ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING) AND MANAGEMENT PLAN REPORT

Proposed Mining Activities on Mining Claims (75089, 75090, 75091, 75092, 75093, and 75094) situated within EPL 7719, Kunene Region-Namibia

ECC Application no: 002519

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Contents

List of figures

List of Appendices

Appendix A	Proof: Confirmation of Screening Process(EMA no.7 of 2007)
Appendix B	Summary: CV of EAP
Appendix C	Proof: Public Consultation (Legal Notices,BID, List of Agencies Consulted, Minutes, I&Aps consulted)
Appendix D& F	Proof: Heritage Assessment (Application/Consent)
Appendix E	Species Checklist
Appendix G	EMP (Stand- Alone Document)

PROJECT APPLICANT

JG Mining PTY (LTD) is the applicant for the Environmental Clearance Certificate

ENVIRONMENTAL ASSESMENT PRACTITIONERS (EAPs)

Cuvepalm Consulting cc as an independent Environmental Assessment Consulting company that undertookthe EIA project.

DETAILS OF THE EAPS

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Environmental Assessment Practitioner		
Name	Qualifications & Experience	Responsibility
ML Shikongo	• CV (Annexed)	Environmental Assessment

ACRONYMS:

TERMS	DEFINITION
Ag	Silver
BID	Background Information Document
Cu	Copper
CE,V, E	Critically Endangered, Vulnerable, Endangered
CPC	Cuvepalm Consulting cc
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer

EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Plan Report
GHGs	Greenhouse Gasses
IUCN	International Union for Conservation Network
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
JGM	JG Mining (PTY) LTD (Proponent)
mamsl	Meter above mean sea level
mbgl	Meter below ground level
MAWLR	Ministry of Agriculture Water Land Reform (Namibia)
MCs	Mining Claim(s)
MEFT: DEA	Ministry of Environment Forestry and Tourism's (Directorate of Environmental Affairs)
MME	Ministry of Mines and Energy(Namibia)
NHC	National Heritage Council
ToR	Terms of Reference
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
RWL	Rest water level
S-P-R	Source-Pathway-Receptor linkage
TOR	Terms of Reference
VMS	Volcanogenic Massive Sulphide

DEFINITION OF TERMS

Archaeological - in relation to a place or an object, means (a) any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface on land or in the sea; (b) rock art, being any form of painting, engraving or other representation on a fixed rock surface or loose rock or stone which is 50 or more years old;

Archaeological site – refers to an area in which archaeological objects are situated

Biodiversity - this refers all the different kinds of life you'll find in one area - the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world

Mineral beneficiation or value added processing – this refers to the transformation of primary material (i.e mineral won through mining or extraction) to a product which has a higher sale value
The 'Consultant' – this refers to the team that is conducting the ESIA and the preparation of the EMP for the development
Mining operation – refers to operations undertaken to for purpose of winning any mineral on a registered mining claim area. The term may include but not limited to in-situ mining or excavations, workings on tailings and trial processing of any mineral, transportation
The '**Proponent'** – this refers to the institutions/departments that are directly involved in the implementation of the project, i.e., JGM.
The '**Stakeholders'** – this refers to the people, organizations, NGOs that are directly or indirectly affected and interested by the project.
The '**Environment**' – this refers to the ecology, economy, society, and politics.

Purpose of This Environmental Impact Assessment Report

This Environmental Scoping Report (ESR) follows on the Scope of Work delineated by Ministry of Environment Forestry and Tourism (MEFT) and JGM for the proposed exploration activities. Existing information and input from commenting authorities, Interested and Affected Parties (I&APs) were used to identify and evaluate potential environmental impacts (both social and biophysical) associated with the proposed project.
Environmental flaws associated with the proposed project were identified through the ESR. A conscious decision was made based on the recommendations and guidelines by the Directorate of Environmental Affairs EIA guidelines to assess both significant and less significant environmental impacts associated with proposed development of mining claims. The Environmental Management Plan (EMP) for this proposed activity will have to be effectively implemented by the client, ensuring that adverse environmental impacts are considered and effectively mitigated.
The detailed assessment of the anticipated impacts was undertaken with the purpose of highlighting any areas of concern regarding to the proposed project during its construction, operation, and decommissioning phases. In addition, a sensitivity analysis in regard of the geohydrology connected to the project site was undertaken. This analysis characterized the development site on the significant environmental aspects to reflect the sites suitable and unsuitable (no-go) areas. This action guided the final footprint of the proposed project.
This ESR will be used to motivate and define project alternatives (i.e., site, technology etc) based on the findings of the environmental baseline study. This ESR has been compiled in accordance with the regulatory requirements stipulated in the EIA Regulations (2012), promulgated in terms of the Namibian environmental legislation

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

The EIAR aims to:

- Provide an overall assessment of the social, physical, and biophysical environments of the areas affected by the proposed project activities
- Undertake a detailed environmental assessment, in terms of environmental criteria and impacts (direct, indirect, and cumulative), and based on environmental sensitive recommend sites for the establishment of field camps.
- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- Undertake a fully inclusive Public Participation Process (PPP)
- GIS sensitivity mapping to identify potential impacts, propose mitigation, and inform the sensitivity analysis.

GAPS, ASSUMPTIONS & LIMITATIONS

The following assumptions and limitations underpin the approach of this EIA study:

- The information received from the stakeholders, desktop surveys and baseline assessments are current and valid at the time of the study;
- No investigation were conducted to establish the acid generation potential associated with proposed reworking of the dumps found in some of the MCs.
- A precautionary approach was adopted in instances where baseline information was insufficient or unavailable
- Mandatory timeframes will apply to the review and adjudication of the reports by the competent authority and other governmental departments;
- Mandatory environmental compliance monitoring and reporting will be carried out on a monthly basis.
- This ESIA Report could be upgraded if new project features are proposed.

NB: The EAP does not accept any responsibility if additional information comes to light at a later stage of the EIA process. All data from unpublished research utilized for the purpose of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social, and economic impacts associated with the proposed project

EXECUTIVE SUMMARY

JG Mining (PTY) LTD (JGM) proposes to develop base and earth metals in Kunene Region, Namibia. An application has been lodged with the Ministry of Mines and Energy (Namibia) to undertake mining operations in respect of mining claims (MCs) 75089, 75090,75091,75092,75093, and 7594. The mining claims are located approximately 67 km north-east of Kamanjab, Kamanjab Constituency, Kunene Region (Namibia). The total and combined surface area of the six (6) mining claims is 97 hectares (ha). Based on the results of initial geophysical surveys and mineral assessment reports, the MCs have a commercial potential for base and rare metals. Mechanical extraction, mineral recovery or processing will be assumed in view of beneficiation objectives set by JGM.

To satisfy the requirements of Namibia's Environmental Management Act No.7 of 2007, JGM appointed CPC to conduct the Environmental Scoping together with the Environmental Management Plan for activities related to the development and to apply for an Environmental Clearance Certificate. Based on the assessment method employed, land degradation due to project activities is regarded of high significance as it can adversely affect the ecological setting. Based on the analysis, most impacts are anticipated to be localized and can be effectively mitigated through the implementation of mitigation measures recommended in the Environmental Management Plan (EMP). Observance of ultimate control measures in respect of environmental pollution that may manifest is paramount to ensuring environmental sustainability and in particular the welfare and livelihoods of local farming community. Impacts deemed to be of "*high*" significance are not expected if EMP is fully implemented taking into account a financial commitment to progressive rehabilitation and the adoption of a robust monitoring program that provide for air quality and radiation assessment. The Report has been prepared for JGM and forms part of an application for an Environmental Clearance Certificate submitted to the Ministry of Environment, Forestry and Tourism (Office of Environmental Commissioner, Republic of Namibia

CHAPTER ONE: BACKGROUND

1.1 Introduction

The proponent, JG Mining (PTY) Limited (JGM) is an indigenous Namibian enterprise that is in the business of finding and extracting minerals since 2010. The company has identified the economic potential for the development of mining claims in the Kunene Region. The mining claims (MCs) are registered over Exclusive Prospecting License Area (EPL 7719). JGM plans to explore the possibility of finding sizeable and valuable mineral resources primarily targeting base and rare metals. Should the minerals extracted from MCs prove to have a profit potential, JGM will look for additional commercial ventures.

JGM secured the consent of Sumer Resources Namibia i.e the owner of EPL 7719. As per section 32 of the Environmental Management no. 7 of 2007, an Environmental Clearance Certificate (ECC) is required prior to commencement of mining operations on the proposed mining claims. CPC was appointed by JGM on 15 October 2023 to conduct an Environmental and Social Impact Assessment (ESIA) and develop an Environmental & Social Management Plan (ESMP) for the proposed project. This has been followed by the registration of an application for ECC with the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA). Subsequently, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed activity, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts assessment regulations (GN 30 in GG 4878 of 6 February 2012).

1.2 Project Location

The proposed project site (S 190 25' 20.9";E 150 09' 53.3") lies about 450 km north west of Windhoek by road and is situated approximately 67 km north-east of Kamanjab (Kunene Region). Access to exploration site can be obtained by gravel roads turning off from the National Road C40 linking the towns of Kamanjab and Outjo. The map below (Fig 1) depict the area on which the mining claims were pegged.

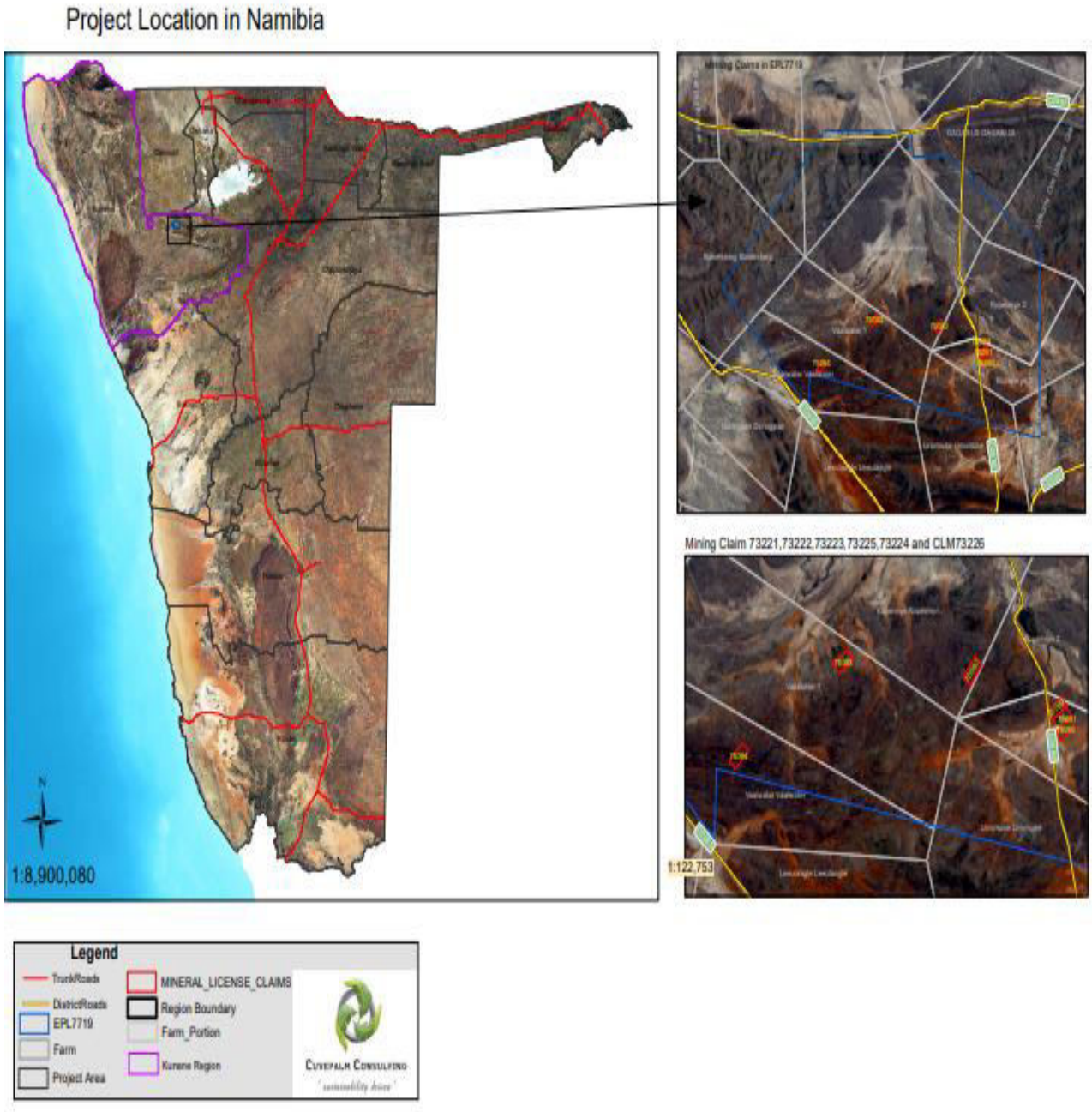


Figure 1 Project location

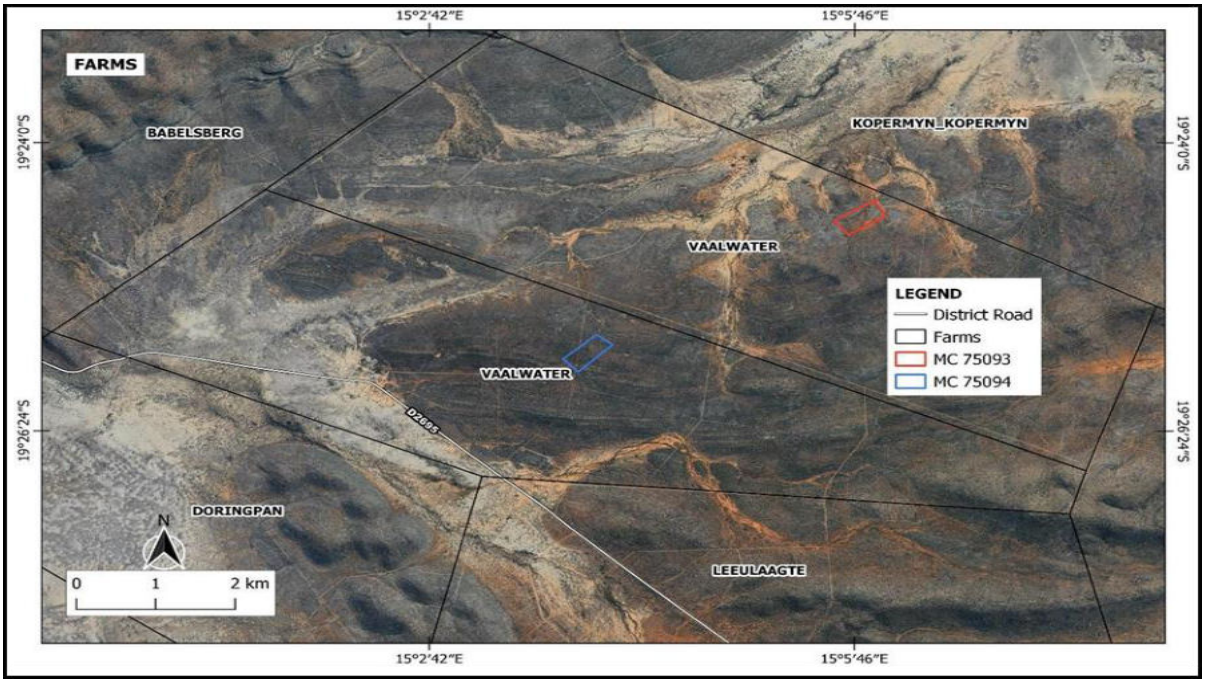


Figure 2 Location of MC s75093 -75094

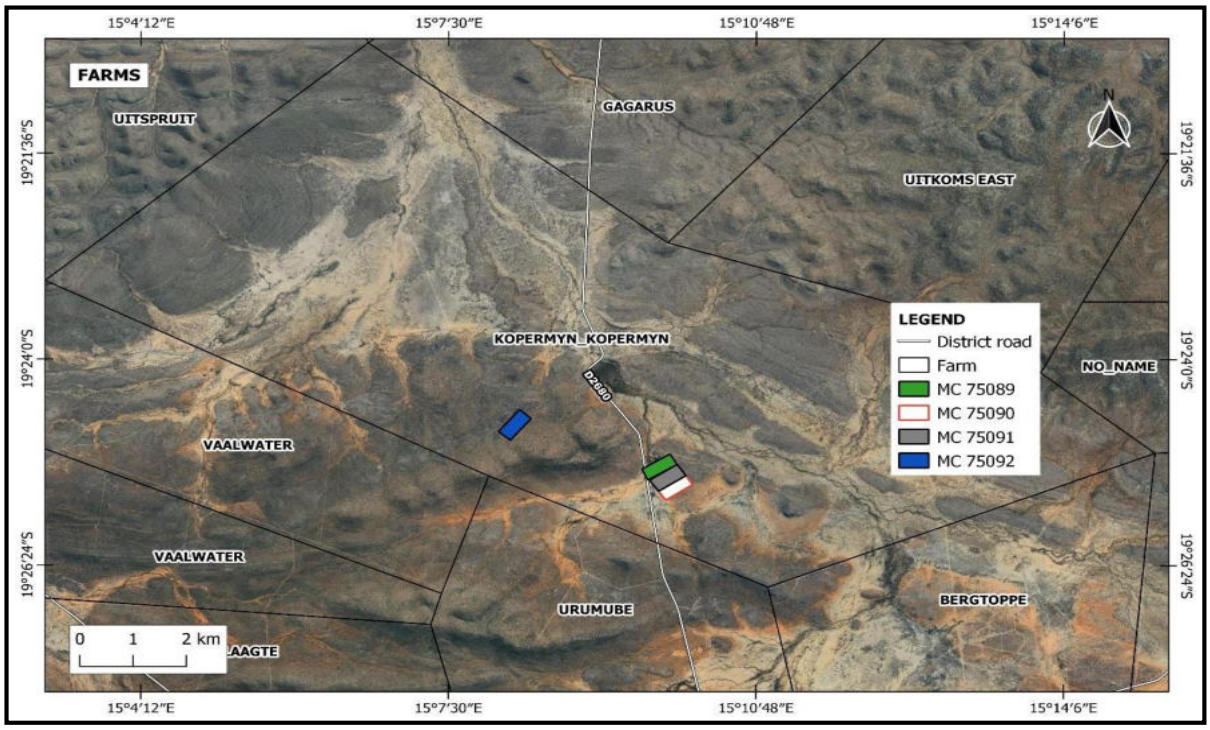


Figure 3 Locality of MCs 75089-75092 (Source: R.Mushi)

1.3 Site History

The area previously underwent earlier geological and geochemical exploration activities in the 1940s, 1960s, 1970s and early 1990s. The 1970s represented a time where significant deposits were located with up to 100,000 tonnes of copper ore were particularly extracted at farm Kopermyn 291 situated within MCs (75089, 75090, and 75091).The mining activities eventually ended in the late 1970s with mining site at farm Kopermyn abandoned. Remnants of past mining activities are still visible today as shown in (Fig 4). The proponent has preliminarily identified target sites within the proposed MCs area and equally plans to resituate the abandoned mine at farm Kopermyn. The latter remain un-rehabilitated. Based on results of initial geophysical survey and mineral assessment reports, the rock waste dumps found at farm Kopermyn may contain 4000 tons @ 6.3 % copper (Cu).

Figure 4 Abandonded mining site :Farm Kopermyn

Figure 5 Historic Mine Rock Waste Stockpiles (Farm Kopermyn)

1.4 Project activities

Project comprise of various phases. For this EIA, the phase-based activities were categorized to enable impact assessment and analysis. The different project phases are as follows:

Construction Phase (Site Preparation)

Access agreements will guide the working relationship between landowner and mining teams and/or contractors. Mining teams will undertake initial site visits to identify appropriate sites for the establishment of field camp(s). Site preparation activities will begin once surface drainage, ground water conditions and areas of heritage significance are understood by proponent and working teams. JGM shall ensure that areas identified are those that present minimal disturbance to the natural environment and wildlife.

Site Offices: The formal housing structures found on farm Kopermyn 291 will be converted into an office space for the project teams and shall serve as the main field camp. In addition, prefabricated housing might be set up to ensure sufficient office space.

Land clearing: Small land parcels will be cleared for the establishment of field camps and staging areas. The field camps will be used for the safe keep of equipment and vehicles before use. A limited number of employees will be housed at farm Kopermyn 291 and housed in non-permanent mobile housing units.

Creation of access routes and haul tracks: Apart from the existing farm roads network leading to the MCs, additional tracks (extensions from farm roads) may be created for the sole purpose of accessing mining claims. Where deemed necessary, graveling, and compaction of vehicle tracks surfaces may be considered to allow for less track maintenance and seamless flow of traffic. No permanent structures will be built.

Fencing: Where deemed feasible, fences will be erected around field camps and working areas. Fencing will serve to keep out livestock working areas.

Operational Phase

Mining operations will be conducted with the view of winning the mineral and evaluating or concentration of base and rare earth minerals. The final objective is the acquisition of viable quantities for purpose of beneficiation. The following operational requirements are anticipated for the project:

Mechanical pitting & trenching: Shallow excavations will be made. Stripping will involve the removal of overburden material overlaying the mineralized areas. The overburden material will comprise of topsoil and rock material. A hydraulic backhoe excavator and bulldozer will be used to excavate and move over burden material. Trenches will be excavated mechanically up to a maximum depth of twenty (20) meters, in order to expose areas of mineralization. Backhoe excavators will be used for stockpiling dug out material.

Crushing: At specific areas of interest (mineral targeted area), a modular primary crusher unit and an ore screen is envisaged. Primary crushed ore will be crushed further to obtain a product of -150 mm and + 50mm to liberate the high grade ore. Existing rock waste dumps/tailings (within MCs) that are a result of past exploration and mining activities will be investigated for mineral occurrence and beneficiation. Ore found on rock waste dumps will sized and packed in 1000 kg bags. Front end -Loaders will used to load the excavated material on to dumper transporting to pilot processing or mineral recovery plant.

Water Abstraction: Water will be sourced from existing boreholes. Approximately up to 1000 liters of domestic water will be needed per daily. This amount of water is also aimed at suppressing dust around tipping areas and vehicle tracks.

Waste management: Waste material generated will be in the form of rock material (non-mineral) and derived from trenching. Insignificant amounts of domestic waste will be generated. Domestic or general waste will be transported from the MC's area to an approved land fill site. There are no licensed waste disposal sites proximate to the proposed

MCs.

Sewage Management: During exploration, sufficient portable chemical toilets will be provided for workers and appropriately emptied according to their manufacturer's operational standards and legislated occupational sanitary provisions. Licensed waste contractors will provide sewage removal services.

