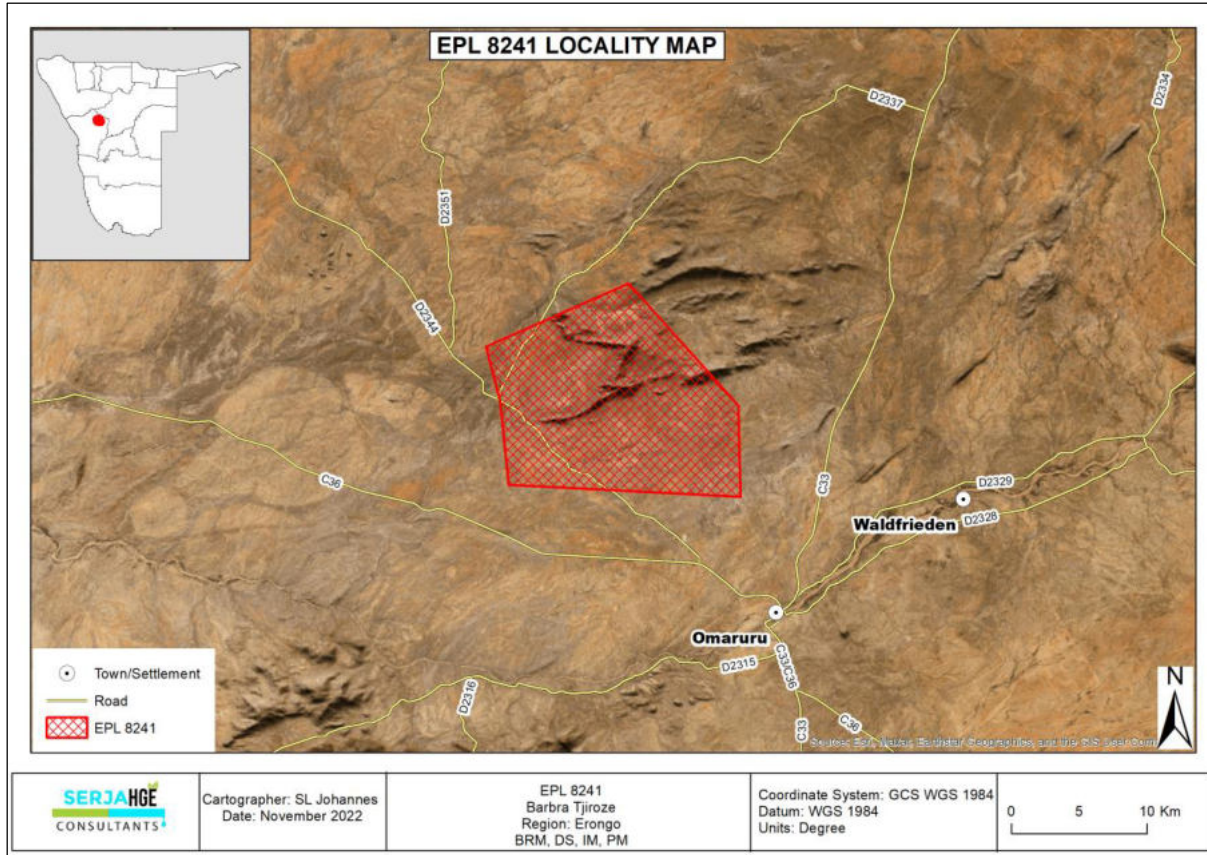


Figure 1-2: Locality Map of EPL-8241 located northwest of Omaruru

The EPL covers some farms such as Farm Kompaneno No. 104, Piechazek No. 236 & 238, Farm No. 237 and Tjirundo No. 91 as shown on the map in Figure 1-3 and the approximate coordinates of the EPL are presented in Table 1-1.

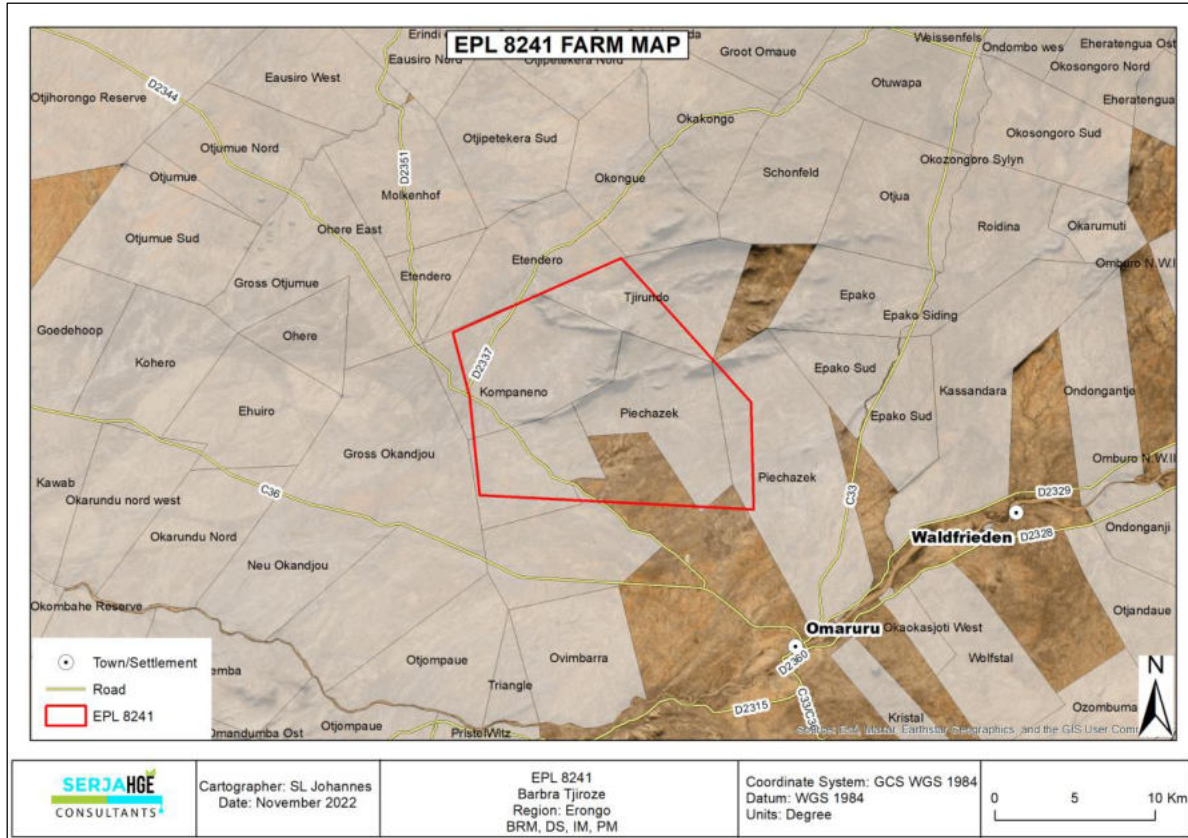


Figure 1-3: Locality Map with the farms covered by EPL-8241

The approximate coordinates of the EPL are presented in Table 1-1.

Table 1-1: GPS coordinates of EPL-8241

EPL Boundary Point	GPS Coordinates
Point A	21°41'25" S 15°45'42" E
Point B	21°16'36" S 15°46'17" E
Point C	21°11'58" S 15°51'23" E
Point D	21°16'48" S 15°55'48" E
Point E	21°20'27" S 15°55'50" E
Point F	21°19'59" S 15°46'37" E

1.2 The Need and Desirability of the Proposed Project

Mining contributes about 12.5% towards Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; therefore, it contributes to the improvement of livelihoods. In Namibia, exploration for minerals is done mainly by the private sector. Exploration activities have a great potential to enhance and contribute to the development of other sectors and its activities do provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of gross domestic product (GDP). Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Several associated activities that are fostered include, such as manufacturing of exploration and mining equipment, provision of engineering and environmental services and others. The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II (Excel Dynamic Solutions, 2021). Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful exploration on EPL-8241 would then lead to the mining of economic feasible commodity(ies) based on the results of exploration, which would contribute towards achieving the goals of the national development plans. Hence, the need to undertake the proposed exploration activities on the EPL.

1.3 The Need for an ESA and Environmental Clearance Certificate (ECC)

Prospecting, exploration of and mining of mineral resources is one of the listed activities in the Environmental Impact Assessment (EIA) Regulations (2012) of the Environmental Management Act (EMA) No. 7 of 2007 that may not be undertaken without an Environmental Clearance Certificate (ECC). The activities that are relevant to proposed project activities are as follows:

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

The purpose of the ESA Study and subsequent issuance of the ECC is therefore to ensure that the proposed project activities are undertaken in an environmentally & socially friendly and sustainably manner, through the effective implementations of recommended environmental management measures to minimize the adverse identified impacts while maximizing the positive impacts.

1.4 Appointed Independent Environmental Consultant

To comply with the EMA and its Regulations and ensure environmental management, protection, and sustainability, the Proponent appointed Serja Hydrogeo-Environmental Consultants CC, Independent Environmental Consultants to apply for the ECC and conduct the required Environmental Assessment Process, which includes Public Consultation and prepare the Environmental Assessment Report and Management Plan (EMP).

The ESA process, including public consultation and engagement as well as compilation of the associated documents were conducted and compiled by Ms. Fredrika Shagama. Ms. Shagama is a qualified and experienced Hydrogeologist and Environmental Assessment Practitioner (EAP) by training and experienced with over 7 years' experience in Groundwater and Environmental Management Consulting. Her CV is attached to this Report.

1.5 Application for the Environmental Clearance Certificate

The application for the ECC process was done as follows:

- Prepare of prepared Background Information Document (BID) for the proposed project,
- Launching of the ECC application on the ECC Portal of the Ministry of Environment, Forestry and Tourism (MEFT) with the Proponent details (accompanied by the BID) for project registration purposes and obtaining a MEFT application / reference number (APP-00571),
- Completion of the Form 1 (Section 32) of the EIA Regulations with the required project and Proponent information,
- Submission of the printed hard copy of the ECC application (with affixed NAD 300 revenue stamps as application fees) accompanied by the BID was submitted to the MEFT on the 07th of December 2022. The MEFT's date stamped copy of the ECC application (Appendix A) was uploaded on the ECC Portal as proof of application and payment.

The next component of the ECC application was to undertake an Environmental Scoping Assessment (ESA) process, which entails Baseline Assessment of the Biophysical and Social environments as well as Public Consultation & Engagement. The findings of the ESA process are then incorporated into an ESA Report and a Draft EMP is also developed for the mitigation of potential adverse impacts anticipated from the proposed project activities. The two documents and associated documents (appendices) are then submitted to the Environmental Commissioner at MEFT's Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration of the ECC.

1.6 Scope of Work and Report Contents

This Study has been conducted according to the EMA No. 7 of 2007, and its 2012 EIA Regulations as mentioned in the preceding subsections, i.e., the proposed project may not be undertaken without an ECC. Therefore, the process has been undertaken as required and guided by the Regulations. Furthermore, the ECC is required by the MME for consideration to renew the expired EPL rights.

This Report has been compiled as a required output of an environmental assessment process after the ECC application has been submitted to the Competent Authority (MME). The ESA Report, together with the EMP and all its appendices will be submitted to the DEAF.

The document (Report) covers the following chapters or sections, in addition to the introductory chapter:

- Project description and associated activities - (Chapter 2).
- Project alternatives considered (that were found to be environmentally friendly and technically feasible) - Chapter 3).
- The Legal requirements governing the proposed project and its related activities, i.e., the legislations that the proposed project must comply with (Chapter 4).
- The Environmental and Social Baseline of the project area - Chapter 5.
- The Public Consultation & Engagement Process undertaken to inform, invite and engage the public (stakeholders and interested & affected parties) on the proposed project- Chapter 6.
- The Assessment of identified potential impacts associated with the proposed project (Chapter 7) - This chapter presents both the positive and negative (adverse) as well as cumulative impacts, assessment methodology and the assessment of the negative impacts. The mitigation measures in the form of management action plans, with timeframe and implementation responsibilities are given in Draft Environmental Management Plan (EMP) under Appendix B.
- The recommendations and conclusions to the environmental assessment are presented under Chapter 8. The data sources (literature/references) consulted for the assessment are listed under Chapter 9.

Based on the information provided by the Proponent and the EAP's experience, description of the project activities is presented under the next chapter.

2 DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

Prior to mobilizing to site and undertaking any groundwork for the proposed activities at the site (EPL-8241), the Proponent will be required to sign land access and use agreements with the affected landowners (farmers) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992.

2.1 Duration of Mineral Exploration

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

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

The Proponent intends to adopt a systematic and standard prospecting and exploration approach for the 2 exploration categories of the commodities (Base & Rare metals, industrial minerals, Precious Metals and Dimension Stone) potentially occurring on the EPL. The exploration methods are presented under the subsections below.

2.2 Base& Rare Metals, Industrial Minerals and Precious Metals

2.2.1 Prospecting Stage (Non-Invasive Technique)

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

Upon issuance of the ECC, prospecting during the advanced exploration phase will require the Proponent to assess the EPL area through detailed geological mapping, and geophysical surveys. **It should be noted that there will be no blasting as part of exploration.**

2.2.1.1 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 to detect any mineralization in the area and are conducted to ascertain the mineralisation.

