

**ENVIRONMENTAL SCOPING ASSESSMENT (ESA) REPORT:
THE PROPOSED SMALL SCALE MINING ACTIVITIES OF DIMENSION
STONE ON THE MINING CLAIM (MCS) 72640 – 72641 LOCATED NEAR
ARANDIS IN THE ERONGO REGION, NAMIBIA**

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EXECUTIVE SUMMARY

Ben Haraseb (*hereinafter referred to as the Proponent*), intends to conduct small scale mining activities on the Mining Claims (MCs 72640 – 72641), located near Arandis in Erongo Region. The MCs were applied at the Ministry of Mines and Energy (MME), and granted on the 18 October 2021. Mining Claim (MC) 72640 is 9.4791 ha in size, and MC 72641 is 17.1256 ha. The MCs are located within the Arandis District in the Erongo Region. MC 72640 overlies farm Hakskeen and MC 72641 lies within farm Trekkopje. Both MCs are for small-scale mining of Dimension Stone.

Mining and all extraction related activities are among the listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) under the Environmental Management Act (EMA) (2007) and its 2012 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 Mines and Energy (MME)) on the 1st March 2022. The date stamped copy of the ECC by MME was also uploaded on the online ECC Portal for the 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 will be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

Brief Project Description

The project involves small scale mining of dimension stone on the MCs. The description of the small scale mining activities, resources, method, and processes required for the project have been described and presented herein. The project activities will commence

after the approval by the Environmental Commissioner .The operational phase is anticipated to last for about 10 years.

Planned Activities: Proposed small scale mining Methods

The Proponent intends to adopt a systematic small scale mining activity of the following:

- **Non-invasive techniques:** Detailed prospecting mapping. No ground geophysics surveys are planned for the project.
- **Invasive techniques:** Trenching and pitting, open pit mining

The Proponent plans to conduct a staged small scale mining approach with three phases including the Pre-Development Phase, Operation and Maintenance Phase, and the Decommissioning and Rehabilitation Phase.

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 small scale mining activities was done through the following means and in this order to ensure that the public is notified and afforded an opportunity to comment on the proposed project:

- A Background Information Document (BID) containing brief information about the proposed project was compiled, and hand delivered to the relevant Authoritative Ministry, and upon request to all new registered Interested and Affected parties (I&APs)

- Project Environmental Assessment notices were published in *The Namibian* and *New Era* newspapers (14 February 2022 and 21 February) briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- Public notices were placed in Arandis (**Figure 27**) to inform members of the public of the EIA process and register as I&APs, as well as submit comments.
- A public meeting was scheduled and held on 22 February 2022 at Arandis community hall, but no one showed up for the meeting, thus a door to door BID delivery was conducted.

Potential Impacts identified

The following potential negative impacts are anticipated:

- **Positive impacts:** Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer, Open other investment opportunities and infrastructure-related development benefits, Produce a trained workforce and small businesses that can service communities and may initiate related businesses, Boosting 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, Potential disturbance of the physical land / soil disturbance, Potential social nuisance and conflicts, Impact on local biodiversity (fauna and flora) and habitat disturbance and potential illegal wildlife hunting (poaching) in the area, Potential impact on water resources and soils particularly due to pollution, Air quality issue: potential dust generated from the project, Potential occupational health and safety risks, Vehicular traffic safety and impact on services infrastructure such as local roads, Vibrations and noise associated with small scale mining 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 provided accordingly.

RECOMMENDATIONS AND CONCLUSIONS

The potential impacts that are anticipated from the proposed project activities were identified, described, and assessed. For the significant adverse (negative) impacts with 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 (Section 21 to 24). This was done via the two newspapers (*New Era* and *The Namibian*) used for this environmental assessment. A face-to-face consultation meeting was scheduled with the directly affected farmers (landowners) at Arandis Town hall but no one showed up for the meeting, thus a door to door BID delivery was conducted.

In addition, no one showed interest in the project, thus no comment were expressed for this project. Most of the potential impacts were found to be of medium rating significance. With the effective implementation the recommended management and mitigation measures, this will particularly see the 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 impacts' rating or maintain 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.

An Archaeological & Heritage Impact Assessment (AHIA) was done by a specialist for this ESA Study. The findings of this AHIA and the Scoping assessment (ESA) were deemed sufficient and conclude that no further detailed assessments are required to the ECC application.

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 on monitoring the implementation of these measures.

It is therefore, recommended that the proposed small scale mining activities be granted an Environmental Clearance Certificate, and 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 ensuring 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 undertaking specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where the small scale mining activities ceased, they need to be rehabilitated, as far as practicable, to their pre-extraction state.

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

Conclusions

In conclusion, with that being done, it is crucial for the Proponent and their contractors as well as to effectively implementation of the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. All these would be done with the aim of promoting environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the community and environment at large.

Disclaimer

EDS warrants that the findings and conclusion contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work and Environmental Management Act (EMA) of 2007. These methodologies are described as representing good customary practice for conducting an Environmental Impact Assessment of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the 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 small scale mining 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 set forth 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 upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation,

availability, and accuracy of pertinent records and the personal recollections of those persons contacted.

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

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Appendix E: Background Information Document (BID)

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

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Appendix I: Archaeological and Heritage Impact Assessment Report

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BID	Background Information Document

Abbreviation	Meaning
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CV	Curriculum Vitae
DEAF	Department of Environmental Affairs and Forestry
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
ESA	Environmental Scoping Assessment
GG & GN	Government Gazette & Government Notice
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
PPE	Personal Protective Equipment
Reg / S	Regulation / Section
TOR	Terms of Reference

KEY TERMS

Terms	Definition
Alternative	A possible course of action, in place of another that would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	That part of the environment that does not originate with human activities (e.g., biological, physical and chemical processes).
Cumulative Impacts/Effects Assessment	In relation to an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.
Ecological Processes	Processes which play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution).

Terms	Definition
Environment	As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored.
Exclusive Prospecting Licence	Is a license that confers exclusive mineral prospecting rights over land of up to 1000 km ² in size for an initial period of three years, renewable twice for a maximum of two years at a time

Terms	Definition
Interested and Affected Party (I&AP)	In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
Fauna and Flora	All the animals and plants found in an area.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended.

Terms	Definition
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.
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

Ben Haraseb (hereinafter referred to as the Proponent), is an applicant for the Mining Claims (MCs) 72640 and 72641 at the Ministry of Mines and Energy (MME). The Proponent intends to acquire an Environmental Clearance Certificate (ECC) in order to conduct small-scale mining activities on the MCs. The Proponent targets small scale mining of dimension stone as a commodity of interest. The locality of the proposed MCs sites (MC s 72640 Coordinates: -22.2188, 15.795; and MCs 72641 Coordinates: -22.2188, 15.0795) is shown in Figure 1. Mining Claim (MC) 72640 is 9.4791 ha in size, and MC 72641 is 17.1256 ha. MC 72640 lies within farm Hakskeen, while MC 72641 lies within farm Trekkopje (Figure 2).

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 Environmental Impact Assessment (EIA) undertaken and an Environmental Clearance Certificate (ECC) obtained. Mining activities are listed among the activities that may not occur without an ECC. Therefore, individuals or organizations may not carry out mining activities without an ECC awarded.

The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS, Environmental Consultant or Environmental Assessment Practitioner (EAP) hereafter), an independent team of Environmental Consultants to conduct the required Environmental Assessment (EA) process and submit the ECC application to the Competent Authority (Ministry of Mines and Energy (MME) and Ministry of Environment, Forestry and Tourism (MEFT) on their behalf.