Exploration equipment, Materials and Services: Construction equipment will be sourced from contractors proximate to the project site. Were deemed essential, equipment will need to be sourced from elsewhere in the country and/or abroad as per the required and approved operating standards.

Labour sourcing: Temporary employment opportunities will be created during the duration of MC development. Most laborers will be sourced from the Kamanjab Town and those residing on commercial farms linked to MCs. The exact number of people to be employed could not be secured at the time of preparing this report as work will be outsourced to contractors as per JGM procurement policy. Contractors will determine the exact number of the workers required. However, employment of locals is encouraged.

Site Rehabilitation: Dug out trenches will be back filled with waste rock (gangue). Stockpiled top soil will be returned to the backfilled areas. Where feasible, working areas deemed will be re-vegetated and returned practically and reasonably close to pre-mining state. Rehabilitation will be done concurrent with excavation work.

Processing Plant: A pilot mobile modular processing plant will be used to facilitate mineral recovery, research and development. Material will be screen and isolated aiding recovery of valuable minerals from old tailings dumps within MCs found and as found at farm Kopermyn. Plant concentrate will be bagged into 1 ton bulk bags that will be loaded onto trucks transport trucks and road to Dundee smelter. Key features of the modular pilot processing plant and process flow diagram (conceptual) are illustrated below.

Table 1: Key features of the proposed pilot mineral recovery /beneficiation plant

Capacity	Processing capacity of up to 120 tons/hr depending on size distribution of Run of Dump material to be fed. Capacity is defined according to the rate at which the system will consume and process a stockpile of raw feed material. ("Run of Dump" or: Ultra Fine" Material. This material is typical of slimes deposits which contain 1mm and smaller material.
Feed material	Dry and/or wet material with moderate moist content. Feeder can accept large quantities with 15mm being scalped-off as oversize. -15mm material is fed from the Feeder to the Scrubber.
Electrical Supply Requirements	75kVA generator is sufficient for typical installations (excluding water pump). Generator sizing must be based on final equipment selection and must take into consideration any additional equipment to be run as well as startup amperage requirements.
Electrical Control	Independent control cabinet fitted with digital frequency controllers for soft-start and speed control of all applicable motors.
Water Supply Requirements	The CS-120 requires water supply of approx. 2000 to 5000 liters/hour at a pressure of approximately 310 kPa (45psi). We typically supply a diesel-powered pump capable of providing this water flow together with appropriate suction and delivery hose kit. Water Supply is connected via a 6" hose to the inlet on the Water Manifolds (splitter box).
Water Manifolds	2 water control manifolds with fittings for connection to supply pump and valves for distribution of water to Feeder, Scrubber, Screen, Slurry Distributor, Sluices.
Feeder options	VF-120 - an excavator-fed, vibrating feeder with one row of scalping grizzly-bars, mounted on a skid base for standard container shipping. Ideal for dry or moist material containing gravel. BF-120 -a static feeder which can be fed by excavator or loader with one row of scalping grizzly-bars and including an operator platform. Mounted on a skid base for standard container shipping. Ideal for wet or dry material where gravel and clay are present. FC-120 - an excavator-fed, high-capacity hopper/conveyor feeder ideal for dry material.
Scrubber	Mobile, three chamber rotary trommel scrubber designed for high retention / aggressive scrubbing sand and clay. Scrubber Feed Chute, Trommel and Discharge all fitted with replaceable wear liners.
Screening options	Double-drum rotary screen integrated with Scrubber. Frame mounted, Spiral Plant: Screens are fitted with replaceable rubber and urethane screening panels which are selected to size material specifically for your specific application/conditions.
Oversize Conveyor	14m conveyor for removal of oversize material from screening process so that this material can be stockpiled and removed in a convenient I efficient manner.
Slurry Distributor	Slurry control system which takes undersize slurry from screening process and pump to splitter box, ensuring proper control and balancing of splitter box outlets.

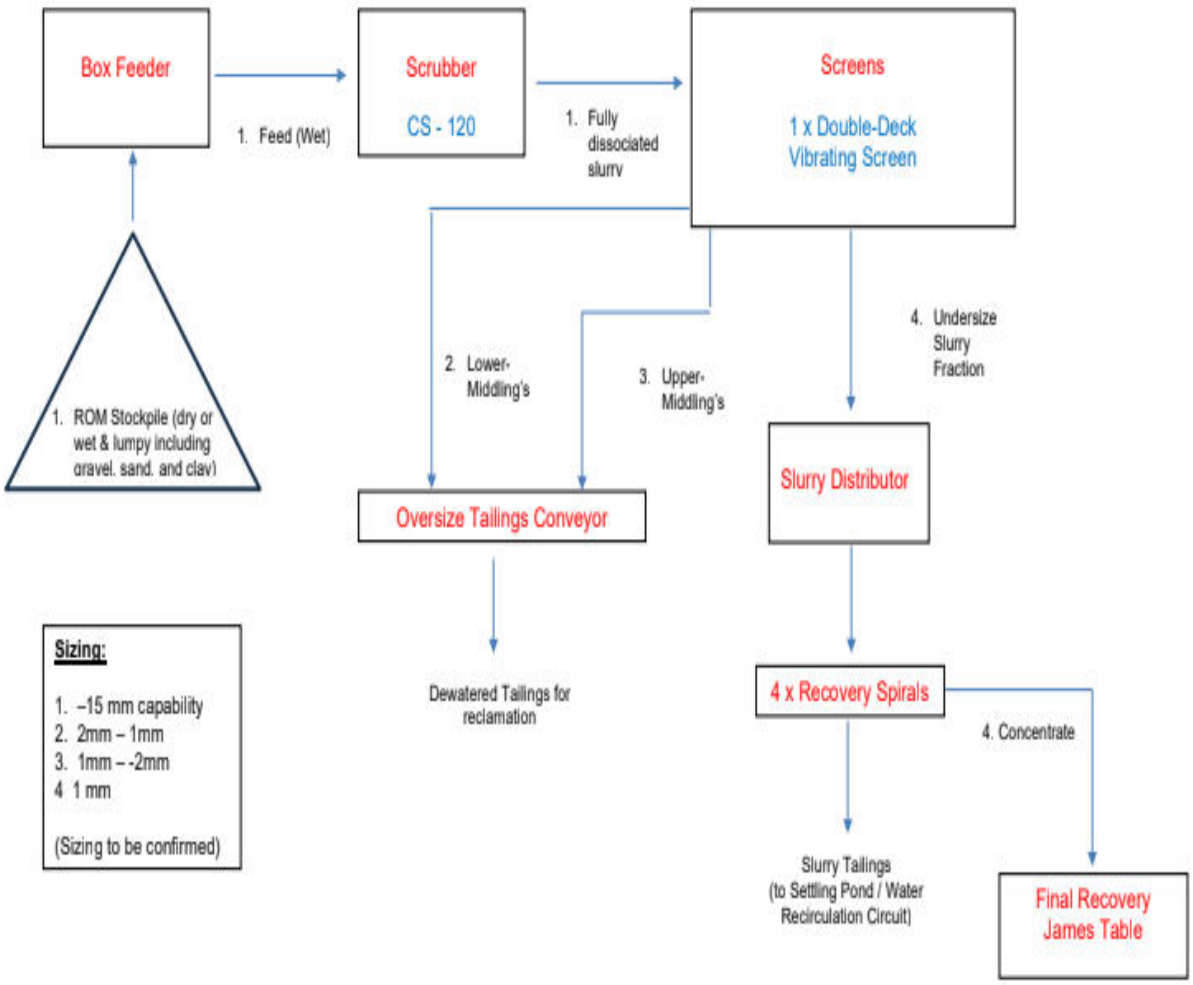


Figure 6 Proposed processing plant flow diagram

Decommissioning/Closure Phase

This phase will involve the removal of equipment and dismantling of facilities and safe closure. The surface affected by exploration will be rehabilitated in accordance with applicable standards and the adopted rehabilitation plan. All relevant parties including the landowner connected to MCs will be informed well in advance about plans to cease project activities.

Project schedule

The schedule of activities that may be undertaken for the project is presented in Table 2 below.

Table 2 Proposed Work Schedule

PHASE	DATE	ACTIVITY DESCRIPTION
Phase 1	Exact commencement date unknown	Planning – Detailed planning for project related activities will require about two (2) Weeks.
Phase 2	Commencement date	The planned dated for the commencement of mining operations is expected to coincide and as soon as the MCs ECC have been issued. Project related activities will be conducted over a period of three (3) years (phase 1). Depending on progress made in terms of beneficiation, an application for the renewal of the MCs may be required.

2. CHAPTER TWO: NEEDS AND DESIREBILITY

Namibia's economic model continues to be influenced amongst other by the exploitation of mineral resources. According to the National Planning Commission Report (2021), the average contribution of the mining sector to GDP between 1990 and 2018 is significant and favorably stood at 11.1 %. Mining remains the largest earner of Namibia's foreign exchange at about 45%. Mineral development is enshrined in National Development Plan (NDP V), Vision 2030. The Harambee Prosperity Plan II plan (Pillar 2) place emphasis on economic advancement with the view to enhance the productivity of priority sectors such as mining. However, mining development can be constraint by insufficient investment. Mining and project inherently can promotes economic socio- advancement through employment creation. The 2018 Labour Force Survey 2018 indicates that about 1.7% of the formal labour force of Namibia is directly employed by the mining sector. Mineral development is thus encouraged, so that the sector can contribute more to the Namibian economy (NPC, 2021). The multiplying effect of income from employment in the mining sector is deemed significant – not only is it estimated that each employed person provides for four other persons, but the mining industry contributes in various ways to the national economy by means of taxes and royalties, a strong service-support base and specialized contractors. At a global level, Industrialization continues to drive a high demand for industrial minerals. Notably mineral production continues to contribute significantly towards job and wealth creation amongst various nations. According to the Chamber of Mines (Namibia), in 2021, the mining sector grew by 13.6 % helping the national economy bounce back from a retraction of 8.5% in 2020 to achieve a growth of 2.4 % in 2021. It is anticipated that base minerals such as copper, lead, and zinc will be Namibia's top performing exports in the immediate future.

The economy of Kunene is primarily centered on the production of livestock. The proposed development presents an interesting prospect for expanding and diversifying the regional economy that remains largely dependent on agriculture. Living conditions are expected to improve through economic spinoffs/investments. Equally the proposed development can have an impact on direct and induced employment realized through the supply chain and provision of support services. The project would require approximately 15 to 20 employees during the initial phase. Indirect jobs will emanate from the out-sourcing of short-term services (maintenance, transportation) to sub-contractors. Highly skilled workforce may be sourced from outside region. Based on the assumption that operations takes place over a period of three (3) years with a possibility for an extension, this can create additional income for local and distant communities alike. However, the impact of project is expected to be felt at household level with people in fulltime employment. The positive impact of job creation is considered to be of high significance due to the high unemployment prevalence rate amongst unskilled or semi-skilled population group of the Region.

3. CHAPTER THREE: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1. Applicable legislation

To ensure that the proposed development complies with the legal requirements of environmental stewardship, a review of applicable Namibian and international legislation, policies and guidelines have been consulted. This review serves to inform the project proponent, Interested and Affected Parties and relevant decision makers of requirements in respect of the proposed development. Legislation and policies and their inclusion in the proposed project assessment are further presented in below

Table 3 Policies, Legal and Administrative Regulations

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
The Constitution of the Republic of Namibia (1990)	The articles 91(c) and 95 (i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the Sustainable objectives which include: Guarding against overutilization of biological natural resources, limiting over-exploitation of non-renewable resources and ensuring ecosystem functionality, Maintain biological diversity.	Mining operations can interfere with ecological processes. Attention should be given to the state of water resources and biodiversity protection.
Environmental Assessment Policy of Namibia 1994	The Environmental Assessment Policy of Namibia states Schedule1: Screening list of policies/ plans/ programmes/ projects subject to environment must be accompanied by environmental assessments. "The development activities" are on that list.	The activity triggers an environmental impact assessment prior to commencement
	The policy provides a definition to the term "Environment" broadly interpreted to include biophysical, social, economic, cultural, historical, and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes, and plans.	The proposed development requires the assessment of all possible environmental and social impacts to avoid, minimize or compensate environmental damage associated with it.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Environmental Management Act No. 07of 2007	Requires that activities with significant environmental impact subject to environmental assessment process (Section 27). Compels adequate public participation during the environmental assessment process stakeholders to express their concerns about the project (Section 2(b-c)). According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal sitedeclared by the Section 3 (2) (b) states that "community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated" is key. Section 3 (2) (e) states that "assessments must be undertaken for activities which may have a significant effect on the environment or the use of natural resources".	The conduct of mining operations on MCs has the potential to cause adverse environmental impacts to the environment. Activities such as trenching can cause significant environmental impacts. Therefore, proper assessmentsshould guide project planning. The EIA study considered full stakeholder participation. Stakeholder consultation was fully conducted. The proposed development is involving the utilization of natural resources (water and land).Environmental cost relating to project shall not be borne by communities found in the project area and surroundings. Project shall not commence without an environmental clearance certificate.
EIA Regulations GN57/2007 (GG 3812)	Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). Details the requirements for what should be included in an Environmental Scoping Report (GN No 30 S8) and an EIA report (GN No 30 S15).	The implementation of the project triggers the need for consultation of all affected and interested stakeholders. Public consultation meetings are held in respect to this, and all the concerns and issues are noted and addressed in thisreport.
Burial Place Ordinance, Act No. 27 of 1966.	To prohibit the desecration or disturbance of graves in burial places and to regulate matters relating to the removal or disposal of dead bodies.	Chance find is highly recommended. Therefore this Act is relevant and should be taken into consideration by the Project Proponent

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
	agricultural, urban, and industrial purposes; to make provision for the control, in certain respects, of the use of water for certain purposes; for the control of certain activities on or in water in certain areas.	With the yield of local aquifers likely to be affected, strict water conservation measures should be implemented.
Minerals (Prospecting and Mining) Act, 1992 (Act no. 33 of 1992)	Act provides the licensing procedures, the rights of MC holders, the administration, and the ownership of minerals. In addition, the Act requires mining companies to provide detailed studies on the potential impact of the operations to the surrounding environment, how to mitigate them and rehabilitations plans	Mining operations may be conducted in terms of a mining claim or a mining license. MCs are reserved for Namibians only. Mining operations shall not commence except in accordance with license granted. Renewals of MC are accommodated for two years at a time.
Pollution Control and Waste Management Bill	The bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse." Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	The proposed activity triggers Section 21 and 22 of the bill. Activities such as trenching transportation, primary crushing mayrequire the robust adoption of in-situ pollution mitigation measures. Contractors of the civil works of the project should make it mandatory that they manage their waste in a manner that do notcause environmental harm and risk both to the surroundings and the local communities.
Atmospheric Pollution Prevention Ordinance 11 of 1976	The law provides for the prevention of atmospheric pollution, andfor matters incidental thereto. The law regulates and prohibit pollution from industries particularly smoke and dust. The ordinance considers air pollution from point sources but does not address air quality standards,	Mineral mining operations processes will most likely affect ambient air quality. Efforts to suppress and monitor dust should be adopted or as recommended in the EMP.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
National Solid Waste Management Strategy	The Strategy ensures that the future directions, regulations, funding, and action plans to improve solid waste management are properly coordinated and consistent with national policy, and to facilitate co-operation between stakeholders Waste disposal presents a challenge to solid waste management in Namibia. The top priority is to reduce risks to the environment and public health from current waste disposal sites and illegal dumping in many areas of Namibia.	Mining activities can potentially generate significant amount of waste material that need careful management. The obligation to meet waste management objectives should be borne by both proponent and contractors. The proponent should limit the exposure of waste to the natural surrounding In-situ waste management plans should be adopted and implemented prior the commencement of operations. Rock waste and other non-mineral waste should be stored and disposed in an environmental friendly manner. Waste deemed hazardous should be carted away to licensed waste disposal sites.
Soil ConservationAct 76 of 1969	The Act established to consolidate and amend the law relating tothe combating and prevention of soil erosion, the conservation, improvement, and manner of use of the soil and vegetation and the protection of the water sources in the Republic of Namibia.	The construction of auxiliary infrastructure such as access roads or tracks to MCs should include systems and mechanism for preventing erosion.
Road Traffic and Transport Act, No. 22 of1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads,the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's Borders; and for matters incidental thereto.	Mitigation measures should be provided for if the roads and traffic impacts cannot be avoided. Should the proponent wish to undertake activities involving road transportation or creation new access adjoining national roads, relevant permits will be required from the Ministry of Works and Transport

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Forest Act 12 of 2001	Section 10 (1) set out the aim of the forest management as to:The purpose for which forest resources are managed and developed, including the planting of trees where necessary in Namibia is to conserve soil and water resources, maintain biological diversity and to use forest produce in a way which is compatible with the forest's primary role as the protector and enhancer of the natural environment.	The proposed project will likely result in the disturbance of indigenous vegetation of conservation significance including the disruption of biological processes.
	(b) any living tree, bush or shrub growing within 100 meters of ariver, stream, or watercourse.	The project will not result in the removal of living trees, bushes and shrubs growing within 100m of a river, stream, or watercourse.
	(2) A person who wishes to obtain a license to cut and remove the vegetation referred to in subsection (1) shall, in the prescribed form and manner, apply for the license to a licensing officer who has been designated or appointed for the area where the Protected area is situated.	The removal of trees in the above instances would require the contractors or sub-contractors to acquire necessary permits first.
National Policy on Climate Change forNamibia (2011)	The National Policy on Climate Change pursues constitutional obligations of the Government of the Republic of Namibia, namely for "the state to promote the welfare of its people and protection of Namibia's environment for both present and future generation."	Measure should be adopted by JGM to prevent or minimize toxic emissions into the atmosphere. Dust suppression and monitoring will be employed, to ensure that air quality objective tied to climate change mitigation are met.
National Climate Change Strategy & Action Plan 2013 – 2020	The Strategy outlines Namibia's response to climate change. The strategy aims to address and plan for action against climate change, both through mitigation and adaptation actions. In its adaptation strategy, the Strategy recognizes the role of a sustainable water resource base.	The development should adopt measures that strengthen sustainable utilization of water resource The implementation should be very careful on not to cause harm to the available waterresources but improve the management through various conservation technics.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
	The Strategy proposed strategies that aim to: Strategic Aim 1: Further improve the overall climate change understanding and related policy responses in water resources sector. Strategic Aim 2: Monitoring and data collecting technologies of surface and underground water are developed and implemented at Basin/watershed level.	The proponent should invest capital on strengthening climatechange and adaptation through cleaner production systems implementation. Certification by international standards such as ISO14001 can help with climate sustainability, and is recommended.
Nature Conservation Ordinance (1996)	This ordinance relates to the conservation of nature; the establishment of game, parks, and nature reserves; the control ofproblem animals; and highlights matters incidental thereto.	The activities of the project are highly localized. The likelihood of project activities interference with any protected parks and nature reserves objectives is non-existent. Service infrastructure should not be in conflict with the provisions listed in the Nature Conservation Ordinance. All species of birds are protected except the huntable game birds mentioned in Schedule 6 and expect the following birds: Weavers (*All Ploceus spp*.) Sparrows (*All Passet spp.)* Mousebirds (*Colius colius*; *Urocolius indicus*)Redheaded *Quelea (Quelea quelea*) Bulbul (*Pycnonotus nigricans; P. barbatus*)Pied Crow (*Corvus albus*).

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
National Biodiversity Strategy and Action Plan (NBSAP2) 2013 – 2022	The action plan was operationalized in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	The proposed project during construction and operation phases, potentially triggers ecosystem threats from pollution. As such mechanisms for environmental compliance and monitoring will be put in place, ultimately aimed at protecting biodiversity.
Labor Act 11 of 2007.	Empowers the minister responsible for labour to publish regulations pertaining to health and safety of labourers (S135).Details requirements regarding minimum wage and working conditions (S39-47).	Mining invite significant amount of laborious work. Therefore, there is need to ensure that proponent without charge to employees provide a working environment that is safe, and adequate facilities provided for the upkeep of employee welfare standards. The Ministry of Labor, Industrial Relation and Employment demands that an Occupational Health Management policy will be drafted and instituted.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety requirements.	-Occupational health and safety provisions during construction and operational phases should be clearly outlined. -Compliance monitoring and responsibilities for compliance monitoring should be clearly stated
Public Health Act 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 tobe injurious or dangerous to health.”	Compliance with the Public Health Act will be ensured in relation to the following: Sanitation facilities - Communicable diseases - Emergency healthcare provision - Covid workplace measures
Public and Environmental HealthAct 1 of 2015.	To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
National Heritage Act 27of 2004	Section 48(1) states that "A person may apply to the (Heritage) Council for a permit to carry out works or activities in relation to aprotected place or protected object" Protects and conserves cultural heritage and cultural resources with special emphasis on places and sources of National heritageincluding graves, artefacts, and any objects older than 50 years.	Apart from the rock art found at farm Kopermyn, and there are no significant heritage or cultural artefacts relating to project area (MCs). However, if heritage resources (e.g., human remains etc.) discovered during implementation, guidelines dictate that a permit be acquired from the National Heritage Council of Namibia for relocation of any artefacts or specimen.
Water Resources Management Act Act(No 11 of 2013)	The Act provides for the control of riparian zones, water pollution control i.e prohibits discharge of waste water and define effluent discharge standards. Under section 68, a person may not cause a water resource to be polluted directly or indirectly unless authorized under the Act. As such, the lawful occupier of land shall take reasonable steps to ensure the protection of water resources	A license or permit is required to abstract and use water, and discharge of effluent. A license is required to dispose ground water from generated from mining operation
National Veld and Forest Fire Act 101 of1998	The aim of the National Field and Forest Fire Act 101 of 1998 is to prevent and combat field, forest and mountain fires and to providefor a variety of institutions, methods and practices for achieving this purpose.	The Act provides for the control of substances which may cause injury or ill-health to or death of human beings by virtue of their toxic, corrosive, irritant, stronglysensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith"

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Petroleum Products and Energy Act no. 13 1990	The Act provides provisions for any certificate holder or other person in control of activities related to any petroleum product is obliged to report any major petroleum product spill (defined as a spill of more than 200ℓ per spill) to the Minister. Such person is also obliged to take all steps as may be necessary in accordance with good petroleum industry practices to clean up the spill. Shouldthis obligation not be met, the Minister is empowered to take stepsto clean up the spill and to recover the costs thereof from the person. Used oil from this project will be disposed at the Walvis BayMunicipality Hazardous Waste Site. Permission will be required from the facility owner prior to the dumping of the used oil SANS 310:2011: Storage tank facilities for hazardous chemicals – Above ground storage tank facilities for flammable, combustible and non-flammable chemicals and petroleum products	A certificate should be acquired for the installation of above ground fuel storage facility
SANS 1929: 2005	Dust particulates from excavations /ore crushing that are smaller than 1mm are deemed dangerous to both plants and humans. As such a dust monitoring following the ASTM D1739 method shouldbe used for monitoring dust emissions from any crushing plant anticipated. Dust chemical analysis and fallout quantities are specified for industrial and residential environs.	A dust emission monitoring plan should be instituted within the project area.