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.

These surveys (mapping and as supported by geophysics) are crucial in defining targets for test pitting, trenching, and drilling.

The exploration program will then commence with ground geophysical surveys. These surveys and associated activities are part of the exploration cycle in Figure 2-1.



Figure 2-1: The Mineral Exploration Cycle (Excel Dynamic Solutions, 2021)

After a successful exploration activity, the EPL would be converted into a Mining License by submitting exploration results and an application to convert to the MME. Upon approval of the application by MME, feasibility study and full EIA Study (with an approved ECC for mining activities), the site would be prepared for mine development and actual mining and subsequent mine closure. The cycle of the mining from prospecting and exploration stages is shown on Figure 2-2.

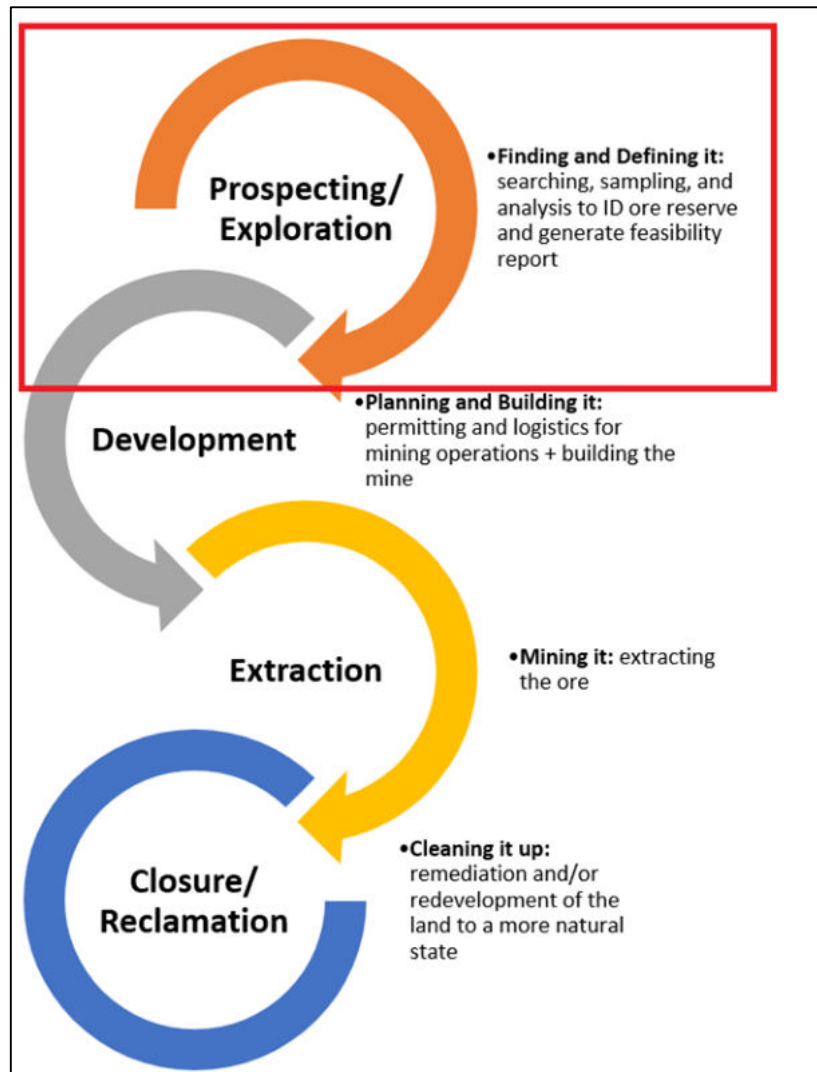


Figure 2-2: The Life Cycle of a Mine (The phase covered by this ESA study is highlighted in red, Excel Dynamic Solutions, 2021)

2.2.2 Planned Exploration Methods (Invasive Techniques)

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

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

2.2.2.1 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 Base & Rare Metals, Industrial Minerals, and Precious Metals are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting manual or excavator to further investigate the mineral potential.

Soil sampling consists of small pits ($\pm 20\text{cm} \times 20\text{cm} \times 30\text{cm}$) being dug where 1kg samples can be extracted and sieved to collect 50g of material. As necessary, and to ensure adequate risks mitigation, all major excavations will either be opened or closed immediately after obtaining the needed samples or the sites will be secured until the trenches or pits are closed. At all times, the landowner and other relevant stakeholder will be engaged to obtain authorisation where necessary. A typical example of soil sampling in the field for exploration is shown in Figure 2-3 below.



Figure 2-3: Example of soil sample collection and equipment (Resilient Environmental Solutions, 2019)

2.2.2.2 Detailed Exploration Drilling

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-core 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 programme, 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 equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility). A typical example of drilling activities on active EPLs in Erongo and Omaheke Regions are shown in Figure 2-4 and Figure 2-5.



Figure 2-4: A-typical drill rig on an EPL (Resilient Environmental Solutions, 2019), B- drill rig on active EPL precious metals exploration site visited by the Author in Erongo Region (photo by Author, 2022)



Figure 2-5: A drill rig on an EPL in the Omaheke Region (Resilient Environmental Solutions, 2022)

2.3 Dimension Stone

The Proponent intends to adopt a systematic prospecting approach of the following:

- Non-invasive techniques: Geological mapping, reviewing of existing geological maps and historical drilling/quarrying data, Field evaluation and sampling, and
- Invasive techniques: Detailed exploration (drilling).

The proposed activities are summarized as follows.

2.3.1 Desktop Study

The exploration program will commence with a review of geological maps and historical drilling and/ or quarrying data for the area, if any.

2.3.2 Field Evaluation

The field evaluation is to be carried out by a qualified geologist, aimed at locating suitable host rock outcrops in the field from where the:

- General soundness (intactness).
- Appearance (patterns and colour), and
- Joint and vein spacing can be evaluated.

Small samples (about 30 cm³ in dimension) will be removed for cutting and polishing to provide insights on whether the stone can be polished to an acceptable finish, as well as to give an indication of the hardness of the stone from a sawing and finishing point of view. Where field evaluation indicates a potentially economical viable deposit, detailed geological mapping will be conducted by means of mapping transversely across exposed / cleaned segments of the rock unit. Where cleaning of the rock unit is required to aid geological mapping, air compressors will be used to expose the rock. The mapping is aimed at delineating major geological structures such as fault and shear zones (zones of weakness), the extent of veins, as well as further delineation of fracture / discontinuity frequencies.

Collectively, field evaluation and detailed geological mapping will result in the production of a refined and detailed geological map for the targeted sites on the EPL.

2.3.3 Detailed Exploration

The refined geological map would then assist in target generation for subsequent detailed exploration such as drilling. A typical drill rig used for this type of exploration drilling is shown in Figure 2-6 below.



Figure 2-6: A typical example of a Down-The-Hole drill rig (OMAVI, 2020)

2.3.3.1 Feasibility Study: Exploration Component

Where exploration drilling yields positive results, test quarrying by means of butterfly cutting will be conducted. This will be done to fully evaluate the recovery of saleable blocks, and better optimize the extraction methods, production rates and operational costs in future. The exploration test quarrying will only be carried out on select targeted areas of the EPL and shall be performed on as small areas as possible to minimize environmental impacts that are associated with test quarrying. The outcomes / results of the test quarrying will be recorded and archived by the Proponent for future use (when mining will be considered depending on the outcome of exploration).

It is important to note that the test quarrying referred to above is only a component of exploration activities, to be done at a very small-scale level on targeted sites of the EPL to enable the Proponent to get sufficient and reliable exploration data, but not for mining purposes. Therefore, this ESA process and its subsequent reporting will only cover exploration activities.

2.4 Project Resources and Services Infrastructure

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

2.4.1 Human resources

The exploration crew will consist of a minimum of 7 people, comprising 1 skilled, 2 semi-skilled, 4 casual workers. However, this number may vary depending on the actual workload and requirement onsite. However, this number may vary depending on the actual workload and requirement onsite.

The workforce requirement will entail the need for geologist(s), drilling personnel, sampling team, supervisor / exploration manager, casual workers to clear the sites and perform other required jobs onsite, cleaner(s), machine operator, truck & light vehicle drivers, etc.

2.4.2 Project Crew Accommodation

According to the Proponent, they will consider setting up a main accommodation site (camp) in Omaruru, and not onsite (on farms). Therefore, workers will be commuting from there to reduce the number of workers onsite and the EPL is also just about 10km from Omaruru. This will minimize and or avoid some of the impacts that may occur if workers are stationed on the farm 24 hours.

2.4.3 Project Equipment, Material, Machinery and Vehicles

The following equipment and machinery will be required for the exploration stage:

- A minimum of two (4X4) pickup trucks (vehicles), and heavy truck,
- Air compressor,
- One drill rig, and drilling machines
- Down-The-Hole (DTH) drilling rig (for Dimension Stone),

- Two-way radios (for communication),
- Water supply tanks with dispersion pipelines, and fuel bowser,
- Power generators (minimum two),
- Dozer (to clear vegetation along planned drilling site access paths), and
- Biodegradable drilling fluids stored in manufacturers approved containers.

Equipment and vehicles will be stored at a designated area near the accommodation site (campsite), or a storage site established within the EPL site area.

2.4.4 Water supply

During exploration onsite water will be required for cooling down and washing of equipment, exploration related activities such as drilling, domestic (drinking, cooking, and ablution). For exploration related activities such as cooking, drinking and personal use, about 300 litres of water will be required per week (1,200 litres per month). Exploration drilling, specifically diamond requires a lot of water, and it would require approximately 10,000 to 25,000 litres (10 to 25 m³) per day, in instances where for example fractured formations are encountered) per hole during drilling.

To ensure that the already low potential local groundwater resources are not stressed or significantly impacted by the project activities such as drilling, the Proponent will be carting water from outside the area (where water supply is not an issue). The water will then be stored in relevant industry standard water storage tanks onsite, which will be refilled as and when necessary.

It is anticipated that water for domestic use will be supplied through carting from the nearest water supply area (Omaruru) or upon reaching an agreement with the respective farm owner to supply wholly or part of the required domestic water.

2.4.5 Fuel supply (For Cooking)

The Proponent will provide a 10kg liquid gas cylinder to be used for food preparation by the site workers. Therefore, No firewood will be collected on the farms/neighbouring land, or without the owners' permission.

2.4.6 Fuel Supply (machinery and equipment)

Diesel will be used for machinery and equipment and fuel generator. A trailer mounted and banded 10,000-litre fuel tank will be onsite to ensure an interrupted fuel supply to the project activities.

2.4.7 Accessibility (roads)

EPL is accessible via the D2337 and D2344 that passes on the north western and western side of EPL, respectively. The site-specific areas (EPL) are then accessed via local farm (gravel) roads.

Where necessary, new access tracks will be some access paths will be created in some areas of the EPL to access the target sites for exploration and enable the movement of the two pick up (4x4) trucks, heavy truck and, drill rig.

2.4.8 Waste management

The onsite waste types will be managed as follows:

- Sewage: Portable ablution facilities with septic tanks will be provided on site and emptied according to manufacturers' instructions.
- General and domestic waste: Sufficient waste bins (containers) will be availed at both exploration sites and campsites for waste storage. The waste containers will be emptied into the main onsite container for disposal at the nearest approved landfill site, upon reaching a waste disposal agreement with the relevant nearest local authority such as Omaruru.
- Hazardous waste: All vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel/oils will be carefully stored in a standardized container until such a time that it can be disposed of at the nearest approved hazardous waste management facility.

2.4.9 Health and Safety

The following measures will be implemented onsite to ensure safety and security:

- Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at site, including site visitors. A minimum of two first aid kits will be readily available at exploration sites
- First aid: A minimum of two first aid kits will be readily available at exploration and camp sites to attend to potential minor injuries, while major injuries will need to be attended to further by transporting the injured to the nearest health centre for treatment. At least 2 personnel will be trained on administer first aid.
- Potential Accidental Fire Outbreaks: As a control measure for accidental fire outbreaks, a basic firefighting equipment, i.e., a fire extinguisher will be readily available in vehicles, at the working sites and campsite (accommodation units). The site personnel will be trained on and provided with firefighting skills.
- Open exploration trenches and boreholes: The trenches dug for sampling will be temporary fenced off to prevent potential injuries of both people and livestock and wildlife on the farms. Once sampling is completed, the trenches will be progressively backfilled and levelled and fencing removed for storage or donation to the respective landowner(s). Similarly, for exploration boreholes that are no longer required after rock samples, they will be backfilled and closed off as shown on Figure 2-7. Warning signage at hazardous site areas such as open trenches will be erected.



Figure 2-7: Fenced off exploration trenches awaiting backfilling upon completion of sampling (photos recently taken by Author at an active EPL visited by the Author near Okombahe, Erongo Region)

2.5 Decommissioning and Rehabilitation of Disturbed Sites

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

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

Further decommissioning and rehabilitation practice onsite will include:

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

2.6 Post-Exploration Activities

After a successful exploration activity, the Proponent will submit exploration results (feedback) to MME. If the exploration results are positive, the Proponent will apply for a Mining License (ML) to the MME. Upon pre-approval of the application by MME, a feasibility study and full EIA Study (with an approved ECC for mining activities), the approved area would be converted into a ML (usually a smaller area than the EPL) and prepared for mine development, actual mining and subsequent mine closure.

