ENVIRONMENTAL SCOPING ASSESSMENT

For the proposed exploration of
base and rare metals, industrial minerals,
dimension stone, and precious metals
within EPL 9276
Oshikoto Region

Date: February 2025
Proponent: Tsiseb Mining & Exploration cc
APP: 002659

Alliance
ENVIRONMENTAL CONSULTANCY

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EXECUTIVE SUMMARY

Tsiseb Mining & Exploration cc (hereinafter referred to as the Proponent) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 9276 (EPL-9276) from the Ministry of Mines and Energy (MME) on the 06th of July 2022. However, the granting of the EPL is subject to an Environmental Clearance Certificate (ECC) from the Environmental Commissioner for consideration of the EPL as shown on the Namibia Mines and Energy Portal (''pending ECC'').

The Proponent intends to prospect and explore for mineral commodities within the boundaries of the EPL, and the commodities of interest are Base & Rare Metals, Industrial Minerals, and Precious Metals. The 14,563.1321 hectare (Ha) - EPL is situated about 10km west of Tsumeb in the Oshikoto Region. The EPL overlies farms such as Tsumore 761 & 491, Consolidated Farm Tsumore 2134, Uris 481, Bobos-Eluwa 1365, and part of Boschecke 1267, Tschudi 461, Bobos 544 and small part of Walroda Ost 545.

Proposed Project Activities

A combination of various exploration techniques common in searching for base & rare metals, industrial minerals and precious metals will be adopted on the EPL area. The techniques likely to be utilized include, but are not limited to the following:

A. Base &Rare Metals, Industrial Mineral and Precious Metals

- Desktop review of all available geological, geochemical, geophysical data and information which would be sourced from various sources such as published literature, historical exploration in the area from the MME
- Site reconnaissance walk-over and geological plus geo-structural mapping, coupled with soil and stream sediment sampling and grab sampling
- Airborne and/ or ground radiometric, electromagnetic surveys (e.g., controlled-source audio-frequency magnetotelluric (CSAMT)) to help identify concealed intrusions, and model the dip/ strike of alkaline intrusive rock dykes and sills
- Reverse circulation (RC) and diamond drilling of specific anomalies identified from radiometric and magnetic surveys and geological mapping, including geochemical essays
- Trenching, and drilling. Where these techniques and ground geophysical surveys are required would require clearing of vegetation for the creation of access tracks, creating working platforms for the drill rigs, and setting out lines for ground geophysical equipment.

The likely scope of exploration activities to be covered over the planned exploration program is documented herein. It is important to note that the exact scope of exploration activities will be refined, documented, and reported bi-annually and/ or as exploration advances to incorporate any changes to the initial exploration program.

Public Consultation

Communication with I&APs with regards to the proposed exploration activities was facilitated through the following modes of information sharing and engagement:

- A list of pre-identified stakeholders was compiled. These formed part of the first email communication sent out soon after the first newspaper adverts for the ESIA Study.
- Formal public notices announcing the commencement of the Environmental Assessment process, inviting the public to register as I&AP and attend the public consultation meeting were published in *Die Republikein, Namibian Sun and Allgemeine Zeitung* newspapers (dated 20 & 27 November 2023).
- A notification email (with Background Information Document (BID)) was circulated to all identified and registered I&APs on 22 November 2023 announcing the commencement of the EIA process and an invitation to register as I&APs. The email also provided information on the consultation meeting (an invitation) which was scheduled for 09h30 on the 06th of December 2023. The BID contained a high-level and preliminary description of the planned scope of activities for the proposed mineral prospecting project.
- Printed formal written site notices were placed at notice boards in Tsumeb Town at the Tsumeb Municipality, Tsumeb Constituency Office, Shoprite Shopping Mall, Agra Market, Open Market in the location and Pick' n Pay Shopping Mall.
- A consultation meeting was scheduled and held on the 06th of December 2023 in Tsumeb. The meeting was attended by a total of eight people, excluding two Environmental Consultants from OMAVI Consultants. The consultation meeting minutes were taken.

Impacts Identification and Assessment

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on comments made by the I&APs during the consultation period (consultation meeting to be specific).

The comments raised by I&APs' in the consultation meeting and after the meeting were addressed and incorporated into this Report. The appropriate management and mitigation measures thereto and key negative issues identified have been provided in the Draft EMP/ESMP for implementation to avoid and/or minimize their significance on the environmental and social components.