3.2 Permits & Licenses

Mining Claims

In terms of the Minerals Prospecting and Mining Act (Act no 33 of 1992), a mining claim may be renewed. As such an extension can only be granted for a two-year period. The permits and licenses that may be relevant to the proposed projects are outlined below.

Table 4 PERMITS AND LICENCES REQUIREMENTS

PERMIT / LICENCES	RELEVANT AUTHORITY	VALIDITY/DURATION
PERMIT FOR ABOVE GROUND FUEL STORAGE TANK	Ministry of Mines and Energy - Windhoek	Permit dependent
WATER ABSTRACTION PERMIT	Ministry of Agriculture, Water and Land Reform	Permit dependent
HERITAGE CONSENT	Ministry of Education	Permit dependent
MINING CLAIM	Ministry of Mines and Energy - Windhoek	3 years
FORESTY PERMIT	Ministry of Environment Forestry and Tourism	Permit dependent
WASTE WATER DISHARGE	Ministry of Agriculture Water and Land Reform	Approval

4. CHAPTER FOUR: APPROACH TO STUDY

4.1 EIA Methodology

The approach was guided by the provisions of the Environmental Management Act (No 7 of 2007) and relative regulations. Potential impacts associated with the project activities were enlisted. Included is the public participation process that provided stakeholders an opportunity to express their views on the proposed project. This public participation process component is fundamental to the impact assessment process and integral to decision-making in regard of authorization (ECC). An EMP that takes account of environmental aspects and corresponding mitigation measures for all the phases of the project formed part of this EIA Report. Figure 8 sets out the impact assessment process followed.

4.2 Desktop Research

Desktop research served to establish environmental information. Information was derived from peer reviewed articles, maps, internet, photographs and GIS datasets.

4.3 Initial Screening and Scoping

The main purpose of scoping was to identify key issues for consideration during this EIA study. Main activities covered during the scoping phase included.

- Identification of key studies to be conducted
- Identifying Interested and Affected Parties (I&APs);
- Announcing the EIA process / registration of I&APs;
- Distribution of the BID.

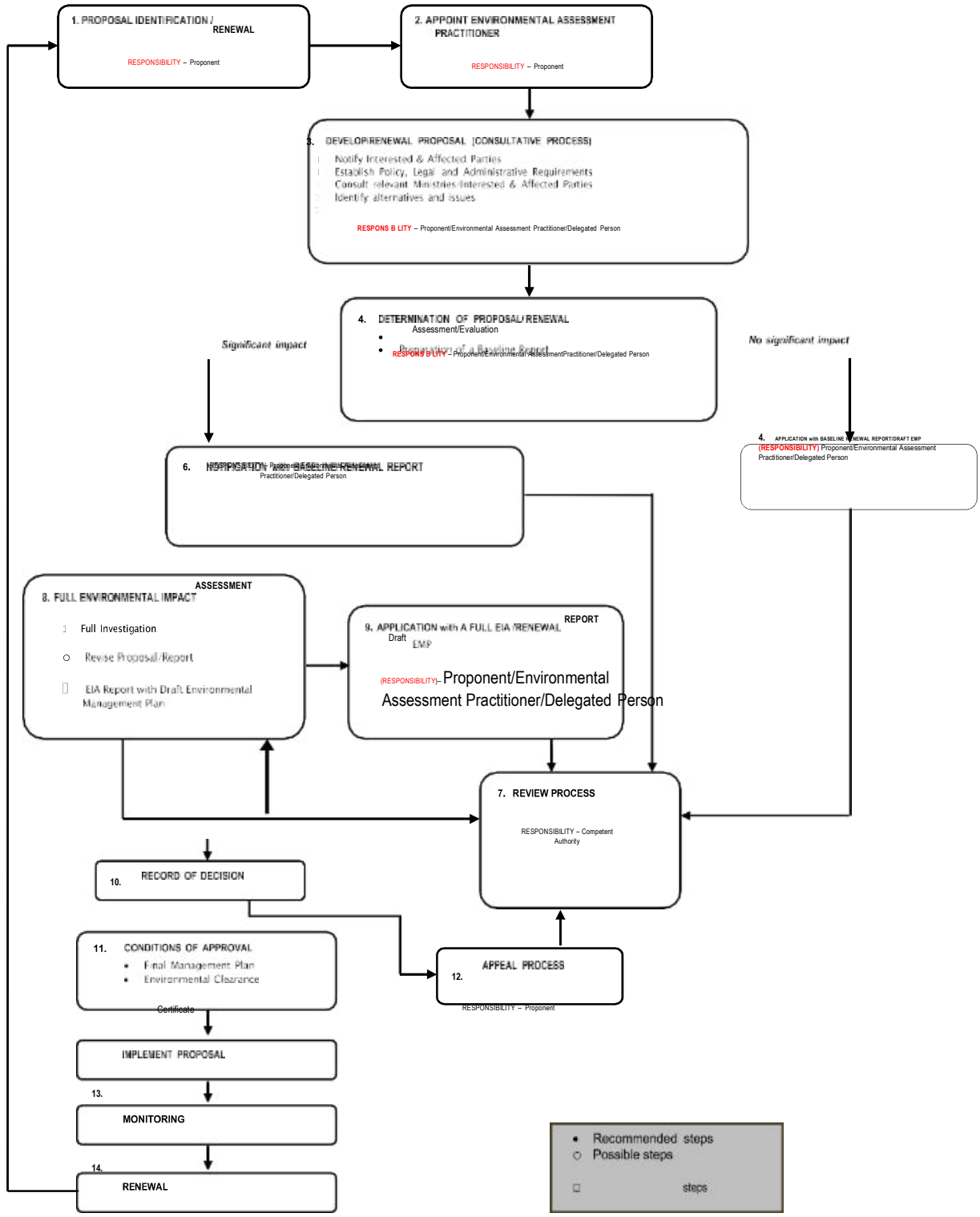


Figure 7 Overview of EIA process in Namibia

5. CHAPTER FIVE: ENVIRONMENTAL SETTING

Baseline conditions relating to the project area are expounded in the following sections.

5.1 Biophysical Environment

a. Climate

Namibia is one of the largest and driest countries in sub-Saharan Africa and is characterized by high climatic variability through persistent droughts, unpredictable and variable rainfall patterns, variability in temperatures and water scarcity. The climate is generally hot and dry with sparse and erratic rainfall. In this report the climate is assumed with the meteorological data available from the meteorological station at Okaukuejo, which is 80 km, in the North East direction of the proposed project area. The Namibian climate is defined by evaporation rates which are much higher than the precipitation rates, resulting in very low humidity. The project area has a semi-arid climate that is associated high temperature during summer months, which are from December to February, and lowest temperature in winter months, which are from June to August. MCs falls within a very arid zone of average annual precipitation of 200mm to 300mm. The region is with frequent clear skies and average 344 days of sunshine per year. The winter period or as from May to October is generally dry. It rains mostly between December and April; however, February is the wettest month. The annual rainfall in the region during last 13 years varied from 363 to 1325mm and the average annual rainfall range between 200 mm and 300 mm of which about 42% of total annual rainfall is reported during January – February.

Table 5 Yearly and Monthly Variations in Rainfall over Time

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	159	375	52	4	0	-	-	-	10	29	100	61
2010	174	89	114	47	3	-	-	-	-	4	180	174
2011	213	332	225	136	6	-	-	-	2	12	115	283
2012	325	264	100	5	-	-	-	-	0	24	110	91
2013	82	64	97	-	1	-	-	-	2	14	66	257
2014	56	163	121	33	1	-	-	-	7	22	72	20
2015	130	34	150	14	-	-	-	2	0	13	11	97
2016	38	59	66	22	0	-	-	-	1	10	70	68
2017	161	181	164	30	-	-	-	-	5	16	63	129
2018	133	69	114	14	-	-	-	-	0	25	21	51
2019	133	28	37	6	-	-	-	-	-	10	43	124
2020	153	91	230	18	-	-	-	-	-	7	22	95
2021	108	85	142	10	10	-	-	-	-	1	2	6

Rainfall increases from an average 0 – 100 mm per annum in the southwest to 400 – 500 mm per annum in the northeast with most of the precipitation occurring during the summer months.The climate is therefore arid as desert conditions prevail with hot summers and relatively cold winters. The average annual temperature for the area is 30°C. It is dry more than 70% of the year with an average humidity of 34% and an UV-index of 6. The area furthermore falls within the zone of mean annual evaporation ranging from 3000mm to 3200mm, which is more than 10 times higher than the mean annual precipitation. As a result of the arid climate the vegetation is locally dominated by dwarf shrub savanna of the western Owambo basin margin (Atlas of Namibia/SWA, 1983).

Climate Sensitivity

Table 6 depicts the project area's climatic condition as well as potential sensitivities and impacts associated with the identified features.

Table 6 Climate Sensitivity Index

Environmental Features	Description	Sensitivities	Potential impacts of features on project
Rainfall	Average rainfall – 200 to300mm per year. Evaporation averages 2800 – 3200 mm annually, exceedingprecipitation by approximately 93%. Typically, sporadic, and unpredictable.	Capacity of the environment to absorb impacts is lower than inwetter areas. Groundwater is an important source of water for farming community and wildlife	Mining activities causes an increase in water demand. Run-off from cleared areas causes erosion
Temperature	In summer, the highest temperature range between30C° and 34 C°.	Contributes to high evaporation rate. Semi-arid climate.	Wellness, health, and safety of the workforce.
	Winter temperatures, measured in July with an average daily maximum of20°C and minimum of 8°C	Water resource is ascarce commodity. High temperatures insummer.	
Wind Direction	The wind predominantly blows mostly from EAST toWEST	Dust can be a nuisance to sensitive receptors approximate to target areas.	Dust particles as a nuisance

b. Wind Pattern

Typically, the averaged wind speed varies between 6.5 kmph and 17.9kmph. The annual average wind speed is 12.5kmph. The hourly wind data for the year 2019 indicates that the average wind speed where 8.5 kmph and wind speeds were mostly more than 1.8kmph. In the region wind predominately blow from EAST to WEST having a resultant vector ESE. The annual wind rose is presented in Figure 6.There are no significant seasonal variations in wind directions except the related vector is SE in wet season. Also, higher percentage of low winds (0.5 – 2.1 m/s) were higher in wet season compared to dry season.

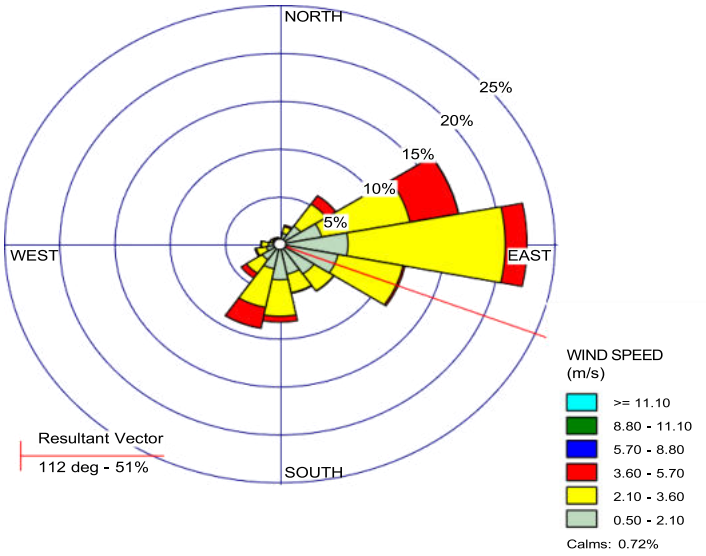
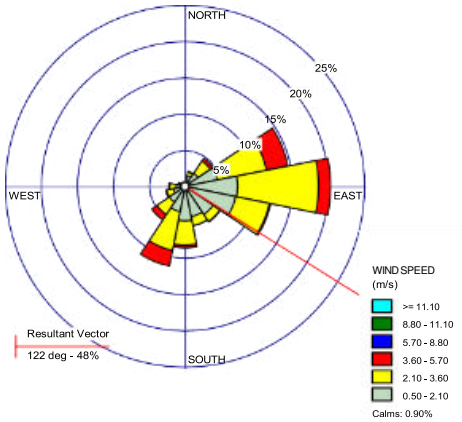
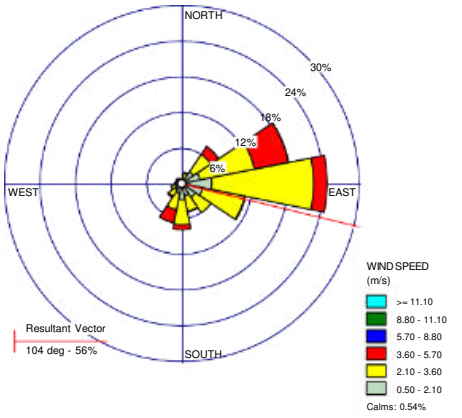


Figure 8 Annual Wind-rose Plot



Wet Season



Dry Season

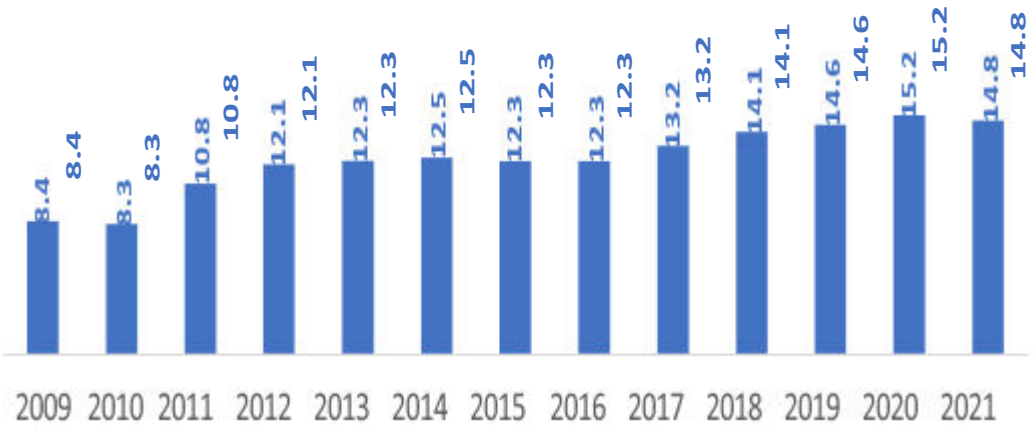


Figure 9 Wind speed over time

The monthly variations in wind speeds over last 13 years (Fig.10) indicates that wind speed continues rise in the region over time.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	7.5	6.5	7.7	8.9	7.6	8.0	11.2	9.4	9.7	8.5	8.9	7.4
2010	7.4	7.2	7.1	7.3	8.1	9.4	9.8	8.9	9.4	9.3	8.1	7.2
2011	7.4	7.3	7.5	7.3	10.7	11.6	13.4	12.1	13.2	14.7	12.5	12.4
2012	11.5	10.1	12.3	13.7	12.6	12.4	12.1	11.4	11.9	13.5	12.1	11.1
2013	12.4	11.4	12.1	12.2	12.3	11.9	12.2	11.4	13.3	14.9	11.1	12.4
2014	13.3	12.4	10.1	12.9	12.1	13.0	12.6	11.4	13.5	14.1	11.2	13.3
2015	13.1	12.1	9.6	10.4	12.1	11.3	12.1	12.3	13.3	13.9	15.6	11.2
2016	12.9	10.8	11.0	11.8	12.1	12.9	13.2	13.1	13.4	14.0	10.7	11.1
2017	12.6	10.5	13.0	12.8	12.8	11.6	11.9	11.7	15.0	16.7	15.5	14.8
2018	14.0	13.5	12.4	11.8	11.7	11.4	16.1	13.0	14.8	17.9	15.9	17.0
2019	15.2	14.3	13.2	12.2	13.5	13.8	13.2	15.6	16.6	17.7	14.9	14.9
2020	14.1	14.4	14.8	12.2	14.2	15.3	16.9	14.5	17.2	17.9	14.6	15.8
2021	15.2	15.5	12.8	14.5	12.7	13.3	15.3	13.6	16.5	16.7	16.7	15.1

Figure 10 Monthly Variation in Wind Speed

c. Biodiversity

Habitat

The MCs are located in the mopane biome. The vegetation structure is predominantly woodland. Dominant vegetation forms are woody tree species, dense thickets of shrubs. Riverine thickets are common as defined by a network of shallow drainage channels. The broader landscape is gently undulating with many flat areas. The water-holding capacity is low to moderate, and the area has low to medium average vegetation biomass production that supports livestock farming. The most important environmental variable affecting the vegetation is rain, but micro-habitat conditions and rangeland management practices determine bush density and grass composition (Environmental Compliance Consultancy, 2021). Based on the latter, encroachment has led to a decreased carrying capacity on farms (Kopermyn and Vaalwater) and over which MCs are registered.

Fauna

The wildlife found in the proposed project area comprise of birds, reptiles, and amphibians with a limited number of mammals. Due to human encroachment; reduced vegetation patches at the proposed project site and surrounding environs have resulted in habitat loss for most mammals that used to inhabit the area. The number of mammal species ranges between 76 and 90, the number of bird species is between 201 and 230, with 61 – 80 reptile species, 12 – 15 frog species and 12 – 13 scorpion species could be expected (Mendelsohn et al, 2002).There are no known species of rare or endemic status in the proposed exploration area. Ungulates that occur in the area such as Duiker (Sylvicapra grimmia), Warthog (Phacochoerus africanus), Zebra (Equus quagga), and Steenbuck (Raphicerus campestris), Kudu (Tragelaphus strepsiceros), Oryx (Oryx gazella), Girrafe (Girrafa girrafa). Medium sized predators include cheetah, spotted hyena (Crocruta crocruta, leopards (Panthera pardus), cheetahs (Acinonyx jubatus), and black-backed jackals (Canis mesomelas).Birds' species that are found there include Falco chicquero (red necked falcon), Apus coffer (little swift),Oena Namaqua (Namaqua dove), Falco rupicolis (Rock kestrel) and Vidua regio (Shaft-tailed whydah).

Insects

A total of 821 species, 296 genera, and 69 families on non-acarine arachnids (Araneae, Solifuga, Scorpiones, Pseudoscorpiones, Opiliones and Amblypygi) are presently known in Namibia (Griffin, 1998). The area is also associated a high number of reptiles such as black mamba Python notalensis (Southern african python), Heliobolus lugubris (Bushveld lizard).

Amphibians & Reptiles

About 263 reptiles occur in Namibia (Cunningham, 2018). Large scale clearing as envisaged in the worst case scenario can have major impacts on arboreal reptiles, (M. Griffin, pers comm In: Cunningham, 2018).

Avifauna- Birds

Approximately 155 bird's species are likely to occur in the proposed project area. Fifteen (15) species were sighted during the field excursion. Species common are Helmeted Guinea fowl, Ring-necked Dove, Namaqua Dove, Gray Go-away-bird, Crowned Lapwing, Pale Chanting-Goshawk, Great Rufous Sparrow, Common Scimitarbill, Crimson-breasted

Gonolek, Mariqua Sunbird, Red-billed Francolin, Blacksmith Lapwing, Crimson-breasted Gonolek, Blacksmith Lapwing, Red-faced Mousebird, Southern Pied- Babbler, Rufous-eared Warbler, Laughing Dove, Red-crested Bustard, Pale Chanting-Goshawk, and Waxbill. Species that also carry IUCN threatened status but with a rare sighting in the project area include, Ruppels Korhaan (Eupodotis rueppellii, NT), Black Eagle (Aquila verreauxii; EN), the Ludwig's Bastard (Neotis ludwigii, EN), Martial eagle (Polemaetus bellicosus NT).

Flora

As indicated earlier, the MCs areas are characterized by a woody vegetation and shrub land vegetation structure. Plant diversity in the general area is estimated to be 400 - 499 species (Mendelsohn et al, 2002. Common woody plants found includes Collospernum mopane, Ziziphus mucronata, Combretum apiculatum, Terminalia prunoides, Terminalia sericia, Albizia anthelmentica, Catapractes alexandrii, Commiphora spp. Also, common is Acacia spp i.e the Black thorn (Acacia mellifera), Red umbrella thorn (Acacia reficiens) and Umbrela thorn (Acacia tortilis). The latter three (3) are classified as encroacher bushes. Common bushes observed during the study include Grewia flava, Grewia flavensis. Grass species observed include Eragrostis biflora, Mariscus squarrosa, Sporobolus spicatus with stipagrostis uniplumis and Eragrostis rigidior being dominant grass species. A species inventory (checklist) of species observed and likely to occur in the project area is attached as (Appendix E to this report).