The next chapter is the presentation different and relevant alternatives considered for the project activities.

3 PROJECT ALTERNATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and to identify the alternative that will be the most practical, but least damaging to the environment is identified.

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 project are discussed below.

3.1 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 option was considered and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not implemented.

Considering the above losses, the “no-action/go” alternative was not considered a viable option for this project.

3.2 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 this planned exploration activities for the specific commodities in the area is not possible. This means that the mineralization of the target commodities is area-specific, which means exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site. The location of the EPL also depend on the availability of license areas that the different applicants and Proponents applied for and interested in.

Furthermore, the national mineral resources' potential locations are also mapped and categorized by the Ministry of Mines and Energy in exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses and exclusive reconnaissance licenses. Available information on EPL-8241 and other licenses are available on the Namibia Mining Cadastral Map.

3.3 Exploration Methods

Both invasive and non-invasive exploration activities as indicated under the project description chapter are expected to take place. These were found to be appropriate and reliable for the type of commodities explored for.

3.4 Services Infrastructure

Alternatives were considered for the different supporting infrastructures envisaged to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternative considered are presented in Table 3-1 below.

Table 3-1: The presentation of service infrastructure alternatives considered for the project activities

Category of Infrastructure	Alternatives Considered	Justification for selected option
Ablution facilities	Install fixed facility with septic tank	-To minimize rehabilitation costs portable facilities were selected as the best option
	-Portable facilities with septic tank	
	-Fixed facilities with a septic tank	
Water supply	-Bring water from elsewhere	-Most of the project water (on 70/30 ration) will be brought from elsewhere to minimize the impact on the local resources
	-Abstract from site boreholes	
Fuel storage	-Trailer mounted diesel tank	-During exploration use trailer mounted diesel tank for fuel storage due to great mobility requirements during exploration.
	-Fixed bunded fuel tank	
Power supply	-Diesel generator set and if considered, solar power.	-The diesel and or solar power are the most practical & economically viable options for exploration (in

Category of Infrastructure	Alternatives Considered	Justification for selected option
	-Powerline (grid) supply	case of non-economic results of exploration and money is used to set up a powerline).
Offices, accommodation	-Erect dis-mantable prefabricated units -Fixed structures	-Favoured due to: (a) Ease of installation, (b) Low installation costs and (c) Ease of dismantling & moving.
Accommodation site	-Setting up campsites tented campsite on farms within the EPL or temporary availed facilities by the farm owner(s) -Commuting from Omaruru	-The Proponent is considering setting up a main accommodation site (camp) in Omaruru, and not onsite (on farms). Therefore, workers will be commuting from there to reduce the number of workers onsite and the EPL is also just about 10km from Omaruru. This will minimize and or avoid some of the impacts that may occur if workers are stationed on the farm 24 hours.

The following chapter presents the national and international legal requirements that are applicable and relevant to project.

4 APPLICABLE LEGAL FRAMEWORK

The project's activities or some of them may be regulated and governed by certain legal or policies. Therefore, it is necessary to review and consider these legislations and legal requirements. These legal requirements are either on a local (institutional), national (Namibian) and international legislation, policies, guidelines, etc. This review 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 Environmental Management Act No. 7 of 2007

The Environmental Management Act No.7 of 2007 and its 2012 EIA Regulations aims to ensure that the potential impacts of the development on the environment are considered carefully and in good time; that all interested and affected parties have a chance to participate in the environmental assessments and that the findings of the environmental assessments are fully considered before any decisions are made about activities which might affect the environment.

The Act aims at promoting sustainable management of the environment and use of natural resources. The Environmental Management Act (EMA) is broad; it regulates land use development through environmental clearance certification and/or Environmental Impact Assessments. The Act provides for the clearance certification for “ *mining and quarrying activities*”.

4.2 Minerals (Mining & Prospecting) Act No. 33 of 1992

The most applicable Sections to the project are as follows:

- Section 52 (1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.
- Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.
- Section 68 stipulates that an application for a mineral license 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 proposed steps 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.

Implication for the proposed project: The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out exploration activities.

Other applicable legal framework and policies relevant to the proposed project are presented in Table 4-1.

Table 4-1: List of applicable legislation for the proposed prospecting and exploration activities on the EPL

Legislation / Policy / Guideline: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
The Constitution of the Republic of Namibia, 1990 as amended: <u>Government of the Republic of Namibia</u>	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:	By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.

Legislation / Policy / Guideline: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
	<p>“...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia...”</p> <p>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p>“...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.”</p>	<p>Ecological sustainability will be main priority for the proposed development.</p>
<p>Nature Conservation Amendment Act, No. 3 of 2017: <u>Ministry of Environment, Forestry and Tourism (MEFT)</u></p>	<p>National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to 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.</p> <p>Although 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 PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.</p>	<p>The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land</p>
<p>The Parks and Wildlife Management Bill of 2008: <u>MEFT</u></p>	<p>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 to contribute to national development.</p>	

Legislation / Policy / Guideline: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
Minerals (Prospecting and Mining) Act (No. 33 of 1992): <u>Ministry of Mines and Energy (MME)</u>	<p>Section 52(1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.</p> <p>Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.</p> <p>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 proposed steps to be taken to prevent or minimize any such effect.</p> <p>Section 91 requires that rehabilitation measures should be included in an application for a mineral license.</p>	<p>The Proponent should enter into a written agreement with landowners before carrying out exploration on their land.</p> <p>The Proponent should carry out an assessment of the impact on the receiving environment.</p> <p>The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities.</p> <p>The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.</p>
Mine Health & Safety Regulations, 10 th Draft: <u>Ministry of Health and Social Services (MHSS)</u>	<p>Makes provision for the health and safety of persons employed or otherwise present in 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.</p>	<p>The Proponent should comply with all these regulations with respect to their employees.</p>
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001): <u>MME</u>	<p>Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”</p>	<p>The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.</p>

Legislation / Policy / Guideline: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
The Regional Councils Act (No. 22 of 1992): <u>Ministry of Urban and Rural Development (MURD)</u>	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 point of view, 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, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Erongo Regional Council; therefore, they should be consulted.
Water Act 54 of 1956: <u>Ministry of Agriculture, Water and Land Reform (MAWLR)</u>	<p>The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:</p> <p>Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)).</p> <p>Provides for control and protection of groundwater (S66 (1), (d (ii)).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).</p>	<p>The protection (both quality and quantity/abstraction) of water resources should be a priority.</p> <p>Relevant permits and or agreements to abstract and use water should be applied for and obtained.</p>
Water Resources Management Act (No 11 of 2013): <u>MAWLR</u>	<p>The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to:</p> <p>Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).</p>	

Legislation / Policy / Guideline: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
National Heritage Act No. 27 of 2004: <u>Ministry of Education, Arts and Culture (MEAC) – National Heritage Council (NHC) of Namibia</u>	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 these Acts requirements. The necessary management measures and related permitting requirements must be taken. This done by the consulting with the National Heritage Council of Namibia. A Chance Finds Procedure provided to the Draft EMP should be implemented upon discovery of archaeological and heritage resources.
The National Monuments Act (No. 28 of 1969): <u>MEAC – NHC of Namibia</u>	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969): <u>MAWLR</u>	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, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Forestry Act (Act No. 12 of 2001: <u>MEFT</u>	<p>The Act provides for the management and use of forests and forest products.</p> <p>Section 22. (1) provides: “Unless otherwise authorised by this Act, or by a licence 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 sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse.”</p>	The proponent will apply for the relevant permit under this Act if it becomes necessary to remove the protected trees such as Camelthorn (<i>Acacia/Vachelia</i>).
Public Health Act (No. 36 of 1919): <u>MHSS</u>	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: <u>Custodian</u>	Relevant Provisions	Implications for the project activities
Public and Environmental Health Act No. 1 of 2015: <u>MHSS</u>	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.	
Health and Safety Regulations GN 156/1997 (GG 1617): <u>MHSS</u>	Details various requirements regarding health and safety of labourers.	
Atmospheric Pollution Prevention Ordinance (1976): <u>MHSS</u>	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 the purposes of 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 place and implemented.
Hazardous Substance Ordinance, No. 14 of 1974: <u>MHSS</u>	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: <u>Ministry of Works and Transport (MWT)</u>	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.	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): <u>Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)</u>	MLIREC is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.

4.3 International Policies, Principles, Standards, Treaties and Conventions

Given the fact that the proposed project is likely to be funded by international investors and the financing require the project to comply with certain requirements. Therefore, it is crucial to include the relevant legal requirements in this ESA Study and these are listed below:

- Equator Principles (EP): *EP1: Review and Categorization, EP2: Environmental and Social Assessment, EP 3: Applicable Environmental and Social Standards, EP 4: Environmental and Social Management System and Equator Principles Action Plan, EP5: Stakeholder Engagement, EP6: Grievance Mechanism, EP7: Independent Review, EP8: Covenants, EP9: Independent Monitoring and Reporting, and EP10: Reporting and Transparency.*
- International Finance Corporation (IFC) Performance Standards (PS): *PS1: Assessment and Management of Environmental and Social Risks and Impacts, PS2: Labour and Working Conditions, PS3: Resource Efficient and Pollution Prevention and Management, PS4: Community Health and Safety, PS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement, PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, PS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, PS8: Cultural Heritage, PS9: Financial Intermediaries (FIs), PS10: Stakeholder Engagement and Information*
- The United Nations Convention to Combat Desertification (UNCCD) 1992
- Convention on Biological Diversity 1992
- Stockholm Declaration on the Human Environment, Stockholm (1972)

Other relevant international Treaties and Protocols ratified by the Namibian Government are:

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

In addition to the project description, alternatives, and legal framework, it is also important to note that the proposed project activities will be undertaken in a specific environment, in terms of biophysical and social. Therefore, understanding these existing environmental features before the project activities, is crucial for the assessment of the potential impacts stemming from the project activities on the features.

5 ENVIRONMENTAL AND SOCIAL BASELINE

The proposed exploration activities will be undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment will aid in describing the status quo versus future projections of environmental conditions once the project is implemented. The baseline information also aids in identifying the sensitive environmental features and how best suitable management and mitigation measures can be recommended for implementation. The summary of selected biophysical and social baseline information about the project area is given below.

The baseline information presented below is sourced from site visit, online sources ranging from old reports, books and publishing as well as other relevant research information in the broader area.

The project baseline that is deemed necessary to the project activities are as follows.

5.1 Biological Environment

5.1.1 Fauna and Flora

In terms of fauna, the farms are homes to both domestic and wildlife. Livestock farming is practised within the EPL and surrounding areas, which comprises of goats, sheep, cattle and horses are common livestock. The EP area is home to wildlife such as leopards, klipspringer, zebra, oryx, kudu, impala, wildebeest, eland, giraffe, waterbuck, warthogs, leopards, baboons, etc. roaming freely on the farms.

The EPL is covered by thick medium grass cover. The EPL-8241 is mainly covered by sparse shrubland and dense shrub as shown on the map in **Error! Reference source not found.**. The vegetation type is largely characterized by large, open expanses of grasslands dotted with Acacia trees. The trees are tallest in areas of deeper sands in the east, with plant growth becoming progressively shrubby further west where the soils are shallower and landscape is mostly hilly and rocky. The EPL is covered by thick medium to high dense grass cover, dense shrubs and trees of *Vachellia* species such as *Vachellia reficiens* (most common), shrubs of silver cluster-leaf (*Terminalia sericea*), Purple-pod (*Terminalia prunioides*), the stink shepherd's tree/smelly shepherd's bush (*Boscia foetida*), Commiphora species, and others typical species around Omaruru. The camelthorn tree species are protected, therefore a permit to remove the trees, where necessary and obstructing the exploration activities should be obtained from the nearest Forestry Directorate Office.

