

Date: 21 October 2024

The Environmental Commissioner
Department of Environmental Affairs
Ministry of Environment, Forestry and Tourism
Private Bag 13306
Windhoek

Attention: Mr. Timoteus Mufeti

Dear Sir,

SUBMISSION: Environmental Scoping Assessment (ESA) for: The Quarrying Activities for Dolerite Aggregates on Mining Claims 75544-75548 located on Farm Epako Sud 39 near Omaruru in the Erongo Region.

Wilhelm Johan Frederich Sandmann (The Proponent) appointed Excel Dynamic Solutions Pty Ltd (a team of Independent Environmental Consultants) to conduct the required Environmental Scoping Assessment (ESA) process and apply for the Environmental Clearance Certificate (ECC) to the Competent Authority in accordance with the Environmental Management Act (EMA) No. 7 of 2007 and its 2012 EIA Regulations. The ESA Study is for the proposed quarrying activities of Industrial Minerals (Dolerite) on a Quarry to be developed on Mining Claims 75544-75548 on farm Epako Sud 39, Omaruru in Erongo Region.

The public consultation carried out for this assessment study and the invitation notices were completed prior to the final registration of the mining claims 75544-75548 (refer to copies of adverts in the report). However, the quarry (on the adverts and notices) is to be developed over the same area and share the exact coordinates as the claims applications (-21.325767°S; 16.017397°E) and both the quarry and the mining claims are registered under the Farm Owner, Wilhelm Johan Frederich Sandmann.

The ESA process is completed, and Environmental Scoping Assessment Report and Draft Environmental Management Plan (EMP) are compiled and hereby submitted to the Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs and Forestry for consideration of the ECC.

Please do not hesitate to contact us should you need further information.

Yours faithfully

**EXCEL DYNAMIC
SOLUTIONS (PTY) LTD**
Reg. No: 2019/0817
P.O. Box 997154, Maerua Mall
Tel: +264 61 259 530
Email: info@edsnamibia.com

Ms. Iyaloo Nakale

Environmental Assessment Consultant

**ENVIRONMENTAL SCOPING ASSESSMENT (ESA) FOR
THE PROPOSED SMALL SCALE MINING ACTIVITIES
ON MINING CLAIM NO. 75544-75548, LOCATED ON
FARM EPAKO SUD 39, OMARURU, ERONGO REGION.**

ENVIRONMENTAL ASSESSMENT REPORT: Final

ECC Application Reference: APP- 004760

Author: Ms. Iyaloo Nakale

Company: Excel Dynamic Solutions (Pty) Ltd

Postal Address: P.O. Box 997154, Maerua Mall,
Windhoek

Telephone: +264 (0) 61 259 530

Fax2email: +264 (0) 886 560 836

Email: public@edsnamibia.com

Proponent: Wilhelm Johan Frederich Sandmann

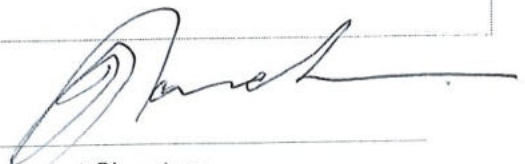
Postal Address: P.O.Box 1791, Otjiwarongo

Telephone: 0811243412

Email: nsandman@iway.na



EAP Signature



Proponent Signature

October 2024

EXECUTIVE SUMMARY

Wilhelm Johan Frederich Sandmann (The Proponent) has applied to the Ministry of Mines and Energy (MME) for the proposed small-scale mining activities on Mining Claims (MCs) No. 75544-75548 on the 05th of September 2024. However, the approval and granting of these MCs is subject to an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry and Tourism (MEFT). The 5 MCs cover a total surface area of 73.6734 hectares (Ha) as shown in (Figure 1). The MCs are located on farm Epako sud 39 near Omaruru, Erongo Region. The target commodities are **Industrial Minerals**.

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

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

Brief Project Description

Planned Activities: Proposed Exploration Methods

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

- 1. Non-invasive Technique:** This phase includes geological & geophysical mapping, reviewing of existing geological maps, field evaluation and soil sampling.
- 2. Invasive Technique:** Trenching, pitting and open pit mining using excavators.

Public Consultation

Public Consultation Activities

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

- A Background Information Document (BID) containing information about the proposed exploration activities was compiled and emailed upon request to all registered Interested and Affected Parties (I&APs).
- Project Environmental Assessment notices for the proposed Quarry where the current applied mining claims fall were published in New Era Newspaper (**17 June 2024 and 24 June 2024**) and The Namibian Newspaper (**17 June 24 June 2024**), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting was scheduled and held with the affected landowners on the **25 July 2024** at Erongo regional council boardroom, Omaruru at 11h00.
- The issues and concerns raised were noted and used to form part of the ESA Report and EMP.

Potential Impacts identified

The following potential impacts are anticipated:

- **Positive impacts:** Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer; Opens up other investment opportunities and infrastructure-related development benefits; Produces a trained workforce and small businesses that can serve communities and may initiate related businesses; Boosts the local economic growth and regional economic development and; Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

- **Negative impacts:** Potential disturbance of existing pastoral systems; Physical land/soil disturbance; Impact on local biodiversity (fauna and flora); Habitat disturbance and potential illegal wildlife and domestic hunting in the area; Potential impact on water resources and soils particularly due to pollution; Air quality issue: potential dust generated from the project; Potential occupational health and safety risks, Vehicular traffic safety and impact on services infrastructures such as local roads, Vibrations, and noise associated with drilling activities may be a nuisance to locals; Environmental pollution (solid waste and wastewater), Archaeological and heritage impact and Potential social nuisance and conflicts (theft, damage to properties, etc.).

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

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

The public was consulted as required by the EMA and its 2012 EIA Regulations (Sections 21 to 24). This was done via the two newspapers (New Era and The Namibian) used for this environmental assessment. A consultation through a face-to-face meeting with directly affected landowners in Otjokojo village whereby they raised concerns and comments on the proposed project activities.

The issues and concerns raised by the registered I&APs formed the basis for this Report and the Draft EMP. The issues were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the environmental and social components. Most of the potential impacts were found to be of medium-rating significance. With the effective implementation of the recommended management and mitigation measures, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low). To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent

directly, or their Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the reduced impacts' rating or maintain a low rating but to also ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away too.

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

Recommendations

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

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

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

- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per the provision made on the MEFT/DEAF's portal.

Disclaimer

Excel Dynamic Solutions (EDS) warrants that the findings and conclusion contained herein were accomplished following the methodologies outlined in the Scope of Work and Environmental Management Act (EMA) of 2007. These methodologies are described as representing good customary practice for conducting an EIA of a property to identify recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist subject property conditions that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information. The Consultant believes that the information obtained from the record review and during the public consultation processes concerning the proposed exploration work is reliable. However, the Consultant cannot and does not warrant or guarantee that the information provided by the other sources is accurate or complete. The conclusions and findings outlined in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
LIST OF FIGURES	vii
LIST OF TABLES	viii
1 INTRODUCTION	14
1.1 Project Background.....	14
1.2 Terms of Reference, Scope of Works, and Appointed EA Practitioner	16
1.3 Motivation for the Proposed Project	16
2 PROJECT DESCRIPTION: PROPOSED SMALL SCALE MINING ACTIVITY	17
2.1 Pre-development Phase.....	17
2.2.....	17
2.2 Decommissioning and Rehabilitation Phase.....	19
3 PROJECT ALTERNATIVES.....	20
3.1 Types of Alternatives Considered.....	20
3.1.1 The "No-go" Alternative	20
3.1.2 Small-scale mining activities Location.....	21
3.1.3 Small-scale mining Methods.....	22
4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES	23
4.1 The Environmental Management Act (No. 7 of 2007)	23
4.2 International Policies, Principles, Standards, Treaties, and Conventions	33
5 ENVIRONMENTAL AND SOCIAL BASELINE	37
5.1 Biophysical Environment.....	37
5.1.1 Climate	37
5.1.2 Topography	38
5.1.3 Geology.....	39
5.1.4 Soil.....	40
5.1.5 Water Resources: Groundwater and Surface Water	41
5.1.6 Flora and Fauna	42
5.2 Heritage and Archaeology	44
5.2.1 Local Level and Archaeological Findings	44
5.3 Surrounding Land Uses.....	44
5.4 Socio-Economic conditions.....	45