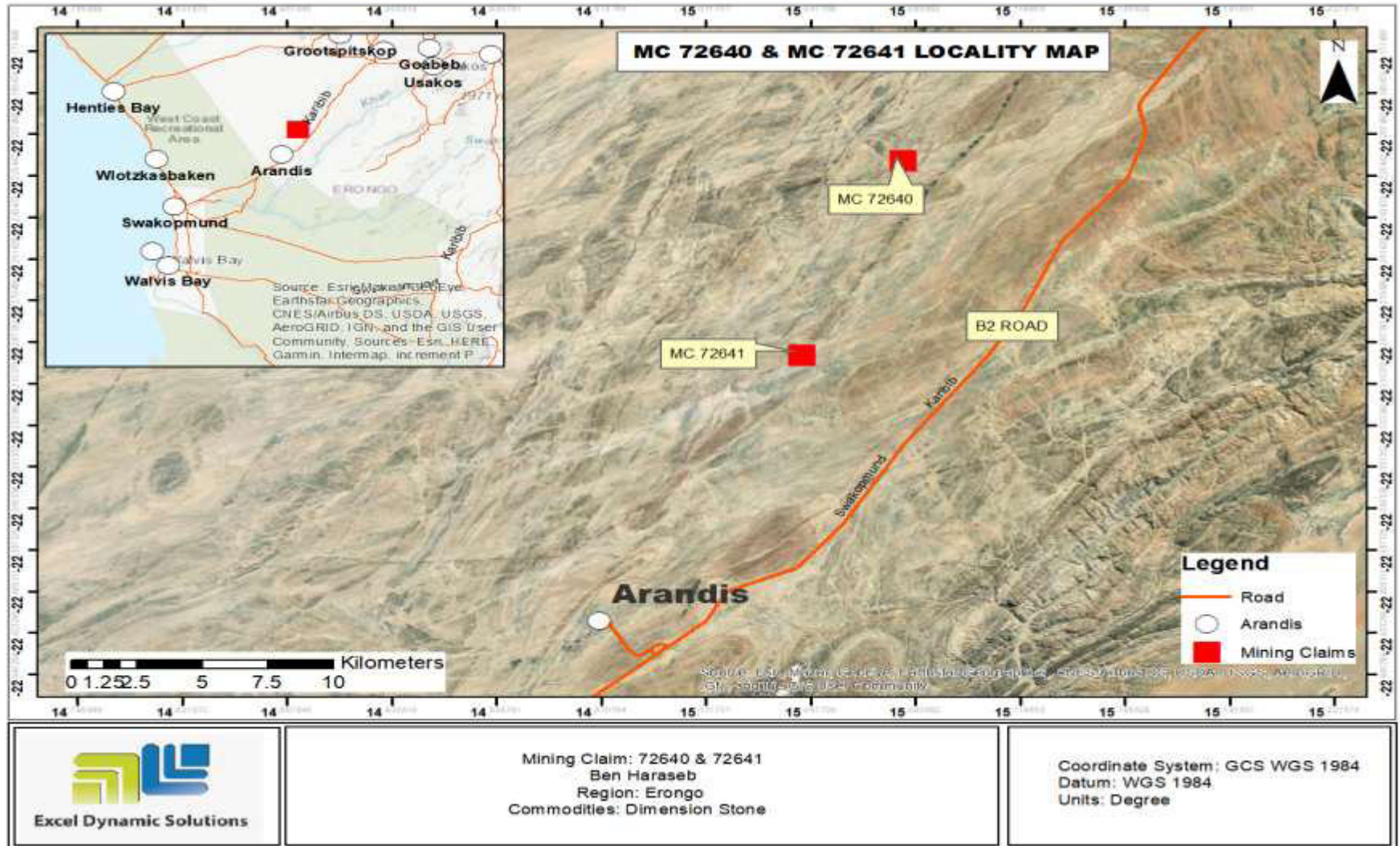


Figure 1: Location of MCs 72640 - 72641 in Erongo Region

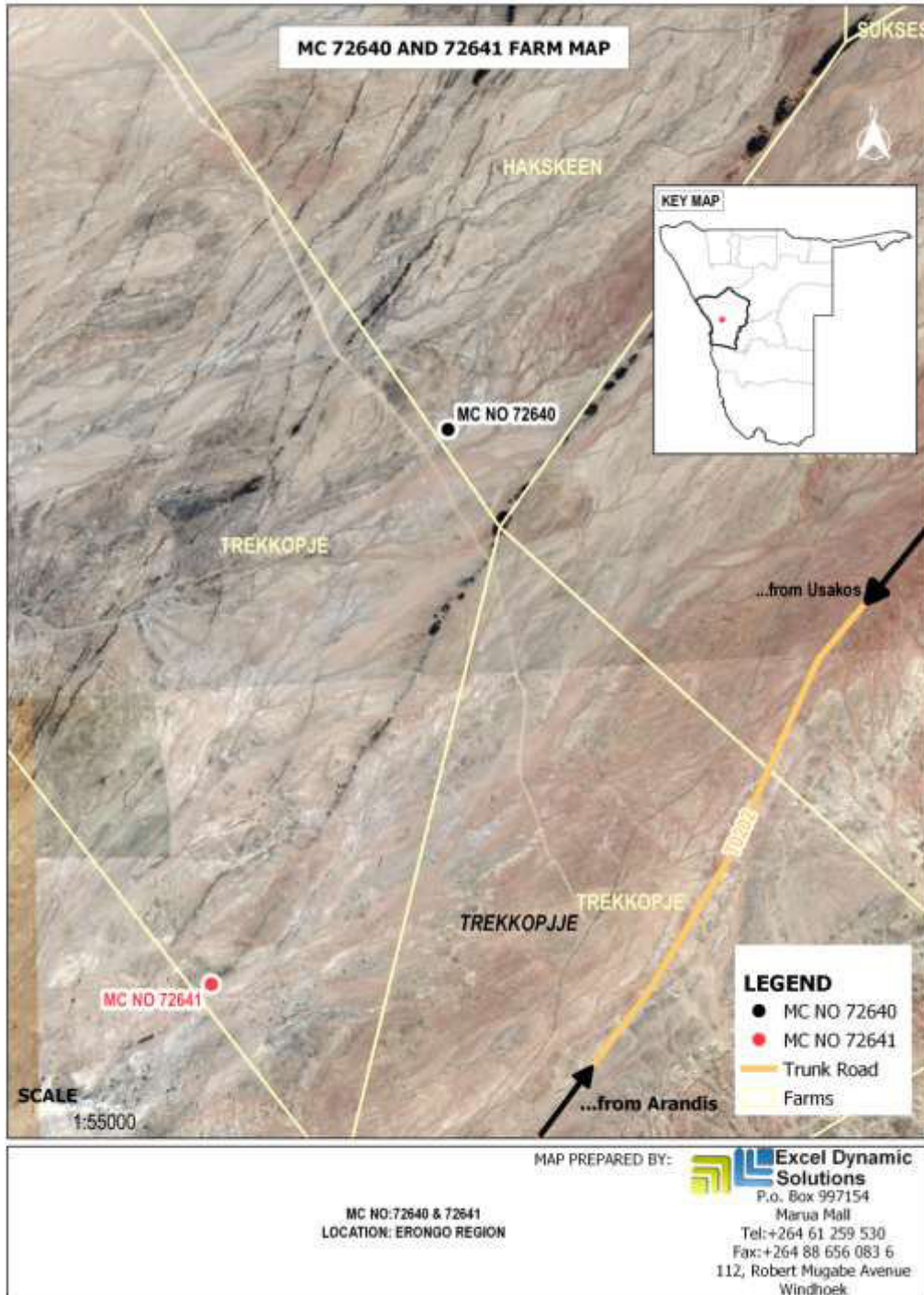


Figure 2: Farms and Land Uses covered by MCs 72640 - 72641

1.2 Terms of Reference and Scope of Works

Excel Dynamic Solutions (EDS) has been appointed by the Proponent to undertake an environmental assessment, and thereafter, apply for an ECC for small scale mining activity on the Mining Claims (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 Environmental Impact Assessment (EIA) Regulations (GN. No.30 of 2012) to conduct the study.

The application for the ECC was compiled and submitted to the Competent Authority (Ministry of Mines and Energy (MME)) on the 1st of March 2022. The date stamped copy of the ECC by MME (**Appendix A**) was also uploaded on the online ECC Portal for the 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 will be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

1.3 Appointed Environmental Assessment Practitioner

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed EDS to conduct the required EA process on their (Proponent's) behalf. The findings of the EA process are incorporated into this report and the draft EMP – (**Appendix B**). These documents will be submitted as part of the ECC application to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), MEFT.

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and reporting are done by Ms. Althea Brandt and Ms. Aili lipinge (Environmental Assessment Practitioner respectively and reviewed by Ms. Rose Mtuleni. The CV of Mr. Tjelos is presented in **Appendix C**.

1.4 The Need for the Proposed Project

Mining contributes about 12.5% towards Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; thus, it contributes to the improvement of livelihoods. In Namibia, mining activities are mainly conducted by the private

sector. Mining activities have a great potential to enhance and contribute to the development of other sectors and its activities provides temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of the GDP. Moreover, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Several associated activities that are fostered include, such as manufacturing of mining equipment, provision of engineering and environmental services and others. The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II. Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful small scale mining activities on MCs 72640 -72641 of dimension stones would contribute towards achieving the goals of the national development plans.

2 PROJECT DESCRIPTION: PROPOSED 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 Dimension Stone and all associated mining activities will be carried out on site. The Proponent has highlighted that 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 small-scale mining operations include:

2.2.1 Accessibility to Site

The MCs are accessible via a trunk road (T0202) between Usakos and Arandis that diverge into a gravel road that leads to the MCs. Therefore, 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 sites 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.

2.2.2 Material and Equipment

The input required for the small scale mining program in terms of vehicles and equipment includes (4X4) vehicles, a truck, water tanks, small scale mining 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 on a farm upon agreement with the farm owners.

2.2.3 Human Resources

The project activities will require about 10 workers. This will include skilled and unskilled personnel.

2.2.4 Project Crew Accommodation

The mining crew will be accommodated in Arandis, or a campsite will be set up for the crew near or within the MCs site. If the accommodation camp is to be set up on a farm, all necessary arrangements will be made with the farm/land owner(s). Small scale mining activities will take place during daytime only and staff will commute to the site from their place of accommodation.

2.2.5 Services and Infrastructure

A. Water

Water for the operational phase will be obtained from the nearest existing boreholes and/or off-site Arandis municipal source or any other approved water sources, through water abstraction permits. 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. This water can be supplied by existing farm boreholes (with the permission of and upon reaching a water purchasing agreement with the willing landowner(s)).

B. Power supply

Fuel supply: (for personnel use): The Proponent will provide fuel to be used for food preparation by the site workers. No firewood will be collected on the farms or neighbouring land, without the owners' permission.