Table 7 Common plant species occurring on the proposed project area

SPECIES	COMMON NAME	STATUS
Colospernum mopane	Mopane	Protected
Acacia mellifera	Black thorn	Not threatened
Acacia tortilis	Umbrella thorn	Not threatened
Boscia albitrunca	Shepherds tree	Protected
Terminalia sericea	Silver cluster-leaf	Protected

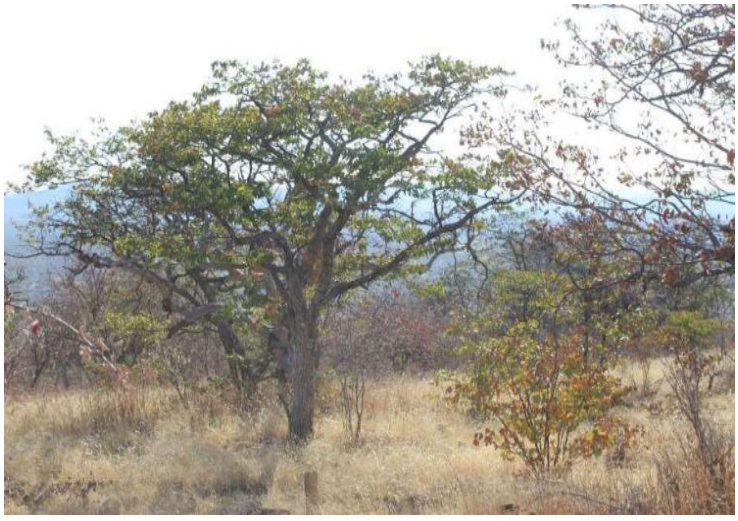


Figure 11 Mopane trees (Colospernum mopane)

d. Geology

Two ancient cratons, Congo and Kalahari, existed in southern African Tectonic Province during the Archean and early Proterozoic periods (Tarkhanov, 2005). Namibia lies across the fold belts that separated the two cratons, with the Congo craton lying to the north of country and Kalahari to the south (Figure 7). The Congo craton is composed mainly of Archean gneisses and is mainly located in Angola and only its southern peripheral parts are located in the northern Namibia. The Kalahari Craton is mainly located in Botswana with its western and southwest flanks extending into and covering the eastern parts of Namibia. It is composed of various Archean gneisses of granodiorite and tonalite compositions of amphibolite and granulite metamorphism facies. The fold belts, which are the main tectonic structures, make up the Damara Orogen, which was formed from sediment deposition into the Khomas Sea and the collision of the Congo and Kalahari Cratons during the "pan-African" Orogenesis 920–550 million years ago. During the collision the Kalahari Craton was subducted north-westwards beneath the Congo Craton and the Khomas Sea was closed. The final locking of the Cratons has been dated at 542m.y (Miller, 1983). The Damara Orogen consists of three zones, which are distinguished based on geological structure, grade of metamorphism, intrusive formations and other features (Hoffmann, 1987).The Central zone(Damara),striking WSW-ENE within the central area of Namibia, composed of quartzite, arkosic sandstone, conglomerate, and phyllite, and underlain by metavolcanic rocks, such as alkaline ignimbrite, rhyolite, felsite, bostonite, and foyalite. The Southern zone (Gariep), striking SSE-NNE in southern to western areas of Namibia. This sequence is composed of amphibolite metamorphic facies which range from garnet-staurolite-biotite-and alusite to staurolite-kyanite to the north and south, respectively.The Northern zone (Kaoko), striking SSE-NNW in northern to western areas of Namibia consists of two zones: eastern magmatic zone with weak grade of metamorphism and western zone composed by carbonate and pelitic sediments and is intruded by ultramafites. Remnants of pre-Damara ancient complexes are commonly found within the entire Damara Fold Complex. The Congo and Kalahari Cratons, as well as the northern and eastern parts of the fold complexes have been deeply eroded into large sedimentary basins where the younger Kalahari and Karoo sediments have been deposited.The proposed project site is located on the north-western edge of the Damara Orogen and on the south-western peripheral parts of the Congo Craton.

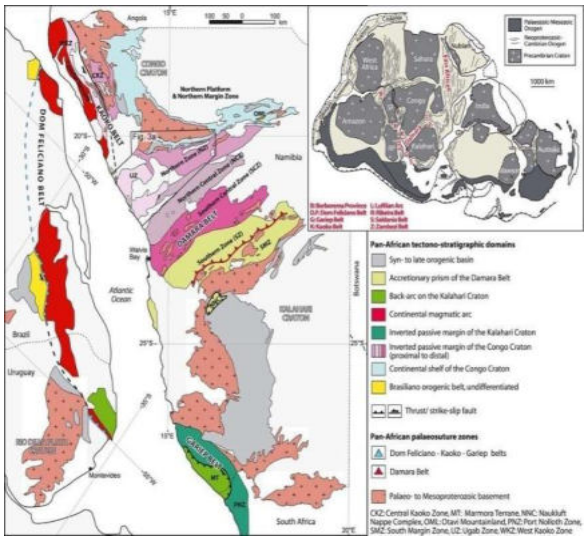


Figure 12 Namibian Regional geology and the ancient Cratons

The project area is underlain by basement rocks of the Huab Metamorphic Complex, which are further overlain by Neoproterozoic metasedimentary and subordinate metavolcanic rocks of the Damara Supergroup. The Damara Super group is succeeded by the sedimentary and volcanic rocks of the Karoo Supergroup, which are mostly buried under the Etosha Calcrete Formation of Kalahari Group.

The Huab Metamorphic Complex consists of well foliated gneisses, amphibolites, and meta-sedimentary rocks, as well as granite and minor gabbro, which intrude the gneisses. The gneisses make up the oldest unit of the Keilberg Anticline. Cut by the amphibolite dykes, the granite is highly variable in texture, grain size and composition.
Rocks of the Damara Super group were deposited between 900 and 600 Ma (Miller, 1983) and underwent deformation and metamorphism, which vary within different orogenic zones (see chapters 1.2 and 7). Grades of metamorphism and deformation are relatively low in the project area. The Damara Orogen is comprised of rocks of the Nosib, Otavi and Mulden Groups, which are exposed to the south and west, and continue below the Karoo and Kalahari cover of the Owambo Basin to the north.

The Karoo rocks in area are part of the southwestern extension of the Waterberg Basin, which is a NE- trending half graben containing approximately 700 m of Karoo strata and made up of three parallel sub- basins separated by basement highs or ridges (Gunthorpe, 1987). The stratigraphic units present in the area are the aeolian Etjo Sandstone and volcanic Rooiwal Basalt Formations. The Kalahari Group, consisting of Cenozoic sediments, is part of the Owambo Basin, which includes the extensive calcrete cover, alluvial deposits along river courses, and widespread surficial sediments. The Kalahari succession was deposited over a deeply dissected Pre-Kalahari terrain, forming a huge inland sedimentary basin called the Kalahari Basin. In Namibia the Kalahari Basin has been subdivided into Owambo, Omaheke and Aranos Basins. The area is covered by the Etosha Calcrete Formation of the Kalahari Group. The geology around the key exploration target /zone i.e around Farm Kopermyn can be prescribed to be Upper rhyolitic Volcanic breccia (hosting Cu mineralization) with lower quartz feldspar porphyry, considered to be a felsic Volcanic Centre with a mafic Volcanic pile-similar to a volcanogenic massive sulphide deposit found in Canada. Hydrogeological and hence geological settings of the area, in relation to the impacts of the mining operations on MCs are the focus of this report.

e. Topography, Soil, and Elevation

Namibia is divided into three main topographic elements, (a) An extensive plateau, b) A narrow coastal plain and (c) an eroded escarpment that is characterized by dissected and rugged topography. The MCs are located on an elevation varying from three sides (NW, S and NE), the area is surrounded by the elevated terrain. The minimum and maximum elevations are about 1220 meter and 1516 meter respectively.
The topography of the project area is mixed flat and elevated (Figure 13). Towards the centre of the zone, it is almost flat with a gentle slope towards NE.

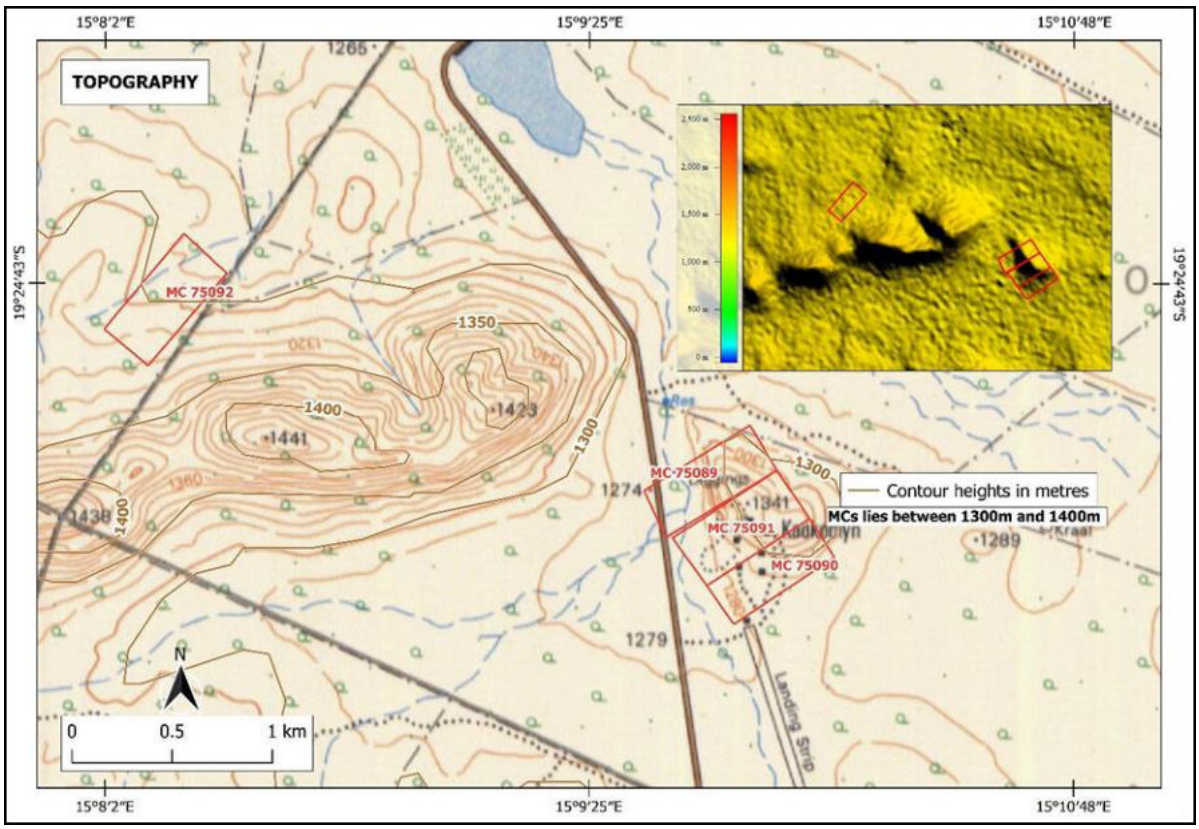


Figure 13 Topography –Source (R.Mushi, 2024)

f. Mineral Occurrence

Copper mineralization is expected to occur in the form of primary commodities Chalcopyrite, Pyrite (Cu, Ag), covellite, chalcolite and borite in fractures, voids and along fragmented edges. Mineralization is mainly confined to a course, ill sorted breccia consisting of fragments, boulders and pebbles of quartz, feldspar porphyry and quartzite (Schneider et al., 1999).

g. Geo-hydrology

Surface-Water Hydrology and Drainage

The area covered by the mining claims is devoid of significant drainage systems, as there is no major surface water stream stretching through it. However, the area contributes runoff through a local network of minor streams to the tributaries of the Huab River, which ultimately drains to the Atlantic Ocean. Efficient rainfall (Runoff and Infiltration) is significant only for rainfall events with high intensities since most of the precipitation is lost to evapo-transpiration. There are no natural groundwater discharges over the claims, and hence the area is devoid of surface water bodies.

Groundwater Hydrology - Occurrence and Aquifer Types

During the subduction of the Kalahari Craton the Northern Zone of the Damara Orogen, over which the mining claims are registered , underwent several phases of deformation and metamorphism, (De Thierry, 1987) resulting in folding, fracturing, and faulting. The Northern Zone, especially, is characterized by synclines, anticlines, and basement-cored

nappe structures due to compressional forces which were perpendicular to the strike of the Damara Orogenic belt. The average yields and rest water levels are 5.51 m3/h and 82.76mbgl (Table 9)

Since the local geology is dominated by sequences that have been subjected to some grades of contact – regional metamorphism associated with the Damara Orogenesis, rocks do not bear primary porosity. Groundwater is, therefore, mainly hosted in secondary porosities such as fractures, faults, and karst structures, which all resulted from post-depositional processes, and is locally restricted to Northern Platform, whose extent is determined by the distribution of the shallow-water facies of the Otavi Group. The dolomites and limestones of the Otavi Group form the western extent of the Otavi Mountain land. Similarly, the deep water of the Otavi carbonates south of the Nosib Anticline also falls within the Northern Zone of the Damara Orogen.

Table 8 Borehole information on and around MCs

Bore hole No.	Lat	Long	Yield (m3/hr)	RWL (mbgl)	Depth (mbgl)	Diameter (m)
77341	-19.6148	15.6298	9.10		154.00	150.00
77389	-19.5985	15.8235	6.80	114.00	131.00	150.00
77383	-19.5964	15.7895	6.00		114.00	0.00
77388	-19.5885	15.8728	11.40	44.00	53.30	150.00
77382	-19.5648	15.7984	14.50		114.00	0.00
77381	-19.5581	15.8337	5.00		114.00	0.00
12052	-19.5452	15.3238	0.00		182.90	0.00
78618	-19.5187	15.4821	7.00	63.00	114.00	150.00
76509	-19.5171	15.2691	2.60	115.80	142.60	0.00
78617	-19.513	15.4435	2.30	94.00	183.00	150.00
29701	-19.5124	15.1816	13.50	77.00	105.00	160.00
76508	-19.5121	15.2804	1.40		100.00	0.00
76459	-19.5067	15.247	1.10	88.00	103.00	150.00
78616	-19.5056	15.336	3.60		246.90	0.00
30657	-19.504	15.2469		48.30	122.00	0.00
76507	-19.5034	15.3067	5.50	98.00	109.00	150.00
76623	-19.4998	15.2152	1.80	70.10	87.80	0.00
12152	-19.4988	15.5258	1.10	79.20	103.60	0.00
76627	-19.4975	15.1655	13.60	61.00	97.00	150.00
76681	-19.4972	15.1119				
14940	-19.4921	15.4184	3.30		212.80	0.00
76722	-19.4904	15.4636	18.20	140.00	215.00	150.00
29754	-19.49	15.0694			102.00	168.00
29755	-19.4892	15.0703			105.00	165.00
31283	-19.4705	15.4021	1.00	186.00	198.00	150.00
6309	-19.4694	15.4014	4.10	141.20	151.50	150.00
76724	-19.4634	15.3211				
76682	-19.4576	15.0575				
76723	-19.4539	15.359	0.20			
76634	-19.445	15.0483	10.90		70.70	0.00
76725	-19.4391	15.2745				
76619	-19.43	15.2363	3.60	85.00	96.00	150.00
17754	-19.4244	15.0061	1.10	30.00	65.00	150.00
76616	-19.4217	15.226	1.60	70.00	82.00	150.00
76628	-19.4178	15.0095				
13046	-19.4167	15.1809	1.30		76.20	150.00
78599	-19.4126	14.9882				
13047	-19.4071	15.1919	1.60	76.00	91.00	150.00
76617	-19.4065	15.2138	1.60	73.00	91.00	150.00
20421	-19.4043	15.0522	5.40	78.00	107.60	0.00
76629	-19.4029	15.0852				
76615	-19.3973	15.1527	23.70	43.00	59.00	150.00
76618	-19.3927	15.1491	1.80	43.00	61.00	150.00
13044	-19.3925	15.0966	3.60	46.00	87.00	150.00
20377	-19.39	15.2708	0.00		152.40	0.00
78598	-19.3819	14.9885				
76695	-19.378	15.2998	9.10	146.00	177.00	150.00
76697	-19.378	15.3146	5.90	137.00	163.00	150.00
76614	-19.3766	15.2238	2.00	177.00	183.00	150.00
13045	-19.3701	15.1177	0.50	53.30	91.40	0.00
13048	-19.3609	15.2631	6.80	81.00	122.00	150.00
76694	-19.3579	15.2962	2.30	37.00	55.00	0.00
4693	-19.3562	15.0218	8.20	26.50	85.60	150.00
22487	-19.3551	15.2025	1.50	143.30	167.60	0.00
14501	-19.3533	15.0436				
76612	-19.3491	15.1519	22.70		131.00	0.00
76693	-19.3461	15.2803	2.70	37.00	61.00	0.00
78580	-19.3229	14.9498	2.30	12.00	23.00	150.00
Average			5.51	82.76	117.91	-

Since the local geology is dominated by sequences that have been subjected to some grades of contact – regional metamorphism associated with the Damara Orogenesis, rocks do not bear primary porosity. Groundwater is, therefore, mainly hosted in secondary porosities such as fractures, faults, and karst structures, which all resulted from post-depositional processes, and is locally restricted to Northern Platform, whose extent is determined by the distribution of the shallow-water facies of the Otavi Group. The dolomites and limestones of the Otavi Group form the western extent of the Otavi Mountainland. Similarly, the deep water of the Otavi carbonates south of the Nosib Anticline also falls within the Northern Zone of the Damara Orogen.

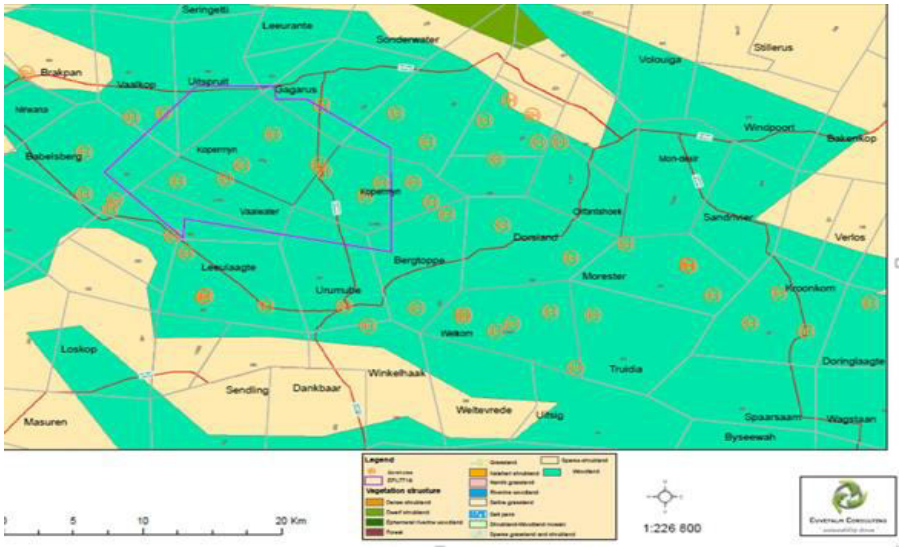


Figure 14 Boreholes within and around proposed project area

Groundwater Potential and Vulnerability

Down-warping of the Southern Foreland due to tectonic loading by the approaching Damara and Gariep Orogens caused faults and other secondary structures, which generally host groundwater as fractured aquifers in rocks like schist, sandstones, marbles, quartzite and phyllites. However, schists are incompetent and so they weather faster producing clayey residues in faults and fractures, hence reducing permeability in these fractured aquifers. This has been proven by borehole logs, which indicated clogging of shallower fractures by fine-grained residues from weathered schists, rendering shallower water strikes low-yielding and deeper water strikes (around 100 mbgl) moderate-yielding. The area is therefore classified as of moderate to very low groundwater potential . Groundwater flows generally faster in secondary porosities than in primary porosities. The basement fractured aquifers of the area are overlain by a thin layer of low-permeability Kalahari sediments resulting in high net infiltration rates and reduced residence time in the unsaturated zone. It is, therefore, against this background the study area is considered to be high vulnerability to pollution.

5.2 Socio-Economic Context

Governance

Namibia is divided into 14 regions, subdivided by 121 constituencies. Each region has a regional council, elected during regional elections per constituency. Towns are governed through local authorities, in the form of town or village councils. The Kunene Region is divided into six constituencies. Opuwo town serve as the administrative capital of the region and is the largest local authority in the region. Relevant to mining claims is the two closest towns, Kamanjab and Outjo which are all local authorities.

Demographics, History & Culture Context

The population of Kunene is estimated at 85856 (NSA 2011) and 102 485 (NSA, 2018). The population growth in the entire Kunene Region is expected to decrease gradually. To illustrate, a reduction from 3.21% in 2001 to 1.37% in 2021 was observed. In 2011 the population within the Kamanjab area was counted at 8 441 persons. Opuwo is the major urban centre in the region, recording 27 272 residents in 2011 and growing at an average of 2.7 % per annum. The population growth in rural areas is however negative because most of the productive age groups have moved to urban areas, leaving behind the elderly and very young people.

By comparison, the region has more males (52.9%) than females (47.1%), as well as the low population density (about 0.8 persons per km2). Given the growing households population, it is projected that there are about 17613 households in the region, equating to a household size of about four (4) people (NHIES, 2015). The Kamanjab Constituency i.e the administrative boundary within which project will take place has a population of approximately 8555 inhabitant. The literacy rate for the age group between 15 and above is estimated at 71.8%. Most of the inhabitants are of Herero descent, but there are Damara, Ovambo, Herero, and inhabitants of mixed ethnicity. Otjiherero and Damara Nama are languages predominantly spoken in the region

Economic activities

The regional economy continues to be dominated by two (2) economic drivers i.e. livestock production and tourism. In Namibia livestock production is the largest and contributes to the total agricultural output. Extensive subsistence livestock farming is an important livelihood for many rural communities in Kunene and is one of the reasons for the low intensity land use over much of the region.

Kamanjab constituency is predominantly agriculture and tourism-based. On free-hold farm land, cattle ranching and tourism dominates land-use. Stocking density ranges between 0-19 per km². In recent times, commercial livestock farmers have increasingly diversified their income strategies by expanding into game farming, hunting and charcoal production. On both commercial and communal land, bush encroachment decreased the carrying capacity of the farms strikingly over the last four (4) decades. Charcoal production remains a source of income especially for farmers combating bush-encroachment driven by invader bush due to lack of game browsers and overgrazing by cattle. Charcoal and wood is sold at about N$ 1100 per tonnage. Namibia ranks amongst the world's top 12 charcoal producing countries contributing 2.6 % of the world's output.

Figure 15 Small stock farming - (Source: CPC-2023)

A total of 77, 6% of the population is economically active in the Kamanjab constituency. About 75% of the population derives its main source of income from wages and salaries from formal employment, followed by farming 9% and pension 7%. Agriculture and tourism are the major economic activities. Animal husbandry is the largest agricultural activity and there are three animal auction kraals at Kalkrand, Loskop and Witklip. Animals sold at auctions are mostly live cattle, goats, sheep and donkeys. Crop production is practiced on a very small scale due to low rainfall. The arid, mountainous, and rocky landscape, and lack of crop farming skills are the major contributing factors towards low crop farming yields

Due to water scarcity, rain-fed agriculture is not viable in the area relating to the pegged claims. As indicated above, Investments have been made on farms to supplement income derived from cattle production. Additional income is madethrough firewood sales (Figure 12). In recent times, consumptive tourism (trophy hunting) and non-consumptive (eco-tourism) tourism has been negatively affected by the Covid pandemic. Private landowners are generally regarded

economically affluent. Circumstantial evidence suggests that monetaryresources (wages) of farm workers are relatively small when compared to that of more effluent landowners such that little or nothing is left for investment. Farm workers have to manage with extremely small amounts of cash for most days of the month.

Employment

The economically active population in Kunene is estimated at 65 %, of which 42.3 % is unemployed. About 45% of the employed population is in the agriculture sector. Tourism accounts for 5 % of the employed population in the region, agriculture 2 %. Construction is a key sector, yielding about 7 % of the region's employment. The National Labor Survey (2018) revealed a 65.2% unemployment rate amongst the youthful age group (15 to 24 years).