6	PUBLIC CONSULTATION PROCESS	46
6.1	Pre-identified and Registered Interested and Affected Parties (I&APs)	46
6.2	Communication with I&APs	47
7	IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES	49
7.1	Impact Identification	49
7.2	Impact Assessment Methodology	50
7.2.1	Extent (spatial scale)	50
7.2.2	Duration	51
7.2.3	Intensity, Magnitude/severity	51
7.2.4	Probability of occurrence	52
7.2.5	Significance	52
7.3	Assessment of Potential Negative Impacts	54
7.3.1	Disturbance to grazing areas	54
7.3.2	Land Degradation and Loss of Biodiversity	54
7.3.3	Generation of Dust (Air Quality)	55
7.3.4	Water Resources Use	56
7.3.5	Soil and Water Resources Pollution	57
7.3.6	Waste Generation	57
7.3.7	Occupational Health and Safety Risks	58
7.3.8	Vehicular Traffic Use and Safety	59
7.3.9	Noise and vibrations	59
7.3.10	Disturbance to Archaeological and Heritage Resources	60
7.3.11	Impact on Local Roads/Routes	60
7.3.12	Social Nuisance: Local Property intrusion and Disturbance/Damage	61
7.4	Cumulative Impacts Associated with Proposed Exploration	61
8	RECOMMENDATIONS AND CONCLUSION	62
8.1	Recommendations	62
8.2	Conclusion	63
9	REFERENCES	64

LIST OF FIGURES

Figure 1: Locality map for MCs No. 74633-74634	15
--	----

Figure 2: The location of MCs 7 4633-74634 on the National Mining Cadastre.....	22
Figure 3: Climate condition around the project area, Otjozondjupa (source: Otjozondjupa, NA Climate Zone, Monthly Weather Averages and Historical Data (weatherandclimate.com)).....	38
Figure 4: Topographic map of the project area	39
Figure 5: General geology and lithology map of the MCs.....	40
Figure 6: Dominant soil type on the MCs	41
Figure 7: Observed soil type.....	Error! Bookmark not defined.
Figure 8: Hydrology map for the MCs	Error! Bookmark not defined.
Figure 9: Vegetation map.....	Error! Bookmark not defined.
Figure 10: Vegetation observed on the MCs	Error! Bookmark not defined.
Figure 11: Animal droppings observed on the MCs.....	Error! Bookmark not defined.
Figure 12: Land use map	Error! Bookmark not defined.
Figure 13: Observed infrastructure on Farm Labusrus	Error! Bookmark not defined.
Figure 14: Public notice placed at Otjozondju clinic and Kandumbi store.	48
Figure 15: Public Consultation meeting at Kandumbi store.....	48

LIST OF TABLES

Table 1: Applicable local, national and international standards, policies and guidelines governing the proposed prospecting and exploration activities.....	Error! Bookmark not defined.
Table 2: International Policies, Principles, Standards, Treaties and Convention applicable to the project	Error! Bookmark not defined.
Table 3: Summary of Interested and Affected Parties (I&APs).....	47
Table 4: Summary of main issues raised, and comments received during public meeting engagements	48
Table 5: Extent or spatial impact rating	50
Table 6:Duration impact rating	51
Table 7:Intensity, magnitude, or severity impact rating.....	51
Table 8:Probability of occurrence impact rating	52
Table 9:Significance rating scale	52
Table 10:Assessment of the impacts of exploration on grazing areas	54
Table 11:Assessment of the impacts of exploration on biodiversity.....	55
Table 12: Assessment of the impacts of exploration on air quality	55
Table 13: Assessment of the project impact on water resource use and availability	56
Table 14: Assessment of the project impact on soils and water resources (pollution).....	57
Table 15: Assessment of waste generation impact	58
Table 16: Assessment of the impacts of exploration on health and safety	58
Table 17: Assessment of the impacts of exploration on-road use (vehicular traffic)	59
Table 18: Assessment of the impacts of noise and vibrations from exploration	59
Table 19: Assessment of the impacts of exploration on archaeological & heritage resources	60
Table 20: Assessment of exploration of local services (roads and water)	60
Table 21: Assessment of the social impact of community property damage or disturbance	61

LIST OF APPENDICES (To be submitted to MEFT and MME)

Appendix A: Copy of the Environmental Clearance Certificate (ECC) Application Form 1

Appendix B: Draft Environmental Management Plan (EMP)

Appendix C: Curricula Vitae (CV) for the Environmental Assessment Practitioner (EAP)

Appendix D: List of Interested and Affected Parties (I&APs) and Attendance Register

Appendix E: Background Information Document (BID)

Appendix F: EIA Notification in the newspapers (New Era and the Namibian)

Appendix G: Consultation Meeting Minutes

Appendix H: Mineral License

LIST OF ABBREVIATIONS

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

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

DEFINITION OF TERMS

Alternative	A possible course of action, in place of another would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	That part of the environment does not originate with human activities (e.g. biological, physical, and chemical processes).
Cumulative Impacts/Effects Assessment	About an activity, means the impact of an activity that in 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 play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).
Environment	As defined in the Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored.
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by the activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. 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	All of the animals that are found in a given area.
Flora	All of the plants are found in a given area.

Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Nomadic Pastoralism	Nomadic pastoralists live in societies in which the husbandry of grazing animals is viewed as an ideal way of making a living and the regular movement of all or part of the society is considered a normal and natural part of life. Pastoral nomadism is commonly found where climatic conditions produce seasonal pastures but cannot support sustained agriculture.
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.

Terms of Reference (ToR)	Written requirements governing full EIA input and implementation, consultations to be held, data to be produced, and form/contents of the EIA report. Often produced as an output from scoping.
---------------------------------	---

1 INTRODUCTION

1.1 Project Background

Wilhelm Johan Frederich Sandmann (The Proponent) has applied to the Ministry of Mines and Energy (MME) for the proposed small-scale mining activities on Mining Claims (MCs) No. 74633 74634 on the 05th of September 2024. However, the approval and granting of these MCs is subject to an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry and Tourism (MEFT). The 5 MCs cover a total surface area of 73.6734 hectares (Ha) as shown in **(Figure 1)**. The MCs are located on farm Epako sud 39 near Omaruru, Erongo Region. The target commodities are **Industrial Minerals**.