Fuel Supply (machinery and equipment): The fuel (diesel) required for the small scale mining will be stored in jerry cans placed on plastic sheeting to avoid contamination of the ground.

2.2.7 Waste Management

The different types of waste will be handled as follows:

- A. Sewage:** Given the duration of the small scale mining activities, portable chemical toilets would be the ideal option to manage sewage, as it is easy to remove (dismantle) and rehabilitate its position upon completion. Therefore, this toilet system with associated ablution facilities will be rented and provided on site. The wastewater will be transported offsite to a treatment facility either by the Proponent or a designated/appointed external waste management contractor.
- B. General and domestic waste:** Sufficient waste bins (containers) will be made available at the mining site and campsite for waste storage. The bins will be emptied into the main onsite container for disposal at the nearest landfill site, when necessary (upon reaching full capacity of the main waste container onsite).
- C. Hazardous waste:** All vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel/oils will be carefully stored in a standardized container until such a time that it can be disposed of at the nearest approved hazardous waste management facility.

2.2.8 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 minimum of two first aid kits will be readily available at mining site to attend to potential minor injuries, while major injuries will need to be attended to further by transporting the injured to the nearest health centre for treatment and needed care.

Fire management: A minimum of basic firefighting equipment, i.e., two fire extinguishers will be readily available in vehicles, at the working sites and campsite.

Project Site Security

Temporary storage areas for the small scale mining equipment, material and machines will be erected at selected MCs site. Security will be supplied on a 24-hour basis at the delegated storage sites to ensure that the project vehicles, machinery and equipment are not stolen or vandalized. A temporary support fence surrounding the storage site will be erected to ensure local people and

animals (livestock and wildlife) are not exposed to potential risks associated with certain project equipment and materials.

2.3 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. The economic situation or unconvincing mining results might force the Proponent to cease the mining program before predicted closure. Therefore, it is of best practice for the Proponent to ensure the project activities cease in an environmentally friendly manner and site is rehabilitated to its original state as far as possible

3 PROJECT ALTERNATIVES

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

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

What alternatives are technically and economically feasible?

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

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 occurs. Should the proposal of mining activities on the Mining Claims, 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 remains unchanged.

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

- **Loss of foreign direct investment.**
- **The proposed 5-10 temporary job opportunities for community members will not come to realization.**

- **No realization of local businesses supports through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.**
- **Loss of potential income to 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 to local community members would be not realized.**

Considering the above losses, the “no-action/go” alternative was not 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 severally sections of the site may be identified as no-go zones.

3.1.2 Small-Scale Mining Location

The location intended for small-scale mining activities depends on the geological setting and economic geology of the area. Therefore, finding an alternative location for the planned activities is not possible. The targeted mineralization is area specific, which means mineral extraction targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (mineral forming mechanism).

Additionally, the national mineral resources' potential locations are mapped and categorized by the Ministry of Mines and Energy in exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses and exclusive reconnaissance licenses. Information on MCs 72640 – 72641 (**Figure 3**) and other licenses is available on the Namibia Mining Cadastral Map here <https://portals.landfolio.com/namibia/>.

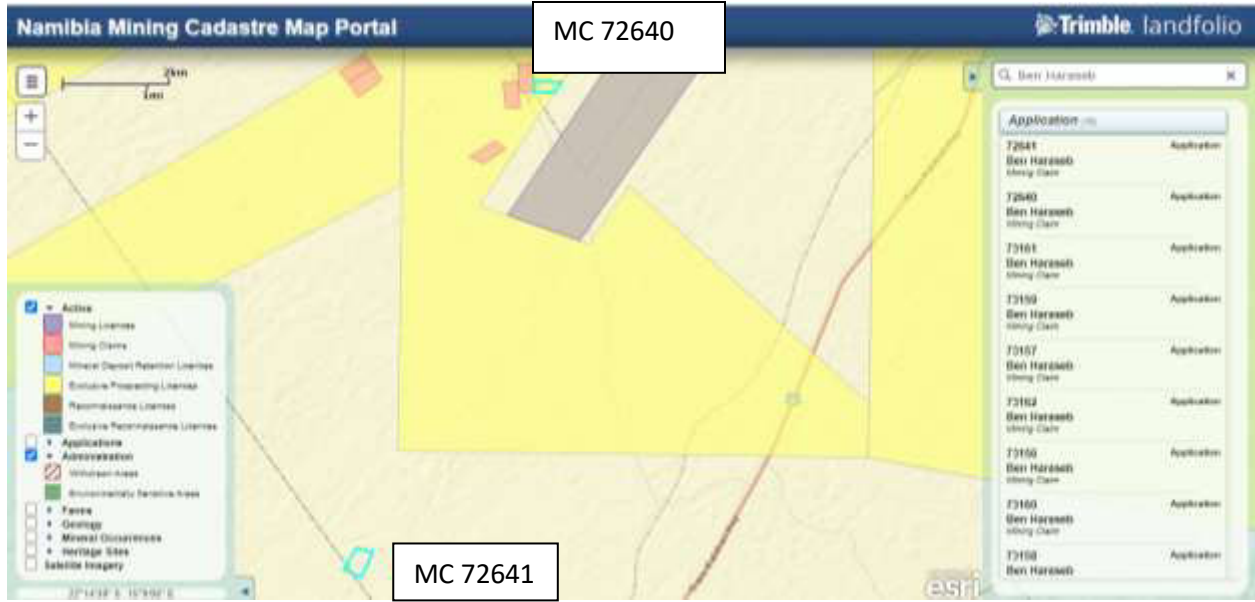


Figure 3: The location of MCs 72640 - 72641 on the National Mining Cadastre

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

A review of applicable and relevant Namibian legislation, policies, and guidelines to the proposed development is given in this section. This review serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed small scale mining 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 Environmental Clearance Certificate (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, right of other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).**
- **3.2 other forms of small scale 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 activities of MCs 72640 – 72641 and related activities are presented in **Table 1**.

Table 1: Applicable local, national and international standards, policies and guidelines governing the proposed small scale mining activities.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended	<p>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:</p> <p>“...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia...”</p> <p>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p>“...Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State.”</p>	<p>By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.</p> <p>Ecological sustainability will be main priority for the proposed development.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to the permission of entering a state protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological and historical) within a protected area. 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 PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land.
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
<p>Minerals (Prospecting and Mining) Act (No. 33 of 1992)</p>	<p>Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.</p> <p>Section 52(1) mineral licence holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilised 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.</p> <p>Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.</p> <p>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed mining operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect.</p>	<p>The Proponent should enter into a written agreement with landowners before carrying out mining activities on their land.</p> <p>The Proponent should carry out an assessment of the impact on the receiving environment.</p> <p>The Proponent should include as part of their application for the MCs, measures by which they will rehabilitate the areas where they intend to carry out mineral extraction activities.</p> <p>The Proponent may not carry out extraction activities within the areas limited by Section 52 (1) of this Act.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations with respect to their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
The Regional Councils Act (No. 22 of 1992)	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Erongo Regional Council; therefore, they should be consulted.
Water Act 54 of 1956	<p>The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:</p> <p>Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)).</p> <p>Provides for control and protection of groundwater (S66 (1), (d (ii))).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).</p>	The protection (both quality and quantity/abstraction) of water resources should be a priority.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Resources Management Act (No 11 of 2013)	<p>The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to:</p> <p>Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).</p>	
National Heritage Act No. 27 of 2004	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with these Acts requirements. The necessary management measures and related permitting requirements must be taken. This done by the consulting with the National Heritage Council of Namibia.
The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Soil Conservation Act (No 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Forestry Act (Act No. 12 of 2001)	The Act provides for the management and use of forests and forest products. Section 22. (1) provides: “Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse.”	The Proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919)	Section 119 states that “no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.”	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	
Atmospheric Pollution Prevention Ordinance (1976)	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on site.
Hazardous Substance Ordinance, No. 14 of 1974	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Road Traffic and Transport Act, No. 22 of 1999	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 onto 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 is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the mining 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 as listed in **Table 2** below.

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

Statute	Provisions	Project Implications
Equator Principles	<p>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 with to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors.</p> <p>Principle 1: Review and Categorization</p> <p>Principle 2: Environmental and Social Assessment</p> <p>Principle 3: Applicable Environmental and Social Standards</p> <p>Principle 4: Environmental and Social Management System and Equator Principles Action Plan</p> <p>Principle 5: Stakeholder Engagement</p> <p>Principle 6: Grievance Mechanism</p> <p>Principle 7: Independent Review</p> <p>Principle 8: Covenants</p> <p>Principle 9: Independent Monitoring and Reporting</p> <p>Principle 10: Reporting and Transparency</p>	<p>These principles are an attempt to:</p> <p>‘...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.’</p>

Statute	Provisions	Project Implications
<p>The International Finance Corporation (IFC) Performance Standards</p>	<p>The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of 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.</p> <p>As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below.</p> <p>Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts</p> <p>Performance Standard 2: Labour and Working Conditions</p> <p>Performance Standard 3: Resource Efficient and Pollution Prevention and Management</p>	<p>The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the Client (Borrower) in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability</p>

Statute	Provisions	Project Implications
	<p>Performance Standard 4: Community Health and Safety</p> <p>Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement</p> <p>Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p> <p>Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities</p> <p>Performance Standard 8: Cultural Heritage</p> <p>Performance Standard 9: Financial Intermediaries (FIs)</p> <p>Performance Standard 10: Stakeholder Engagement and Information</p> <p>A full description of the IFC Standards can be obtained from</p> <p>http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1</p>	<p>Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.</p>
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 project activities should not be such that they contribute to desertification.