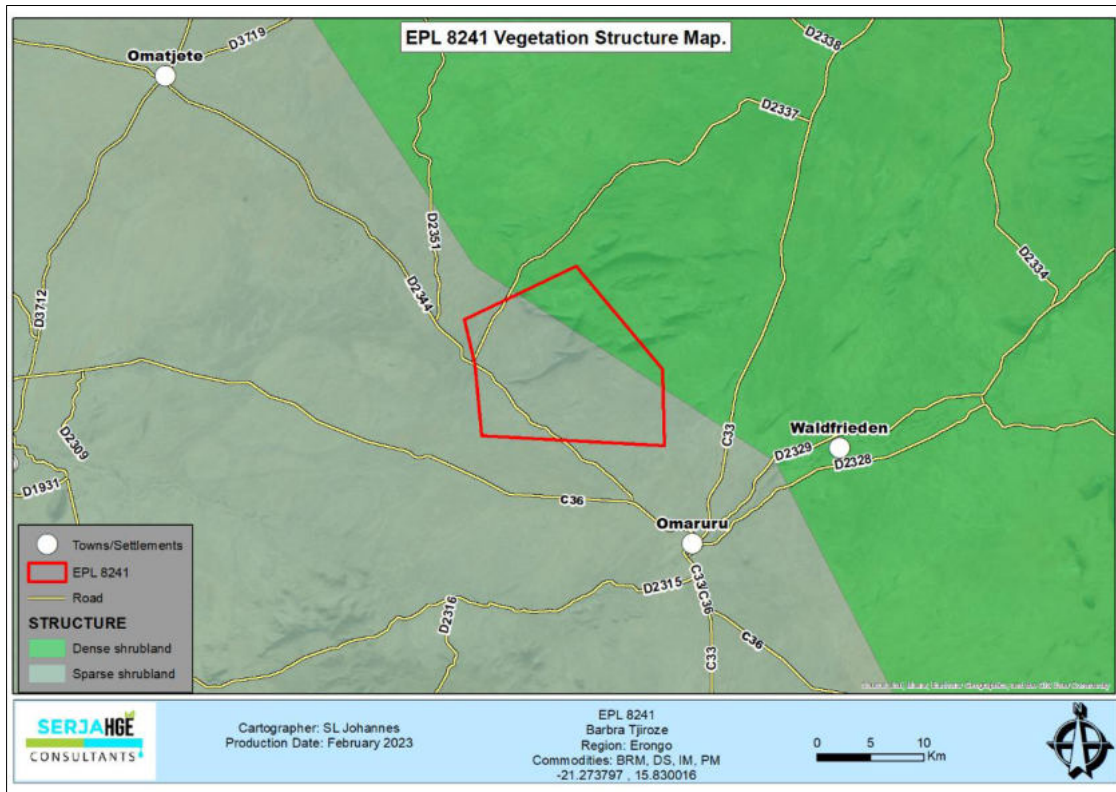


Figure 5-1: The vegetation structure map of EPL-8241

5.2 Physical Environment

5.2.1 Climate

5.2.1.1 Temperature

The temperatures for the project area and surrounding areas including EPL-8241 recorded for the full period of thirteen years (2009 to 2022) is shown in the charts below.

The average maximum and minimum temperatures were recorded at 35°C in October (2022) and 8°C in June 2022, respectively - Figure 5-2. The average minimum temperature is 8°C in June/July and maximum of 34°C in November/December as shown in Figure 5-3.

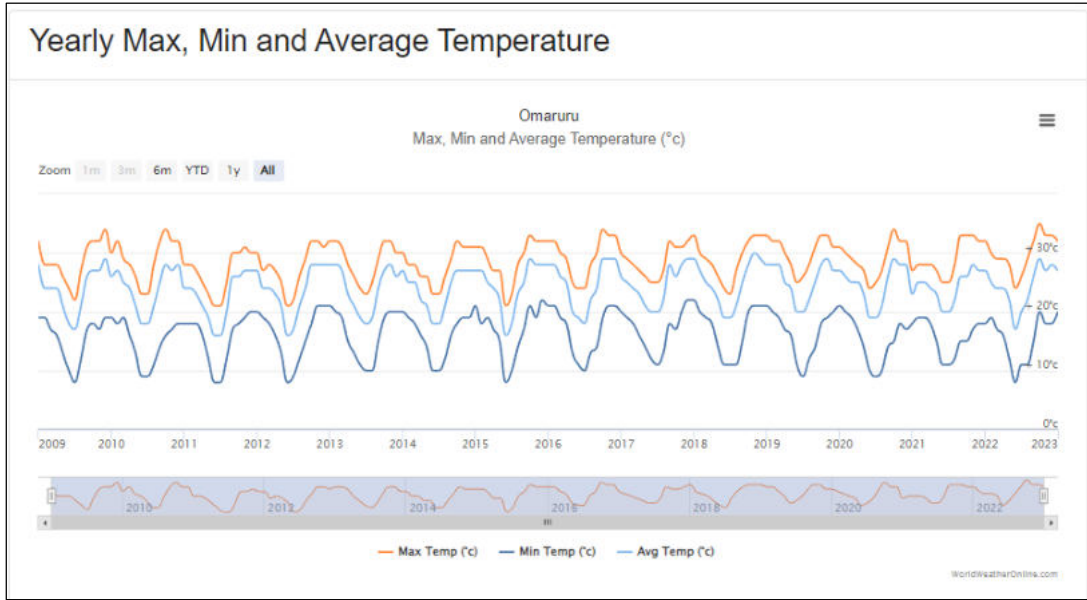


Figure 5-2: The annual maximum, minimum and average temperatures for Omaruru area (World Weather Online, 2023)

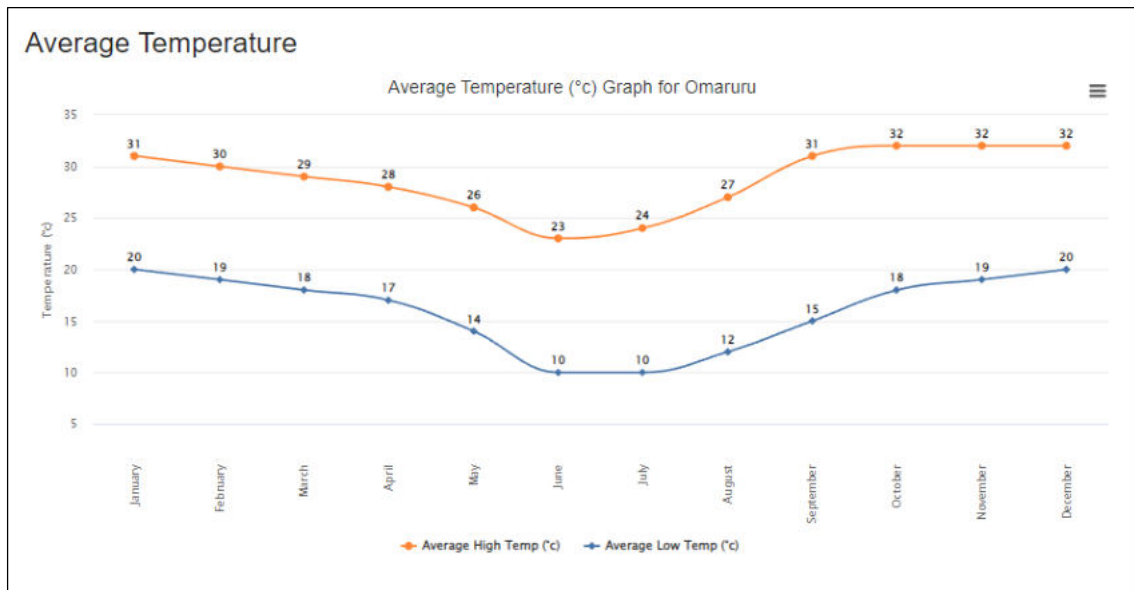


Figure 5-3: The average high and low temperatures for Omaruru area (World Weather Online, 2023)

5.2.1.2 Rainfall

The rainfall and rainy days as well as average rainfall for Omaruru area for the period of thirteen (13) years, i.e., from 2009 to 2022 have been sourced from World Weather Online (2023). The area experiences good rains between December and March, with the highest rainfall recorded in February 2012 (570mm when it rained for 21 days), followed by January 2011 with 500mm when it rained for 22 days – as shown in the rainfall and rainy days chart in Figure 5-4. The average rainfall data is shown in Figure 5-5 graph for Omaruru area which also includes the project area.

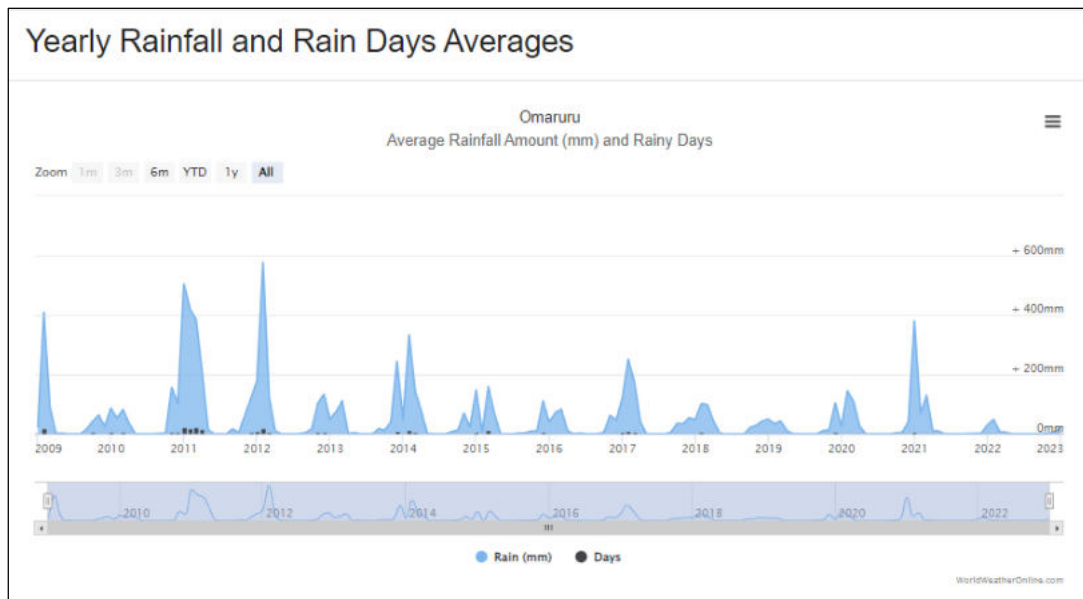


Figure 5-4: The annual rainfall and rain days averages for Omaruru area (World Weather Online, 2023)

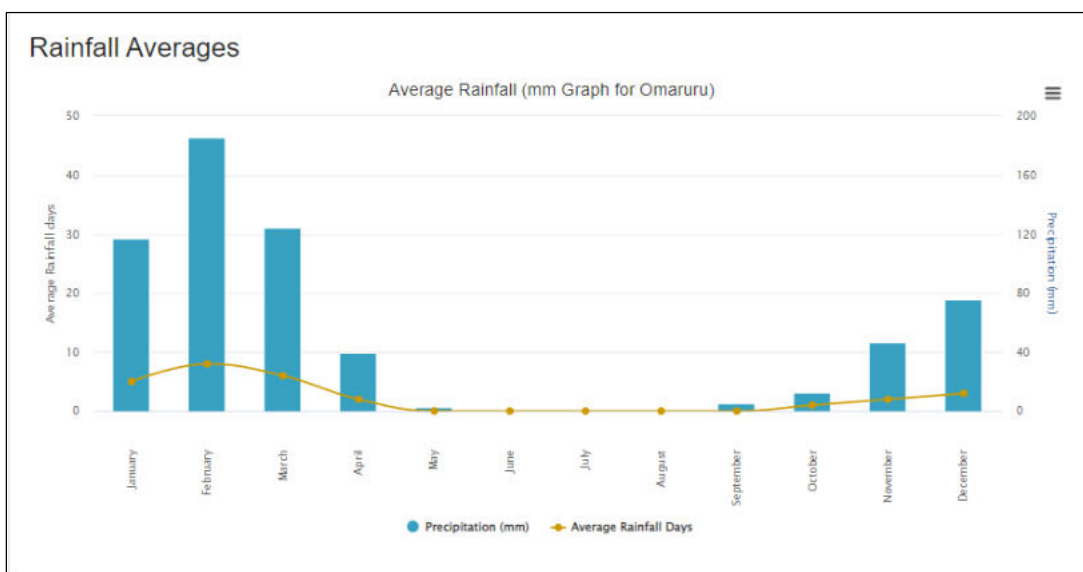


Figure 5-5: The rainfall averages for Omaruru area (World Weather Online, 2023)

5.2.1.3 Air Quality

The current known sources of air pollution in the area are dust emissions from unpaved district and access roads within the area, and emissions from heavy vehicles on the local roads including the C36 and district roads, particularly in dry and windy months. According to IQ Air (2023), the current air pollution level around the EPL area is moderate. The air quality index (AQI) is 53 US AQI, and the main pollutant is the atmospheric particulate matter (PM) 2.5. The PM2.5 concentration around Omaruru is 13.1 µg/m³ which is currently 4.2 times the WHO annual air quality guideline value (IQ Air, 2023) of 5 µg/m³.

Sources of particulate matter can be natural or anthropogenic. The biggest impact of particulate air pollution on public health is therefore understood to be from long-term exposure to PM2.5 (Meteoblue, 2023).

5.2.1.4 Wind Direction

The wind rose for Omaruru in Figure 5-6 below shows the wind rose and wind speed chart, indicating the number of hours and days per year, the wind blows from a certain direction. The dominant wind is blowing from South-West (SW) to North-East (NE)). The strong winds around the vicinity of the EPL area are experienced between April and November at an average speed ranging between 12 and 28 km/h.