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

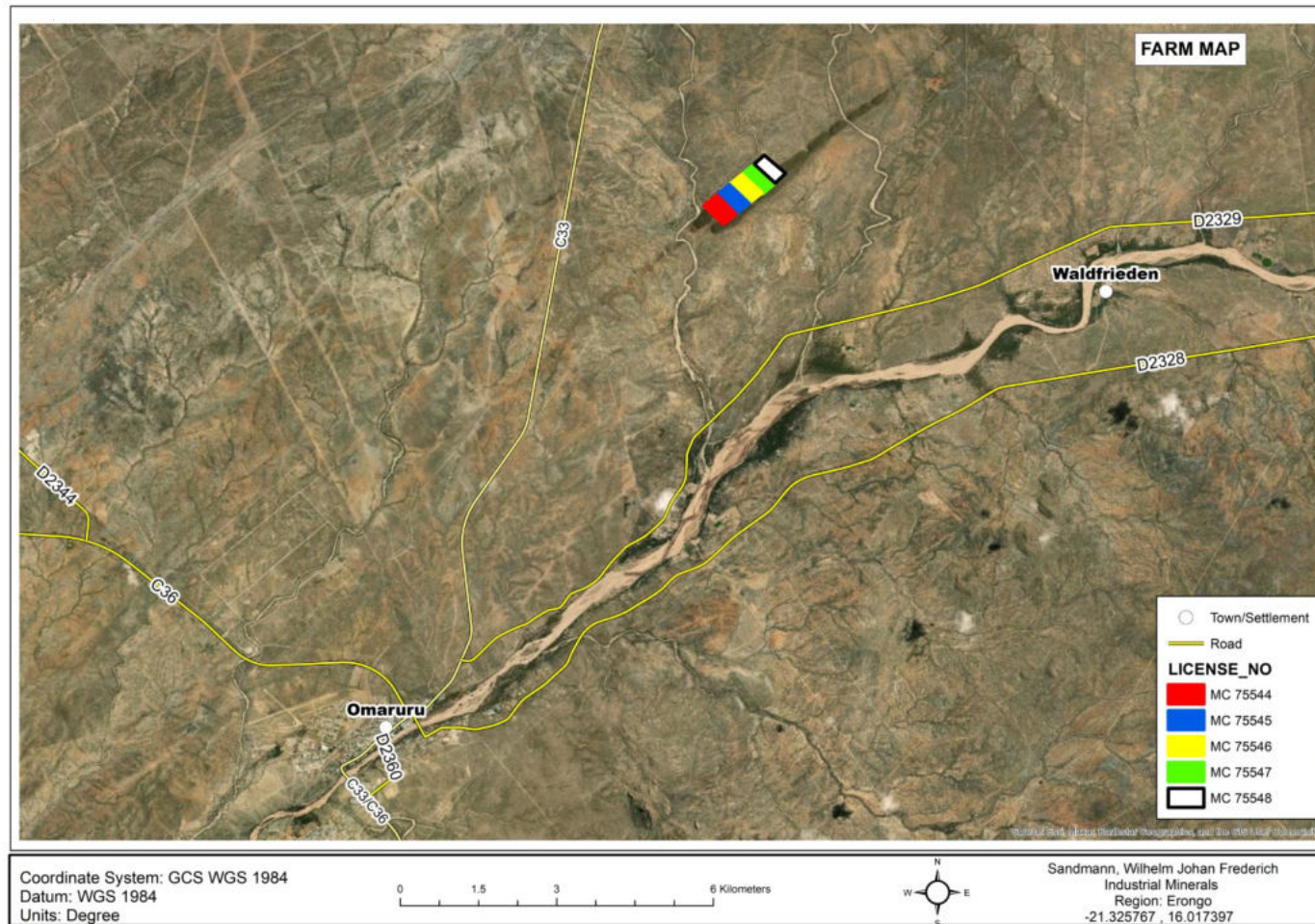


Figure 1: Locality map for MCs No. 75544-75548

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

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed EDS to conduct the required Environmental Assessment (EA) process on their (Proponent's) behalf, and thereafter, apply for an ECC for small-scale mining works on the MCs. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its EIA Regulations (GN. No. 30 of 2012) to conduct the study.

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

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and reporting is done by Ms. Iyaloo Nakale. EAP CV is presented in **Appendix C**.

1.3 Motivation for the Proposed Project

The mining industry is one of the largest contributors to the Namibian economy, it contributes to the improvement of local livelihoods. In Namibia, the exploration and mining of minerals is done mainly by the private sector. Mining activities have a great potential to enhance and contribute to the development of other sectors and their activities do provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and accounts for a significant portion of the gross domestic product (GDP). Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Exploration activity fosters several associated activities such as the manufacturing of exploration and mining equipment, and the provision of engineering and environmental services. The mining sector forms a 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. Mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Successful small-scale mining of MCs No. 75544-75548 would lead to the mining of the target mineral, which would contribute towards achieving the goals of the national development plans.

2 PROJECT DESCRIPTION: PROPOSED SMALL SCALE MINING ACTIVITY

The description of small-scale mining activities and stages to be undertaken is presented below as well as the decommissioning of the mining activities

2.1 Pre-development Phase

The small scale mining phase includes reconnaissance and mapping to identify the lithostratigraphic packages. In addition, literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work.

2.2 Operation and maintenance phase

During this phase, extraction of minerals and all associated mining activities are carried out on site. Both, invasive and non-invasive activities are expected to take place. Non-invasive activities include detailed mapping. No ground geophysical surveys are planned for the project. While invasive activities involve trenching and pitting, open pit mining.

A 10 year period of small scale mining period is predicted. The selection of the potential mineralization model and mineral targets will be based on the local geology, trenching, and assay results of the samples collected. No explosives will be used during the operational phase.

Other aspects of the proposed small-scale mining activities operations include:

2.1.1 Accessibility to Site

The MCs are accessible via C33 Road that tranverses Farm Epako between Omaruru and Kalkfeld. Therefore, all project related vehicles will be using these existing roads to access the MCs. It is also anticipated that, if necessary, onsite new tracks to the different targeted mining site within the MCs will be created. The Proponent may need to do some upgrade on the site access roads to ensure that they fit to accommodate project related vehicles, such as heavy trucks.

2.1.2 Material and Equipment

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

2.1.3 Services and Infrastructure

- **Water:** Water for the operational phase will be obtained from the nearest existing boreholes near the mining claims or nearest town. This will be done upon agreement with the community members but in case the proponent needs to source water somewhere, that will be through approved water sources and also water abstraction permits from relevant authority. Estimated monthly water consumptions are at +- 3000 liters, which includes water for drinking, sanitation, cooking, dust control, as well as washing equipment. Potable water will also be made available for the mining crew (workers) on site.
- **Power supply:** Power required during the operation phase will be provided from dieselgenerators. About 3 000 litres of diesel will be used per day.
- **Fuel (diesel for generators and other equipment):** The fuel (diesel) required for small-scale mining activities equipment will be stored in a tank mounted on a mobile trailer, and drip trays will be readily available on this trailer and monitored to ensure that accidental fuel spills are cleaned up as soon as they have been detected/observed. Fuel may also be stored in abunded diesel bowser on site, and in jerry cans placed on plastic sheeting to avoid unnecessary contamination of soils.

2.1.4 Waste Management

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

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

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

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

2.1.5 Safety and Security

- **Storage Site:** Temporary storage areas for exploration material, equipment, and machinery will be required at the campsite and/or exploration sites. Security will be supplied on a 24-hour basis at the delegated sites for storage. A temporary support fence surrounding the storage site will be constructed to ensure people and domestic animals are not put at risk.
- **Fire management:** A minimum of basic firefighting equipment, i.e., fire extinguishers will be readily available in vehicles, at the working sites and camps. The exploration crew is required to have the contact details of the nearest fire station at hand in case of a larger scale of fires at the site.
- **Health and Safety:** Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at the site. A first aid kit will be readily available on-site to attend to potential minor injuries.

2.1.6 Accommodation

The mining crew will be accommodated in nearest town, but if accommodation camp is to be set up near the MCs, necessary arrangements will be made with the land owner. All mining activities will take place during daytime only and staff will commute to site(s) from their place of accommodation if they are not accommodated on site

2.2 Decommissioning and Rehabilitation Phase

Once the mining activities on the MCs come to an end, the Proponent will need to put site rehabilitation measures in place. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. An unfavorable economic situation or unconvincing

exploration results might force the Proponent to cease the exploration program before the predicted closure. Therefore, it is best practice for the Proponent to ensure the project activities cease in an environmentally friendly manner and the site is rehabilitated.

3 PROJECT ALTERNATIVES

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

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

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

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

3.1 Types of Alternatives Considered

3.1.1 The "No-go" Alternative

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

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

- Loss of foreign direct investment.
- About ten (10) temporary job opportunities for community members will not be realized.

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

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

3.1.2 Small-scale mining activities Location

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

Furthermore, the national mineral resources’ potential locations are also mapped and categorized by the Ministry of Mines and Energy, on exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses, and exclusive reconnaissance licenses. Available information on the MCs (**Figure 2**) and other licenses are available on the Namibia Mining Cadastral Map here <https://portals.landfolio.com/namibia/>

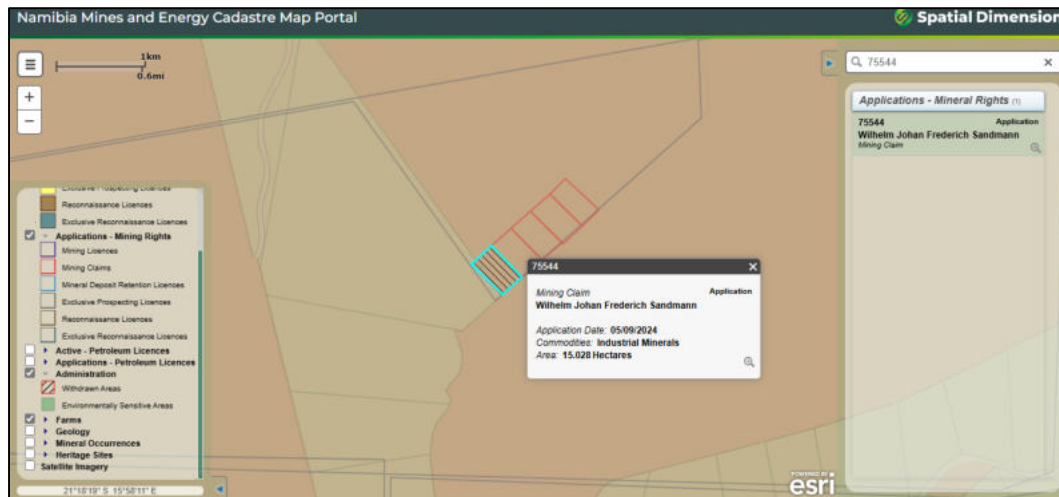


Figure 2: The location of MCs 75544-75548 on the National Mining Cadastre

3.1.3 Small-scale mining Methods

Both invasive and non-invasive exploration activities as indicated under the project description chapter are expected to take place. If an economically viable discovery is made, the project will proceed to the mining phase upon approval of a mining EIA and issuance of a mining license. If any other alternative viable mining methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

Small-scale mining activities have legal implications associated with certain applicable legal standards. A summary of applicable and relevant international policies and Namibian legislation, policies, and guidelines for the proposed development is given in this section (**Table 2**). This summary serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF, of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed prospecting and exploration activities.