Statute	Provisions	Project Implications
	The convention 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 Nation Convention	
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use. Promote the protection of ecosystems, 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 minimised
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 BASELINE

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 allow 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. A summary of selected biophysical and social baseline information about the mining area is given below.

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

5.1 Climate

Climate has impacts on mining activities. Climatic conditions may be used to determine the appropriate and/or inappropriate times and conditions to conduct operational activities on the MCs. The Erongo Region generally receives the low levels of rainfall, with the highest rainfall averages recorded mainly from January to April (average monthly rainfall: 2.9mm to 9.4 mm), and the lowest rainfall averages (below 0.5 mm) recorded mostly between May and August. High levels of relative humidity (55-75%) are experienced between August and March, while lower relative humidity levels occur between April and September.

5.2 Topography

The MCs 72640 – 72641 are located within the Central-western Plains which is characterized as an area of dissection and erosional cutbacks (Mendelsohn, 2003). The MCs lies in an elevation that ranges between 740 and 1220m above mean sea level (AMSL). These figures are obtained from a DTM along a cross-section line that cuts through the project area from northeast to the southwest direction. Figures 4, 5, and 6 below show the landscape map, Elevation Model, and the Section graph, respectively.

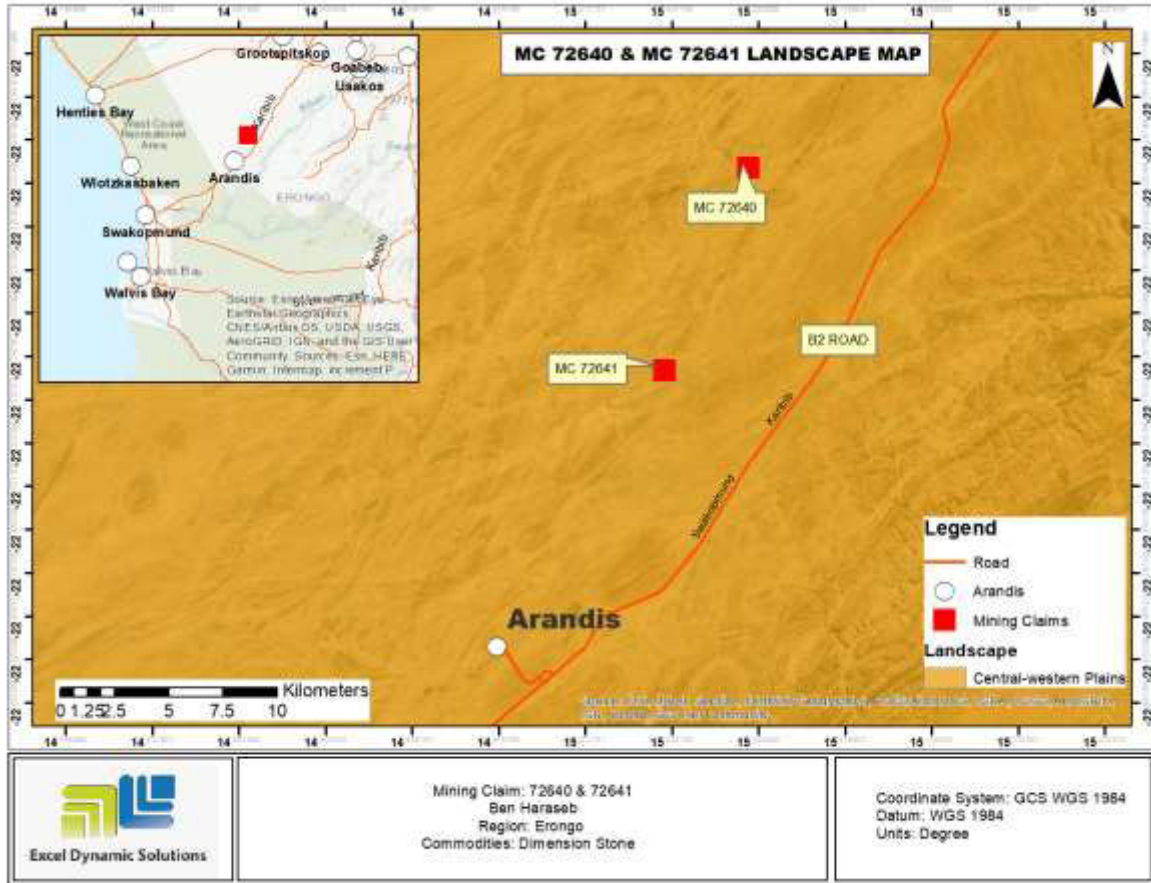


Figure 4: Map showing the landscape of the project area

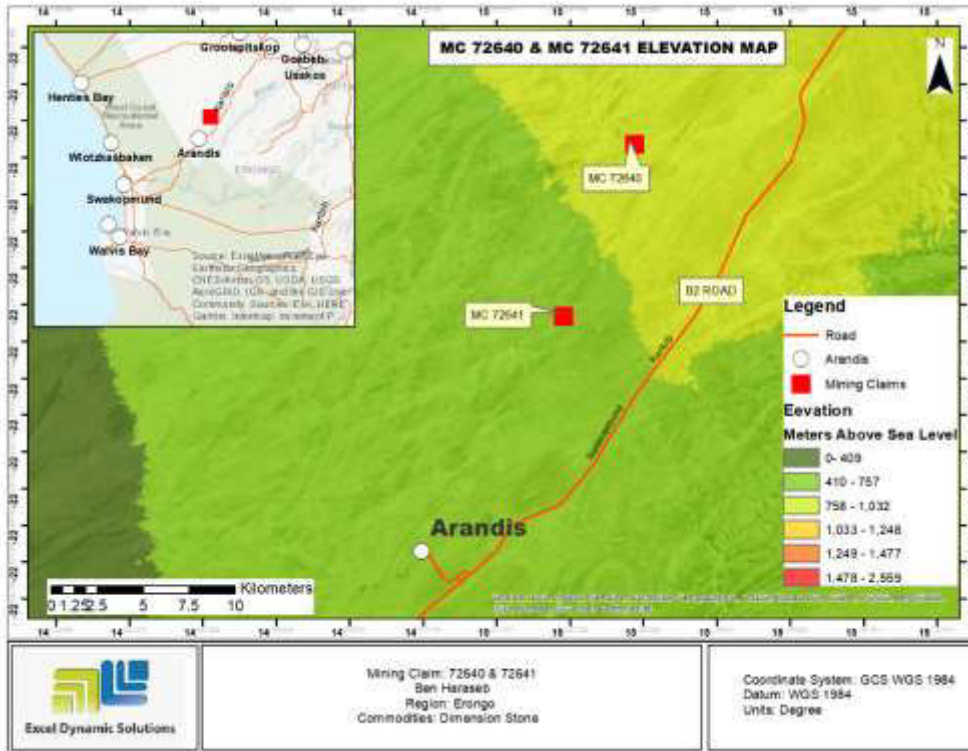


Figure 5: Elevation 3D model map of MCs 72640 - 72641

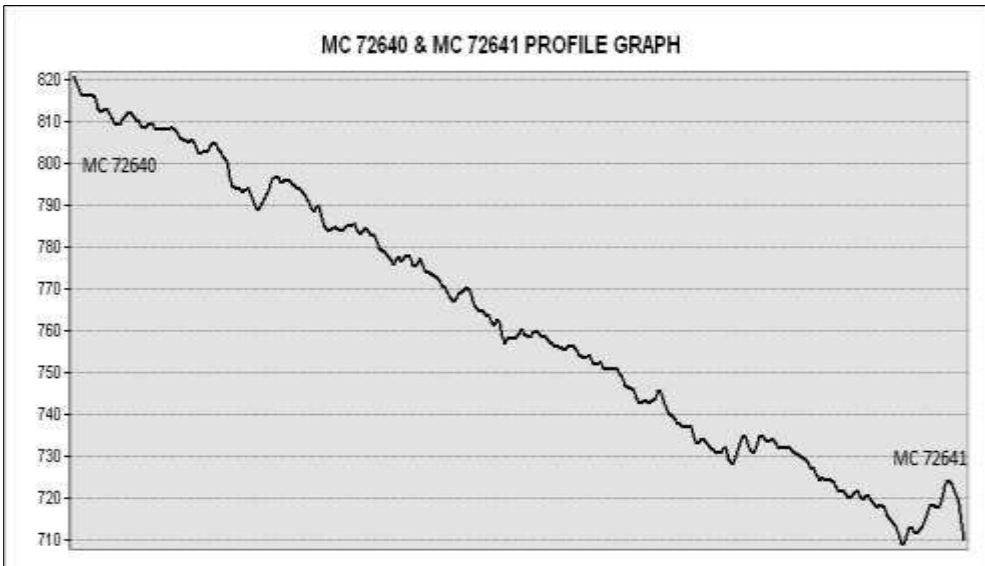


Figure 6: Elevation Cross-section graph of MCs 72640 - 72641

5.3 Geology and Soil

The MCs areas are underlain by metamorphic rocks of the Swakop Group in the Damara Supergroup (i.e. Mica, schist, and discontinuous dolomite, calc-silicate rocks, and quartzite, Arandis Formation, and associated granitic intrusions of the Damint Granite Suite (Brandt, 1985). The general geological map for the site is shown in **Figure 8**.