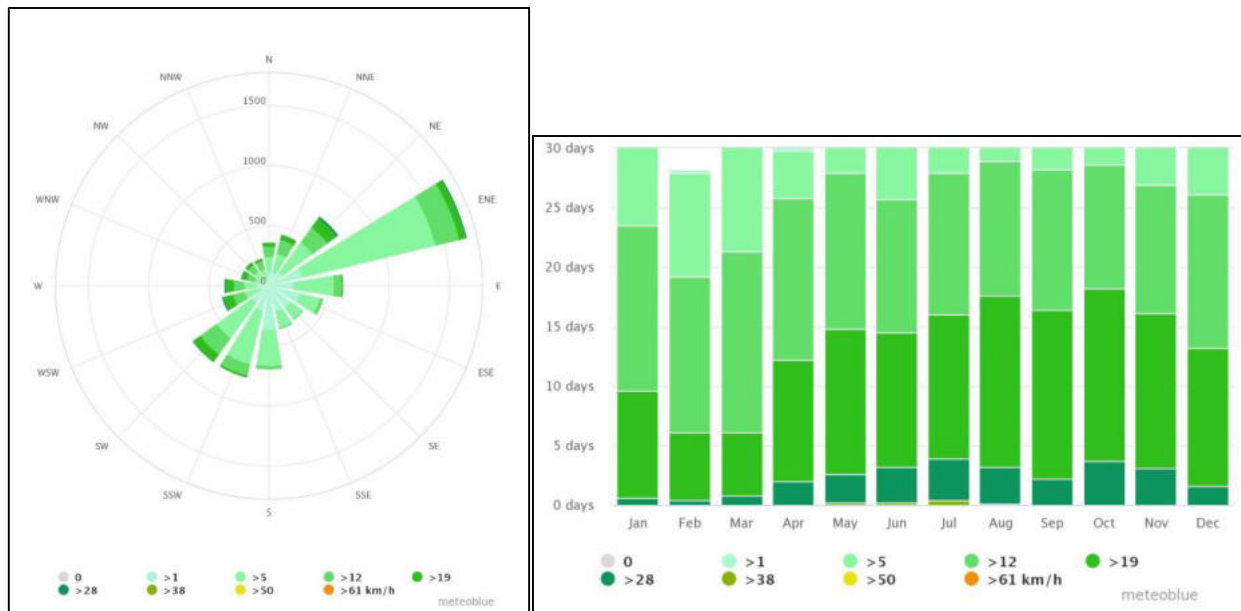


Figure 5-6: A wind rose and wind speed chart for Omaruru area (Meteoblue, 2023)

5.2.2 Topography and Landscape

According to the landscape map of the area in Figure 5-7, the EPL is in the Central-Western Plains landscape, stretching back from the coast. This broad area of plains extends inland for about 450km in places. The plains were largely formed by erosion cutting back into higher ground and carving out the catchment areas of several major rivers, which include the Khan, Omaruru, Swakop and Ugab Rivers (Mendelsohn et al., 2002).

The EPL is situated in a hilly and mountainous area with elevations ranging between 951 and 2,559 meters above sea level as shown on topographic map in Figure 5-7.

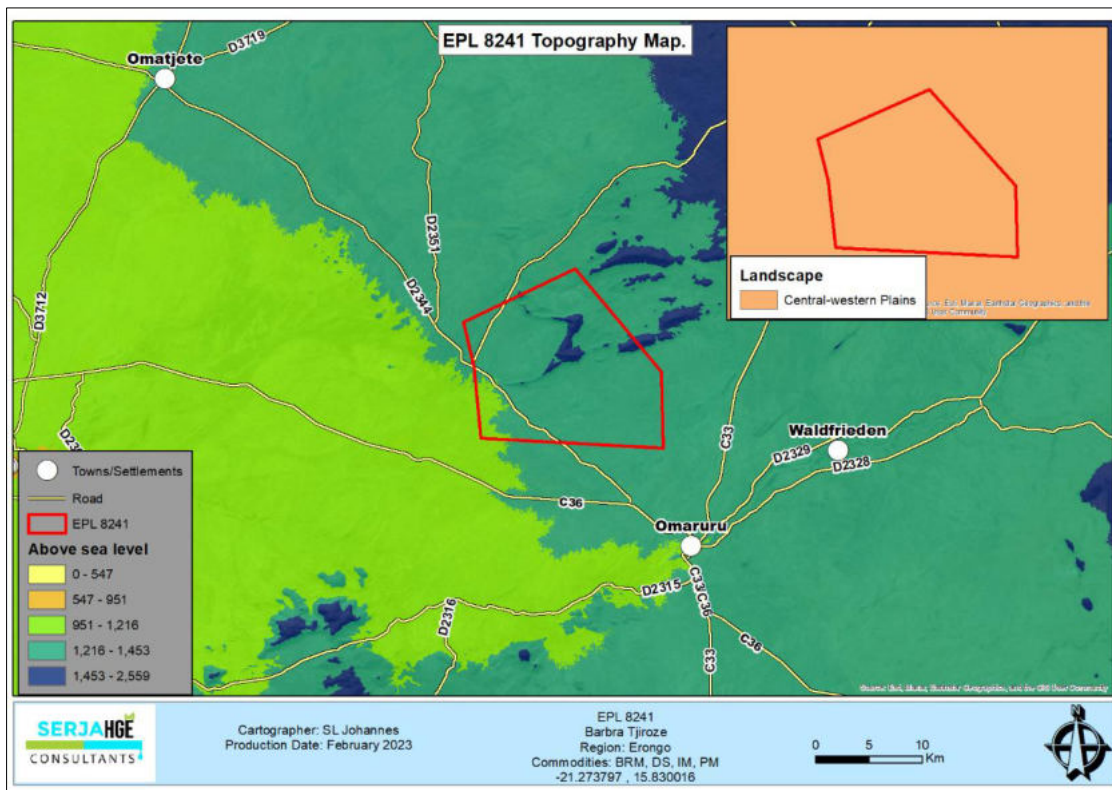


Figure 5-7: The landscape and elevation (topography) of the EPL and surrounding project area

5.2.3 Geology and Soils

The Project area is overlain by a layer of sand, gravel and calcrete and underlain mainly by marble, schists, quartzite as well as syn-to-post-tectonic granite, diorite and granite - Figure 5-8. The geological settings of the area have a potential to host ores of the sought commodities which triggered the need to prospect and explore within the EPL.

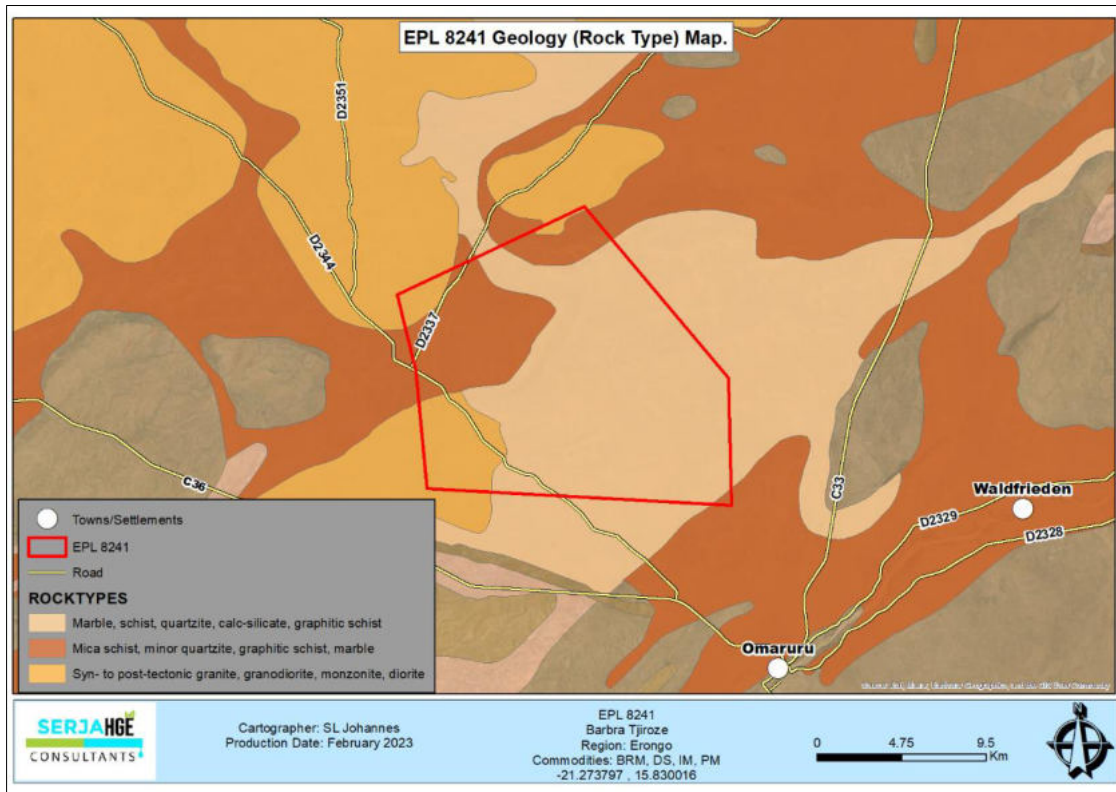


Figure 5-8: The geology of the EPL and surrounding project area

In terms of soil, EPL-8241 is covered by the Eutric Regosols as shown on the soil map in Figure 5-9. The Eutric Regosols are medium or fined textured soils of actively eroding landscape, the thin layers lying directly above the rock surfaces from which they formed. Although not as shallow as the Leptosols, these soils never reach depths of more than 50 cm. The central regions of the country are dominated by Regosols, which are especially susceptible to erosion where there is any degree of slope. The vegetation cover on these thin soils is generally sparse because they cannot provide most plants with sufficient water or nutrients. The areas with Eutric Regosols can support low-density stock farming or wildlife (Mendelsohn *et al*, 2002).

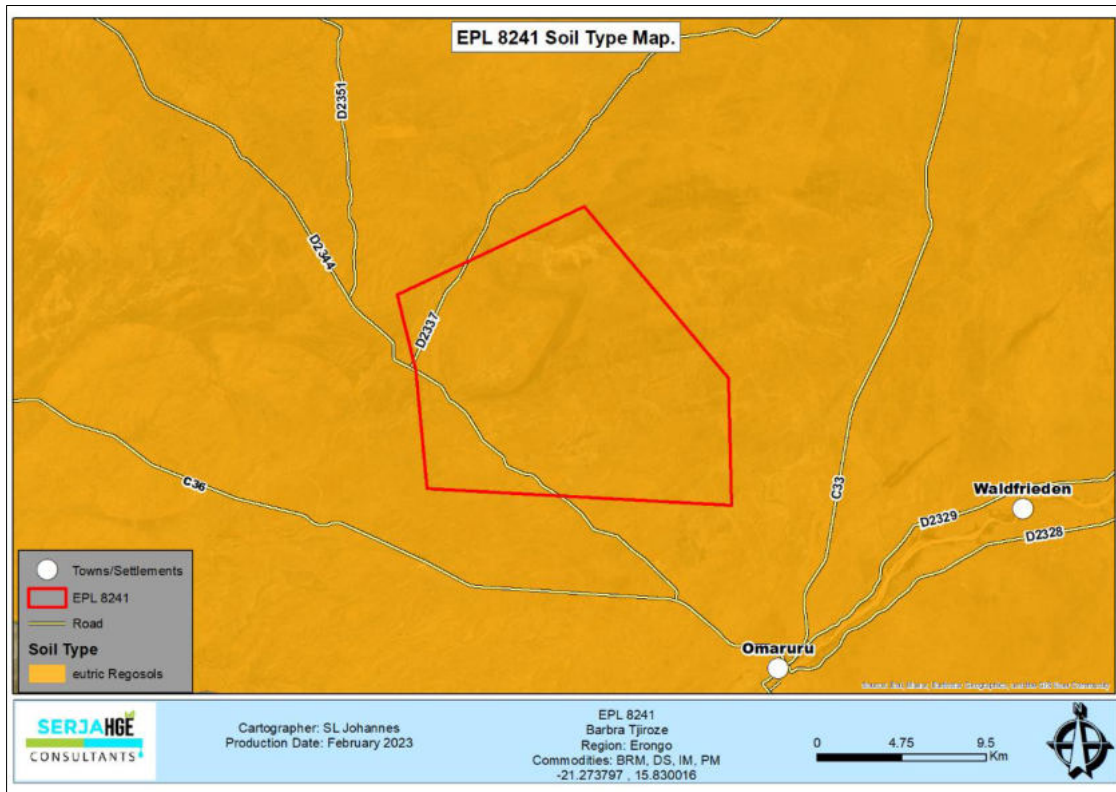


Figure 5-9: The dominant soil types found within and around the EPL

5.2.4 Water Resources: Groundwater (Hydrogeology) and Surface water (Hydrology)

With regards to groundwater (hydrogeology), the EPL is mainly covered by the rock bodies with little groundwater potential as shown on the map in Figure 5-10. The low potential is attributed to the type of rock units underlying the EPL and their non-fractured/faulted nature limit the storage, transmission, and flow of groundwater. Therefore, the local rocks are not good aquifers. Further major abstraction from these aquifers (boreholes) would only stress and negatively affect them.

The moderate to good groundwater potential can be found on and along the Omaruru River within the porous aquifers.