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

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

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

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

The Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).

Other legal obligations that are relevant to the proposed mining activities on MCs No. 75544-75548 and related activities are presented.

Table 1: Applicable local, national and international standards, policies and guidelines governing the proposed prospecting and exploration activities

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended: Government of the Republic of Namibia	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: “...the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia...” Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: “...Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State.”	By implementing the environmental management plan, the establishment will be conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.
Minerals (Prospecting and	Section 52 requires mineral license holders to enter into a written	The Proponent should enter into a written agreement with

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Mining) Act (No. 33 of 1992): Ministry of Mines and Energy (MME)	agreement with affected landowners before exercising rights conferred upon the license holder. Section 52(1) mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilized for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough, etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance. Section 54 requires a written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area. Section 68 stipulates that an application for Mining Claims (MCs) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the measures to be taken to prevent or minimize any such effect.	landowners before exploring their land. On communal land, the Proponent should engage the landowners for land use consent. An assessment of the impact on the receiving environment should be carried out. The Proponent should include as part of their application for the MCs, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities. The Proponent may not carry out mining activities within the areas limited by Section 52 (1) of this Act.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	
Nature Conservation Amendment Act, No. 3 of 2017: Ministry of Environment, Forestry and Tourism (MEFT)	National Parks are established and gazetted following the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework concerning the permission of entering a state-protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PAs and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The MCs fall within the Epupa Communal Conservancy. Therefore, the Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and another State land in the Project Site area. The Proponent will also be required to comply with the existing and planned local operational management plans, regulations, and guidelines.
The Parks and Wildlife Management Bill of 2008: Ministry of Environment, Forestry and Tourism (MEFT)	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to	

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

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	physical, social and economic characteristics, urbanization patterns, natural resources, economic development potential, infrastructure, land utilization pattern and sensitivity of the natural environment.	
Water Act 54 of 1956: Ministry of Agriculture, Water and Land Reform (MAWLR)	The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii))). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority. The permits and license required thereto should be obtained from MAWLR's relevant Departments (these permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, Wastewater / Effluent Discharge Permits).
Water Resources Management Act (No 11 of 2013): Ministry of Agriculture, Water and Land Reform (MAWLR)	The Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services, and provides for incidental matters. The objects of this Act are to:	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).	
National Heritage Act No. 27 of 2004: Ministry of Education, Arts, and Culture (MEAC)	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with this act's requirements. The necessary management measures and related permitting requirements must be taken. This is done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be incorporated into the Draft EMP.
The National Monuments Act (No. 28 of 1969): Ministry of Education, Arts, and Culture (MEAC)	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969): Ministry	The Act makes provision for the prevention and control of soil erosion and the protection, improvement, and	Duty of care must be applied to soil conservation and

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
of Agriculture, Water and Land Reform (MAWLR)	conservation of soil, vegetation, and water supply sources and resources, through directives declared by the Minister.	management measures must be included in the EMP.
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of traditional government, of traditional authority councils; the establishment of such authority councils; and to define the powers, duties and functions of traditional authority councils; and to provide for incidental matters.	The Otjiwarongo town council is the responsible local Authority of the area therefore they should be consulted.
Public Health Act (No. 36 of 1919): Ministry of Health and Social Services (MHSS)	Section 119 states that “no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.”	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617): Ministry of Health and Social Services (MHSS)	Details various requirements regarding the health and safety of labourers.	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Public and Environmental Health Act No. 1 of 2015: Ministry of Health and Social Services (MHSS)	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health, and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels. Public and environmental health should be preserved and remain uncompromised.
Atmospheric Pollution Prevention Ordinance (1976): Ministry of Health and Social Services (MHSS)	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on-site.
Hazardous Substance Ordinance, No. 14 of 1974: Ministry of Health and	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	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

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Social Services (MHSS)	provides for the importing, storage, and handling.	
Road Traffic and Transport Act, No. 22 of 1999: Ministry of Works and Transport (Roads Authority of Namibia)	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access to existing roads, the relevant permits will be required.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.
Labour Act (No. 6 of 1992): Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)	Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety, and enhanced labour market services for the benefit of all Namibians. This ministry insures the 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.

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

The international policies, principles, standards, treaties, and conventions applicable to the project are listed in **Table 3** below.

Table 2: International Policies, Principles, Standards, Treaties and Convention applicable to the project

Statute	Provisions	Project Implications
Equator Principles	A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The principles apply to all new project financings globally across all sectors. Principle 1: Review and Categorization Principle 2: Environmental and Social Assessment Principle 3: Applicable Environmental and Social Standards Principle 4: Environmental and Social Management System and Equator Principles Action Plan Principle 5: Stakeholder Engagement Principle 6: Grievance Mechanism Principle 7: Independent Review	These principles are an attempt to: ‘...encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.’

	Principle 8: Covenants Principle 9: Independent Monitoring and Reporting Principle 10: Reporting and Transparency	
The International Finance Corporation (IFC) Performance Standards	The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of the IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below. Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts	The Performance Standards are directed toward clients, guiding how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business sustainably, including stakeholder engagement and disclosure obligations of the Client (Borrower) concerning project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the

	Performance Standard 2: Labour and Working Conditions Performance Standard 3: Resource Efficient and Pollution Prevention and Management Performance Standard 4: Community Health and Safety Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities Performance Standard 8: Cultural Heritage Performance Standard 9: Financial Intermediaries (FIs) Performance Standard 10: Stakeholder Engagement and Information A full description of the IFC Standards can be obtained from http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework	Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.
--	--	--

	social-standards?cq_ck=1522164538151#ess1	
The United Nations Convention to Combat Desertification (UNCCD) 1992	Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. The convention's objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nations Convention.	The project activities should not be such that they contribute to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, to ensure their conservation and sustainable use. Promote the protection of ecosystems, and natural habitats, and the maintenance of viable populations of species in natural surroundings.	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimized.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

Relevant international Treaties and Protocols ratified by the Namibian Government

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

5 ENVIRONMENTAL AND SOCIAL BASELINE

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

The climatic conditions of the project area are described using the Witputs weather station data for the area obtained from the weather atlas website (2024).

5.1 Biophysical Environment

5.1.1 Climate

The proposed small-scale mining programme will be undertaken in specific environmental and social conditions. Understanding the pre-project conditions of the environment will aid in laying down background "information" of the status quo and future projections of environmental conditions after proposed works on the MCs. This also helps the EAP in identifying the sensitive environmental features that may need to be protected through the recommendations and effective implementation of mitigation measures provided.

The baseline information presented below is sourced from a variety of sources including reports of studies conducted in the Erongo region. Further information was obtained by the Consultant during the site visit.

The Erongo Region in Namibia experiences a semi-arid climate characterized by relatively low and erratic rainfall, high temperatures, and low humidity. **Figure 3** shows the climate condition around Omaruru as the closest to the project site.