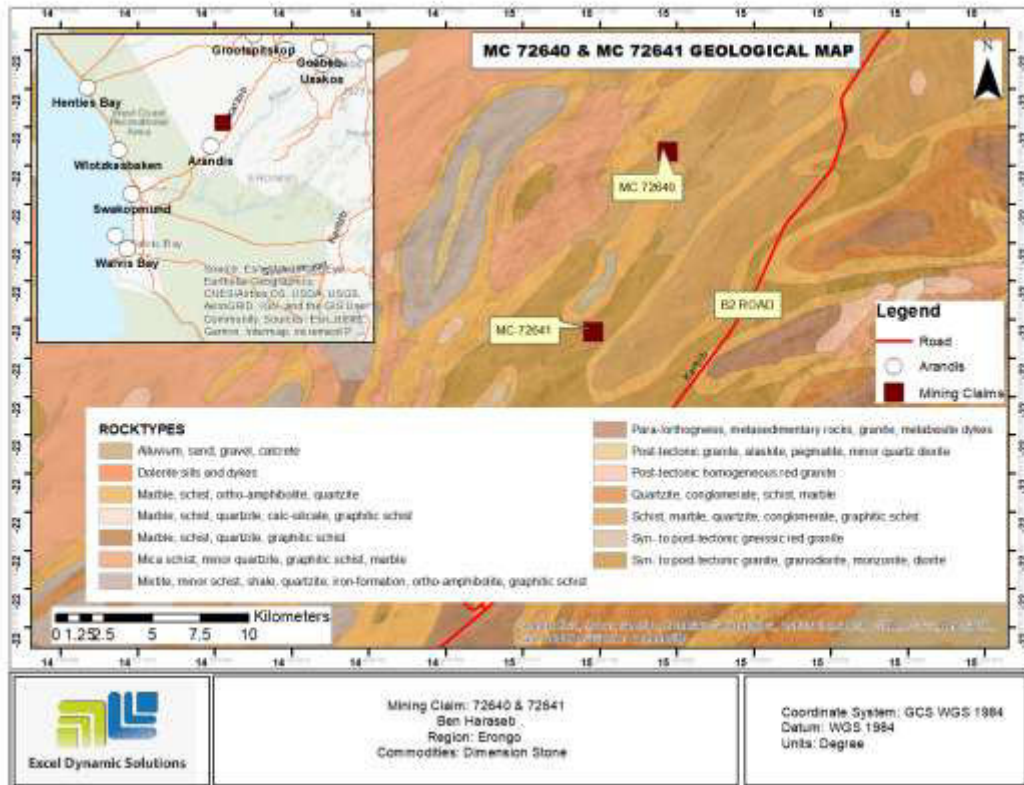


Figure 7 the geology of the MCs and surrounding areas



Figure 8 the rock units/types observed during the site visit

The soils within the Arandis area are mostly bare, with minimal vegetation cover, and therefore, considered sensitive to both wind and water erosion. The soils found in the project area are Calcisols, characterized by shallow to moderately deep silty sands, with Calcium Carbonate accumulations. Calcisols are potentially fertile, but may lack zinc and iron due to high concentrations of calcium (Mendelsohn, 2002). The dominant soil types in the area are shown in **Figure 9**.

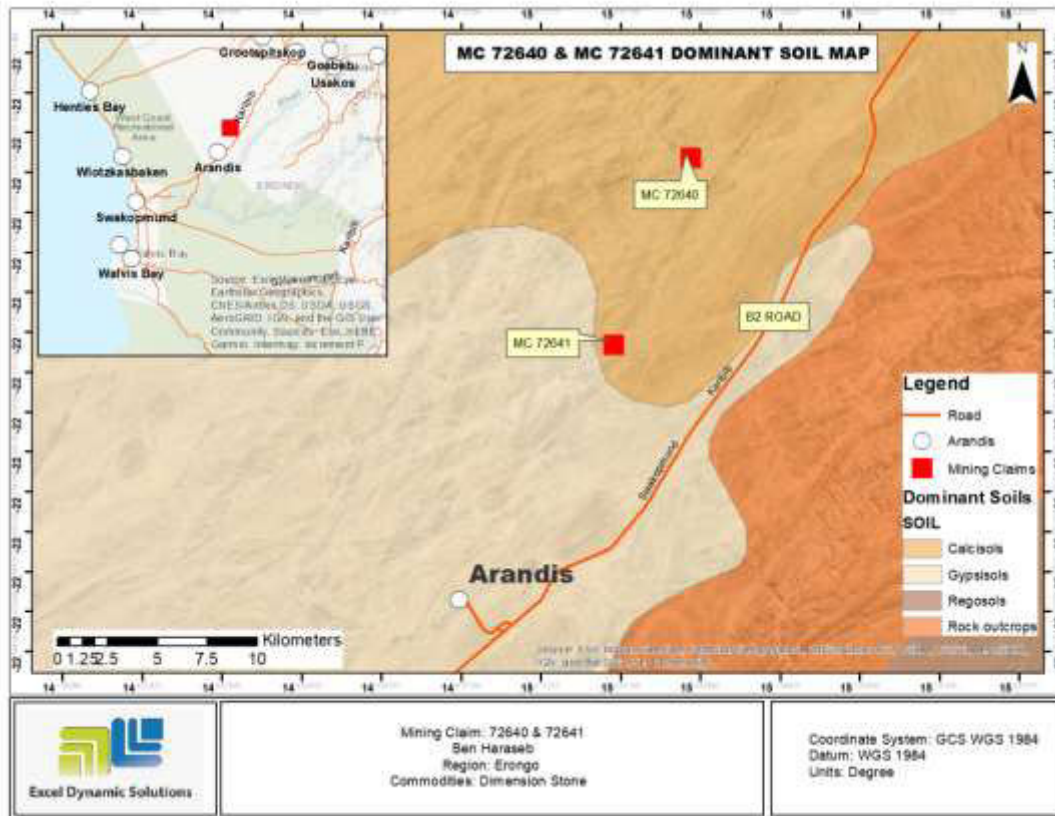


Figure 9: Dominant soil types found within the MCs

5.4 Water Resources: Surface Water and Groundwater Vulnerability

In terms of rivers (surface water/), there are few rivers passing near the MC 72640 and a water spring has been observed near the MC (Figure 11). The area experiences high water drainage due to a lack of high vegetation cover to retain the surface water Figure 10 shows the surface hydrology map of the project area. The MCs also lie in an area of medium to high level of sensitivity to groundwater drought as shown in Figure 12.