Poverty levels

Kunene has a high poverty prevalence rate. The severe poverty rate is above the national average of 10.7%.

5.3 Archaeological and Heritage Context

Early investigations by MacCalman (1972) and MacCalman and Grobbelaar (1965), drew attention to thepresence of late Pleistocene evidence from the area, and more spectacularly, observations on stone tooluse by contemporary hunter-gatherer groups. More recent investigations have documented a late Holocene occupation sequence (Albrecht et al, 2001) and some of the detailed archaeological characteristics of nomadic pastoral settlement patterns in the area (Kinahan, 2001).These investigations can only be described as preliminary, but they have indicated something of the area's archaeological potential, particularly with respect to the history of the OvaHimba, the last remaining traditional pastoralist society in southern Africa. The interest of the OvaHimba archaeology lies partly in the history of the people themselves, and partly in the comparative value of such archaeological evidence for the understanding of pre-colonial pastoralist societies in other parts of Africa (Mason, 1984).Some is evidence from this part of Kunene Region for human occupation over at least the last one millionyears. The earliest evidence, dating from the mid-Pleistocene, is primarily in the form of crude stone implements found as surface scatters in the vicinity of major drainage lines. Later Pleistocene remains include well fashioned bifacial stone hand-axes which in the last 200 000 years were superseded by a complex toolkit of smaller artefacts that could be attached to wooden spear shafts and scraper tool handles, using vegetable resin.

According to the National Heritage Council of Namibia, Kunene Region has about 7 known heritage sites which are listed as national monuments (Declared Sites/Lists of National Heritage). However, these declared heritage sites are occurring far from the proposed mining claims. No site of archaeological significance observed or recorded in the surveyed land within Farm Vaalwater i.e (MCs 75093 and 75094). The targeted areas of the proposed project (MC 75089 to 75091) as registered over farm Kopermyn are already disturbed from the copper mining activities which took place and later was abandoned in the 1970s. Based on the archaeological and heritage impact assessment carried out for this EIA , there is no expected direct impact on other surface archaeological materials or objects within the environs of the subject lands, as yet unknown archaeological materials may be impacted upon during large-scale topsoil removal.

5.4 Infrastructure and Services

Roads: An open road network exists in proposed project area. Primary access to the proposed MCs can be gained via the existing D2671. The roads width is adequate for transportation services and two-way vehicular traffic. Access to project area farms has been secured through access agreements prepared in conjunction with the landowners (Farm Kopermyn and Vaal Water) to which MCs relate. Access has been secured for farm Kopermyn whilst the access agreement relating to farm Vaal water is still under review.

Water supply: Safe drinking water is available and accessible to most households. Water for domestic use and livestock is sources from boreholes. The proponent will make use of existing borehole to source water for dust suppression and domestic use.

Sanitation: There are no centralized sewage treatment plants in the project area. Landowners have constructed French drains (sewage facilities) or dry toilets on their properties. The proponent plans to introduce mobile chemical toilets.

Energy sources: No network of power lines transverse the proposed project site. Charcoal and firewood is a common source of energy for cooking. According to the National Census Report (2011), approximately 83% of the communities in Kunene use wood/charcoal for cooking and heating and only 33% use electricity. Solar installations are a common feature at farmhouses and boreholes. Project team will mainly make use of diesel fuel to power equipment. Solar power will be used to light field camps and to meet other daily energy needs of exploration teams.

Telecommunication Services: The proposed project site is connected to the rest of the country and world via local network service providers. Full network coverage within the project area is however not available. The main providers of this service in the area are Telecom Namibia and Mobile Telecommunications Company (MTC Namibia). Communication between onsite and offsite personnel will be achieved by way of communication services provided by the aforementioned service providers.

6. CHAPTER SIX: PROJECT ALTERNATIVES

6.1 Hydro-Fracturing (Excavation method)

Trenching by Hydro excavation (Hydro Vac) method uses the power of pressurized water to breakdown overburden. The power of vacuum is used to extract the generated slurry and to deposit the waste material in special containers or holding tanks. After the work is complete, slurry is released from the holding tank back onto the ground to cover once again the exposed subsurface. Given the limited subterranean water sources associated with the proposed project area, this method is not recommended.

6.2 Insitu- Processing Technology

A number of technologies have been developed to facilitate mineral recovery and remediation objectives (rehabilitation through mining) associated with historic mine waste dumps. Some technology however have limited application and might not suit site specific factors (geology and water availability. Other alternative ore processing technology options for separating base metals from waste rock(dumps) such as flotation, gravity milling demonstrated low potential in terms of effectiveness and are deemed to be capital intensive with significant operational cost (labor, maintenance cost) and carry larger foot prints when compared to the proposed processing plant.

6.3 'No Go' Alternative

The no go alternative may negatively affect regional economic development, potentially stagnating the local economy which is reliant on agriculture. Also 'No Go' Alternative might not be a favorable preposition for Kunene region as this could restrict economic diversification. As such, reducing the high un-employment rate,ensuring greater social cohesion and reduction in poverty will remain a protracted challenge.

7. CHAPTER SEVEN: PUBLIC CONSULTATION

7.1 Overview

The public consultation process, as set out in Section 21 of Regulation No 30 of EMA (Act no 7 of 2007, has been followed during this assessment. The stage at which the public was involved is illustrate in Figure 16 below.

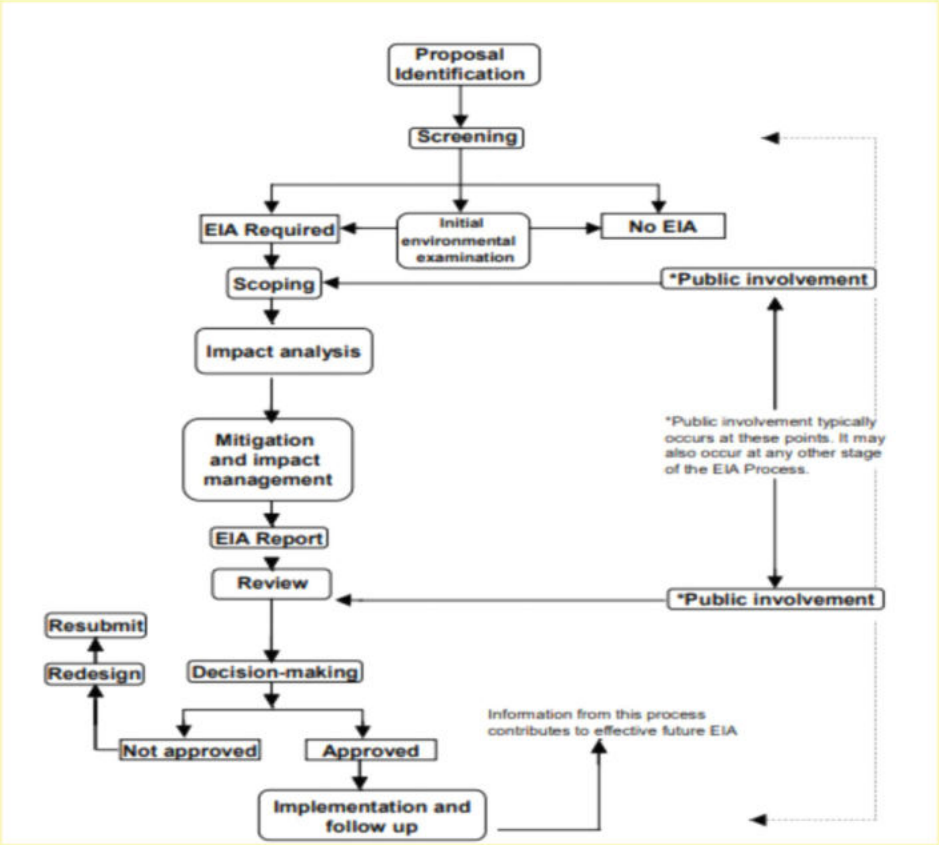


Figure 16 Public involvement (Source: UNEP)

7.2 Background Information Document (BID)

The BID provides an overview of the project; a description of the manner in which the EIA was undertaken and indicates how Interested and Affected Parties (I&AP) became involved in the EIA process. This document was advertised for availability through various means (newspaper articles, public meeting, electronic and registered mail).

7.3 Newspaper Advertisements

Newspaper notices were circulated in two daily newspapers over two consecutive weeks (Table 12). These notices appeared in the "Namibian" and "Republikein) newspapers (Appendix C).

Table 12 Newspaper & Site Notices

Newspaper	Area of Distribution	Language	Planned/Placement date
The Namibian	Country Wide	English	29 November 2023 6 December 2023
Republikein	Country Wide	English	29 November 2023 6 December 2023
Site notice	Farm Koperymyn	English	2 December 2023
Meeting with local residents	Farm Kopermyn	English/Afrikaans	2 December 2023
Public Meeting with registered I&APs	Youth Residents Hall, Kamanjab	English	16 December 2023

7.4 Site Notices

Site notices were placed at key entrances and major routes to project site (Appendix C). Notices displayed information about the project, EIA process together with contact details of the EAP.

7.5 Building a Stakeholder Database

A stakeholder list was developed. The list was continually updated as Interested & Affected Parties (I&AP) registered to partake in the EIA process. Contact details of key stakeholders were also updated.

7.6 Public Meeting (Youth Residents, Kamanjab Town)

A public meeting was planned for registered I&Aps on the 16 December 2023. In attendance were I&APs who expressed interest in the proposed project.

7.7 Consultations with land owners (relating to MCs & other Key Informants)

The BID formed the basis for the initial consultation with locals. Apart from physical engagement held with farming community at farm Kopermyn, other land owners were contacted via registered mail. This provided an opportunity to landowners with properties connected or adjacent to MCs to participate in the EIA process and express their concerns regarding the project. Informal consultations were held with community members adjoining the project site. The Kunene Regional Council and Constituency representatives were engaged telephonically.

7.8 Comments and review period

The public commenting period from the first newspaper advert lasted three (3) weeks. The draft scoping report was made available to the public and stakeholders for comment and review. Given the degree of overlap that may exist on the issues uncovered during the public consultations, issues were be divided into broad categories.

8. CHAPTER EIGHT: ASSESSMENT OF POTENTIAL IMPACTS

8.1 Overview

The proposed project related activities could impact sensitive receptors variously. Based on the existing settlement communities (sensitive receptors) found within and around the proposed project area (Table13), the following locations were identified for possible integration in the environmental monitoring program.

Table 13 Location of Sensitive Receptors & Potential Pollution Sources

Sensitive receptors	Location/Farm Name	Feature	Coordinates
	Kopermyn	Farmhouse -North	-19.3979808, 15.1530358370
	Kopermyn	Livestock shed	-19.3923288, 15.1506165370
	Vaalwater	Farmhouse	-19.4002425, 15.08521891479
	Kopermyn	Workers Quarters	-19.4209223, 15.17280251478
Potential air pollutant sources	Kopermyn	Emissions from Abandoned Mine Edits	-19.4221241, 15.1644057370
	Kopermyn	Waste Rocks	-19.422847, 15.1639214185
	Kopermyn	Old Tailings	-19.4242924, 15.1624911185
	Kopermyn	Old Mine Workings	-19.4222917, 15.1636853

The potential positive and negative impacts that have been identified from the proposed activities are provided as per below.

8.2 Impact Identification (Positive and Negative) and Description

The potential beneficial and adverse impacts stemming from the proposed development onto the bio- physical and socio-economic environment during various phases of project are listed under this section and were assessed. JGM has committed to sustainability and environmental compliance by coming up with a corrective action for all anticipated environmental impacts associated with the project related activities. This is in line withthe Namibian Environmental Management legislation and International best practices. As the proponent, JGM will implement an Environmental Management Plan (EMP) to prevent, minimize and mitigate negative impacts. The environmental management plan developed address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts. The main conclusion of the overall assessment was that the proposed project would result in environmental and social impacts, however management and monitoring measures will be put in place to minimize these impacts to insignificant levels. A summary of study findings are provided below.

Positive impacts

- Improvement the country's GDP because of mineral beneficiation. The project has the potential to yield favorable economic benefits at national level.
- Socio-economic advancement: The proposed development will create several employment opportunities for individuals and their families within the project area and surroundings
- Income Diversification: The project can provide an opportunity for the redevelopment of the area and proximate environs. The proposed project to bring about positive changes in the local economy i.e diversifying the economy.

Negative impacts

- Aesthetics /Visual Degradation (operational and decommissioning phases)
- Habitat Fragmentation /Biodiversity Loss/Wildlife disturbance/(all phases)
- Decrease in ambient air quality (operation and decommissioning phases)
- Over abstraction of water and contamination (operation phase)
- Damage to private property (all phases)
- Noise nuisance from drilling and vehicular activities (all phases)
- Physical hazard posed by abandoned drill holes
- Public and environmental health impacts (operation and decommissioning phases)
- Social pathology: Influx of people into the area, commercial sex, alcohol abuse, economic losses due to poaching (construction and operational phases),
- Waste generation and management (all phases)

Some of the potential negative impacts are anticipated to only occur in one phase, while others occur in various phases. To avoid repetition, impacts that occur in more than one phase will be described and assessed once. In other words, if for instance health and safety impact occurs during the mining operations.

The negative impacts are discussed in detail under the next sections.

Biodiversity loss / Habitat Fragmentation

Vegetation clearing may result in biodiversity loss.

Clearing may lead to the manifestation and proliferation of alien invasives on barren patches. Wild animals likely to be affected significantly include burrowing mammals and reptiles. Vehicles can trample reptiles and animals traversing vehicle routes. Natural migratory routes and passages can be disrupted by exploration activities affecting wildlife movement patterns. The abrasiveness caused by heavy contact onto the ground (rock), drilling and dumping of waste rock could produce sparks and potential cause veldfire leading to vegetation and animal loss. Burrowing animals rely on bush cover for safety (predation aversion) and food. Shrubs prevent burrows from being trampled by cattle and large game. Reptiles' dependent on microclimatic conditions and litter beneath trees and shrubs can be negatively affected by bush clearing activities. Habitat fragmentation occurs when areas of land are broken up into smaller and smaller patches, making dispersal by native species from one patch to another difficult or impossible, and cutting off migratory routes. Isolation may lead to local decline of species, or genetic effects such as inbreeding. Species that require large patches of forest simply disappear. The presence of construction workers may result in an increase in usage of fuel wood.

Degradation of Air Quality

Air quality impacts of are not limited to the exploration area. Assessing potential impacts requires examininga larger region, including adjacent lands as well. The operation and associated activities are potentially air polluting, and the major air pollutant can be the suspended particulate matter. Most of the air pollution problems are due to fugitive dust emission, which is more prominent in surface exploration in comparison to underground or subsurface explorations.

The following is a list of common potential emission sources:

Gas exhaust from equipment used in perforation, loading, and transportation of materials
Dust from, excavation, hauling of excavated material
Dust from grinding and segregation of materials

The U.S. Environmental Protection Agency defines 'fugitive emissions' as "those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening." Common sources of fugitive emissions include storage and handling of materials; ore processing; fugitive dust, construction activities, and roadways associated tailing piles and ponds; and waste rock piles. Sources and characteristics of fugitive emissions dust vary in each case, as do their impacts. Impacts are difficult to predict and calculatebut should be considered since they could be a significant source of hazardous air pollutants. Specific activities that could affect ambient air quality includes:

Unpaved Surfaces: Dust emissions from unpaved surfaces are caused than from paved surfaces are usually much greater. Chemical stabilization can also be used in association with wet suppression. This involves the use of chemical additives to the water, which help to form a crust on the surface and bind the dust particles together.

Revegetation of exposed surfaces. This should be done wherever practicable. Surface improvements may be done with concrete or asphalt, or the addition of gravel or chemicaldust suppression to the surface for stabilization.

Wet suppression of unpaved areas can achieve dust emission reductions of about 70 per cent or more, and this can sometimes be increased by up to 95% using chemical stabilization.

Vehicle: Vehicles travelling over paved or unpaved surfaces tend to crush surface particles and other debris. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents due to turbulent shear between the wheels and the surface. Dust particles are also sucked into the turbulent wave created behind the moving vehicles. The loads carried by trucks are also potential source of dust, either through wind entrainment or spillages. Mud and dust carry out from unpaved surfaces is another potential problem. Dust emissions due to vehicles can be minimized by:

Material stockpiles: Topsoil or overburden is susceptible to wind erosion speeds more than 5 m/s. Dust emissions can also occur as material is dropped on the stockpile from a conveyor or during loading or unload by track / shovel / front-end loading by track / shovel / front-end loaded. There are a number of methods by which dust can be reduced from the stockpiles which are as follows:
Wet suppression by using water sprinklers.
Covered storage of mined out overburden or topsoil. This is an expensive option but should beconsidered
Limiting the height and slope of the stockpiles can also reduce wind speed.
Limiting drop heights from conveyors.

A flat shallow stockpile will be subject to less wind turbulence than one with a tall conical shape. However, while designing the stockpile due consideration should be given to the effect of other site features such as most prominent wind direction.

No ambient air quality or emission standards exist for Namibia. Also, no occupational exposure limits exist for dust emissions in Namibian environmental legislation. Although dust mitigation measures will be adopted, dust emissions proximate to sensitive receptors should be strictly monitored. All the dust monitoring stations can be selected based on wind direction. The proposed project area is surrounded by elevated terrain from three sides therefore, it is likely that the impacts will be restricted to the project area. It also means the settlement within proximate to project area will be highly affected, therefore, it would be important to properly plan exploration and mineral processing activities. The air dispersion modelling can be useful inthis respect.Trenching & Crushing: Crushing produces mainly coarse (TSP and PM10) dust particles, which settle near the dust source. In quarries operating with secondary crushing for example, background concentrations can

be achieved approximately from a 350 m distance for coarse particles. An increase in particulate matter particulate matter (dust) due to excavations and operation of diesel power equipment (volatile organic carbons) can be expected. Additional fugitive particulate emissions occur from materials handling (crushing of mined out ores) including the dumping or stockpiling of waste rock.

Health Risks & Public Safety

Employees may be severely exposed to health and safety risks, when not properly inducted or trained on the use of certain machinery or equipment. Trenching can result can cause occupational injuries and fatalities due to the collapse of unstable trench walls. The presence of predators (e.g spotted hyena) and venomous snakes (e.g. cobras, puff adders) in the study area may present a considerable threat to workers safety. Unstable waste rock dumps may pose a safety risk to workers. Trenching when conducted during the rainy season can create a ponding effect as rain water percolates in dugout areas. Abandoned trenches can provide abreeding ground for mosquitos potentially causing the spread of Malaria Disease. It is imperative that trenches be backfilled as soon as the ore material is removed.
The risk of transmission of communicable diseases (HIV, hepatitis, measles, Covid 19) cannot be underscored. Most common forms of spread may include fecal-oral (lack of sanitation, open defecation) and sexual intercourse (unprotected sex). As of the latter, the influx of people into the immediate (proximate to project site) can potentially lead to sexual relations between employees and locals, consequently leading to the spread of sexual transmitted diseases (i.e., HIV/AIDS) and pregnancies when engaging in unprotected sex. Namibia has a high generalized mature HIV epidemic with a HIV prevalence of 14%, high antiretroviral coverage of 90% and teenage pregnancies (18%). To comply with legislation, an occupational health and safety plan (OHSP) and emergency preparedness plan should be prepared and implemented.

Ground water and water resources

Water contamination may result from the dumping of debris or excess soil from land levelling, road construction, runoff from construction vehicle, maintenance of equipment(oil change, refueling, washing) and lack of sanitation facilities for field camp. Aquifer vulnerability may arise due to degradation and contamination by potentially allowing seepage (surface run-off) to enter the aquifers. Over abstraction of subterranean water sources can negatively impact water security. A significant drop in ground water levels due to over-abstraction can affectthe ability of farmers to meet water requirements for domestic use which includes livestock and wildlife.

Heritage and Archaeological Resources

A preliminary site survey conducted yielded that some ruins are found within the wider project area. Most of the historical findings are old buildings which are in ruin state, to great extent these structures carry some important historical background that goes back to the pre-colonial era, for instance the old building in farm Bergtoppe has some historical family background attached to it. However, there are no significant national historical sites observed in the study area, only the sites which are deemed to be of national historic significance are situated in Kamanjab town, Khorixas and Outjo town of which their presence and therefore the impact is expected to be LOW.

A number of built heritage resources occur but are restricted to areas out MCs. None of the built heritage resources is deemed to have more cultural significance outside their locality due to either because of age, architecture or condition, at the family levels were these places have more than important historical, architectural, and social values attached. There are some few historical farmsteads proximate to the study area. These old structures are occurring mostly in the same locality which is close to the residential structures. Despite the fact that the proposed project will avoid adverse impacts, chances are disturbances and damage due to proximity built up areas could occur during the construction phases especially if the abnormal vehicles will be using the same road to off-load heavy materials. It should be noted that, the direct archaeological impact can occur during land clearance or construction of infrastructures in the area such as access road, setting up of camp site or sitting of equipment for mining works. To mitigate this, proper caution should be considered when deciding on where to construct or set up of infrastructures so as to avoid a proliferation of land disturbance in the area. However, there no sites of archaeological significance recorded in within the mining claims. It should also be noted that, the areas have been mined before and abandoned sometime in the 1970s, hence possibility of finding sites of significance is minimal. Consent that relate to the MCs area was requested by proponent from the National Heritage Council (Appendix D).

Nuisances/Social pathology

Vehicles may damage fences due to driver recklessness or poor visibility. Livestock may be hit by moving construction vehicles and haulage trucks. Noise pollution will emanate from drilling, crushing, grinding and stockpiling, vehicle engines, loading and unloading of ore or waste rocks into dumpers. Noise and vibration sensitive receptors can include households residing in project area, wildlife, and livestock. The vibrations and operation of exploration equipment can increase ambient noise. Noise levels can also be aggravated due to removal of vegetation. Generally, vegetation cover and wind speed influence ambient noise levels. Mitigation measures for adopt can include the scheduling of work to minimize noise and the use of less noisy construction and exploration techniques.

The news of the proposed project may cause the immigration and increase of people into the project area. Given the current unemployment rate, the project may attract many out of area people to come look for jobs. This influx of out-of-area people during construction and operational phase may lead to social annoyance to the local farming community. Inbound persons from diverse backgrounds and culture may exhibit behavioral traits (social norms, culture, and values), potentially antagonizing locals. This may lead into social clashes between the locals and “outsiders”. Livestock losses due to theft may increase as criminals become opportunistic due to increased presence of people in the area. Property also likely to be negatively affected are farm houses, wildlife (game) , farm implements or any other properties of value to farm owners and their workers.