In terms of rivers (surface water/hydrology), there are no permanent surface water systems. There are several small river systems around the EPL, including the Kompaneno crossing the EPL to the lower south in a southwestern-northeasterly trend, as well as Ohere and Otjomue further northwest of the EPL. The major Omaruru ephemeral river is seen on the southeastern side of the EPL as shown in Figure 5-10.

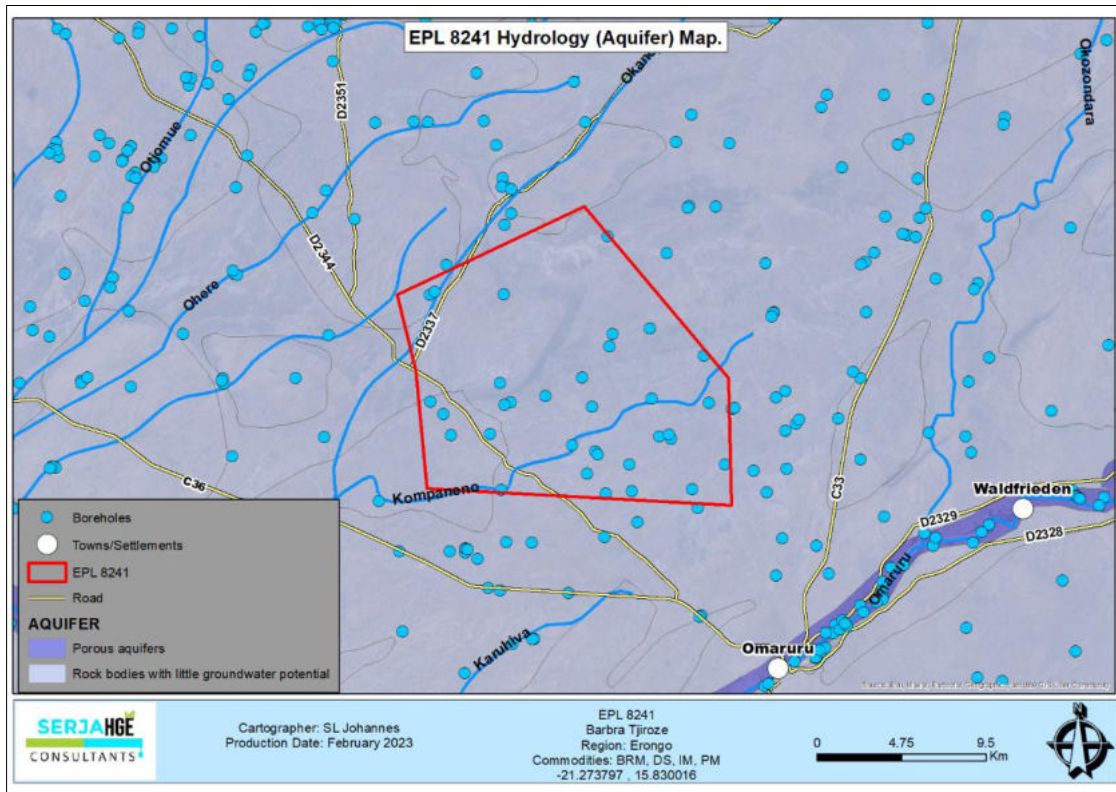


Figure 5-10: The surface and groundwater map of the EPL area

5.3 Social and Economic Environment

5.3.1 Demography

According to the 2011 Population & Housing Census undertaken in 2011, the total population of the Erongo Region as was recorded at 150,809, of which 70,986 were females and 79,823 males. The population density for the Region was 2.7 people per square kilometres (Namibia Statistics Agency, 2011).

The EPL site falls within the Omaruru Constituency and in 2011, the Constituency had a population of 8,577 (4,131 females and 4,446 males) of which 6,300 accounted for the urban population, i.e., the rural population was 2,277.

5.3.2 Economic Activities

On a regional level, the economy of the Erongo Region mainly depends on mining, fishing, agriculture, and tourism. The fishing industry is the third largest economic sector contributed about 6.6 percent cent to the Gross Domestic Product (GDP). The Region's whole eastern part and certain western parts are characterized by livestock farming on commercial farms in the districts of Karibib, Usakos and Omaruru, and in the communal areas (Erongo Regional Council, 2015).

According to the Namibia Statistics Agency (2011), the main source of income in households in the Erongo Region comes from farming (3%), wages and salaries (73%), cash remittance (5%), business and non-farming (9%) and pension (8%).

5.3.2.1 Agriculture and Farming

From a local perspective, the economic activities practiced in the Omaruru area are farming and tourism. The farming involves livestock and tourism is centered on eco-tourism, game drive and trophy hunting.

5.3.2.2 Exploration and Mining

There are mineral exploration and mining operations conducted in the Erongo Region. Exploration activities are common in the Region and provides livelihood to some of Region's residents, especially in mining towns such as Arandis. The mining activities are undertaken near mining towns of Arandis and settlements such as Uis, Omatjete where commonalities such as Uranium, Dimension Stone, Base & Rare Metals, Precious Metals and Industrial Minerals, etc. are mined. There are other active EPLs around EPL-8241 (whereby exploration works may or may not be undertaken currently).

5.3.2.3 Tourism

The EPL area and Erongo Region at large offer some of the most spectacular and popular tourist destinations as well as a variety eco-, wildlife, cultural and adventure tourism opportunities. Some of the farms covered by the EPL practice eco-tourism.

5.3.3 Infrastructure and Services

The Erongo Region has good coverage of services and infrastructure. This includes a good road network from the central areas of the country and many access roads, tarred and untarred. The power is supplied either through ErongoRed in the coastal and central western areas of the Region.

There is also a good water reticulation system in both towns/village/settlements and rural (farm) areas. The water is mainly supplied through water supply schemes operated by NamWater either through boreholes (direct borehole or treated water) such as Omaruru Delta Aquifer Scheme for Omaruru Town and private boreholes on farms.

The summary of current services infrastructure in and around Omaruru include:

- Water supply: Water is supplied from some instances moderate and low yielding solar and or generator powered boreholes.
- Power supply: The area depends on solar energy and generators for power supply.
- Road network: The area is connected to main road such as C36 and C33 and district roads (D2344, D2337, etc.).
- Mobile network: although some areas around Omaruru and Okombahe may struggle with connections, most parts of the EPL area is connected to MTC and Telecom networks

5.3.4 Surrounding Land Use

The EPL crosses and overlies about commercial farms as previously shown under chapter 1 (Figure 1-3) and mineral licenses. Most commercial farms in the Erongo Region, including the EPL area serve as hunting and guest establishments, while some have been converted into game farms or reserves for regional and international tourist. The activities on these commercial farms provide employment to a substantial number of people in the areas.

5.3.5 Archaeology and Heritage

From a regional perspective, the project area falls under the cultural landscape occurring in the context of Erongo Region. Putting it in context, the Erongo Region is highly endowed with archaeological and cultural heritage sites. In most part the Stone Age, archaeology is prevalent in the larger geographical area. However, no systematic research has been carried out around the proposed project site area to determine the archaeological and heritage potential of the landscape. Notwithstanding, Kinahan has carried out comparative research on rock painting shelters in Erongo Region from 'Snake Rock' in Hungorob Gorge Brandberg Mountain, 'Bushman Paradise' in Pondok Mountain, Spitzkoppe Mountain and at "Rainman Shelter" in Upper Otjohorong Granite Hill in 1998 (Nankela, 2020 as cited by Mushi, 2021). About 150 sites are recorded in the Erongo Region, and the Region is also endowed with Iron Age and contemporary heritage that needs to be ascertained later. Currently, Erongo Region has about 37 heritage sites which are listed as national monuments (Mushi, 2021).

From a local context, there are no records or mapped archaeological and heritage resources (sites and objects) within the EPL. In a broader area, the archaeological sites that are recorded in the National Heritage Council database are located outside the EPL as shown in Figure 5-11.

According to the specialist study conducted for the EPL (by Nekare, 2023), Farms Gross Okandjou, Ohere oods and Etendero are located along the West foothills of Kompaneno-Tjirundo Mountain. Generally, this district has been transformed by livestock farming, thus, according to previous heritage impact assessment in the wider area by Mowa in 2021, a few numbers of heritage sites are known to occur outside the EPL, mostly rock art. Further continued that, although, these heritage resources have been mapped and located, they are alleged been damaged by hostile exploration activities (Nekare, 2023).

Based on some farmers' comments, there are some heritage sites on the farms. Therefore, these will need to be verified by an Archaeologist and Heritage Council prior to issuing a Heritage Consent Letter to ensure that the undocumented sites are mapped for protection during exploration.

According to Nekare (2023), the Kompaneno-Tjirundo Mountain was used as a healing site for the injured ovaHerero soldiers (this is based on a personal communication with one of the community members, Mr. V. Tjimune).

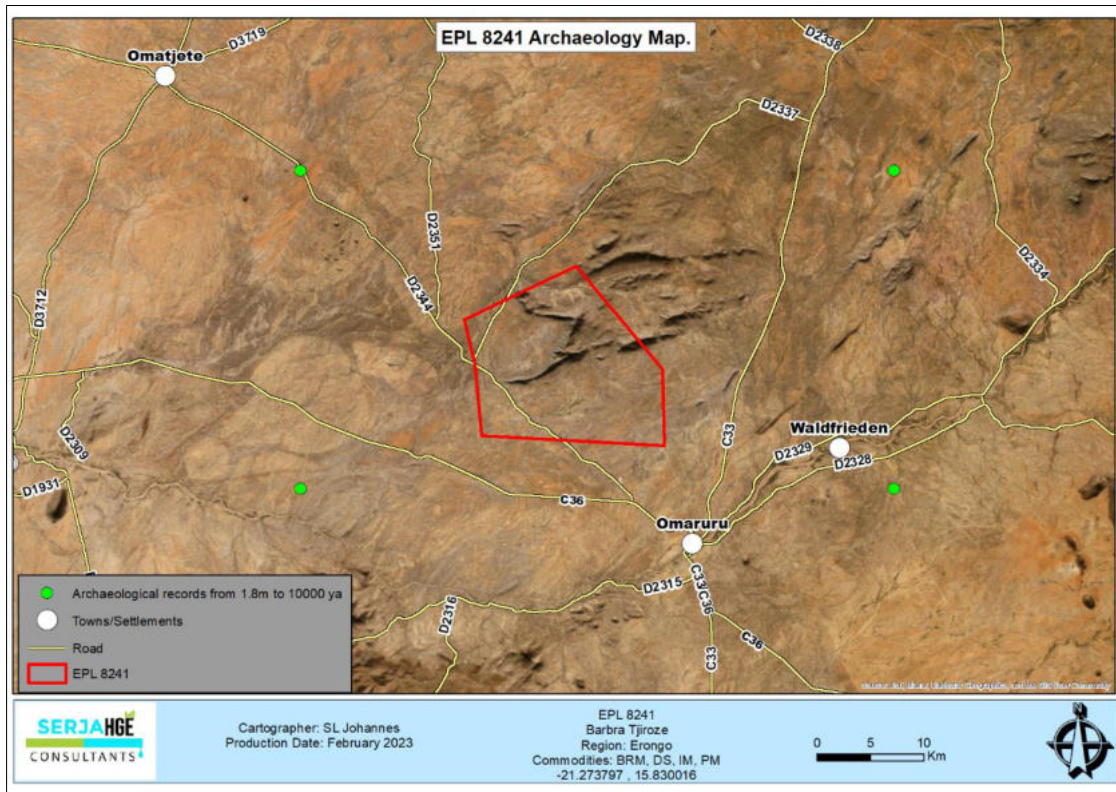


Figure 5-11: The archaeological map of the EPL area

The public participation and consultation process was undertaken as presented under chapter 6.

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS

Public consultation and participation form an important component of an EIA process. It provides potential Interested and Affected Parties (I&APs) and stakeholders with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process. This greatly assist the EAP (Environmental Consultant) to thoroughly identify and record potential impacts and to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. The consultation for this project has been done under the EMA and its EIA Regulations and as per the following subsections.

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

Relevant and applicable national, regional, and local authorities, 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.

6.2 Communication with I&APs, and Means of Consultation Employed

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 with regards to the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand delivered to MME during the submission of the ECC application, uploaded on the MEFT (ECC) Portal for project registration and shared with registered Interested and Affected parties (I&APs).
- Project Environmental Assessment notices were published in The Namibia Media Holdings' *Market Watch* newspapers (*Allgemeine Zeitung, Die Republikein, and Namibian Sun*) dated 28 November 2022 & 05 December 2022 (Appendix D), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- The BID was circulated to the I&APs, particularly the farm owners as well as other interested members of the public as requested.
- A consultation meeting was scheduled and held with stakeholders / the affected farmers (landowners) on the 17th of March 2023 at 11h30 at Central Hotel Boardroom in Omaruru as shown in Figure 6-1.



Figure 6-1: Consultation meeting held in Omaruru on 17 March 2023

One of the landowners who was based in Windhoek and could not attend the meeting on the 17th of March 2023, had a separate briefing (meeting) in Windhoek on the 22nd of March 2023 – Figure 6-2.



Figure 6-2: The consultation meeting in progress at 45 Mburumba Kerina Street in Windhoek (22 March 2023)

The consultation meeting minutes were taken and are attached hereto as Appendix E.