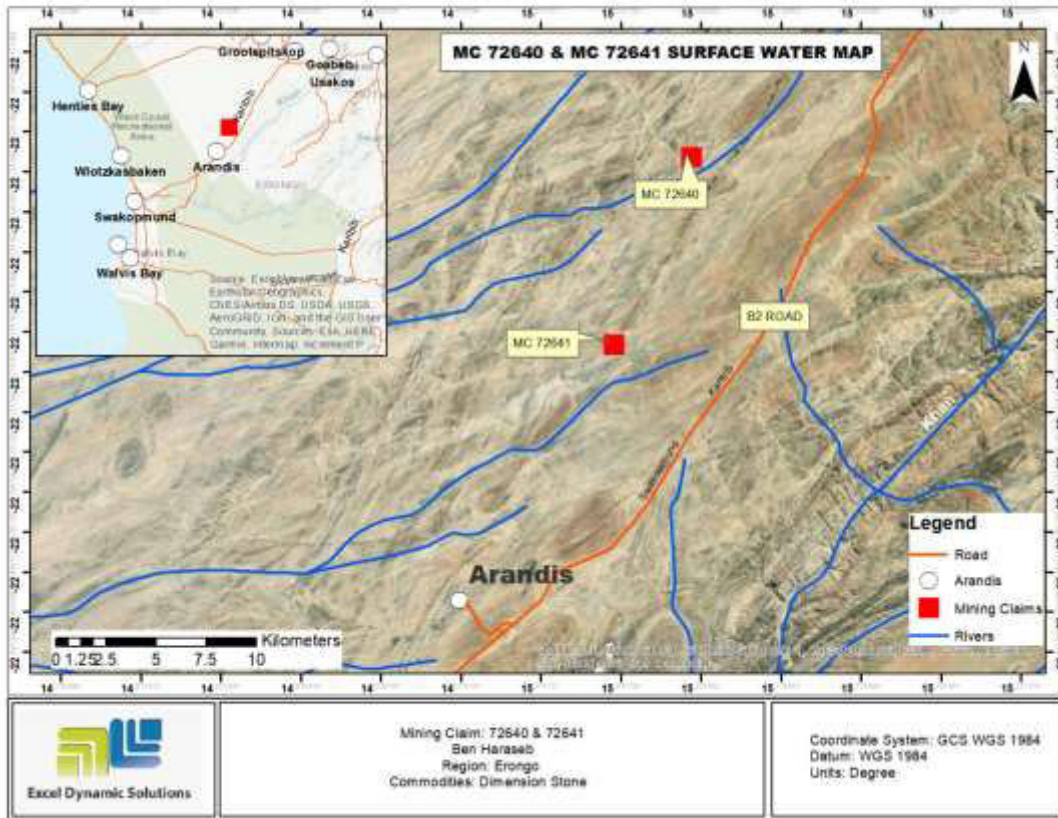


Figure 10: The hydrology of the project area



Figure 11 : Water spring found near MC 72640

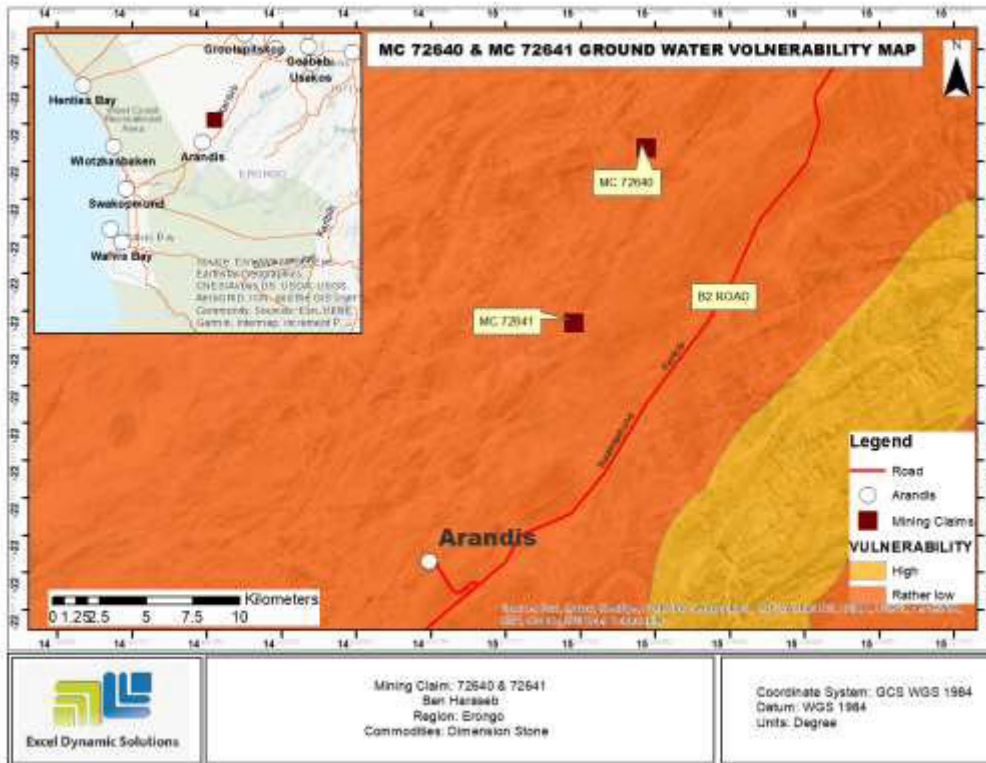


Figure 12: Groundwater Drought Risk map around the project area

5.5 Flora and Fauna

Flora

The site is situated within the Namib Biome which is characterized by less than 1% of trees and grass cover. The vegetation type of the area is characterized as the central desert; the trees which are mainly shrubs rarely attain 2m in height. The plant resources of the area are of limited value and on a scale range of none, poor, low, moderate, good to excellent; they are classified in the non-value (Mendelson, 2002). However, due diligence to minimize vegetation disturbance will be observed.



Figure 13: Plant species observed around the Mining Claims

Fauna

The general Arandis area is regarded as “low” in overall (all terrestrial species) diversity while the overall terrestrial endemism on the other hand is “moderate to high”. The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “low” with 1-2 species while the overall diversity of large carnivorous mammals (large predators) is viewed as “average to high” with 4 species important of which brown hyena have “medium” densities (Cunningham, 2022). No animals were observed on sites, however, there were some footprints and animal droppings observed (**Figure 14**). This indicates the presence of some wildlife in the area.



Figure 14 : Old animal dropping seen around the Mining Claims

5.6 Archaeology and Heritage

5.6.1 Regional Level

General information and on archaeology (**Figure 15**) shows that no declared sites are located near or within the vicinity of the Mining Claims.

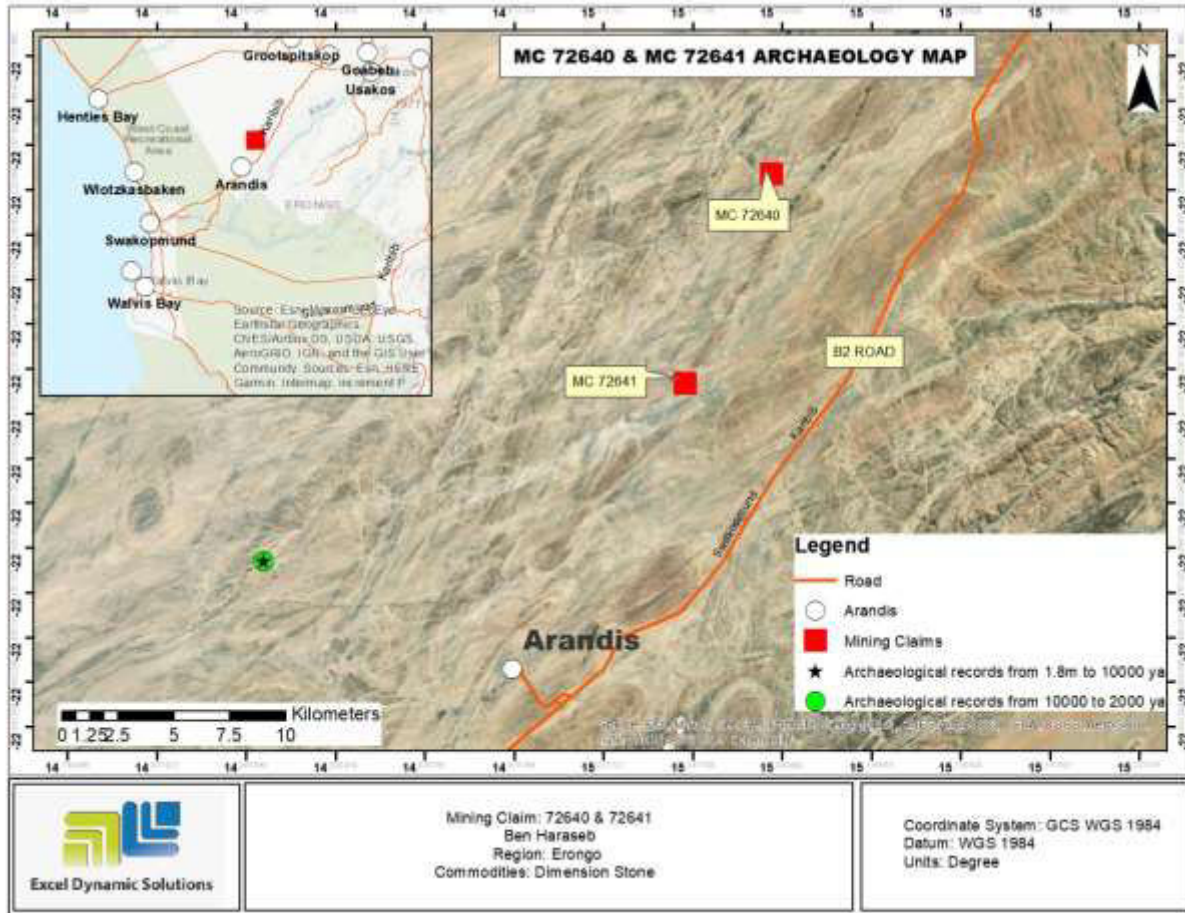


Figure 15: Archaeological map of MCs 72640 -72641

5.7 Surrounding Land Uses

The MCs are located within two commercial farms (Hakskeen and Trekkopje (**Figure 2**)). The Proponent is required to secure a signed agreement from the affected landowners and farmers to gain access to the areas of interest for mining investigations as per the 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 mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –

(a) In, on or under any and until such time as such holder has entered into an agreement 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 waked 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 Licence Holder and/or mineral explorers currently must negotiate a contract with landowners to gain access for or mining purposes.

5.8 Socio-Economic Status

The statistics shown in the table below are derived from the 2011 Namibia Population and Housing Census (NSA, 2011), and is presented from a local and regional perspective.

Table 3: Statistic of the projected area

Arandis	
Attribute	Indicator
Population	10, 093
Females	4, 852
Males	5, 241
Population under 5 years	10%
Population aged 5 to 14 years	19%
Population aged 15 to 59 years	64%
Population aged 60 years and above	8%
Female: Male Ratio	100:108
Population employed	72%
Homemakers	5%
Students	49%
Retired or Old age income recipients	46%
Income from pension	10%

Income from business and non-farming activities	6%
Income from Farming	1%
Income from cash remittance	3%
Wages and Salaries	72%
Erongo Region	
Population	150, 809
Population aged 60 years and above	6%
Population aged 5 to 14 years	17%
Population aged 15 to 59 years	67%

6 PUBLIC CONSULTATION PROCESS

Public consultation forms 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 to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this project has been done under the EMA and its EIA Regulations.