Recommendations and Conclusions

The impact assessment done for the proposed exploration and associated activities indicates that the activities will have some negative impacts on the biophysical and socio-economic environment. However, based on the impacts' description and assessment, it showed that most of the impacts have a medium/high to high significance, if any mitigation measure is not implemented. However, upon re-

assessing the impacts after the implementation of mitigation measure, the significance would be reduced from high to medium and eventually low or from medium to low. Therefore, the significance can be reduced by the effective implementation of the provided management and mitigation measures accompanied by monitoring.

It has also been noted that the project will bring about few temporary positive impacts on the social and economic aspects. To prevent or mitigate negative impacts, coordinated project management strategy according to an Environmental Management Plan has been developed for the proposed exploration activities. The EMP contains the mitigation measures to reduce the impact's significance during project implementation when avoidance is not possible, to ensure that the project activities are undertaken in an environmentally and socially sustainable manner.

- To ensure that the EMP (ESMP) implementation is effective and yields the desired management results/indicators, monitoring of such implementation should be done by an Environmental Control Officer/ Safety Health Environment (SHE) Officer reporting to the Proponent during project implementation. Therefore, the Environmental Clearance Certificate (ECC) may be issued by the Environmental Commissioner for the proposed activities, on condition that the Proponent and their associated contractors implement the EMP for impacts' management and monitoring measures outlined in this Report and its EMP.

LIST OF ABBREVIATIONS

AEC	Alliance Environmental Consultancy
BID	Background Information Document
CA	Competent Authority
°C	Degree Celsius
DEAF	Directorate of Environmental Affairs and Forestry
DWA	Directorate of Water Affairs
ESA	Environmental Scoping Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
IAPs	Interested and Affected Parties
km	Kilometers
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment Forestry and Tourism
MME	Ministry of Mines and Energy
SHE Officer	Safety Health and Environmental Officer

GLOSSARY OF TERMS

Alternatives	A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The "no-go" alternative constitutes the 'without project' option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.
Competent Authority	A body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
Environment	As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".
Environmental Assessment (EA)	Process of assessment of the effects of a development on the environment.
Environmental Management Plan (EMP)	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Hazard	Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.
Interested and Affected Party (I&AP)	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
Mitigate	The implementation of practical measures to reduce adverse impacts.
Proponent (Applicant)	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.
Public	Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics,

	some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.
Scoping Process	Process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.
Significant Effect/Impact	An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
Stakeholder Engagement	The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term "public participation".
Stakeholders	A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs).

1. INTRODUCTION

This Environmental & Social Scoping Assessment (ESSA) Report is prepared to support the application for Environmental Clearance Certificate (ECC) for the proposed mineral prospecting activities on Exclusive Prospecting License (EPL) 9276 located west of Tsumeb in the Oshikoto (herein referred to as *the EPL* or *Project*). The report provides perspective on the envisaged exploration approach and techniques, the receiving environment, how the different exploration techniques would interact with the receiving environment, and what positive and adverse impacts those activities will potentially trigger. Alternatives are considered in regard to various aspects (such as location, the technology to be used, etc.), and the various impacts identified to be of significance are systematically assessed.
For completeness, this report should be read and evaluated with all attachments highlighted above as well as the accompanying Environmental and Social Management Plan (ESMP).

1.1. ABOUT THE PROPONENT

Tsiseb Mining & Exploration (the Proponent) is a junior minerals prospecting entity wholly registered in the Republic of Namibia and is the sole applicant and sole holder of EPL 9276. The proponent will work directly with a reputable technical and financial partner(s) who may provide the necessary technical support in the implementation of the planned exploration activities.

1.2. PROJECT BACKGROUND AND LOCALITY

Tsiseb Mining & Exploration (hereinafter referred to as the Proponent) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 9276 (EPL-9276) from the Ministry of Mines and Energy (MME) on the 27th of January 2023. However, the granting of the EPL is subject to an Environmental Clearance Certificate (ECC) from the Environmental Commissioner for consideration of the EPL as shown on the Namibia Mines and Energy Portal (''pending ECC'') - *FIGURE 1*.

The Proponent intends to prospect and explore for mineral commodities within the boundaries of the EPL, and the commodities of interest are Base & Rare Metals, Industrial Minerals, and Precious Metals. The approximately 318 hectare (Ha) - EPL is situated about 10km west of Tsumeb in the Oshikoto Region (*FIGURE 2*). The EPL overlies farms such as Tsumore 761, Uris 481 and Bobos-Eluwa 1365. The corner coordinates of the EPL are presented in TABLE 1.