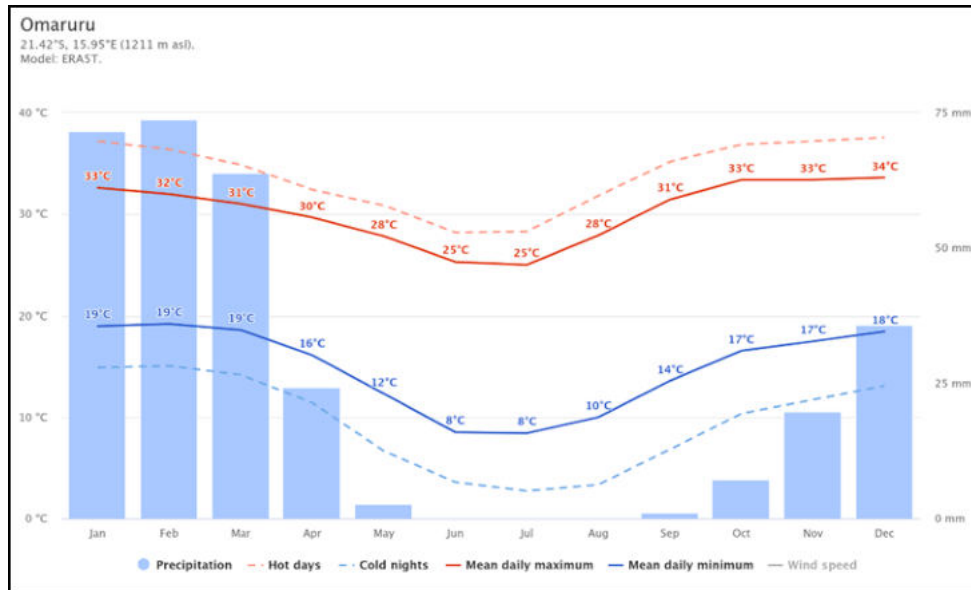


Figure 3: Climate condition around the project area, Otjozondjupa (source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/omaruru_namibia_3354540)

5.1.2 Topography

The MCs are characterized by the Central-Western Plains of Erongo region which encompass vast areas of arid and semi-arid landscapes. The Central-Western Plains were largely formed by erosion cutting eastwards into the higher ground, thereby forming the catchment area of several major ephemeral rivers such as the Khan, Omaruru, Swakop and Ugab (African Development Bank, 2017). This region is known for its stark beauty, wide-open spaces, and unique flora and fauna adapted to thrive in arid conditions largely considered by a low mean annual rainfall. As such the dominant vegetation in the area is that which is capable of surviving in harsh temperature and low water environments. The topography of the area is between 1216 to 1453 m above the sea level. **Figure 4** below shows the topography and landscape map of the project area.

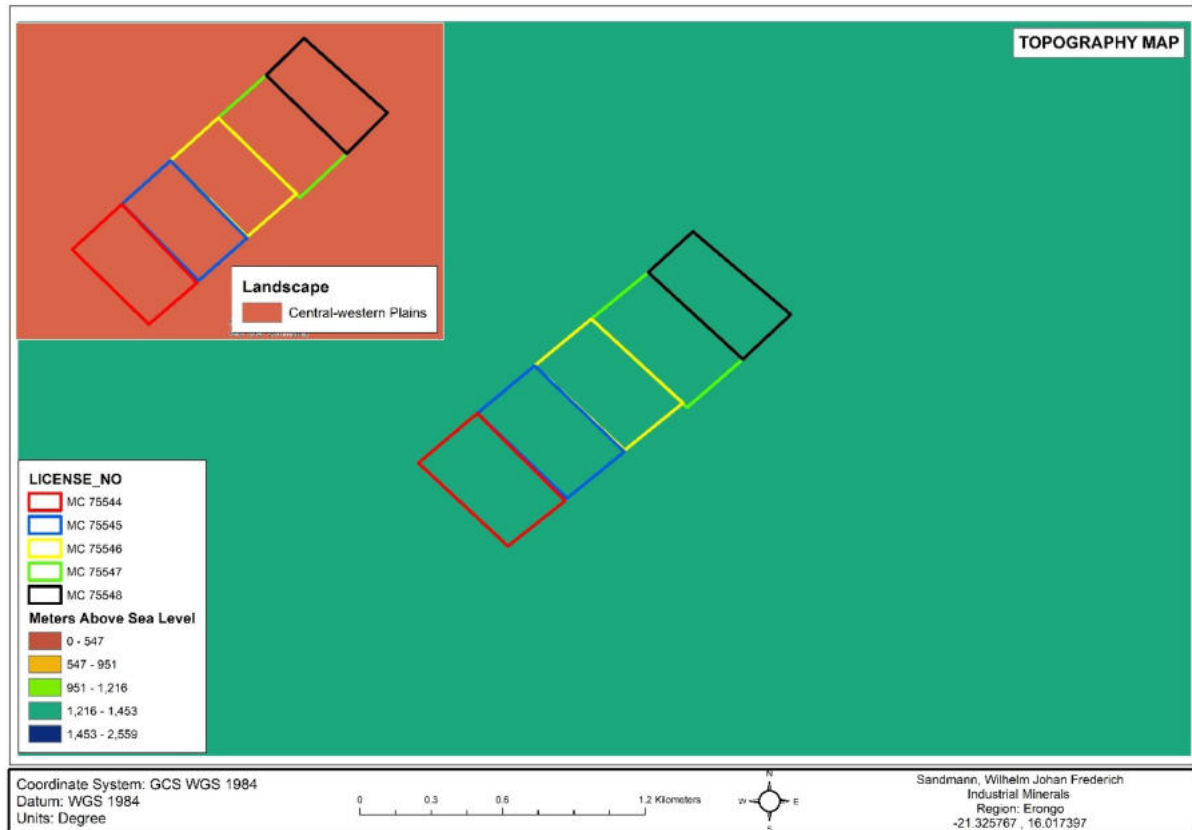


Figure 4: Topographic map of the project area

5.1.3 Geology

The site is located within the Northern Zone (NZ) of the Damara Orogenic belt, which is geologically characterized by rocks of Nosib and Swakop Groups (Miller, 1983). The Kuiseb Formation is composed of sedimentary rocks that date back to the late Carboniferous and early Permian periods, approximately 300 to 270 million years ago. These rocks consist of sandstones, shales, and conglomerates that were deposited in ancient river systems, deltas, and coastal environments. The Kuiseb Formation is notable for its fossil record, which includes plant remains, trace fossils, and occasionally marine fossils. These fossilized remains provide valuable insights into the flora and fauna that existed in this region during prehistoric times. **Figure 5** below shows the geological map of the area and the site main lithology that consist of mica schist, minor quartzite, graphitic schist, marble and syn-to post tectonic granite, granodiorite, monzonite, diorite.

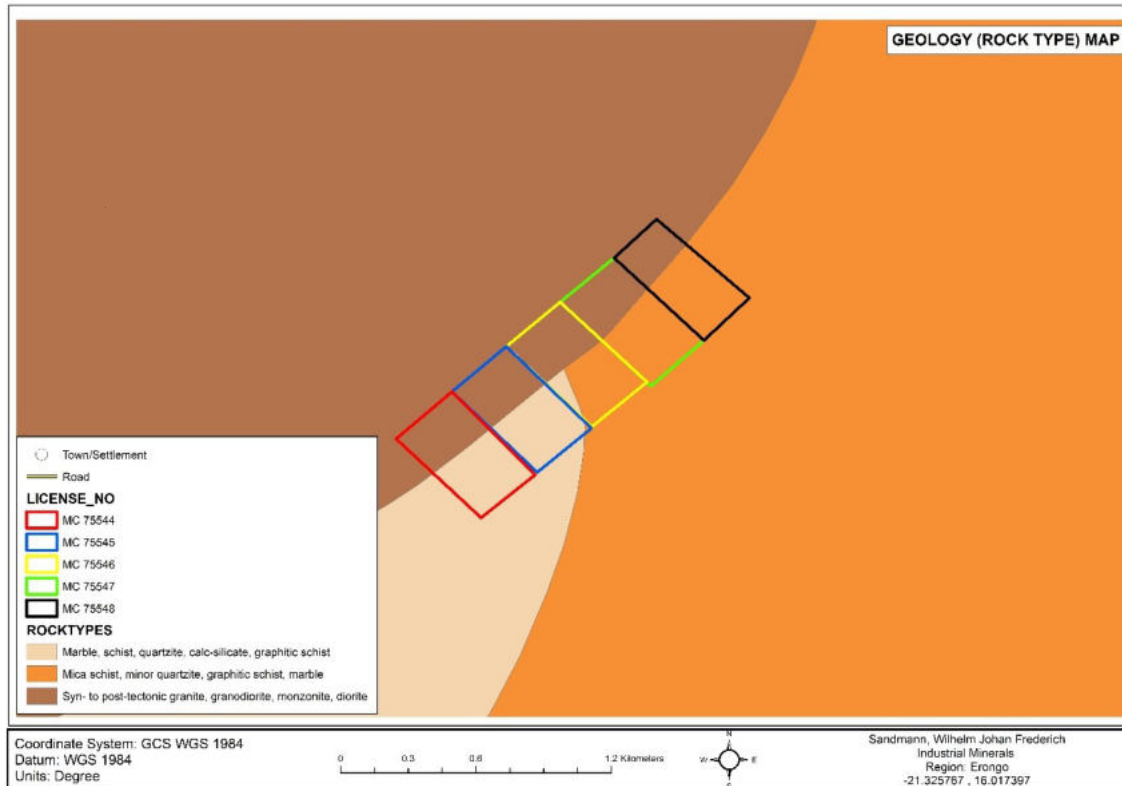


Figure 5: General geology and lithology map of the MCs.