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

Relevant and applicable national, regional, and local authorities, local leaders, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed small scale mining activities were placed in two widely read national newspapers in the region (*The Namibian* Newspaper and *New Era* 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 E**.

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
Ministry of Agriculture, Water and Land Reform
Regional, Local and Traditional Authorities

Erongo Regional Council
Arandis Town Council
General Public
Interested members of the public & landowners
Farm owners
Namibia Community Based Tourism Association

6.2 Communication with I&APs

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

- A Background Information Document (BID) containing brief information about the proposed facility was compiled (**Appendix D**) and hand delivered to relevant Authoritative Ministries, and upon request to all new registered Interested and Affected parties (I&APs);
- Project Environmental Assessment notices were published in *The Namibian newspaper* and *New Era* (**14 and 21 February 2022**) (**Appendix F**), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- Public notices were placed in Arandis (**Figure 16**) to inform members of the public of the EIA process and register as I&APs, as well as submit comments.
- A public meeting was scheduled and held on 22 February 2022 at Arandis community hall, but no one showed up for the meeting, thus a door to door BID delivery was conducted.

It should be noted that there were no issues raised by the I&APs for this project



Figure 16: Site Notices placements

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 project activities. The potential positive and negative impacts of the small scale mining activities are listed as follow:

Positive:

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

Negative:

- **Physical land / soil disturbance**
- **Impact on local biodiversity (fauna and flora) and habitat disturbance** and potential illegal wildlife hunting (poaching) in the area.
- **Potential impact on water resources and soils particularly due to pollution,**
- **Air quality issue:** potential dust generated from the project.
- **Potential occupational health and safety risks**
- **Vehicular traffic safety and impact on services infrastructure** such as local roads
- **Vibrations and noise** associated with mining activities may be a nuisance to locals

- **Environmental pollution** (solid waste and wastewater)
- **Impact on Archaeological and Heritage resources**
- **Potential social nuisance and conflicts** (theft, damage to properties, etc).

7.2 Impact Assessment Methodology

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

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

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

Table 5: Extent or spatial impact rating

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

7.2.2 Duration

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

Table 6: Duration impact rating

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

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** shows the rating of impact in terms of intensity, magnitude, or severity.

Table 7: 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 of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.

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** shows impact rating in terms of probability of occurrence.

Table 8: 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	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.2.5 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** , **Table** , **Table** and **Table**) 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**).

Table 9: Significance rating scale

<i>Significance</i>	<i>Environmental Significance Points</i>	<i>Colour Code</i>
High (positive)	>60	H
Medium (positive)	30 to 60	M

Significance	Environmental Significance Points	Colour Code
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 small scale mining 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, eco-system, 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, 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 two project phases namely, the mining activity, and decommissioning phase. The potential negative impacts stemming from the proposed activities of the MCs are described, assessed and mitigation measures 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 (Adverse) Impacts

The significant negative impacts potentially associated with the mining activities are assessed below:

7.3.1 Land Degradation and Loss of Biodiversity

The detailed mining activities would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and vegetation. Endemic species are most severely affected since even the slightest disruption in their habitat can result in extinction or put them at high risk of being wiped out.

The presence and movement of mining workforce and operation of project equipment and heavy vehicles would disturb the domestic animals (livestock) and wildlife present on the farms. The activities may lead to potential disturbance due to human and vehicle movements, as well as, potential illegal hunting (poaching) of local wildlife. This could lead to loss or reduction of species. Any un-rehabilitated or unfenced borehole areas could also pose a high risk for domestic and wild animals, as they may trip/fall into these holes and pits, causing injuries and potentially mortalities.

Direct impacts on vegetation communities may occur through clearing for the mining access routes and associated infrastructure. The dust emissions from mining may affect surrounding vegetation through the fall of dust. Some loss of vegetation is an inevitable consequence of the development. However, given the size of 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 10** below.

Table 10: Assessment of the impacts of exploration on biodiversity and land

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M: -6	M/H: 4	M: -48
Post mitigation	L/M: -2	L/M: -2	L/M: -4	L/M: 2	L: -16

Mitigations and recommendation to minimize the Land degradation and biodiversity loss

- The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations.
- Vegetation found on the site, but not in the targeted mining sites areas should not be removed but left to preserve biodiversity on the site.
- Shrubs or trees found along the mining sites should not be unnecessarily removed.
- Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation.
- No onsite vegetation should be cut or used for firewood related to the project's operations. The Proponent should provide firewood for his onsite camping workers from authorized firewood producer or seller.
- Design access roads appropriately in a manner that disturbs minimal land areas as possible.
- Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore large scale vegetation clearing should only be applied where necessary and within the MCs footprint.
- Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are the progressive rehabilitation measures. These should consider:
 - Workers should refrain from disturbing, killing or stealing farm animals and killing small soil and rock outcrops' species found on sites.
 - Poaching (illegal hunting) of wildlife from the area is strictly prohibited.
 - Environmental awareness on the importance of biodiversity preservation should be provided to the workers.

7.3.2 Generation of Dust (Air Quality)

Dust emanating from site access roads when transporting small scale mining equipment and supply (water) to and from site (time-to-time) may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust even though it is not always so severe. The hot and dry environment, loose and sandy nature of the substrate and low vegetation cover causes ambient fugitive dust levels. Additionally, activities carried out as part of the mining works would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 11** below.

Table 11: Assessment of the impacts of small scale mining 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 - 1	L - 1	L- 2	L - 1	L - 4

Mitigations and recommendation to minimize dust

- Mining vehicles should not drive at a speed more than 40 km/h to avoid dust generation around the area.
- The Proponent should ensure that the mining schedule is limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area.
- Reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and near mining sites to suppress the dust that may be emanating from certain mining areas on the MCs.

7.3.3 Water Resources Use

Water resources are impacted by project developments/activities in two ways, namely 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 commercial farmers 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. Commonly mining activities use a lot of water, mainly drilling. However, this depends on the type of small scale mining methods employed and the type of mineral being mined for.

The proposed mining activities may require water of about 25,000 litres per month. This total amount of water will be used for mining and domestic purposes. 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. Although mining may be requiring this much water, this would also be dependent on the duration of the mining works and number of mining boreholes required to make reliable interpretation on the commodities mined for. The mining period is limited time wise, therefore, the impact will only last for the duration of the mining 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 the **Table 12** below.

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

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

Mitigations and recommendation to manage water use

- Drinking water abstracted from boreholes or supplied by carting should be used efficiently, and recycling and re-using of water on certain site activities should be encouraged, where necessary and possible.

- The Proponent should consider carting water for mining from elsewhere if the existing boreholes cannot sustainable. Agreements of water supply should be made between the farmer / landowner and the Proponent.
- Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off mining equipment should be captured and used for the cleaning of project equipment, if possible.
- Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site.
- Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and therefore be held accountable.

7.3.4 Soil and Water Resources Pollution

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

The spills (depending on volumes spilled on the soils) from these 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.

Without mitigation measures implementation, the impact significance is low to moderate and upon implementation, the significance will be reduced to low. The impact is assessed in **Table 13** below.

Table 5: Assessment of the project impact on soils and water resources (pollution)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	M - 6	M - 3	M – 39
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L – 8

Mitigations and recommendation to manage soil and water pollution

- Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies. Some of the soil control preventive measures that can be implemented include:
 - Identification of oil storage and use locations on site and allocate drip trays and polluted soil removal tools suitable for that specific surface (soil or hard rock cover) on the sites.
 - Maintain equipment and fuel storage tanks to ensure that they are in good condition thus preventing leaks and spills.
 - The oil storage and use locations should be visually inspected for container or tank condition and spills.
- All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.
- The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible.
- Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired.
- Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site.
- Polluted soil should be removed immediately and put in a designate waste type container for later disposal.
- Drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the mining sites are cleaned on time (soon after the spill has happened).
- Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.
- Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.
- Toilet water should be treated using chemical portable toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.

7.3.5 Waste Generation

During the mining phase, domestic and general waste is produced on site. If the generated waste is not disposed of in a responsible way, land pollution may occur on the MCs or around the site. The MCs is in an area of moderate sensitivity to pollution. Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the mining programme needs to have appropriate waste management for the site. To prevent these issues, biodegradable and non-biodegradable waste must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site. Any hazardous waste that may have an impact on the 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 14**.

Table 6: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	M - 6	M - 3	M - 30
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Mitigations and recommendation to waste management

- Workers should be sensitized to dispose of waste in a responsible manner and not to litter.
- After each daily works, the Proponent should ensure that there are no wastes left on the sites.
- All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites.
- No waste may be buried or burned on site or anywhere else.
- The mining site should be equipped with separate waste bins for hazardous and general/domestic waste.
- Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility

- Oil spills should be taken care of by removing and treating soils affected by the spill.
- A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.
- Careful storage and handling of hydrocarbons on site is essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.
- An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.

7.3.6 Occupational Health and Safety Risks

Project personnel (workers) involved in the mining activities may be exposed to health and safety risks. These are in terms of 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 will be 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 Proponent's personnel or local domestic animals.

The use of heavy equipment, especially during small scale mining and the presence of hydrocarbons on sites may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and equipment and vehicles too.

If machinery and equipment are not properly stored and packed, the safety risk may not only be a concern for project workers but residents too, especially children, given the fact that the project sites are within farms, where children reside too. This is true because, the local children may try to access the active site areas and play with dangerous materials and equipment.