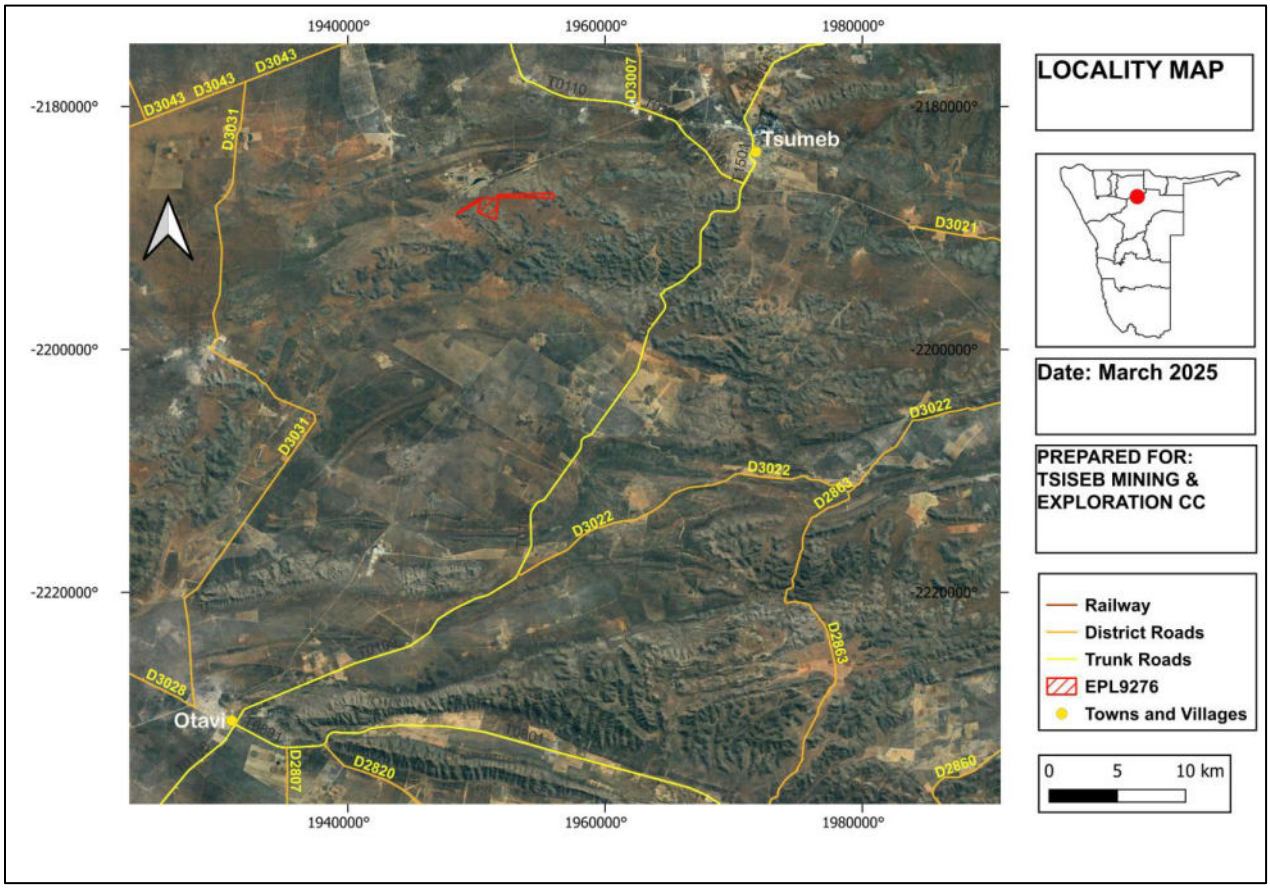

FIGURE 1. LOCALITY AND LAYOUT BOUNDARIES OF EPL-9276.