Top Soil Loss

The removal of vegetation may result in soil erosion as the topsoil becomes exposed. Heavy equipment can compact the soil affecting topsoil (texture) causing soil degradation. Topsoil loss can increase with increased surface run-off. Soil loss can also trigger the creation of dongas and gullies presenting an unpleasant visual character.

Waste Generation

Mining operations pertaining to MCs can bring about stockpiles of waste rock and pilling of debris (cleared vegetation matter). Sanitary waste and domestic household waste is expected to build-up especially around staging areas/field camps.

8.3 Assessment of Impacts

The EIA Regulations require a description of the significance of potential effects, including cumulative effects that may occur because of undertaking the activity. The significance of the identified impacts of the project activities were assessed. The below sections outline the overall approach and assessment criteria that was adopted to assess the potential environmental and social impacts associated with the project. The definitions and explanations for each criterion are illustrated in the below sections.

Table 9 Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and International importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur later or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability –likelihood of impact arising	
Low	<25%
Medium	25-75%
High	>75%

Table 10 Impact Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

Table 11 Criteria used to determine the significance of impacts and their definitions.	
CRITERIA	DESCRIPTION
NATURE	This criteria indicates whether the proposed activity has a positive or negative impact on the environment (environment comprise bothsocio-economic and biophysical aspects). Reviews the type of effect that the proposed activity will have on the relevant component of the environment and includes "what will be affectedand how.
EXTENT	100km radius); national (limited to within the borders of Namibia) or International (beyond Namibia's borders).
DURATION	This criterion looks at the lifetime of the impact, as being short/temporal (days, less than a year), medium (1-5 years), long (5-10 years but cease after operation), or permanent (more than 10 years)
INTENSITY	This criterion is used to determine whether the magnitude of the impact is destructive or innocuous and whether it exceeds set standards, and is described as none (no impact); low (where the natural/social environment functions and processes are negligibly affected); medium (where the environment continues to function but in a

	noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceeds legal standards
PROBABILITY	Considers the likelihood of the impact occurring and is described as uncertain, Improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will happen regardless of prevention measures).
SIGNIFICANCE	Significance is given before and after mitigation. Low if the impact will not have an influence on the decision or require to be significantly accommodated in the project design, Medium if the impact could have an influence on the environment which will require modification of the project design or alternative mitigation (the route can be used, but with deviations or mitigation) High where it could have a “no-go” implication regardless of any possible mitigation.
STATUS OF THE **IMPACT**	A statement of whether the impact is positive (a benefit), negative (a cost), or neutral. Indicate in each case who is likely to benefit and who is likely to bear the costs of each impact.
DEGREE OF CONFIDENCE IN PREDICTION	This is based on the availability of information and knowledge used to assess the impacts.

The significance of the potential impacts identified for this project was determined using a combination of the criteria. The significance of potential impacts identified is described in the Table 13 below.

Table 12 Definition of significance ratings criteria

Significance	Criteria
Low	Where the impact will have a negligible influence on the environment and no mitigations are required
Medium	Where the impact could have an influence on the environment , which require some modifications on the project activities and /alternative mitigation
High	Where the impact could have a significant influence on the environment and in the case of a negative impact the activity should not be permitted

To fully understand the significance of each of the potential impacts raised through stakeholder engagements, impacts were evaluated and assessed as per criterion in the next sectio

1 Table 14: Impact Rating

Aspect	Proposed Mitigation Measures	Significance rating of impact un-mitigated	Significance rating of impact mitigated
Socio-Economic/Socio pathology	Promote the employment of locals, Ensure due consideration is given to matters regarding the cultural and general wellbeing of the affected community and matters incidental thereto, Install a Camera Surveillance System at key entrance to the MCs areas and key intersections in order to combat livestock theft, Introduce visitor permits, Maintain regular communication between and exploration teams, Adopt a dispute resolution mechanism, Communicate uniformly all planned activities, Information regarding activities and related timing should be communicated community communication channels, Land owners should be given a list containing names and photographs of work teams for identification purposes.	High	Moderate
Biodiversity loss/Habitat fragmentation	Erect fences around work areas to prevent human wildlife encounters Adoption alternative energy sources to reduce over dependence on firewood	High	Low
Heritage Archaeological Resources, Culture	Gravels should be avoided if possible but any that cannot be avoided may require exhumation and possibly reburial but for this to happen a permit is required from National Heritage Council of Namibia. Project Proponent is cautioned that 'Chance find' is mandatory and should be complied throughout the operational phase of the project. Create a 5 km buffer around any rock paintings and areas of that with a potential for heritage conservation.	Moderate	Low
Ground Water Resources	Adopt water conservation measures.	Moderate	Low
Public, Occupational Health & Safety	Conduct First Aid Training and Safety Drills Prepare and adopt the implementation of health and safety policy concerning the protection of the health and safety of the employees, including a description of the organization and arrangements	High	Moderate

	for carrying out reviews to that policy. Institute health and safety committee		
Waste Generation	Implement Waste Management Plan Waste management guidelines should be implemented to counter potential adverse impacts of waste generated. Waste skip storage areas should be properly positioned, roofed and bunded in the case of used oil or hazardous waste residues being stored.	High	Low
Air Emissions	Avoid spillage from moving vehicles. Optimize travel distances through appropriate site layout and design. Vehicular emission of particulate matters, SO2, NOx, hydrocarbons can be minimized by proper training and maintenance of vehicles and other oil - operated equipment. Suppress dust emissions by: Water sprinkling on unpaved areas during dry wind periods, using a water tanker/or fixed sprinklers. Speed controls on vehicles have an approximately linear effect on dust emissions. In other words, a speed reduction from 30 km/hr to 15 km/hr will achieve about 50 per cent reduction in dust emissions	Low	Low

2

Environmental Aspects & Impact Assessment

Environmental Aspect	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
Visual Impacts /amenities /nuisance	LandscapeScenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium25 - 75%	Moderate
	Topography and Landscape	Alternation of existingtopography	Construction and Operation	Short term	Small	Local	Direct	High>75%	Moderate
	Topographyand Landscape	Visual impacts due to infrastructure and unsustainable handling anddisposal of waste.	Construction and Operation	Short	Small	Local	Direct	Low <25%	Minor
	Landscape/Civic amenities	-Visual impacts due touse of unsustainable disposal methods -Excavations could pose a visual impact and complete change scenery	Construction and Operation	Long term	Small	Local	Direct	Medium25 - 75%	Moderate
Land									
Land degradation/fragmentation	Soil	Contamination to soil from solid and sanitary waste disposal	Construction and Operation	Moderate	Small	Local	Direct	Low <25%	Minor
	Soil	Spillages of fuel, oil, and other types of lubricants.	Construction and Operation	Short	Small	Local	Direct	Low <25%	Minor

	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor
	Soil	Loss of usable topsoil material	Construction	Long term	Small	Local	Direct	High>75%	Moderate
	Terrestrial ecology and biodiversity	Change in land use	Constructionn and Operation	Permanent	Great	Local	Direct	Low <25%	Moderate
		Decreased in vegetated land (areas of biodiversity, pasture significance) in and around the project Area.	Constructionn and Operation	Long term	Low	Local	Direct	High>75%	Low
Water									
Ground Water & Water Resources	Ground waterquality	Water pollution from oils and lubricants from vehicles and drilling equipment.	Constructionn, Operation and Decommissioning	Moderate	Moderate	Local	Direct	Low <25%	Low
	Surface waterquality	Turbidity and high sediment load	Construction, Operation and Decommissioning	Moderate	Small	Local	Direct	Low <25%	Low
	Ground waterquality	Pollution of underground aquifersbecause of unsafe	Construction, Operation and	Long term	Great	Local	Direct	Medium25 - 75%	Low

		storage or disposal of hazardous waste	Decommissioning						
	Ground waterquality	Groundwater source and soil may be polluted by construction activities	Construction, Operation and Decommissioning	Short term	Great	Local	Direct	Medium25 - 75%	Moderate
	Ground waterquality	Groundwater source potentially contaminated by poorsanitary service infrastructure	Construction, Operation and Decommissioning	Long term	Moderate	Local	Direct	Medium25 - 75%	Low
	Surface waterquality	Increase in surface water run- off frombarren and waste stockpile areas.	Construction, Operation and Decommissioning	Short term	Moderate	Local	Direct	Low <25%	Low
	Vehicular movement	Increase in vehicular movement can displacelocal wild animals and cause nuisance to nearby homesteads	Construction, Operation and Decommissioning	Moderate	Moderate	Local	Direct	Medium25 – 75%	Low
Air									
DUST EMMISSIONS/AIRQUALITY	Ambient Air Quality	Potentially release thefollowing: emissions. PM2.5 -PM10 -Fallout dust	Operation	Short term	Moderate	Local	Direct	Medium25 -75%	Moderate

Waste									
WASTE GENERATION	Ground water quality	Hazardous waste from the waste storage site	Operation	Long term (operation)	Small	Local	Direct	Medium 25 - 75%	Low
	Ground water quality	Leaching of hazardous substance or chemicals laden waterinto the sub-terrenian water sources	Construction and Operation	Long term	Small	Local	Direct	Medium25 - 75%	Low
Ecology									
BIODIVERSITY(*FAUNA*)	Terrestrial ecology and biology	-Operational dust fallout, soil disturbancecan affect nutrient recycling process effected by soil living organisms	Construction ,Operation	Moderate	Small	Local	Direct	Low <25%	Moderate
		Destruction of vertebrate fauna (e.g.,road kills; fence and construction /land clearing mortalities)	Construction and Operation	Long	Moderate	Local	Direct	Low <25%	Moderate
BIODIVERSITY(*FLORA*)	Terrestrial ecology and biodiversity	Proliferation of invasiveplants	Construction and Operation	Long	Moderate	Local	Direct	High >75%	Moderate

	Terrestrial ecology andbiodiversity	Loss of unique flora and special habitats in the local environment because of general nuisance and animal migrate.	Construction and Operation	None	Moderate	Region	Direct	Low <25%	Moderate
	Terrestrial ecology and biodiversity	Dust fallout may adversely affect somesensitive plants and could prompt stunted growth.	Construction and Operation	Long Term	Small	Local	Direct	Medium25 - 75%	Low
	Terrestrial ecology and biodiversity	Clearing of land may lead to destruction of protected vegetation or biodiversity loss	Construction	Long Term	Moderate	Local	Direct	High >75%	Low
	Terrestrial ecology and biodiversity	Uncontrolled/accidental veld fires	Construction and Operation	Long Term	Great	Local	Direct	Medium25 – 75%	Low
SOCIO-ECONOMIC	Noise Pollution	Increase in noise levels	Construction, Operation	Moderate	Small	Local	Direct	Low <25%	Minor
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and Operation	Long	Moderate	Region	Direct	Medium25 – 75%	Positive
	Communityhealth and morals	Increased potential of social evils such as prostitution proliferation and abuse of the vulnerable segment of community	Construction, Operation	Moderate	Small	Local	Direct	Low <25%	Minor

		Groups (Children and women). Also potentialfor increased HIV infections, alcohol abuse							
	Community wellness	Increase in vehicular movement can cause emotional stress to resident communities	Operation	Moderate	Moderate	Local	Direct	Medium25 – 75%	Low
	Contribution onto National Economy	Employment, local procurement, duties,and taxes.	Construction and Operation	Short	None	Region/National	Direct	Low <25%	Positive
Heritage									
HERITAGE/ARCHAEOLOGY	Artefacts, archaeological significant components, cultural sites , burial sites	Destruction or affecting paleontological and archaeological artefacts	Construction and Operation	Moderate	Moderate	Local	Direct	Medium25 – 75%	Moderate
Health									
PUBLIC HEALTH AND SAFETY	Sanitation	Poor sanitation can be detrimental to human health.	Construction, Operation and Decommissioning	Moderate	Moderate	Local	Direct	Medium25 – 75%	Moderate

	Employee Health and Safety	Potential accidents when operating mining equipment. Old mine workings can present a safety hazard in the form of falling rocks , dust blown fromtailings ,dilapidated or relic buildings , abandoned mining equipment , geological instability	Construction, Operation and Decommission	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate
	Respiratory illnesses	Dust Emissions such asPM10, PM 2.5 and PM 0.1 can be highly dangerous to the respiratory system and as such residential areas in close proximityto exploration targets will be strictly Monitored dust fallout.	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate
Climate									
CLIMATE	GreenhouseGases	Excavations on old mine working areas (tailings, waste dumps) could trigger the release of GHGs such as S0x, CO2, CH4	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Minor

9. CONCLUSION & RECOMMENDATIONS

Distant and environs proximate to MCs are less likely to be adversely affected by the project as alluded in the Impact Assessment Matrix. Attention was drawn to ensure that potential adverse impacts are prevented, and mitigation measures are stringently implemented during the project. An Environmental and Social Management Plan has been developed to ensure that it address all potential negative impacts anticipated for the project and enhance all positive impacts for a more beneficial impact. An assessment of the aforementioned alternatives suggest that remediation of old mine workings associated with (MC 75089,MC 75090 and MC75901 with the use of mobile mineral recovery plant may be more advantageous than other remediation techniques in terms of operational efficiency, productivity and nuisance abatement. The proposed mining activities are desirable and highly recommended, because of the pressing need for socio-economic progression. The project aligns and demonstrate JGM commitment towards Namibia's mineral beneficiation strategy which aims to facilitate the realization of the full socio-economic potential that could be derived from mineral occurrence. The latter is integral of sustainable development. A 'no go' alternative can have dire consequences to job security at least in the immediate future. The EAP recognizes that well-established eco-webs specifically of the associated proposed project site remain significant. The proponent shall ensure that a good working relationship and communication is maintained with the local community, as the first step in gaining their support for proposed mining operations. Based on the findings of the ESR, CPC recommends that MEFT (Department of Environmental Affairs) approve the Environmental Clearance Certificate Application on basis of full compliance to the developed Environmental Management Plan for the proposed project related activities. If authorized, the developed EMP that takes account of progressive rehabilitation and development of a detailed waste remediation plan warrants strict implementation by JGM. Of equal relevance is the adoption of monthly compliance monitoring and the commissioning of specialist investigations such as air quality and radiation assessment as cited in the environmental management plan.

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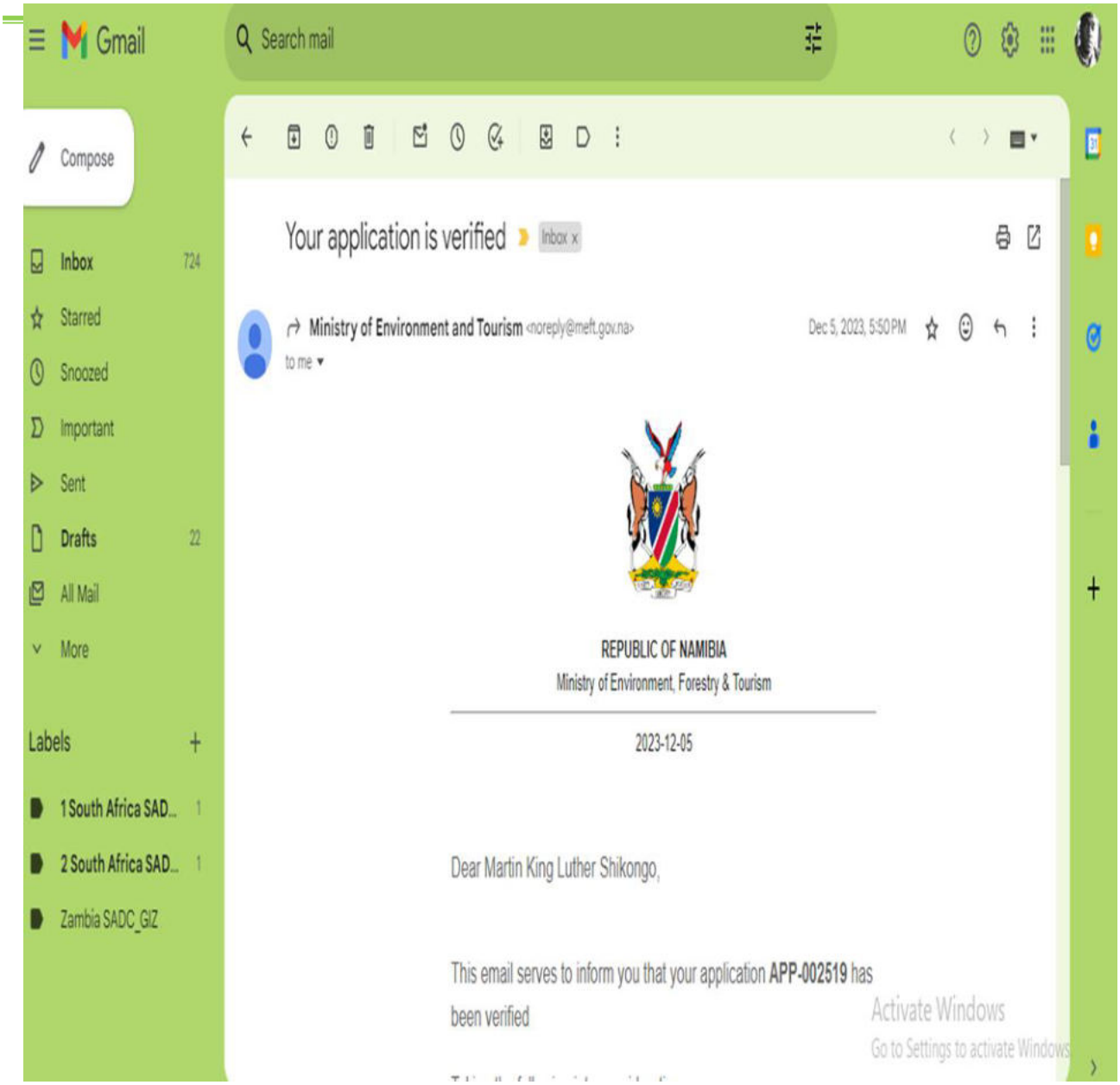
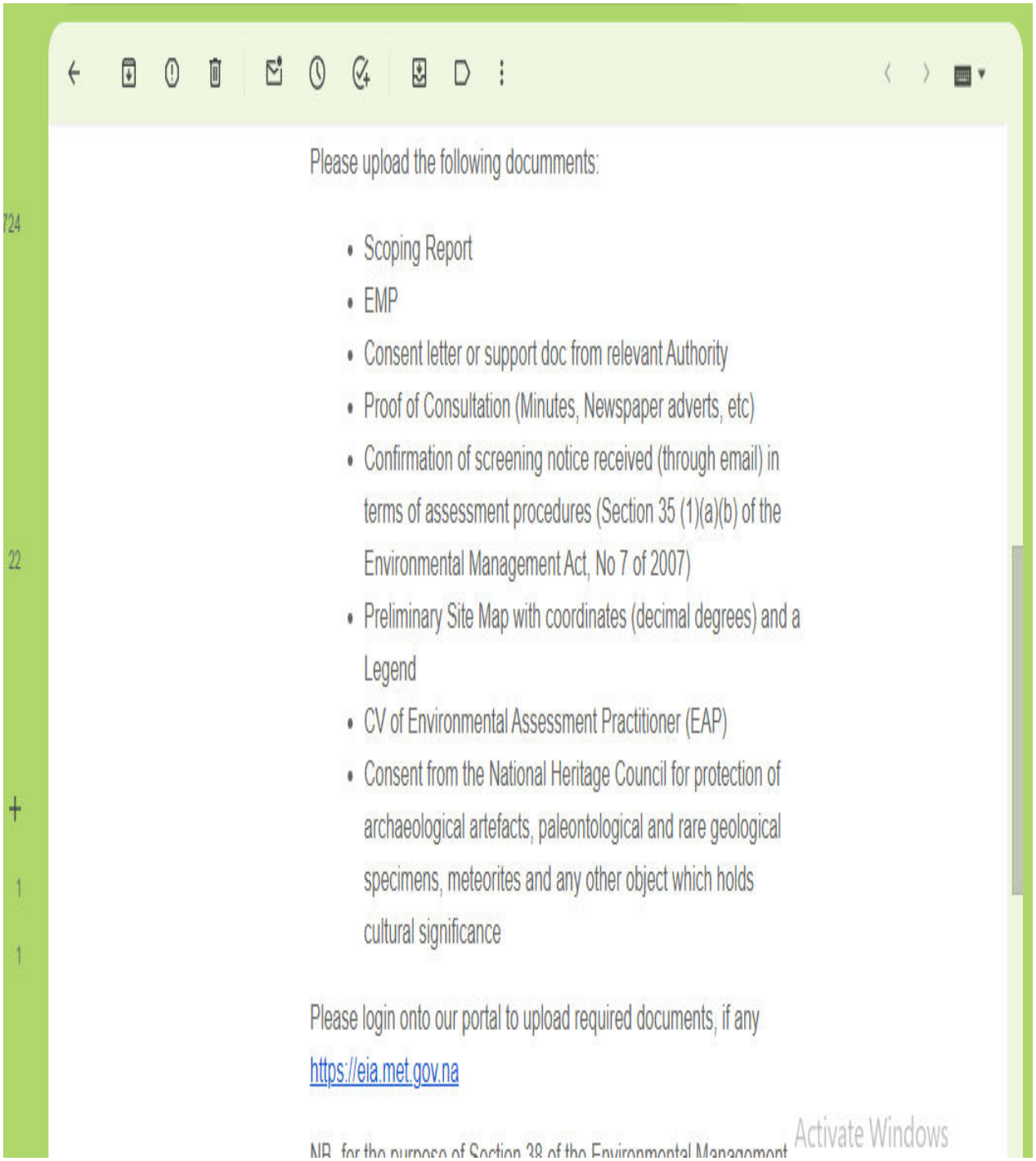
APPENDICES

APPENDIX A: CONFIRMATION OF SCREENING NOTICE- PROOF

SECTION 35(1) (A) (B) OF EMA (ACT NO.7 OF 2007)





Please upload the following documments:

- Scoping Report
- EMP
- Consent letter or support doc from relevant Authority
- Proof of Consultation (Minutes, Newspaper adverts, etc)
- Confirmation of screening notice received (through email) in terms of assessment procedures (Section 35 (1)(a)(b) of the Environmental Management Act, No 7 of 2007)
- Preliminary Site Map with coordinates (decimal degrees) and a Legend
- CV of Environmental Assessment Practitioner (EAP)
- Consent from the National Heritage Council for protection of archaeological artefacts, paleontological and rare geological specimens, meteorites and any other object which holds cultural significance

Please login onto our portal to upload required documents, if any

https://eia.met.gov.na

NB. for the purpose of Section 38 of the Environmental Management

Activate Windows

Tue 11/28/2023 2:41 AM

Ministry of Environment and Tourism <noreply@meft.gov.na>

New application for an Environmental Clearance Certifcate

King Luther Shikongo

REPUBLIC OF NAMIBIA
Ministry of Environment, Forestry & Tourism

2023-11-28

Dear Martin King Luther Shikongo,

Thank you for applying for an Environmental Clearance Certificate.