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 15** below and mitigation measures provided.

Table 7: Assessment of the impacts of mining on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
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Pre mitigation	M - 3	M - 3	M - 6	M/H - 4	M – 48
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L – 12

Mitigations and recommendation to minimize health and safety issues

- The Labour Act's Health and Safety Regulations should be complied with.
- The Proponent should commit to and make provision for bi-annual full medical check-up for all the workers at site to monitor the impact of project related activities on them (workers).
- As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.
- When working on site, employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.
- Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.
- Drilled boreholes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.
- Ensure that after completion of mining holes and trenches, drill cuttings are put back into the hole and the holes filled and levelled, and trenches backfilled respectively.
- An emergency preparedness plan should be compiled, and all personnel appropriately trained.
- Workers should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.
- The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs.

7.3.7 Vehicular Traffic Use and Safety

The MCs are accessible via a trunk road (T0202) between Usakos and Arandis that diverge into a gravel road that leads to the MCs. Traffic volume will, therefore, increase on these district roads

during mining process as the project would need a delivery of supplies and services on site. These service and supplies will include but not limited to water, waste removal, procurement of mining machinery, equipment, and others.

Depending on the project needs, trucks, medium and small vehicles will be frequenting the area to and from mining sites on the MCs. This would potentially increase slow moving heavy vehicular traffic along these roads. The impact would not only be felt by the district road users but also the local road users such as farms (via local access gravel and single-track roads). This would add additional pressure on the roads.

However, only so many times a week or even monthly that the mining related heavy trucks will be transporting materials and equipment from and to site during mining. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Pre-mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table** below.

Table 8: Assessment of the impacts of mining on road use (vehicular traffic)

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

Mitigations and recommendation to minimize impact on road safety and related vehicular traffic issues

- The transportation of mining materials, equipment and machinery should be limited to once or twice a week only, but not every day to reduce the pressure on local roads.
- The heavy truck loads should comply with the maximum allowed speed limit for respective vehicles while transporting materials and equipment/machinery on the public and access roads (40km/h).
- The potential carted water to the site (from other source of water supply) should be done once or twice a week in container that can supply and store water for most of the week, thus reducing the number of water-carting trucks on the road daily.
- Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules.

- Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as residents /travellers.
- The Proponent should ensure that the site access roads are well equipped with temporary road signs conditions to cater for vehicles travelling to and from site throughout the project's life cycle.
- Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults.
- Vehicle drivers should only make use of designated site access roads provided and as agreed.
- Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.
- No heavy trucks or project related vehicles should be parked outside the project site boundary or demarcated areas for such purpose.
- To control traffic movement on site, deliveries from and to site should be carefully scheduled. This should optimally be during weekdays and between the hours of 8am and 5pm.
- The site access road(s) should be upgraded to an unacceptable standard to be able to accommodate project related vehicles as well as farm vehicles.

7.3.8 Noise and vibrations

Mining works may be a nuisance to surrounding communities due to the noise produced by the activity. Excessive noise and vibrations can be a health risk to workers on site. The mining equipment used for small scale mining 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 low rating, the mitigation measures should be implemented. This impact is assessed in **Table** below.

Table 18: Assessment of the impacts of noise and vibrations from mining

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

Mitigations and recommendation to minimize noise

- Noise from operations' vehicles and equipment on the sites should be at acceptable levels.
- The mining operational times should be set such that no mining activity is carried out during the night or very early in the mornings.
- Mining hours should be restricted to between 08h00 and 17h00 to avoid noise and vibrations generated by mining equipment and the movement of vehicles before or after hours.
- When operating the small scale mining machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.

7.3.9 Disturbance to Archaeological and Heritage resources

The areas may contain some surface and sub-surface archaeological materials that are not yet discovered or located. Upon extracting GIS information (using Satellite imagery) from the area of interest, only one archaeological site have been located, and occurs far outside the boundaries of the MC 72641. The archeological features are about 23 km away from MCs 72641 ,thus the located archaeological sites cannot be impacted by the proposed project giving its distance to the project site.

In this regard, the most likely impact on this area will arise from the presence or absence of sub-surface archaeological objects/materials. Potential damage can still occur through encroachment, disturbance, and possible destruction during intrusive mining activities. The secondary impact would be inadvertent encroachment and disturbance due to inappropriate siting of mining camps, equipment and supply laydowns and routes of access.

Therefore, 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** .

Table 19: Assessment of the impacts of mining activities on archaeological & heritage resources

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
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Pre mitigation	M - 3	M - 3	M - 6	M/H - 4	M – 48
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L – 12

Mitigations and recommendation to minimize impact on archaeological and heritage resources

- A “No-Go-Area” should be put in place where there is evidence of archaeological site, historical items or cultural objects. It can be a demarcation by fencing off or avoid the site completely by not working closely or near the known site.
- On-site personnel (s) and contractor crews must be sensitized to exercise and recognize “chance finds heritage” in the course of their work.
- During the extraction process, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP).
- The footprint impact of the proposed mining activities should be kept to minimal to limit the possibility of encountering chance finds within the MCs boundaries. The Proponent should keep a buffer of 50 meters on all the archaeological/cultural sites observed within the project site and broader area throughout their stay (duration of their presence) in the area.
- A landscape approach of the site management must consider culture and heritage features in the overall planning of mining infrastructures within and beyond the license boundaries.
- The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting mining works.
- Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should be complied.
- An archaeologist or Heritage specialist should be onsite to monitor all significant earth moving activities that may be implemented as part of the proposed project activities.
- When the removal of topsoil and subsoil on the site for mining purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist.
- Show overall commitment and compliance by adapting “minimalistic or zero damage approach”.

- In addition to these recommendations above, there should be a controlled movement of the contractor, mining crews, equipment, setting up of camps and everyone else involved in the mining activities to limit the proliferation of informal pathways, gully erosion and disturbance to surface and sub-surface artifacts such as stone tools and other buried materials etc.

7.3.10 Impact on Local Roads

These types of projects are usually associated with movements of heavy trucks and equipment or machinery that use locals frequently. The heavy trucks travelling on the local roads and exert more pressure on them. These local roads in remote areas are normally not in a good condition already for light vehicles, and the additional vehicles such as heavy ones may make it worse and difficult to be used by small (vehicles) that already struggled on the roads before they got worse. This will be a concern if maintenance and care is not done during the mining phase. The impact would be short-term (during mining 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** .

Table 20: Assessment of mining on 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

Mitigations and recommendation to minimize the impact on local services

- The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies.
- The Proponent should consider frequent maintenance of local roads on the farms to ensure that the roads are in a good condition for other roads users such as farmers, and travelers from and outside the area.

7.4 Cumulative Impacts Associated with Proposed Mining

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

Similarly, to many other mining projects, one cumulative impact to which the proposed project and associated activities potentially contribute is the:

- **Impact on road infrastructure:** The proposed mining activity contributes cumulatively to various activities such as farming activities and travelling 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 local extent (site-specific) of the intended mineral extraction activities.
- **The use of water:** While the contribution of this project will not be significant, mitigation measures to reduce water consumption during the mining are essential.

7.5 Mitigations and Recommendations for Rehabilitation

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

- Backfilling of trenches and or pits in such a way that subsoil is replaced first, and topsoil replaces last.
- Closing off and capping of all mining trenches and boreholes. The boreholes should not only be filled with sand alone, as wind will scour the sand and re-establish the holes.
- Carrying away all waste generated from the last disposal to the last days on site.
- Transporting all machinery and equipment as well as vehicles to designated offsite storage facilities.
- Dismantling and removal of campsites and associated infrastructures from the project site and area
- Carrying away of mining equipment and vehicles

- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner).

Further decommissioning and rehabilitation practice onsite will include:

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

8 RECOMMENDATIONS AND CONCLUSIONS

8.1 Recommendations

The potential positive and negative impacts stemming from the proposed mining activities on MCs were identified, assessed and appropriate management and mitigation measures (to negative impacts) made thereof 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 (Section 21 to 24). This was done via the two newspapers (*New Era* and *The Namibian*) used for this environmental assessment. A consultation face-to-face meeting with directly affected farmers and interested party was held at Arandis Town Council Hall though no one showed up, thus a BIDS delivery was conducted.

Though interested and affected parties were given time to raise their concerns, none of them raised any issue on the planned / proposed mining activities. Most of the potential impacts were found to be of medium rating significance. With the effective implementation the recommended management and mitigation measures, this will particularly see the 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 impacts' rating or maintain 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.

An Archaeological & Heritage Impact Assessment (AHIA) was done by a specialist for this ESA Study. The findings of this AHIA and the Scoping assessment (ESA) were deemed sufficient and conclude that no further detailed assessments are required to the ECC application.

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 on monitoring the implementation of these measures.

It is therefore, recommended that the proposed mining activities be granted an Environmental Clearance Certificate, and 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 ensuring 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 undertaking specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where mining activities have ceased are rehabilitated, as far as practicable, to their pre-extraction state.

8.2 Conclusion

In conclusion, with that being done, it is crucial for the Proponent and their contractors as well as to effectively implementation of the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. All these would be done with the aim of promoting environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the community and environment at large. This is 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 tmineral extraction and related activities.

9 REFERENCES

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