5.1.4 Soil

The project site is dominated by Eutric Regosols which are a type of soil classified within the World Reference Base for Soil Resources (WRB) system. Regosols are characterized by a lack of horizon differentiation. They are typically young soils often formed from a variety of parent materials, including recent deposits of sand, silt, clay, or rock fragments that have not yet developed distinct soil horizons due to ongoing erosion or deposition processes. Eutric soils, in general, are soils that have a sufficient supply of essential nutrients, particularly base cations like calcium, magnesium, and potassium. These nutrients are important for supporting plant growth. They may exhibit characteristics such as loose structure, low organic matter content, and a lack of distinct layers or horizons that are commonly seen in more developed soils. Additionally, these soils may occur in areas with recent geological activity, such as river valleys, floodplains, coastal plains, or areas affected by glaciation. The fertility and nutrient content of Eutric Regosols make them suitable for agricultural purposes, particularly when supplemented with organic matter and nutrients. However, the lack of horizon differentiation and potential for erosion may pose

challenges for sustainable land use practices. **Figure 6** below is a map of the soil types for the proposed site area.

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



Figure 6: Dominant soil type on the MCs

5.1.5 Water Resources: Groundwater and Surface Water

The project area lies over rock bodies with little groundwater potential. However, the groundwater within the farm is not observed to flow along porous aquifers along the Omaruru river. Due to the limited groundwater potential, the project site area is prone to moderate groundwater pollution.

Omaruru River: Located in the Erongo Region of Namibia, running through the town of Omaruru and the surrounding areas, the Omaruru River originates in the Erongo mountains, a prominent mountain range in central Namibia known for its unique geological formations. The river is fed by seasonal rains and occasional runoff from the surrounding hills and mountains. During the rainy

season, typically from november to march, the river can experience increased flow, while in the dry season it may reduce or dry up completely. It also serves as a vital water source for wildlife and vegetation in the region. The riverine vegetation along its banks provides habitat for a variety of bird species, mammals, and aquatic life. It also supports local communities who rely on the river for water resources. The river can be seen on the south eastern side of the proposed project site as indicted in the map below. **Figure 7** shows the hydrological map of the project area.

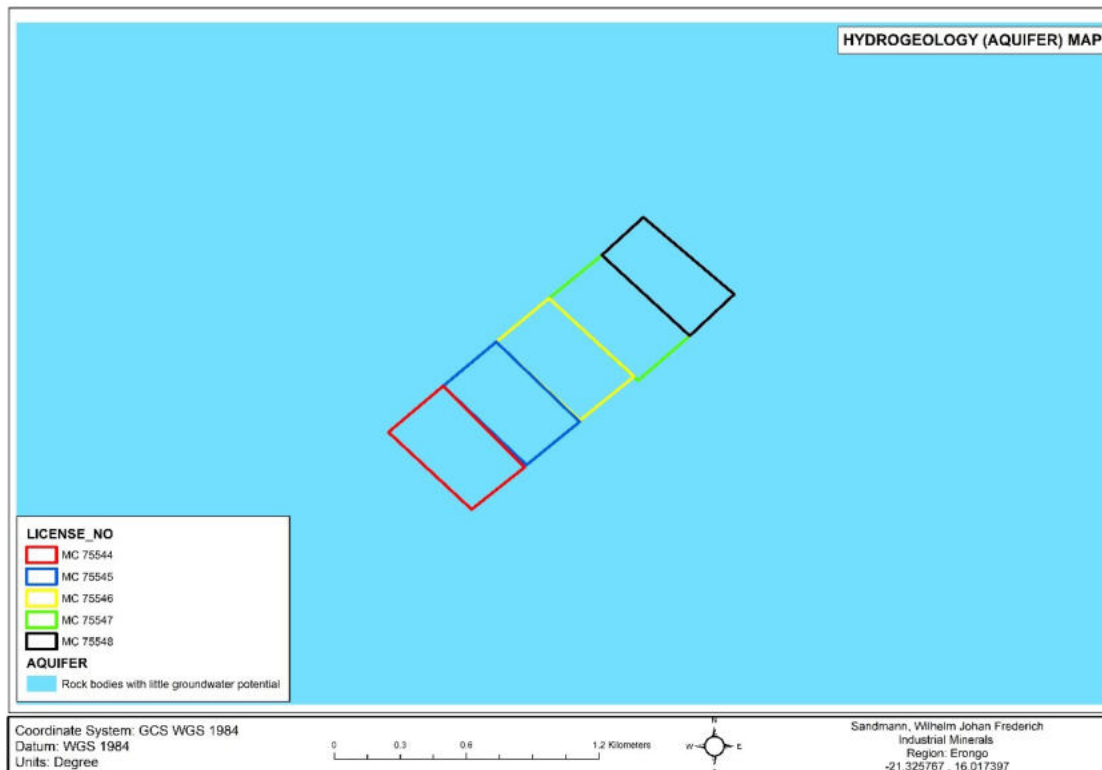


Figure 7: Hydrology map for the MCs

5.1.6 Flora and Fauna

5.1.6.1 Flora

The site is characterized by Dense shrubland which refers to a type of vegetation characterized by a high density of shrubs, small trees, and bushes growing closely together. Common vegetation in dense shrublands includes acacia species, thorny shrubs, drought-resistant plants, and succulents adapted to arid or semi-arid environments. Dense shrubland provides important habitat for a variety of wildlife species, including small mammals like rodents and mongooses, reptiles such as lizards and snakes, and a diverse array of bird species. Larger herbivores like

kudus and zebras may also browse on the shrubs in these habitats. **Figure 8** below shows the vegetation map for the project area, and **Figure 9** shows the observed vegetation on site.

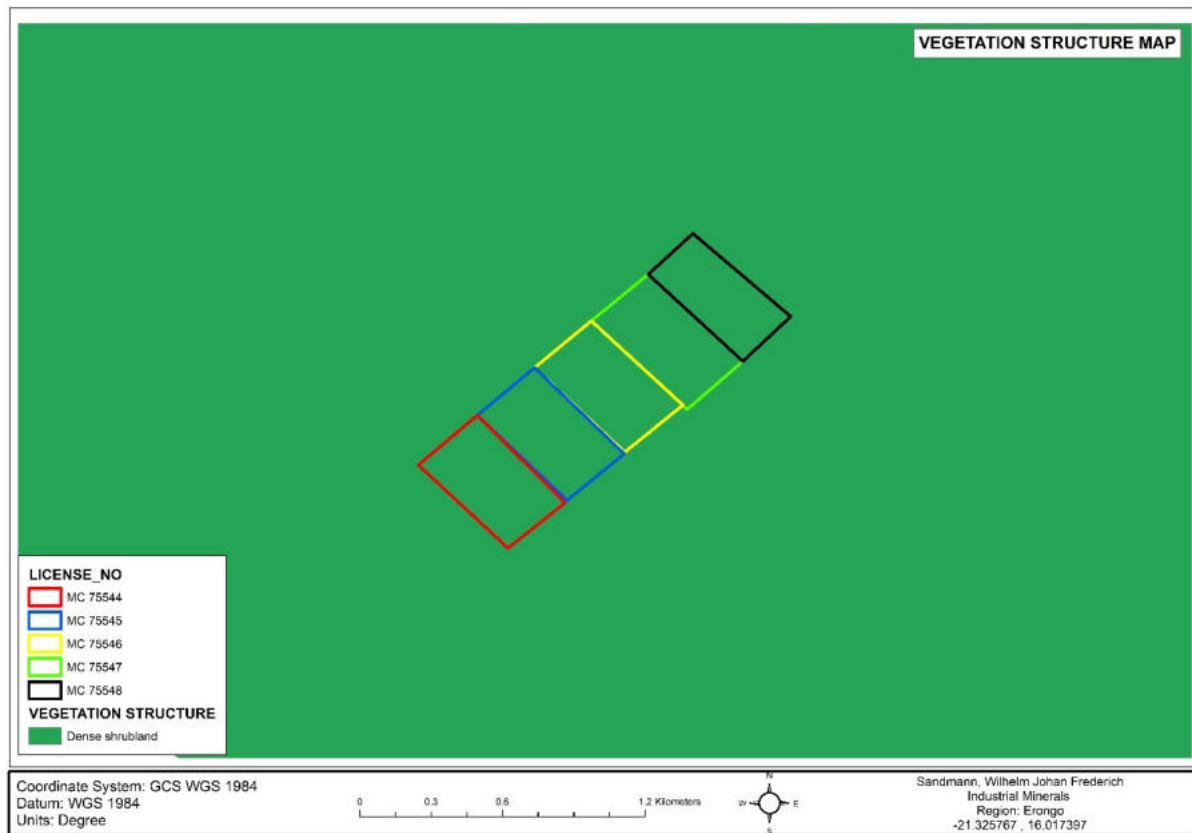


Figure 8: Vegetation map



Figure 9: Vegetation observed on the MCs

5.1.6.2 Fauna

The Erongo Region in Namibia is home to a diverse range of fauna (livestock and wildlife), adapted to the various ecosystems found in the area. The project surrounding area including farms are known to occupy Kudu, Impala, Eland, Oryx, Leopard, Zebra, Springbok, Blesbuck, Steenbuck, Duiker, Red Hartebeest, Waterbuck, Giraffe, Black or Blue Wildebeest and Warthog.