Your application has been registered with application number **231128002519**

Thank you

APPENDIX B: SUMMARY: CV OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

Curriculum Vitae

Name Martin K.L Shikongo

Nationality Namibian

Passport No PO773475

Contact Information P.O Box 41858 Ausspannplatz
Tel: +264 0814905519
Email: ml26nam@gmail.com or projects.cuvepalmconsulting.com

ACADEMIC QUALIFICATIONS

Degree Courses

Name of Course	Institution	Subjects	Year conferred
Bachelor of Science	University of Namibia	Oceanography, Aquatic Science, Statistics, Biochemistry ,Water Micro Biology ; Environmental Impact Assessment, Ecology, Research Projects	2003
Honours: Bachelor of Science (Environmental Management)	University of South Africa	Environmental Monitoring, Environmental Auditing, Environmental Management Systems, Ecological Risk Assessment,	2009
Masters: Environmental Management	Stellenbosch University	Environmental Governance, Environmental Economics, Development Planning and Analysis, Geographic Information Systems	2013
Post Graduate Diploma (Development Finance)	University of Stellenbosch	Financial Analysis & Project Appraisal, Development Finance, Risk Management, Public Private Partnerships, Research, Monitoring and Evaluation	2016

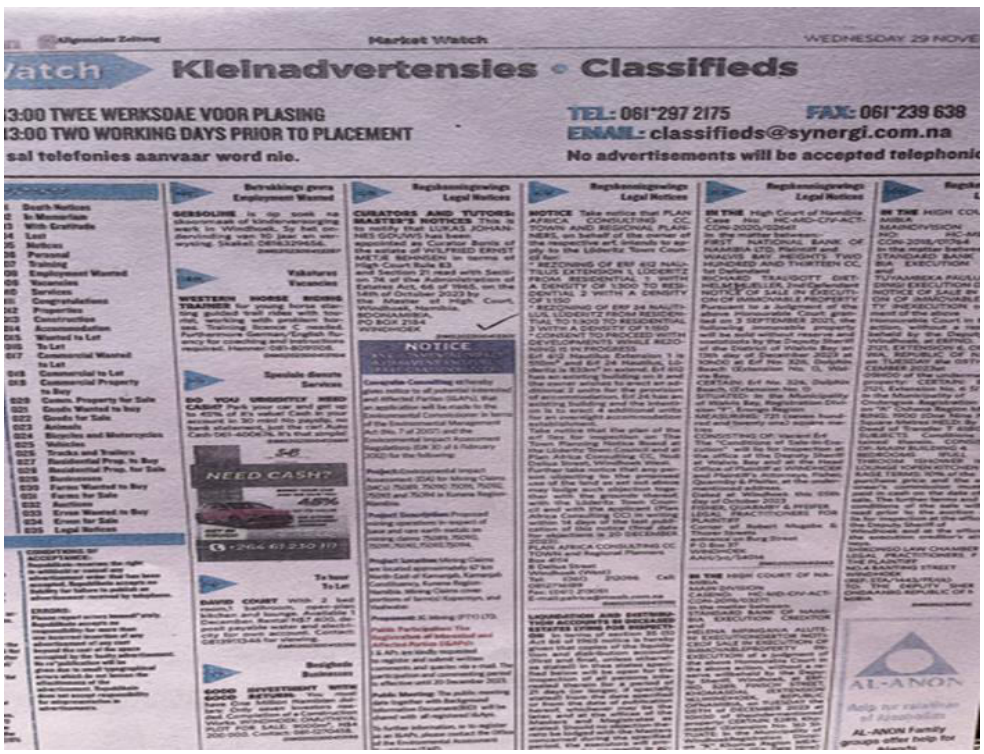
PROJECT EXPIRIENCE

Project Name:	:	Proposed Mineral Claims 75089-75094 , Kamanjab Constituency , Kunene Region
Project Summary	:	Environmental Impact Assessment (EIA)- Kunene Region)
Role and Responsibilities	:	Environmental Specialist
Involvement	:	2024
Organization	:	JG Mining (PTY) LTD
Project Name:	:	Support Towards Industrialization and Productive Sectors" (SIPS) and Programme in the SADC region and COVID19-relevant Medical and Pharmaceutical Products (CMPP) and Antiretroviral (ARV) Value Chains
Project Summary	:	Environmental and Social Safeguards Compliance assessment for Pharmanova , Lusaka , Zambia
Role and Responsibilities	:	Environmental Auditor
Involvement	:	2023
Organization		GIZ Botwana
Project Name:	:	Occupational Hygiene Survey
Project Summary	:	Noise and Illuminance (Lux) Assessment – South Industrial Area Factory Windhoek
Role and Responsibilities	:	Project Planning Supervision
Involvement	:	2023
Organization	:	Plastic Packaging Namibia(PTY) LTD – (Khomas Region)
Project Name:	:	Support Towards Industrialization and Productive Sectors" (SIPS) and Programme in the SADC region and COVID19-relevant Medical and Pharmaceutical Products (CMPP) and Antiretroviral (ARV) Value Chains
Project Summary	:	Environmental and Social Safeguards Compliance assessment for Pharmaco Plant, Lusaka , Zambia
Role and Responsibilities	:	Specialist Auditor
Involvement	:	2023
Organization	:	GIZ Botwana

APPENDIX C: I&APS CONSULTATIONS

i. PRESS NOTICES & SITE NOTICES
ii. STAKEHOLDERS CONSULTED PUBLIC MEETING MINUTES
iii. E-MAILS , REGISTERED MAIL,
iv. COMMENTS RECEIVED

Press Notices



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INDEX

1310 Anniversaries
1220 Weddings
Announcements
1230 Birthday Wishes
1240 Reunions
1250 Graduations
1260 Special Messages
1270 Thank You Messages
1280 Valentine's Messages

1410 Opportunities
1420 Business for Sale
1430 Taxi Licences

7420 House & Garden
7810 General
7440 Communications & Security
7450 Lost & Missing
7460 Transport Wanted & Offered

2810 Education & Training

2710 Wanted
2720 Offered

3210 Food & Beverages

3610 Wanted
3630 For Sale
3700 Auctions

3810 Health & Beauty

4010 Hospitality (See also 'Travel & Tourism')

4110 Wanted
4210 For Rent
4310 For Sale

4910 Leisure & Entertainment

5010 Livestock & Pets
5010 Auctions
5010 For Sale
5010 Lost & Missing
5010 Wanted

5310 Vehicles Wanted
5320 Vehicles for Hire
5360 Vehicles for Sale
5370 Vehicle Auctions
5380 Vehicle Spares & Accessories

• Opportunities •

• Opportunities •

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CONTENTS

Betrekkings gevra
Employment Wanted

Vakatures
Vacancies

Besighede
Businesses

Regskennisgewings
Legal Notices

NOTICE

Regskennisgewings
Legal Notices

Tombstone Unveiling of

IN LOVING MEMOR

(DARLIN) BOTH

Rou Diens
Hester Minnaar Holder

Registered Mail

Press Notices

Public Meetings

The BID was used as basis for consultations with registered I&Aps from Kamanjab Town. The majority of the questions were answered by representatives of CPC. For convenience, issues raised were clustered and corresponding answers were provided as per MINUTES below.

Public Meeting

MINUTES

Proposed Mining Activities on Mining Claims (75089, 75090, 75091, 75092, 75093, and 75094) situated within EPL 7719, Kunene Region-Namibia

Date: 16 December 2023

Venue: Community Hall (Youth Residents), Kamanjab Town, Kunene region.

Acronyms

BID- Background Information Document
EIA - Environmental Impact Assessment
EMA- Environmental Management Act no 7 of 2007
IAPs- Interested and affected parties
JGM- JG Mining (PTY) LTD

MEFT- Ministry of Environment Forestry & Tourism

1. INTRODUCTION

The meeting commenced at about 11h00. The EIA Team was introduced to meeting attendees.

2. MEETING

2.1 *Purpose of meeting*:

Representatives of Cuvepalm Consulting cc explained in detail the purpose of the meeting. The role of interested and affected partiesin terms of EMA (Act no 7 of 2007) was explained to attendees.

2.2 Attendees

Twenty one (21) interested and affected parties (IAPs) registered for the meeting. All the attendees signed the attendance register and were given the comments registration form to complete

2.3 *Questions and Answers Session*.

The BID was used as basis for the question and answer session. Majority of the questions were answered by representatives of CPC. For convenience, issues raised were clustered and corresponding answers were provided as per Table 1 below.

Table 1: Comments and Responses

ISSUE CATEGORY	COMMENTATOR	COMMENT /QUERY/REMARK	RESPONSE
S o c i o - Economic Development	Matheus Namaseb	• How will locals benefit? • Will there be a benefit sharing agreement	Locals will be employed. Free transport to and from work areas will be provided together with daily meal. N$ 1.5 per ton of ore recovered will be allocated to fund for social up-liftment work and families.
Due diligence	R Tjiveze	What is the duration of project? Who is the project owner?	Nine (9) years are envisaged should commodity sales prove commercially viable. JG Mining (PTY) LTD is the project owner and has applied for mineral rights under the mining claims with the Ministry of Mines and Energy
Cooperative governance	Sunny Karunga	How soon will the project commence?	As soon as the necessary compliance approvals are secured from relevant authorities.

Job creation	Kingsley Hipandulwa	How many people will be employed and from where will they be sourced from?	During the Initial phase of project, 12 to 15 personel will be required. Five (5) employees will man the pilot mineral recovery plant permanently. Contractors will also employ additional personnel on a short term basis.
	Jessica Kandi	How will the youth be taken care of?	JGM will ensure youth participation in accordance with applicable labor law requirements
Environmental Protection	Ronald Nawaseb	Mining affect the environment. Will rehabilitation take place?	Progressive rehabilitation will take place. N$100, 000 Namibian dollars will be paid as an initial rehabilitation fund. A further N$2 per ton of ore processed will be paid in the rehabilitation fund.
Utility Demands/Constraints	Kingsley Hipandulwa	How much water will be used?	2000 to 5000 liters per day

3. COMMENTS

The majority of the comments related to socio-economic advancement.

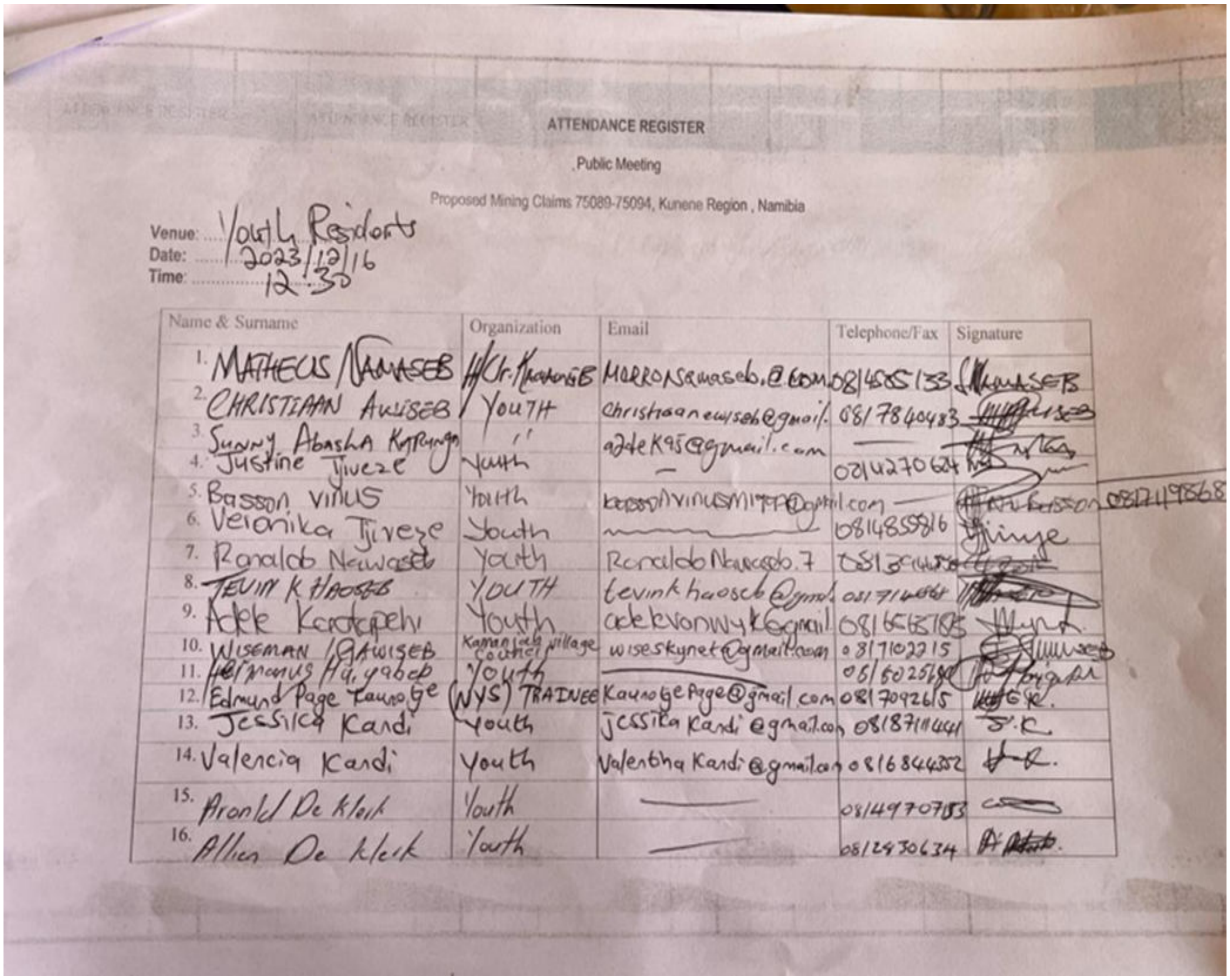
4. CLOSURE

Meeting participants were thanked the participants for their inputs and contributions. It was agreed that minutes with concrete feedback on matters raised will be provided to all attendees.

5. ADJOURNMENT

The meeting was adjourned at 12:30 pm.

6. Attendance register (see below)



ATTENDANCE REGISTER

Public Meeting

Proposed Mining Claims 75089-75094, Kunene Region , Namibia

Venue: Youth Residents
Date: 2023/12/16
Time: 12:30

Name & Surname	Organization	Email	Telephone/Fax	Signature
1. MATHEUS NAMASEB	H/Cr. [illegible]	MORRONSamaseb.@com	081 4565133	[signature]
2. CHRISTIAAN AWISEB	YOUTH	christiaanewiseb@gmail.	081 7840483	[signature]
3. Sunny Abasha Katjinga	"	adek95@gmail.com	—	[signature]
4. Justine Tjiveze	Youth	—	0814270624	[signature]
5. Basson Vinus	Youth	bassonvinusm[illegible]@gmail.com	—	[signature] 0812419868
6. Veronika Tjiveze	Youth	—	0814855816	[signature]
7. Ronaldo Nawaseb	Youth	RonaldoNawaseb.7	0813[illegible]	[signature]
8. TEVIN K HAOSEB	YOUTH	tevinkhaoseb@gmail	0817[illegible]	[signature]
9. Adek Karatapehi	Youth	adekvanwyk@gmail	0816563185	[signature]
10. WISEMAN /GAWISEB	Kamanjab village council	wiseskynet@gmail.com	0817102215	[signature]
11. Hermanus Hu, yabeb	Youth	—	0816025[illegible]	[signature]
12. Edmund Page Kaunoge	(NYS) TRAINEE	KaunogePage@gmail.com	0817092615	[signature]
13. Jessika Kandi	Youth	jessikaKandi@gmail.com	0818711441	J.K.
14. Valencia Kandi	Youth	ValenthaKandi@gmail.com	0816844352	[signature]
15. Aronld De klerk	Youth	—	0814970783	[signature]
16. Allen De klerk	Youth	—	0812430634	[signature]

Figure 17 Public meeting attendance register

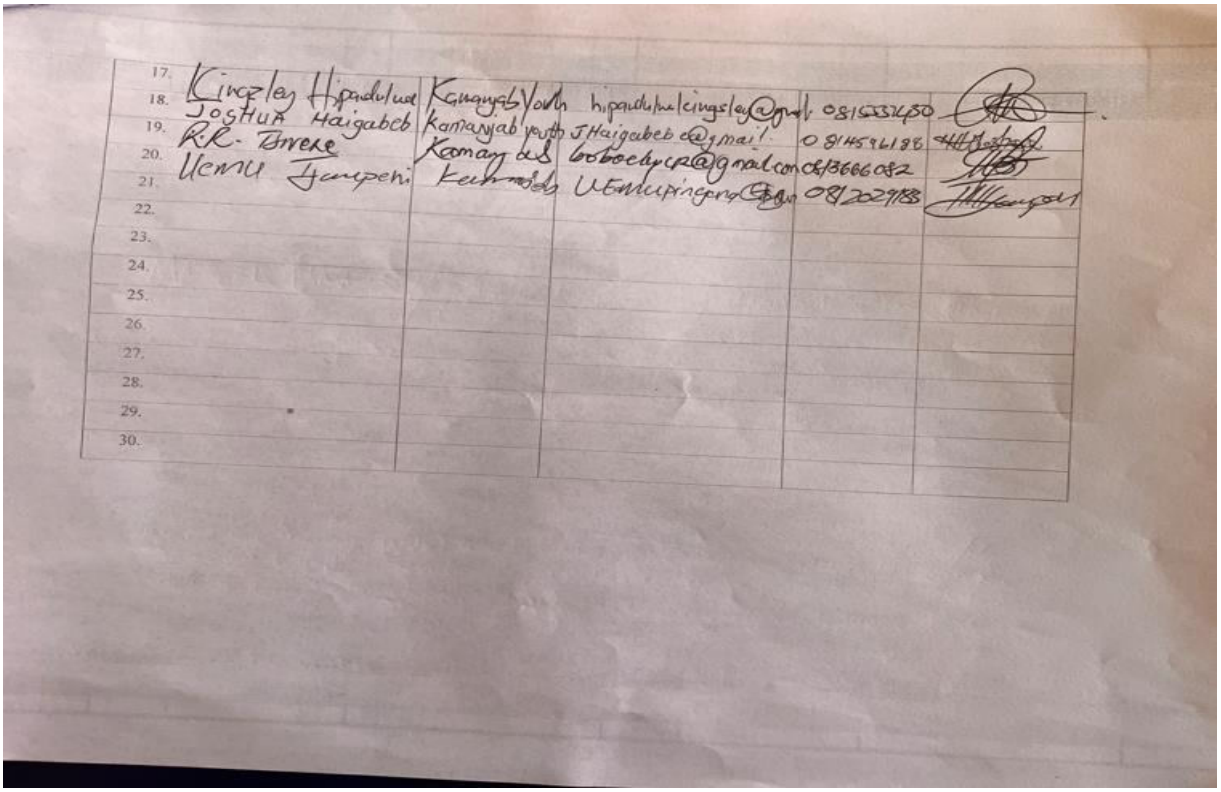


Figure 18 Attendance Register –Public Meeting

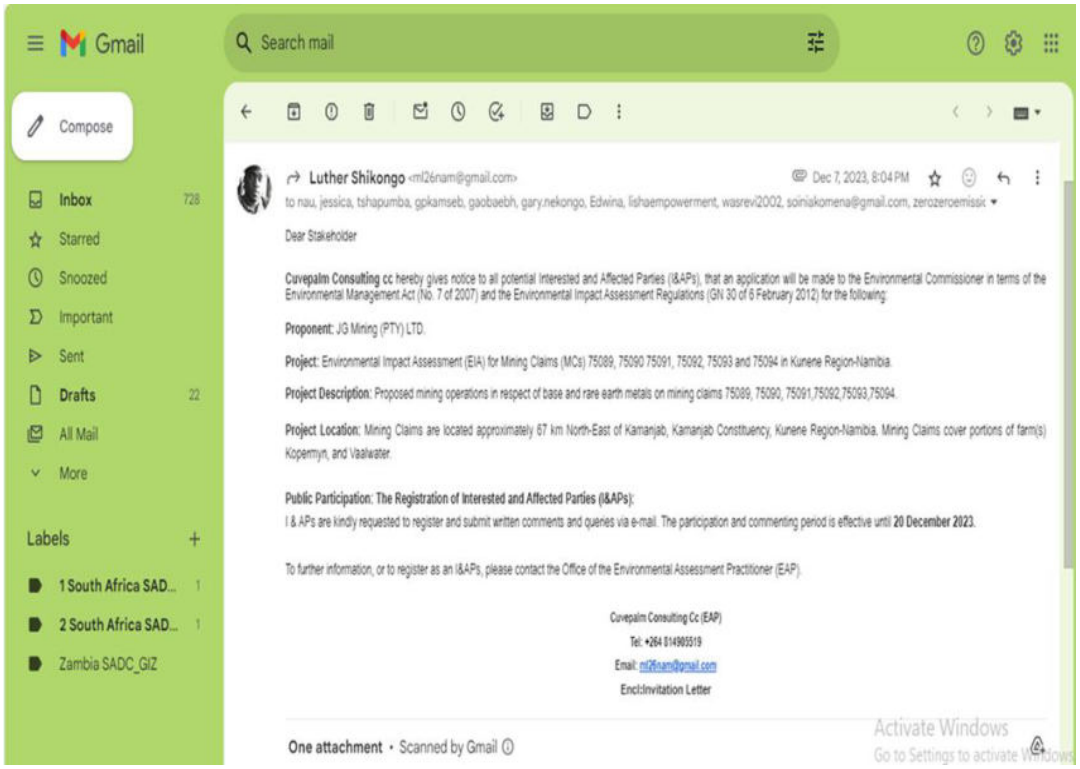
Figure 19 Community member consultations (Venue: Farm Kopermyn)

Figure 20 Public Meeting (Venue: Youth Residents Hall, Kamanjab)– 16 December 2023)

Figure 21 Participants at Public Meeting (Venue: Youth Residents Hall, Kamanjab ,)