- Two A3 size posters were pasted at the Omaruru Municipality (**Error! Reference source not found.**) and Spar Supermarket notice boards (**Error! Reference source not found.**) in Omaruru.



Figure 6-3: The A3 ESA Study Poster at the Omaruru Municipality in March 2023



Figure 6-4: The ESA Study Poster in Omaruru at Spar Supermarket

6.3 Feedback and Issues from Interested and Affected Parties

Issues were raised by I&APs throughout the consultation period and these issues have been recorded (as received from I&APs) and incorporated in the ESA Report and Draft EMP. The summary these key issues are listed below.

- Impact on flora impacts
- Impact on the scenic aspect of Namibia, which further affects the tourism sector
- Accidental fire damages
- Impact on fauna (snares or any traps installed by any exploration crews)
- Rehabilitation of test quarries and trenches/exploration holes and insurance/assurance thereof.
- Compensation on lost livestock due to gates left open or fences damaged during exploration.
- Soil erosion and vegetation/bush encroachment (alien/invasive species).
- The impact of exploration activities on local roads
- Damaging of gates and vegetation by the heavy exploration vehicles and machinery.
- The impact of exploration activities on local roads
- Damaging of gates and vegetation by the heavy exploration vehicles and machinery.
- Compensation of vegetation loses. Therefore, minimize the removal of vegetation
- Waste management: avoid open defecation onsite.
- Deworming medication should be supplied to the exploration crew.
- Littering: if not controlled, this will lead to environmental pollution on the farm.

- Poaching/illegal hunting: we should be informed on who will be onsite, what activities they will be carrying out, where they would be on the farm and duration.
- Stock theft could be a cumulative impact, as some of the farm workers are at times involved in stock theft. Therefore, the Proponent should educate their workers.
- Rehabilitation: un-rehabilitated roads would trigger soil erosion
- Consultation and transparency: consult with us on time for any matters and open communication is encouraged.
- Hazardous waste: oil spillage from trucks and disposal of drilling mud should be contained. The mud/sludge from drilling activities, if disposed of on grass or young vegetation, their growth is hindered. There has been such an incident of grass no longer growing where the mud was disposed of. Therefore, consider disposing of the mud responsibly or elsewhere offsite but still responsibly.
- Corporate social responsibility: Consider assisting the farmers with upgrading farm gates, especially the gates that will be removed to enable entry of heavy and wider exploration vehicles such as trucks and machinery.
- Safety of the exploration workers/personnel onsite: there are leopards on the farm. Therefore, their safety should be considered.
- Security onsite: A security guards particularly to look after exploration equipment and vehicles onsite should be stationed onsite but the guard will be chosen or recommended by the farmers (someone they can trust).

The first public consultation which entailed the submission of comments and registration as I&APs started on the 28th of November 2022 until the 06th of January 2023. However, the deadline for comments was extended further to early 2023, i.e., pending the consultation meetings that were only held in March 2023. Comments and concerns were submitted to Serja of which most were submitted in the consultation meetings as summarized above.

The key potential impacts as identified by the Environmental Consultant and per submission of comments made by the I&APs are provided under the next chapter (Chapter 7). The description and assessment of these impacts are also presented under the same chapter.

7 IMPACTS IDENTIFICATION, ASSESSMENT AND MEASURES

7.1 Identification of Potential Impacts

The proposed project and its associated activities are usually associated with different potential positive and negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts that are likely to affect the host environmental and social features. The assessment is done to ensure that these impacts are sufficiently addressed, and adequate mitigation measures are recommended thereto for implementation so that an impact's significance is brought under control, while maximizing the positive impacts. The potential positive and negative impacts that have been identified and as received from affected landowners are listed as follow:

Adverse (negative) impacts	Benefits (positive)
<ul style="list-style-type: none"> -Physical land / soil disturbance and impact on grazing areas -Impact on local biodiversity (fauna and flora); potential illegal harvesting of protected vegetation and wildlife hunting (poaching) and habitat disturbance in the area → impact on tourism -Potential impact on water resources (over-abstraction and pollution) and soil pollution -Air quality (compromise the surrounding air quality) -Visual impacts due to land scars owing to exploration activities, resulting in the impact on tourism -Potential occupational and community health, safety and security risks -Vibrations and noise associated with exploration trenching and drilling -Vehicular traffic safety & impact on services infrastructure (e.g., local roads) -Environmental pollution (due to poor waste management) -Archaeological and cultural heritage impact -Potential social nuisance and conflicts due to land use (theft, property damage, etc.). -Potential stock theft could be a cumulative impact. 	<ul style="list-style-type: none"> -Local socio-economic development through: <ul style="list-style-type: none"> ○ Temporary employment creation ○ Payment of land access and use fees, ○ Procurement of local goods and services for exploration by local small businesses. ○ Corporate social responsibility: Consider assisting the farmers with upgrading farm gates, especially the gates that will be removed to enable entry of heavy and wider exploration vehicles such as trucks and machinery.

- Rehabilitation: un-rehabilitated roads would trigger soil erosion
- Hazardous waste: oil spillage from trucks and disposal of drilling mud should be contained. The mud/sludge from drilling activities, if disposed of on grass or young vegetation, their growth is hindered.
- Safety of the exploration workers/personnel onsite owing to leopards on the farms.

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 in accordance with 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 7-1.

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 (in Table 7-1) were applied in this impact assessment:

Table 7-1: Criteria used for impact assessment (extent, duration, intensity and probability)

The Criteria used to assess the potential negative impacts				
Extent or (spatial scale) - extent is an indication of the physical and spatial scale of the impact.				
Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)

The Criteria used to assess the potential negative impacts				
Impact is localised within the site boundary: Site only	Impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond site boundary: Regional	Impact extend National or over international boundaries
Duration- Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project				
Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	Impact is quickly reversible, 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
Intensity, Magnitude / severity - Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. This a qualitative type of criteria				
H-(10)	M/H-(8)	M-(6)	M/L-(4)	L-(2)
Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration, or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.
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				
Low (1)	Medium/Low (2)	Medium (3)	Medium/High (4)	High (5)

The Criteria used to assess the potential negative impacts				
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	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, continuous. High risk or vulnerability to natural or induced hazards.

7.3 Impact 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 chapter, for this assessment, the significance of the impact without prescribed mitigation actions was measured.

Once the above factors (Table 7-1) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SP} = (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability}$$

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 7-2).

Table 7-2: Impact significance rating scale

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

Significance	Environmental Significance Points	Colour Code
High (negative)	>-60	H

For an impact with a significance rating of high, mitigation measures are recommended to reduce the impact to a low or medium 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 project phases is done for both pre-mitigation (before implementing any mitigation) and post-mitigation (after mitigations are implemented). The objective with the mitigation measures is to firstly avoid the risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once the mitigation measures have been applied, the identified risk will be of low significance.

7.4 Assessment of Potential Negative Impacts

The potential negative impacts stemming from the proposed project activities are described, and assessed in the Tables below. The measures to manage and mitigate the potential impacts are provided in a form of management action plans in the Draft Environmental Management Plan (EMP) – Appendix B.

Table 7-3: Physical land disturbance –Description and assessment of the impact

Impact Description					
The excavations (and drilling) and land clearing to enable siting of project structures and equipment will potentially result in soil disturbance which will leave the site soils exposed to erosion, particularly on site areas with no to little vegetation cover to the soils in place. The movement of heavy vehicles and placement of equipment may lead to compaction of the soils. Another disturbance to local soils is the removal of soil during soil sampling (preceding trenching and drilling). These will, however, be a site-specific activity (selected locations within the EPL), localized impact, and short-term as it will only exist during the specific stages of project activities (exploration).					
The impact can be rated as medium if no mitigation measures are implemented. The effective implementation of mitigation measures and monitoring would reduce the impact significance to low.					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M: -6	M/H: 4	M: -48
Mitigations Measures in the Draft EMP					
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Table 7-4: Disturbance to Grazing areas –Description and assessment of the impact

Impact Description					
<p>The EPL overlies commercial farms where livestock and game farming is practised and heavily rely on plants and grass for grazing. The invasive exploration activities such as site clearing, trenching, and drilling can potentially lead to the disturbance of grazing land. This will potentially affect the grazing areas available to the livestock and wildlife. Since the farmers greatly depend on these types of farming for income generation (through farming and eco-tourism), this would have an impact on their livelihood.</p> <p>Losing grazing pastures for animals would minimize the number of animals on the farms and overall farming activity in the area, and lead to loss of livelihoods. However, exploration activities will only be carried out on selected sites within the EPL and not necessarily the whole EPL. Under the status (of no mitigation), the impact can be regarded as medium but upon the implementation of appropriate mitigation measures, the significance rating will be reduced to low.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Mitigations Measures in the Draft EMP					
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Table 7-5: Fauna and Flora (Biodiversity) - Description and assessment of the impact

Impact Description
<p><u>Fauna (Animals):</u> The trenching and drilling activities done for detailed exploration would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals. The presence and movement of the exploration workforce and operation of equipment and heavy vehicles would disturb and potentially injure or even kill (through collisions) livestock and wildlife grazing at explored sites of the EPL on the farms.</p> <p><u>Poaching (illegal hunting):</u> The proposed activities are also associated with potential illegal hunting (poaching) of local wildlife by project related workers, if measures are not in place. This could lead to loss or number reduction of specific faunal species which also impacts tourism in the community.</p> <p><u>Flora (vegetation):</u> The flora (vegetation) would be impacted through unnecessary clearing of vegetation to create exploration access roads or setting up project equipment and infrastructures, resulting in the reduction and or loss of floral species on the farms (explored site areas). Drilling activities may potentially impact vegetation through the fallout dust settling on the leaves of the plants, hindering, or preventing photosynthesis, which eventually affects the grazing of herbivores on the farms. The clearing of vegetation, where deemed necessary will be limited to the specific route and minimal, therefore, the impact will be localized, site-specific, therefore manageable.</p> <p>The mud/sludge from drilling activities, if disposed of on grass or young vegetation, their growth is hindered. There has been such an incident of grass no longer growing where the mud was disposed of. Therefore, consider disposing of the mud responsibly or elsewhere offsite but still responsibly</p> <p>Under the status, the impact can be of a slightly high to medium significance rating, but upon the implementation of appropriate mitigation measures, the significance rating will be reduced to a low.</p>
Impact Assessment

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H - 4	M/H - 4	H - 5	M/H - 4	M - 52
Mitigations Measures in the Draft EMP					
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Table 7-6: Groundwater resource use and availability - Description and assessment of the impact

Impact Description					
<p>Exploration activities such as drilling for commodities such as copper (Base & Rare metals) and gold (precious metals) by means of diamond drilling method requires a lot of water. Diamond drilling is usually used as a follow up technique to reverse circulation (RC) drilling at the advanced stage to get more reliable below ground data. The amount of water required for diamond drilling would range between 10,000 to 25,000 litres (10 to 25 m³) per day per hole, especially in areas where fractured formations are encountered. Given the fact that the EPL area is underlain by rock units with low groundwater potential the abstraction of more water from low groundwater potential areas than it can be replenished would negatively affect the local communities (people and animals) 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.</p> <p>The required water would also be dependent on the duration of the exploration works and number of exploration holes required to make reliable interpretation on the commodity presence explored for during exploration. Given the fact that the EPL area is underlain by rock units with low groundwater potential, the Proponent will be carting water for drilling from outside the area and store it in industry standard water reservoirs/tanks on site and refilled as required. Therefore, no abstraction will be done onsite. Therefore, the impact on local aquifers owing to abstraction for exploration will be very minimal to none.</p> <p>Without the implementation of any mitigation measures, the impact can be rated as slightly high to medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M/H - 4	H - 5	M/H - 4	M - 52
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Table 7-7: Air quality (Dust Generation) - Description and assessment of the impact

Impact Description					
The exploration activities such as trenching, but more especially drilling will be associated with dust. Dust generation is also anticipated from site access roads (heavy trucks) when transporting exploration equipment, services (water and waste) and supply to and from site. This may compromise the air quality in the area. The impact would be site specific, and short-term as this would last during the duration of exploration only, and ceases thereafter. If no measures are implemented, the significance of the impact will be rated as medium and can be reduced to a low significance rating by properly implementing mitigation measures.					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	L - 2	L - 1	L - 4

Table 7-8: Site Soils and water resources (pollution) - Description and assessment of the impact

Impact Description					
The proposed exploration activities are associated with a variety of potential sources of pollution such as mishandled lubricants, fuel/oils, and wastewater that may contaminate/pollute soils and eventually groundwater and surface water. 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 from exploration related activities. The spills (depending on volumes spilled on the soils) from these machinery, vehicles and equipment could be washed in surface water bodies such as rivers and streams during rainy seasons (if exploration works such as drilling are undertaken during rainy months of the year). The pollution may eventually infiltrate into the ground and pollute the fractured or faulted aquifers (the area comprises of intact and non-fractured rocks that cannot provide ready pathways for pollution transport). 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.					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M - 3	M - 3	M - 6	M/H - 4	M - 48
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Table 7-9: Littering (Environmental Pollution) - Description and assessment of the impact

Impact Description					
Waste types such as solid, wastewater and possibly hazardous (oils and fuels) will be produced onsite during exploration. If the generated waste is not disposed of in a responsible way, land pollution may occur on the EPL or					

around the site. 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 programme needs to have appropriate waste management for the site. To prevent these issues, biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a nearest recognized waste management facilities.