5.2 Heritage and Archaeology

5.2.1 Local Level and Archaeological Findings

There are no nationally recognized archaeological sites recorded within the MCs. There might be a possibility that unrecorded or undiscovered archaeological features or artifacts may be discovered during the mining phase. In the case where an archaeological discovery is made on site during exploration works, the procedures outlined in the National Heritage Act, No. 27 of 2004 are to be followed. Section 55 (4) of the National Heritage Act, No. 27 of 2004, requires that any archaeological or paleontological object or meteorite discovered is reported to the National Heritage Council as soon as practicable.

5.3 Surrounding Land Uses

The MCs Fall within private land farm as shown in **(Figure 10)**. If and only when required, a Proponent is required to secure a signed agreement from the affected landowners to gain access to the areas of interest for prospecting and exploration investigations as per Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. Section 52 (1) The holder of the mineral license shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral license –
 - (a) In, on, or under any and until such holder has agreed in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waived any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

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

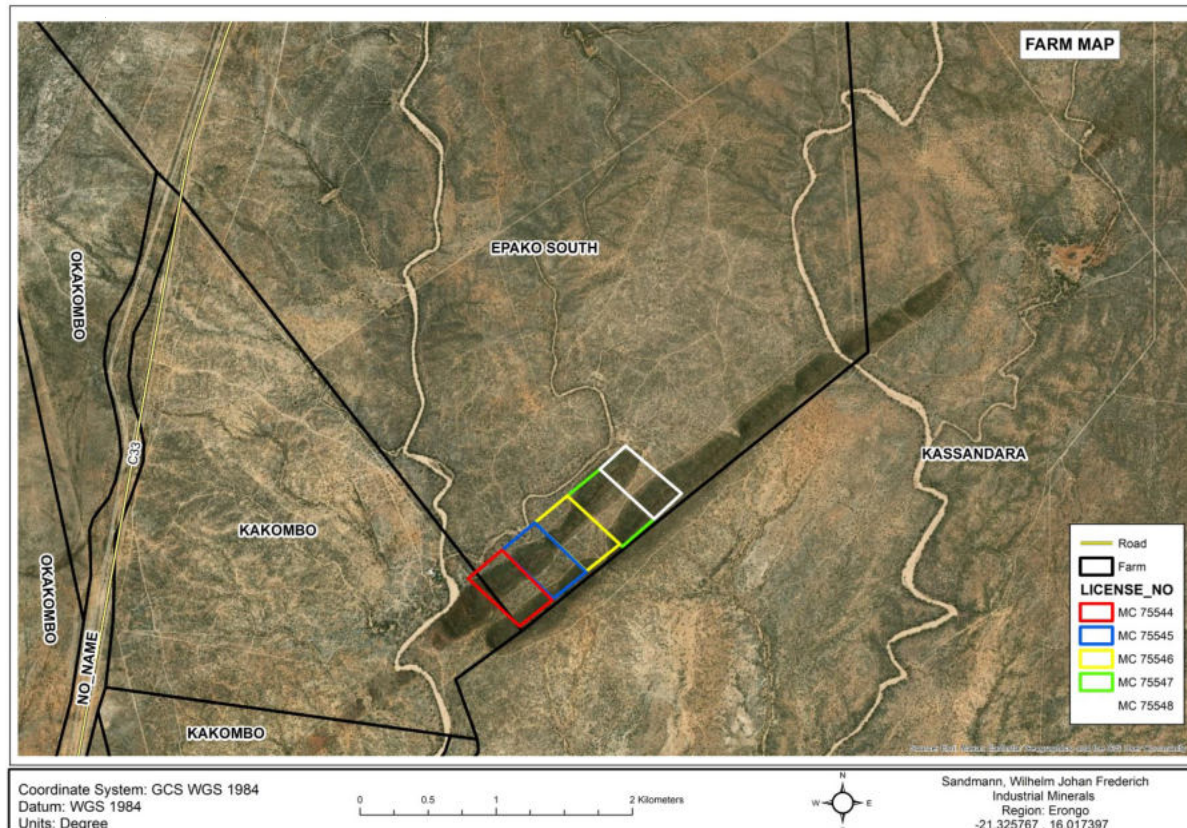


Figure 10: Land use map

5.4 Socio-Economic conditions

Demographhy

According to the 2011 Namibia Population and Housing Census indicators for Erongo region, sex ratio is 112 males for every 100 females, and the average number of children per woman declined from 3.2 in 2001 to 3.0 in 2011. Average household size is 3.3, and the mortality index declined from 42 per 1000 live births in 2001 to 38 in 2011. Males head 66% of all households in the Erongo region. The literacy rate for 15 years and older is 97%, 5% more than the 92% recorded in 2001 and higher than the national average of 89%. Walvis Bay town is the most populous with 26% of the total regional population. The main source of income in the region is; farming 3%, wages and salaries 73%, cash remittances 5%, business and non-farming activities 9% and pension 8%.

Wilhelm Johan Frederich Sandmann: MCs No. 75544-75548

About 20% of the population in the Erongo region were born in other regions; 65% of these are male, indicating the migration of mainly male workers from the other regions to the coast in search of employment.

Economic Activities

According to the Erongo Regional website (<http://www.erc.com.na/>) the Erongo 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 at Okongwe, Otjohongoro, Otjongoro, Ozondati, Omatjette, Okombahe, Tubussis, Goabeb and Otjimbingwe. Cattle from commercial and communal farmers are marketed to Meatco, the national abattoir and procession facility, situated in Windhoek and Okahandja. Abattoirs at local towns are also supplied. 12 Commercial crop farming is practised in isolated areas such as on the banks of ephemeral Omaruru river at Omaruru. Some commercial farms serve as hunting or guest establishments, while some have been converted into game farms or reserves, aimed at regional and international tourists (African Development Bank, 2017).

6 PUBLIC CONSULTATION PROCESS

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

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

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

pre-identified and registered I&APs is listed in **Table 4** below and the complete list of I&APs is provided in **Appendix D**.

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

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

6.2 Communication with I&APs

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs concerning the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed exploration works was compiled and emailed to registered and Identified Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices for the proposed Quarry where the current applied mining claims fall published in New Era Newspaper (**17 June 2024 and 24 June 2024**) and The Namibian Newspaper (**17 June 24 June 2024**), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting was scheduled and held with the affected landowners on the 25 July 2024 at Erongo regional council boardroom, Omaruru at 11h00.

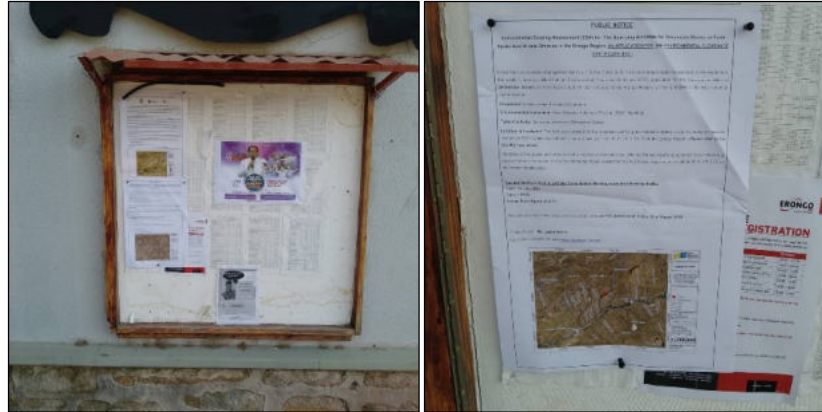


Figure 11: Public notice placed at Erongo Regional Council, Omaruru.



Figure 12: Public Consultation meeting at Erongo Regional Council, Omaruru.