Figure 22 Resident consultations at Farm Kopermyn

Request for comments via email



STAKEHOLDERS CONSULTED

Name	Organization/Department /Role	Contact Details	Consultation Mode
1. Jessica Nowotes	Namibia Nature Foundation	jessica@nnf.org.na Tel: 061-248 345	E-mail
2. A. Shilongo	Kunene regional Council	titiroshilongo@gmail.com 085-273952 0812800411	Telephone
3. Lucia Namushinga	National Heritage Council	luciapermitshc@gmail.com	E-mail
4. Abrahamlilende	Ministry of Mines andEnergy	Abraham.Illende@mme.gov.na	Telephone & E-mail
5. J.Tjaranga	Nored	j.tjaranga@nored.com.na mobile: 0832822641	Telephone
6. Hon Hendrik Gaobaeb	Kunene Regional Council (Chairperson of Council)	gaobaebh@gmail.com or Tel:065-273950	E-mail
7. Giesberta Shaanika	Ministry of Mines andEnergy	Giesberta.shaanika@mme.gov.na or 0813723269	Telephone
8. Z.Herunga	Ministry of Gender Equality , Poverty Eradication and Social Welfare (Kunene)	herungaz@gmail.com	E-mail
9. NP duPlessis	Namwater	PlessisN@namwater.com.na	E-mail
10. P. Hamukwaya	SASSCAL	panduleni.hamukwaya@sasscal.org	E-mail
11. Leevi Nanyeni	Namibia Herbarium of Namibia	lnanyeni@gmail.com	E-mail
12. Cecilia Xavier	Ministry of Information and Technology	Cecilia.Xavier@mitc.gov.na Tel: 065273070 Mobile: 0816035631	E-mail
13. Barbara Kahiha	Ministry of Health and Social Services (Opuwo)	Mobile:0812024569	Telephone
14. Tuyakula Kaundinge	Kunene regional Council (Division of Water Supply and Sanitation)	sempetrus30@gmail.com or065- etuhole@live.co.za Tel: 065-273950	E-mail

15. T.Shapumba	Kunene Regional Council (Directorate of Health and Social Services)	tshapumba@yahoo.com Tel:065-272801	Telephone
16. Benson.T	Eduventures	benson@eduventures-africa.org	E-mail
17. I.Alexander	NUST	lalexander@nust.na	E-mail
18. I. Mapaure	UNAM	imapaure@unam.na	E-mail
19. Gary Nekongo	MAWLR -Kunene	gary.nekongo@mlr.gov.na Tel: 065 2733740	E-mail

	(Division of Land reform)	065-273374	
18. Naftal Eliazer	MEFT	eliasernaftali@gmail.com 0812803555	Telephone
19. P Genis	MURD	pgenis@mrlgh.gov.na	E-mail
20. Maria Amakali	MAWLR	amakalim@mawf.gov.na	E-mail
21. Ms Tanja Dahl	Namibia Agricultural Union	nau@agrinamibia.com.na	E-mail
22.	Namibia Professional Hunting Association	info@napha.com.na	E-mail
23. Nicole Schwandt	Namibia Professional Hunting Association	info@napha.com.na	E-mail
24. Bernard Beukes	Ministry of Mines and Energy	Bernard.Beukes@mme.gov.na	E-mail

APPENDIX E: Biodiversity - Species Checklist

Checklist of Birds occurrence				
Common name	Family	Scientific Name	Expected	Observed
Shikra	Accipitridae	*Accipiter badius*	Yes	No
Sparrowhawk	Accipitridae	*Accipiter minullus*	Yes	Yes
Little sparrowhawk	Accipitridae	*Accipiter minullus*	Yes	No
	Accipitridae	*Accipiter ovampensis*	Yes	No
Great reed warbler	Acrocephalidae	*Acrocephalus arundinaceus*	Yes	Yes
	Accipitridae	*Acrocephalus baeticatus*	Yes	No
	Acrocephalidae	*Acrocephalus gracilirostris*	Yes	No
	Scolopacidae	*Actitis hypoleucos*	Yes	No
	Otididae	*Afrotis afra*	Yes	No
Rosy-faced lovebird	Psittacidae	*Agapornis roseicollis*	Yes	Yes
Red-headed finch	Estrildidae	*Amadina erythrocephala*	Yes	Yes
Red-headed weaver	Ploceidae	*Anaplectes rubriceps*	Yes	No
	Anatidae	*Anas hottentota*	Yes	No
	Remizidae	*Anthoscopus caroli*	Yes	No
	Remizidae	*Anthoscopus minutus*	Yes	Yes
African pipit	Motacillidae	*Anthus cinnamomeus*	Yes	Yes
	Motacillidae	*Anthus leucophrys*	Yes	No
	Motacillidae	*Anthus vaalensis*	Yes	No
	Cisticolidae	*Apalis flavida*	Yes	No
	Anatidae	*Apus apus*	Yes	No
	Apodidae	*Apus caffer*	Yes	No
	Apodidae	*Apus melba*	Yes	No
Tawny eagle	Accipitridae	*Aquila rapax*	Yes	No
African hawk-eagle	Accipitridae	*Aquila spilogaster*	Yes	No
Verreaux's eagle	Accipitridae	*Aquila verreauxii*	Yes	No
	Otididae	*Ardeotis kori*	Yes	No
	Platysteiridae	*Batis molitor*	Yes	No

Pririt batis	Platysteiridae	*Batis pririt*	Yes	No
Chat flycatcher	Muscicapidae	*Bradornis infuscatus*	Yes	Yes
Marico flycatcher	Muscicapidae	*Bradornis mariquensis*	Yes	Yes
Red-billed buffalo weaver	Ploceidae	*Bubalornis niger*	Yes	No
Spotted eagle-owl	Strigidae	*Bubo africanus*	Yes	No
	Strigidae	*Bubo lacteus*	Yes	No
Spotted thick-knee	Burhinidae	*Burhinus capensis*	Yes	Yes
	Cristolidae	*Calamonastes fasciolatus*	Yes	No
The red-capped lark	Alaudidae	*Calandrella cinerea*	Yes	No
Fawn coloured lark	Alaudidae	*Calendulauda africanoides*	Yes	Yes
Sabota lark	Alaudidae	*Calendulauda sabota*	Yes	Yes
	Scolopacidae	*Calidris ferruginea*	Yes	No
Little stint	Scolopacidae	*Calidris minuta*	Yes	Yes
Green-backed camaroptera	Cristolidae	*Camaroptera brachyura*	Yes	Yes

Checklist of mammal occurrence				
Common name	Order and family	Scientific name	Expected	Observed
	Carnivora			
Cheetah	Felidae	*Acinonyx jubatus*	yes	no
Black-backed jackal	Canidae	*Canis mesomelas*	yes	yes
Caracal	Felidae	*Caracal caracal*	yes	no
Spotted hyena	Hyaenidae	*Crocuta crocuta*	yes	no
Yellow mongoose	Herpestidae	*Cynictis penicillata*	yes	no
Wildcat	Felidae	*Felis silvestris*	yes	no
Gray mongoose	Herpestidae	*Galerella pulverulenta*	Yes	no
Common slender mongoose	Herpestidae	*Galerella sanguinea*	yes	no
Genete	Viverridae	*Genetta genetta*	yes	no
Common dwarf mongoose	Herpestidae	*Helogale parvula*	yes	no
Brown hyena	Hyaenidae	*Hyaena brunnea*	yes	no
Striped Polecat	Mustelidae	*Ictonyx striatus*	yes	no
African wild dog	Canidae	*Lycaon pictus*	no	no
Bat-eared fox	Canidae	*Otocyon megalotis*	yes	no
Lion	Felidae	*Panthera leo*	yes	no
Leopard	Felidae	*Panthera pardus*	yes	no
Aardwolf	Hyaenidae	*Proteles cristata*	yes	no
Cape fox	Canidae	*Vulpes chama*	yes	yes
	Primates			
Chacma baboon	Cercopithecidae	*Papio ursinus*	yes	yes
	Chiroptera			
House bats	Vespertilionidae		yes	no
Sundevall's roundleaf bat	Hipposideridae	*Hipposideros caffer*	yes	no
Cape serotine	Vespertilionidae	*Laephotis capensis*	yes	no
Striped leaf-nosed bat	Hipposideridae	*Macronycteris vittatus*	yes	no
Natal long-fingered bat	Miniopteridae	*Miniopterus natalensis*	yes	no
Common bent-wing bat	Miniopteridae	*Miniopterus schreibersii*	yes	no
Slit-faced or hollow-faced bats	Nycteridae	*Nycteris thebaica*	yes	no
Geoffroy's horseshoe bat	Rhinolophidae	*Rhinolophus clivosus*	yes	no
Darling's Horseshoe Bat	Rhinolophidae	*Rhinolophus darlingi*	yes	no
Rüppell's horseshoe bat	Rhinolophidae	*Rhinolophus fumigatus*	yes	no
white-bellied yellow bat	Vespertilionidae	*Scotophilus leucogaster*	yes	no
Free-tailed bats	Molossidae	*Tadarida aegyptiaca*	yes	no

	Macroscelidea			
Bushveld elephant shrew	Macroscelididae	*Elephantulus intufi*	yes	no
Western rock elephant shrew	Macroscelididae	*Elephantulus rupestris*	yes	no
	Artiodactyla			
Impala	Bovidae	*Aepyceros melampus*	yes	no

Checklist of Reptiles and Amphibians occurrence				
Common name	Order and Family	species	expected	observed
Squamata				
Kalahari burrowing skink	Scincidae	*Acontias kgalagadi*	no	no
Percival's lance skink	Scincidae	*Acontias percivali*	yes	no
Ground agama	Agamidae	*Agama aculeata*	yes	yes
Red-headed rock agama or rainbow agama	Agamidae	*Agama agama*	yes	yes
Anchieta's agama	Agamidae	*Agama anchietae*	yes	no
Southern rock agama	Agamidae	*Agama atra*	yes	no
Etosha agama	Agamidae	*Agama etoshae*	yes	no
Spiny agama	Agamidae	*Agama hispida*	yes	no
The Namib rock agama	Agamidae	*Agama planiceps*	no	no
Cape coral cobra	Elapidae	*Aspidelaps lubricus*	no	no
Puff adder	Viperidae	*Bitis arietans*	yes	no
Horned adder	Viperidae	*Bitis caudalis*	yes	no
Many-horned adder	Viperidae	*Bitis cornuta*	yes	no
African house snake	Lamprophiidae	*Boaedon fuliginosus*	yes	no
Flap-necked chameleon	Chamaeleonidae	*Chamaeleo dilepis*	yes	no
Giant ground gecko	Geckonidae	*Chondrodactylus angulifer*	yes	no
	Geckonidae	*Chondrodactylus laevigatus*	yes	no
Turner's thick-toed gecko	Geckonidae	*Chondrodactylus turneri*	yes	no
Blue-black plated lizard	Gerrhosauridae	*Cordylosaurus subtessellatus*	yes	no
Common egg eater,	Colubridae	*Dasypeltis scabra*	yes	no
Black mamba	Elapidae	*Dendroaspis polylepis*	yes	no
Boomslang	Colubridae	*Dispholidus typus*	no	no
The Black Lined Plated Lizard	Gerrhosauridae	*Gerrhosaurus nigrolineatus*	yes	no
Bushveld lizard	Lacertidae	*Heliobolus lugubris*	yes	yes
Cape rough-scaled lizard	Lacertidae	*Ichnotropis capensis*	no	no
Namibian girdled lizard	Cordylidae	*Karusasaurus jordani*	no	no
Dwarf gecko	Geckonidae	*Lygodactylus lawrencei*	yes	no
Giant plated lizard	Gerrhosauridae	*Matobosaurus validus*	yes	no
Savanna lizard	Lacertidae	*Meroles squamulosa*	yes	yes
Sundevall's writhing skink	Scincidae	*Mochlus sundevallii*	yes	no
Anchieta's worm lizard,	Amphisbaenidae	*Monopeltis anchietae*	yes	no
Anchieta's cobra,	Elapidae	*Naja anchietae*	yes	no
Zebra snake	Elapidae	*Naja nigricincta*	yes	yes

Black-necked spitting cobra	Elapidae	*Naja nigricollis*	no	no

Cape cobra	Elapidae	*Naja nivea*	yes	no
Fischer's Thick-toed Gecko	Geckonidae	*Pachydactylus laevigatus*	yes	no
Pointed thick-toed gecko	Geckonidae	*Pachydactylus punctatus*	yes	no
	Geckonidae	*Pachydactylus scutatus*	yes	no

Checklist _Plants occurrence				
Common name	Order and Family	Scientific Name	expected	observed
	Fabales			
	Fabaceae	*Chamaecrista mimosoides*	yes	yes
Mopane	**Fabaceae**	***Colophospermum mopane***	**yes**	**yes**
	Fabaceae	*Crotalaria argyraea*	yes	no
	Fabaceae	*Crotalaria aurea*	yes	no
	Fabaceae	*Crotalaria barkae*	yes	no
	Fabaceae	*Crotalaria damarensis*	yes	no
	Fabaceae	*Crotalaria dinteri*	yes	yes
	Fabaceae	*Crotalaria flavicarinata*	yes	no
	Fabaceae	*Crotalaria heidmannii*	yes	no
	Fabaceae	*Crotalaria leubnitziana*	yes	no
	Fabaceae	*Crotalaria pisicarpa*	yes	no
	Fabaceae	***Crotalaria platysepala***	**yes**	**no**
	Fabaceae	*Crotalaria podocarpa*	yes	yes
	Fabaceae	*Crotalaria spartioides*	yes	no
	Fabaceae	*Crotalaria sphaerocarpa*	yes	no
	Fabaceae	*Crotalaria steudneri*	yes	no
	Fabaceae	*Crotalaria virgultalis*	yes	no
	Fabaceae	***Cullen tomentosum***	**yes**	**no**
	Fabaceae	***Delonix regia***	**yes**	**no**
	Fabaceae	***Dichrostachys cinerea***	**yes**	**yes**
	Fabaceae	***Faidherbia albida***	**yes**	**no**
	Fabaceae	*Indigastrum candidissimum*	yes	no
	Fabaceae	***Indigastrum costatum***	**yes**	**no**
	Fabaceae	*Indigastrum parviflorum*	yes	no
	Fabaceae	*Indigofera alternans*	yes	yes
	Fabaceae	*Indigofera astragalina*	yes	no
	Fabaceae	*Indigofera auricoma*	yes	no
	Fabaceae	*Indigofera bainesii*	yes	no

	Fabaceae	***Indigofera charlieriana***	**yes**	**no**
	Fabaceae	*Indigofera cryptantha*	yes	no
	Fabaceae	*Indigofera daleoides*	yes	no

	Fabaceae	*Indigofera filipes*	yes	no
	Fabaceae	*Indigofera flavicans*	yes	no
	Fabaceae	*Indigofera hololeuca*	yes	no
	Fabaceae	***Indigofera holubii***	**yes**	**no**
	Fabaceae	*Indigofera holubii*	yes	no
	Fabaceae	*Indigofera inhambanensis*	yes	no
	Fabaceae	*Indigofera sordida*	yes	no

APPENDIX D: Consent: Proof of submission to National Heritage Council (x2)

National Heritage Council of Namibia
52 Robert Mugabe Avenue • P/Bag 12043 • Ausspannplatz • Windhoek • Namibia
Tel: (061) 244 375 • Fax: (061) 246 872 • E-mail: finance@nhc-nam.org

Secretariat

Receipt No. 6082

CASH RECEIPT

Customer

Date: 12-01-2024

Full Name: JG Mining (Pty) Ltd.

Postal Address: P.O. Box 81554, Olympia

City: Windhoek.

Phone: 0811282636

National Heritage Council of Namibia
HEAD: FINANCE, HR & ADMIN
2024-01-12
Private Bag, 12043
Ausspannplatz
Windhoek, Namibia

Quantity	Description	Unit Price	TOTAL
1	Permit Claims 7589-7592.	150-00	150-00
			150-00

Amount in Words: One Fifty Zero N$ only

Receipt Issued by:

studio print 30155

National Heritage Council of Namibia

52 Robert Mugabe Avenue • P/Bag 12043 • Ausspannplatz • Windhoek • Namibia
Tel: (061) 244 375 • Fax: (061) 246 872 • E-mail: finance@nhc-nam.org

Secretariat **Receipt No.** 6081 **CASH RECEIPT**

Customer

Date: 12-01-2024

Full Name: JG Mining (Pty) Ltd.

Postal Address: P.O. Box 81554, Olympia

City: Windhoek.

Phone: 0811282636.

National Heritage Council of Namibia
HEAD: FINANCE, HR & ADMIN
2024 -01- 12
Private Bag, 12043
Ausspannplatz
Windhoek, Namibia

Quantity	Description	Unit Price	TOTAL
1	Permit Claim 75093-75094	150-00	150—00
			2
			150—00

Amount in Words: One Hundred and Fifty N$ only

Receipt Issued by:

studio print 30155

National Heritage Council of Namibia
2024 -11- 12

National Heritage Council of Namibia
7173 Leonardo House • Private Bag 12043, Ausspannplatz • Windhoek, Namibia
(061) 244 375 • Fax: (061) 248 872 • E-mail: ...

OFFICE OF THE DIRECTOR

APPLICATION FOR CONSENT

(Sections 53(7) and 55(8) of the National Heritage Act, 2004 (Act No.27 of 2004))

CONDITIONS AND INSTRUCTIONS

1. The receipt issued serves as a reference when making enquiries.

2. Works and activities applied for under section C, of this application, is subject to an environmental impact assessment at the applicant's expense.

3. Instructions for completion:

Applicants must complete the relevant parts of this application.

A. APPLICANT'S DETAILS

1. Name and address of applicant

JG Mining (PTY) LTD
P.O Box 81554, Olympia, Windhoek
Telephone:+264811282636
E-mail: benbiwa@hotmail.com

2. Full name and designation of the person in charge of undertaking the works or activities:

Full name of contact Person: Benjamin Esau Biwa
Designation: Director

3. Full name and personal details of researcher, contractor or person in charge of the proposed works or activities:

Mr. Rolland Mushi
Cell: +264 813332173
Email address: rolandmushi@yahoo.com

Appendix E: Archaeological and Heritage (Consent –EPL 7719)

National Heritage Council of Namibia
52 Robert Mugabe Avenue, Windhoek
Private Bag 12043, Ausspannplatz, Windhoek, Namibia
Tel: (061) 244 375 • Fax: (061) 248 872 •
E-mail: nhc@nhc.nam.org

CONSENT

(Section 55(9) of the National Heritage Act, 2004 (Act No. 27 of 2004)) Consent is hereby given to:

22 June 2022

Consent Number No: 106/2022

Name of applicant: JG Mining (PTY) Ltd

(Title and full name of the applicant)

Address of applicant: P. O Box 81554 Olympia, Windhoek, Namibia

(Address of the applicant and of the applying institution (if applicable)

For: (EPL) No. 7719 for the exploration of Base and Rare metals, Dimension Stones, Industrial Minerals, Non-nuclear fuel minerals and precious metals

(Type of Activity applied for)

Of: Rock art and grave, earth dam and house infrastructure

(Description of Heritage Resources)

From: Located 35 km north east of Kamanjab Town, Kunene region

(Description of the site, location as in the application)

In accordance with: Archaeological and Heritage Impact Assessment Report for the Proposed Mineral Exploration on Exclusive Prospective Licence (EPL) No. 7719 Located North East of Kamanjab in the Kunene Region, Namibia.

(*Specify relevant documentation and Permit application date*)

The following conditions (imposed in terms of section 55(9) of the Act.) apply to this permit:

a) That as per section 55 (9) (a) the activity authorised by this consent be supervised by a person with appropriate professional qualifications or experience in the identification and conservation of heritage.
b) That any archaeological or palaeontological object or meteorite found in the course of the activity authorised by the consent must be recorded, conserved and dealt with as per the manual on Chance Find Procedures of heritage resources; and
c) that Namibian citizens, especially members of the local community in and around the project area, be engaged in the activity authorised by the consent for the purpose of identification of heritage resources in the project area as well as of receiving professional training.
d) That the consent holder reports back to the National Heritage Council every six (6) months on compliance with the conditions of this consent.
e) This Consent does not exempt the holder from any conditions that may be imposed by owners, hosts or any other relevant authorities in consultation with NHC who have a stake in the project area.
f) NHC shall not be liable for any losses, damages or injuries to persons or properties as a result of any activities related to this permit.
g) This Consent is subject to the provisions of the National Heritage Act (Act 27 of 2004). Should any of the conditions contained herein conflict with the Act; the provisions of the Act as per section 55 (10) shall prevail.
h) Adopt the Chance Find Procedures
i) This consent is renewable, upon submission of an application at least two months before the current permit lapses

j) Buffer zones of 3.5 km should be maintained around known significant archaeological, historical or cultural heritage (rock art, grave, earth dam and house infrastructure)

(List any conditions that the Council may see fit to impose in terms of section 55 (9) of the act

This Consent will be valid from 27th June 2022 to 26th June 2023

Director: National Heritage Council

National Heritage Council of Namibia
Office of the Director
30 JUN 2022
Private Bag 13301
Windhoek Namibia

National Heritage Council of Namibia

EPL 7114

National Heritage Council of Namibia
7173 Lazarette House • Private Bag 12043, Ausspannplatz • Windhoek, Namibia
(061) 244 378 • Fax: (061) 246 672 • E-mail: ...

OFFICE OF THE DIRECTOR

APPLICATION FOR CONSENT

(Sections 53(7) and 55(8) of the National Heritage Act, 2004 (Act No.27 of 2004))

CONDITIONS AND INSTRUCTIONS

1. The receipt issued serves as a reference when making enquiries.

2. Works and activities applied for under section C, of this application, is subject to an environmental impact assessment at the applicant's expense.

3. Instructions for completion:

Applicants must complete the relevant parts of this application.

A. APPLICANT'S DETAILS

1. Name and address of applicant

JG Mining PTY LTD
Contact person: Ben Biwa
Postal address: 81554, Olympia
Telephone: +264 811 28 26 36
Email:benbiwa@hotmail.com

Received (06/05/2022)

2. Full name and designation of the person in charge of undertaking the works or activities:

Contact person: Ben Biwa
Position of the contact person: Director
Email address: benbiwa@hotmail.com

TO:

The Mining Commissioner

Ministry of Mines and Energy

Private Bag 13297

Windhoek

29 September 2023

Sumer Mineral Resources Namibia Pty Ltd

Attention:

Dear Madam Isabella Chirchir

CONSENT TO PEG CLAIMS

This letter serves to inform your office that Sumer Mineral Resources Namibia (Pty) Ltd, company registration nr 2021/0715 would hereby like to give permission to JG Mining Pty Ltd registration No 2022/0939 to peg mining claims on EPL 7719. Sumer Mineral Resources Namibia (Pty) Ltd is the owner of the EPL 7719 in Kamanjab.

We hereby inform your Office to take note of this consent confirmation.

Please do not hesitate to contact me for further clarification and inquiries

Yours Sincerely

Benjamin Esau Biwa (0811282636)

Director

For and on behalf of Sumer Mineral Resources Namibia (Pty) Ltd

PO BOX 91000

Klein Windhoek

Windhoek

APPENDIX G: ENVIRONMENTAL MANAGEMENT PLAN