Hazardous waste: oil spillage from trucks and disposal of drilling mud should be contained and disposed on farms or any other unauthorized areas.

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.

Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Table 7-10: Vehicular traffic safety - Description and assessment of the impact

Impact Description					
The local roads such as the C36 via the D2337 and D2344 that passes through EPL from the northwest direction are the main transportation routes for all vehicular movement in the EPL area.					
There would be a potential increase in traffic flow especially during the detailed exploration stage of the project activities, due to the delivery of supplies and services on site (drilling rig and excavation equipment). These service and supplies will include but not limited to water, waste removal, procurement of exploration machinery, equipment, and others. Depending on the project needs, trucks, medium and small vehicles will be frequenting the area to and from exploration sites on the EPL. This would potentially increase slow moving heavy vehicular traffic along these roads which may lead to road accidents.					
The exploration works will be undertaken in stages, on certain days of the week, few vehicles and the work will be temporary. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance, pre-mitigation, and with the implementation of mitigation measures, the significance will be low.					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M - 3	M/H - 4	L/M - 4	M/H - 4	M - 44
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

Table 7-11: Occupational and community health, safety and security - Description and assessment of the impact

Impact Description					
<p>Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks, ranging from mishandling equipment, materials and vehicle/machinery related accidents. The safety and healthy incidents may not only be limited to project workers but locals and farm animals (from consuming hazardous materials such as fuel from unsecured project containers onsite).</p> <p>Another potential risks to both people and animals within the EPL are unfenced temporary exploration trenches and uncapped holes that are not backfilled after completing the sampling works. These could pose a risk of people or animals falling into the open trenches leading to injuries and even mortalities in serious cases.</p> <p>The use of heavy equipment, especially during drilling and the presence of hydrocarbons on sites may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and locals as well as animals and damages to farm properties.</p> <p>There are leopards on the farms that may pose a risk to the exploration workers that will be present onsite during exploration activities. Therefore, measures such as awareness training to workers will be required.</p> <p>The security of the farm residents and properties is of utmost importance, and if there are no measures in place to ensure this, it may create conflicts between the farm owners and exploration personnel (Proponent).</p> <p>Furthermore, considering the current unemployment rate of youth in Namibia, people from other areas in different regions may learn of the project and be forced to go look for work. The influx of people into the project area may also lead to sexual relations between these out-of-area workers and some locals. This would lead to the spreading of sexual transmitted diseases (i.e., HIV/AIDS) when engaging in unprotected sexual intercourse.</p> <p>Without the implementation of any measures, the impact significance can be rated as medium. However, with adequate mitigation measures, the impact rating will be reduced to low.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M - 3	M - 3	M - 6	M/H - 4	M - 48
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Table 7-12: Local Roads and other Services - Description and assessment of the impact

Impact Description
<p>The project activities will mean an increased movement of heavy trucks and equipment on local roads which would exert more pressure on these roads. These local roads in the EPL area are normally not in a good condition already for light vehicles, and the additional vehicles such as heavy ones may make it worse and difficult to be used by small (vehicles) that already struggled on the roads prior. This will be a concern if maintenance and care is not done during the exploration phase. The impact would be short-term (during exploration only) and therefore, manageable.</p>

<p>Another concern would be potential damage to buried services such as water pipes and electricity (power) cables on the farms. If these are not pointed out or marked prior to intrusive activities such as trenching and drilling, the services infrastructure can be damaged leading to interrupted services on the farms.</p> <p>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.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M - 3	M - 6	M - 3	M - 39
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

Table 7-13: Noise and vibrations - Description and assessment of the impact

Impact Description					
<p>There is a potential of noise from certain activities, especially drilling and trenching, which may be a nuisance to surrounding communities, if activities are done within proximity of farmhouses or accommodation facilities on the farms. Excessive noise and vibrations without any protective measures in place can be a health risk to workers. 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 and at least 1km away from farm residence, 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 low rating, the mitigation measures should be implemented.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M - 3	M - 3	M - 6	M/H - 4	M - 48
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

Table 7-14: Visual Impact and Tourism - Description and assessment of the impact

Impact Description					
<p>Surface exploration activities usually leave scars on the local landscape, particularly Dimension Stone (marble) that leave distinct colourful scars that contrast the surrounding environment. If the activities are carried close to or along roads or frequented areas, and may potentially become a visual nuisance, especially in tourist-prone areas. The project is located close to the C33, C36, D2337 and D2344 road that is used by local travelers, holiday makers, and tourists. The sight of the explored areas on the EPL and presence of colourful exploration vehicles and campsites may be an eyesore to those people. According to Chetty (2021), in terms of visual assessment, there are three receptors, namely residents, tourists and motorists.</p>					

- Residents: static views from buildings that have visual exposure tend to have a relatively wide cone of vision as the viewer tends to scan back and forth across the landscape. Residents and tourists staying within the affected zone of influence are therefore classified as visual receptors of high sensitivity owing to their sustained visual exposure to the proposed activity and their attentive interest towards their living environment.
- Tourists: tourists would be travelling as motorists and have therefore been included in the motorist receptor categorisation. Tourists are regarded as visual receptors of exceptionally high sensitivity. Their attention is focused on the landscape which they essentially utilise for enjoyment purposes and appreciation of the quality of the landscape. While there may not be any tourist attractions in proximity to the project area, tourists may use the local roads and nearby access roads to travel to tourist destinations in the Region.
- Motorists: they are generally classified as visual receptors of low sensitivity due to their momentary views and experience of the proposed development. Under normal conditions, views from a moving vehicle are dynamic as the visual relationship between the activities is constantly changing as well as the visual relationship between the activity and the landscape in which they are seen. The view cone for motorists, particularly drivers, is generally narrower than for static viewers. Motorists will therefore show low levels of sensitivity as their attention is focused on the road and their exposure to roadside objects is brief.

The significance is rated as slightly high to medium if there is no implementation of measures. However, upon effective implementation of measures, the rating can be reduced to low.

Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M/H - 4	H - 5	M/H - 4	M - 52
Mitigations and recommendations are provided in the Draft EMP					
Post-mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

Table 7-15: Archaeological & heritage resources - Description and assessment of the impact

Impact Description					
<p>The potential impact on heritage resources would be through the inadvertent unearthing (uncovering) of buried objects especially during trenching and drilling or destruction of rock arts on the mountains during Dimension Stone exploration activities. According to the specialist study conducted for the EPL, there are no known or observed surface heritage sites or objects within the EPL. However, the absence of such resources on the surface does not mean that such or some such sites cannot be encountered during site establishments and excavation/drilling works.</p> <p>Therefore, the necessary measures will be implemented (by following Chance Finds Procedure (CFP) attached to the Draft EMP). Deriving from the specialist study, the impact significance can be rated as slightly medium significance if there are no mitigation measures in place. However, upon implementation of the necessary measures and CFP, the impact significance will be reduced to a lower rating.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M - 3	M/H - 4	L/M - 4	M/H - 4	M - 44
Mitigations and recommendations are provided in the Draft EMP					
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Table 7-16: Social Nuisance: Local Property intrusion and Disturbance or Damage - Description and assessment of the impact

Impact Description					
<p>The presence of some exploration workers may lead to intentionally trespassing into private properties of the locals and damage them and theft of private properties. The private properties of the farmers could be damage to farmhouses, animals (livestock and wildlife). The unpermitted and unauthorized entry to private properties resulting in property theft, vandalism (damage) may cause crashes between the affected property farmer(s) and the Proponent. These would happen if the Proponent does not sensitize their workers or contractors on ethical and moral conduct while operating on farms. This will need to be included in employment/contractual agreements with zero-tolerance to breaking the rules and misconduct.</p> <p>Pre-implementation of mitigation measures, the impact is rated as of slightly high significance. However, upon mitigation (post-mitigation), the significance will change from slightly high to medium and with continued implementation, the rating will eventually get to low.</p>					
Impact Assessment					
Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H - 4	M/H - 4	H - 5	M/H - 4	M - 52
Mitigations and recommendations are provided in the Draft EMP					
Post mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

7.5 Cumulative Impacts Associated with Proposed Exploration

According to the International Finance Corporation (2013), cumulative impacts are defined as “those 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 ones”. Similar, to many other exploration projects, the cumulative impacts to which the proposed Project and associated activities potentially contribute in the area are as follows:

- Groundwater resources: While the contribution of the project activities to the impact will not be significant (due to carted water to the EPL for exploration), mitigation measures to reduce water consumption for activities are essential. The measures provided in the Draft EMP for this EPL should be implemented.
- Illegal hunting of wildlife (Poaching): there are potential existing incidents of poaching within the area or wider area. Therefore, this is likely to continue even when the exploration starts. However, the impact will be reduced by the biodiversity education awareness and implementation of anti-poaching measures by the Proponent and farmers, in collaboration with the EMP implementation.
- Stock theft: This could be a cumulative impact, as some of the farm workers are at times involved in stock theft. Therefore, the Proponent should educate their workers on this aspect.
- Road infrastructure: The roads in the areas of Omaruru, Okombahe, Uis and Omatjete are affected by the movement of many trucks travelling to and from different exploration and mining sites in the Region. Therefore, the proposed exploration activities on the EPL will cumulatively contribute to various activities such as farming activities and travelling associated with tourism and daily routines in the area. The contribution of the proposed project activities to this cumulative impact is considered fairly significant given the short duration, and local extent (site-specific) of the intended mineral exploration activities.

8 CONCLUSIONS

8.1 ESA Process and Consultation

The ESA Study for the proposed exploration activities on EPL-8241 was undertaken in accordance with the EMA and its 2012 EIA Regulations. The public was notified through the newspaper adverts placed in 3 newspapers (*The Namibian Sun*, *Die Republikein* and *Allegmeine Zeitung*) dated 28 November 2022 and 05 December 2022. The consultation period initially ran from 28 November 2022 to 06 January 2023, and later extended to end of March 2023 to allow further comments after the consultation meetings. The consultation meetings were held on 17 and 22 March 2023, whereby the representatives of the affected

parties raised issues, and concerns associated with the proposed activities. Therefore, I&APs were afforded sufficient time to submit comments and concerns for incorporation into the environmental assessment Report and EMP. The issues raised by the I&APs, such as farmers were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the biological, physical and social environmental components.

8.2 Impact Assessment

Some key potential positive and negative impacts were identified. The key negative impacts were described, assessed and appropriate management and mitigation measures made for implementation (as provided in the Draft EMP). The potential negative impacts assessed have a medium and some with a slightly high rating significance. The significance of the adverse (negative) impacts cannot be avoided can be reduced to acceptable levels by the effective implementation of the recommended management and mitigation measures accompanied by implementation monitoring.

The summary of the assessed potential adverse impacts (based on impact significance rating) is provided below:

- Physical land / soil disturbance and impact on grazing areas: *pre-mitigation – medium, post-mitigation – low.*
- Biodiversity (fauna and flora); potential illegal harvesting of protected vegetation and wildlife hunting (poaching) and habitat disturbance in the area, impacting tourism: *pre-mitigation – slightly high to medium, post-mitigation – low.*
- Impact on groundwater resources (over-abstraction/use): *pre-mitigation – slightly high to medium, post-mitigation – low.*
- Water and soil pollution: *pre-mitigation - medium, post-mitigation – low.*
- Air quality (compromise the surrounding air quality) - *pre-mitigation – medium, post-mitigation – low.*
- Visual impacts due to land scars owing to Dimension Stone exploration activities, resulting in the impact on tourism: *pre-mitigation – slightly high to medium, post-mitigation – low.*
- Occupational and community health, safety and security risks: *pre-mitigation – medium, post-mitigation – low.*
- Vibrations and noise associated with exploration trenching and drilling: *pre-mitigation – medium, post-mitigation – low.*
- Vehicular traffic safety & impact on services infrastructure (e.g., local roads): *pre-mitigation – medium, post-mitigation – low.*
- Environmental pollution (due to poor waste management): *pre-mitigation – medium, post-mitigation – low.*
- Archaeological and cultural heritage impact: *pre-mitigation – medium, post-mitigation – low.*

- Social nuisance and conflicts due to land use (theft, property damage, etc.) - *pre-mitigation – slightly high to medium, post-mitigation – low.*

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

- All the management and mitigation measures provided herein are effectively and progressively implemented, with commitment on Environmental monitoring through Bi-Annual EMP Compliance reporting by an Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant. The monitoring of this implementation will not only be done to maintain the reduce impacts' rating or maintain low rating but to also ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land access agreements, services provision agreements (water supply and waste disposal) to explore and ensuring compliance with these specific legal requirements.
- The Proponent, and their workers/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. This includes the levelling of stockpiled topsoil, backfilling of exploration trenches and closing/capping of exploration holes.

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Appendix A: A Date Stamped Copy of the ECC Application Submitted to the Ministry of Environment, Forestry and Tourism