Issues raised by I&APs have been recorded and incorporated in the environmental report and EMP. The summarized issues raised during the public meeting are presented in **Table 5** below. The issues raised and responses by EDS are attached under **Appendix G**.

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

Issue	Concern
Project impact on farmers livelihood	Neighbouring farmers activities (trophy hunting and tourism such as sightseeing and safari) might be negatively impacted

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

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

Positive impacts:

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

Negative impacts:

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

7.2 Impact Assessment Methodology

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

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity), and probability (likelihood of occurring), as presented in **Table 6**, **Table 7**, **Table 8**, and **Table 9**, respectively.

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

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

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

7.2.1 Extent (spatial scale)

The extent is an indication of the physical and spatial scale of the impact. **Table 6** shows the rating of impact in terms of the extent of spatial scale.

Table 6: Extent or spatial impact rating

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

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured concerning the lifetime of the project. **Table 7** shows the rating of impact in terms of duration.

Table 7:Duration impact rating

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

7.2.3 Intensity, Magnitude/severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These ratings were also taken into consideration during the assessment of severity. **Table 8** shows the rating of impact in terms of intensity, magnitude, or severity.

Table 8:Intensity, magnitude, or severity impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration, high quantity of deaths, injury or illness / total 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.

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 9** shows impact rating in terms of probability of occurrence.

Table 9:Probability of occurrence impact rating

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

7.2.5 Significance

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

Once the above factors (**Table 6**, **Table 7**, **Table 8**, and **Table 9**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SIGNIFICANCE POINTS (SP)} = (\text{MAGNITUDE} + \text{DURATION} + \text{SCALE}) \times \text{PROBABILITY}$$

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 10**).

Table 10:Significance rating scale

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

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse+ Impact

Neutral – Impacts are neither beneficial nor adverse

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

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

The risk/impact assessment is driven by three factors:

Source: The cause or source of the contamination.

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

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

A pollutant linkage occurs when a source, pathway, and receptor exist together. Mitigation measures aim firstly, to avoid risk and if the risk cannot be avoided, mitigation measures to

minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

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

7.3 Assessment of Potential Negative Impacts

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

7.3.1 Disturbance to grazing areas

The MCs are overlying communal land that have livestock and wildlife. Small-scale mining activities such as site clearing, trenching, and drilling can potentially lead to the disturbance of grazing land. This will potentially affect the grazing land available to wildlife, and since the wildlife greatly depends on the little available flora, their livelihood will be impacted.

The effect of exploration work on the land (when done over a wider spatial extent), if not mitigated, may hinder grazing areas. Under the status quo, the impact can consider being of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance. The impact is assessed in **Table 11** below.

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

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

7.3.2 Land Degradation and Loss of Biodiversity

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

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

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

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

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 12** below.

Table 12: Assessment of the impacts of exploration on biodiversity

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -4	M: -4	M: -6	M/H: 4	M: -56
Post mitigation	L/M: -3	L/M: -3	L/M: -4	L/M: 3	L: -30

7.3.3 Generation of Dust (Air Quality)

Dust emanating from site access routes when transporting equipment and supply to and from the site may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust, even if it is not anticipated to be low. Additionally, activities carried out as part of the exploration works such as drilling would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 13** below.

Table 13: Assessment of the impacts of exploration on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
-------------------	--------	----------	-----------	-------------	--------------

Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Post mitigation	L - 2	L - 2	L - 2	L - 1	L - 6

7.3.4 Water Resources Use

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

The abstraction of more water than can be replenished from low groundwater potential areas would negatively affect the local communities (communal and livestock) 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. Small-scale mining activities does not use a lot of water, mainly for drilling. However, this depends on the type of drilling methods employed (diamond drilling is more water-consuming compared to drilling methods such as reverse circulation for instance) and the type of mineral being explored.

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

Without the implementation of any mitigation measures, the impact can be rated as medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low as presented in **Table 14** below.

Table 3: Assessment of the project impact on water resource use and availability

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

7.3.5 Soil and Water Resources Pollution

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

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

Pre-implementation of any mitigation measures, the impact significance is medium to high and upon implementation, the significance will be reduced to moderate. The impact is assessed in **Table 15** below.

Table 15: Assessment of the project impact on soils and water resources (pollution)

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

7.3.6 Waste Generation

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

upon implementing the mitigation measures. The assessment of this impact is given in **Table 16** below.

Table 16: Assessment of waste generation impact

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

7.3.7 Occupational Health and Safety Risks

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

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

The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating will be reduced to low. This impact is assessed in **Table 17** below and mitigation measures are provided.

Table 17: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/L - 2	M - 6	M/H - 4	M – 44
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.3.8 Vehicular Traffic Use and Safety

The MCs are accessible via C33 Road that tranverses Farm Epako between Omaruru and Kalkfeld. These are some of the main transportation routes for all vehicular movement in the area and provide access to the MCs and connect the project area to other towns. Traffic volume will therefore increase on these district roads during exploration as the project would need delivery of supplies and services on site.

Depending on the project needs, trucks, medium-sized vehicles, and small vehicles will frequent the area to and from exploration sites on the MCs. This would potentially increase slow-moving heavy vehicular traffic along these roads and add additional pressure on the roads. However, transportation of materials and equipment is expected to occur on a limited schedule and only for the duration of the project. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Before mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 18** below.

Table 4: Assessment of the impacts of exploration on-road use (vehicular traffic)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 4	M/H - 3	L/M - 4	M/H - 5	M - 55
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.3.9 Noise and vibrations

Small-scale mining work (especially drilling) may be a nuisance to surrounding communities due to the noise produced by the activity. Excess noise and vibrations can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to a low rating, mitigation measures should be implemented. This impact is assessed in **Table 19** below.

Table 19: Assessment of the impacts of noise and vibrations from exploration

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

Post mitigation	L - 1	L/M - 2	L - 2	L/M -2	L - 10
------------------------	-------	---------	-------	--------	---------------

7.3.10 Disturbance to Archaeological and Heritage Resources

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

This impact can be rated as medium significance if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be reduced to a lower rating. The impact is assessed in **Table 20**.

Table 20: Assessment of the impacts of exploration on archaeological & heritage resources

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

7.3.11 Impact on Local Roads/Routes

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

Without any management and or mitigation measures, the impact can be rated as medium and to reduce this rating to low, the measures will need to be effectively implemented. The assessment of this impact is presented in **Table 21**.

Table 21: Assessment of exploration of local services (roads and water)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
--------------------------	---------------	-----------------	------------------	--------------------	---------------------

Pre mitigation	M/H - 4	M - 3	M - 6	M - 3	M – 39
Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

7.3.12 Social Nuisance: Local Property intrusion and Disturbance/Damage

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

The impact is rated as of medium significance. However, upon mitigation (post-mitigation), the significance will change from a medium to a low rating. The impact is assessed below (**Table 22**).

Table 22: Assessment of the social impact of community property damage or disturbance

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

7.4 Cumulative Impacts Associated with Proposed Exploration

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

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

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

8 RECOMMENDATIONS AND CONCLUSION

8.1 Recommendations

The potential positive and negative impacts of the proposed small-scale mining activities on MCs 75544-75548 were identified and assessed and appropriate management and mitigation measures (to negative impacts) were made thereof for implementation by the Proponent, their contractors, and project-related employees.

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

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

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

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

8.2 Conclusion

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

9 REFERENCES

African Development Bank. (2017). Transport Infrastructure Improvement Project (Phase I): Railway Line Upgrading - Walvis Bay to Kranzberg. Namibia. P-NA-DZ0-001

Booth, P. (2011). Environmental Conceptual Site Model Exercise: Source – pathway – receptor. WSP Global: Semantic Scholar

Mendelsohn, J. (2002). Atlas of Namibia: A Portrait of the Land and its People. Windhoek: The Ministry of Environment and Tourism of Namibia

Meteoblue (2024)

https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/omaruru_namibia_3354540

Miller, R. McG. 1983a. The Pan-African Damara Orogen of South West Africa/Namibia, 431-515. In: Miller, R.McG. (Ed.) Evolution of the Damara Orogen of South West Africa/Namibia. Spec. Publ. geol. Soc. S. Afr., 11, 515 pp.

Namibia Statistics Agency. (2011). Namibia 2011 Population and Housing Census Main Report. Windhoek: Namibia Statistics Agency.

World Reference Base for Soil Resources (2014). International soil classification system for naming soils and creating legends for soil maps, update 2015. World Soil Resources Reports No. 106. FAO, Rome.