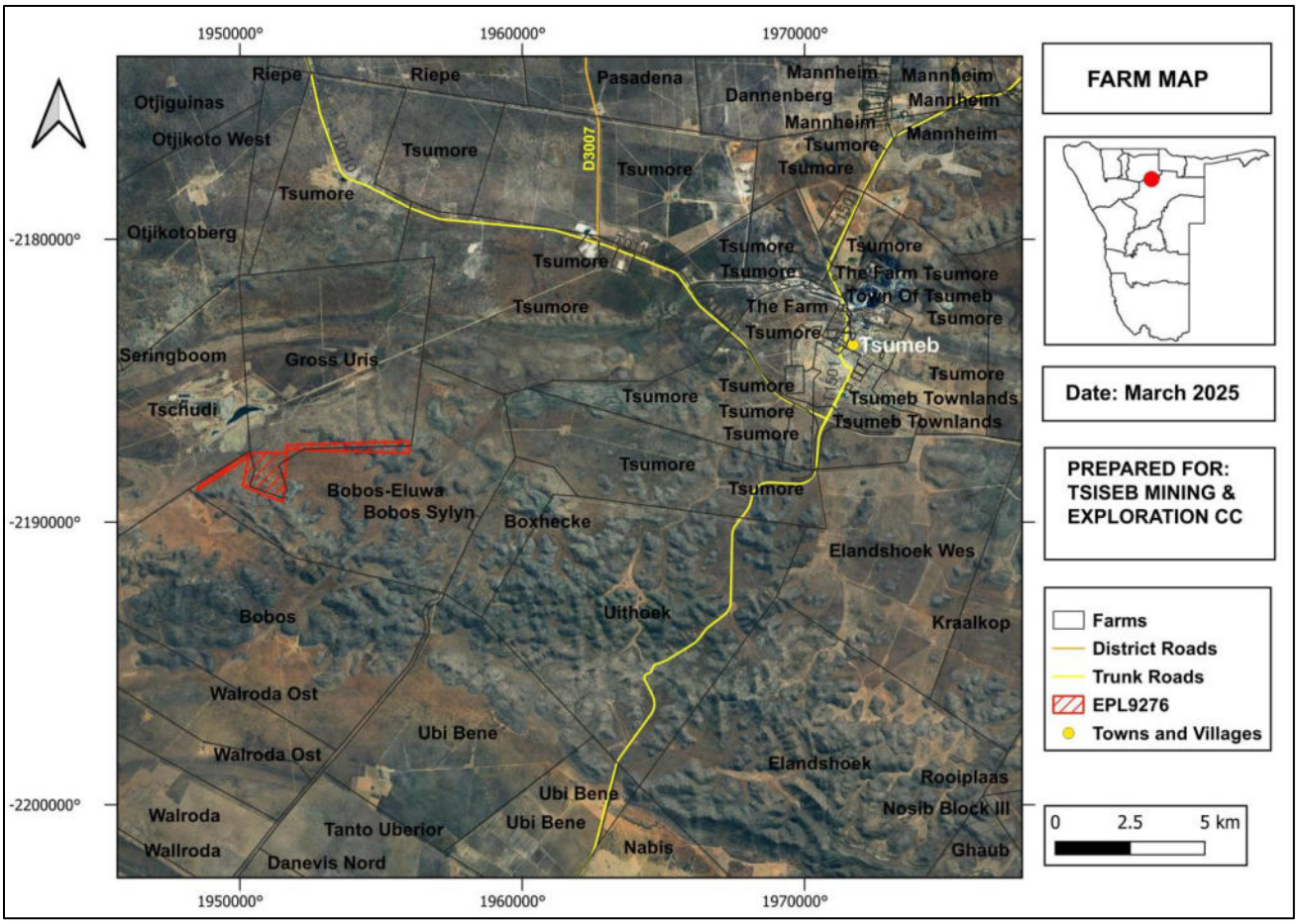

FIGURE 2. LOCALITY MAP WITH SIGNIFICANT LAND USE COVERED BY EPL-9276.

TABLE 1. CORNER COORDINATES OF EPL 9276

	LATITUDE	LONGITUDE
1	-19.288058°	17.503584°
2	-19.278693°	17.519714°
3	-19.287076°	17.518152°
4	-19.291820°	17.530809°
5	-19.275671°	17.534010°
6	-19.278527°	17.570554°
7	-19.275912°	17.571016°
8	-19.274146°	17.533861°
9	-19.276376°	17.533372°
10	-19.276979°	17.519681°
11	-19.286984°	17.503930°

1.3. WHY IS AN ENVIRONMENTAL AND SOCIAL SCOPING ASSESSMENT NEEDED

In terms of the Environmental Management Act (EMA) of 2007 and the Environmental Impact Assessment Regulations of 2012, all mineral prospecting activities are classified as listed activities which may not be undertaken without a valid Environmental Clearance Certificate (ECC) issued by the office of the Environmental Commissioner. The provision of such listed activities in the EMA is as follows:

Mining and quarrying activities

i. **Activity 3.1 (Mining and Quarrying Activities):** *The construction of facilities for any process or activities which requires a license, right or other form of authorization, and the renewal of a license, right or other form of authorization. This bears relevance to the concerned project because the planned activities may entail the installation and construction of temporary exploration camps, access tracks as well as temporary working platforms.*

ii. **Activity 3.2 (Mining and Quarrying Activities):** *Other forms of mining or extraction of any natural resource whether regulated by law or not. This bears relevance to the concerned project because soil and rock material will be extracted from within the license area's footprint in the form of soil and rock samples for geochemical testing, rock core, geotechnical testing, etc.*

iii. **Activity 3.3 (Mining and Quarrying Activities):** *Resource extraction, manipulation, conservation, and related activities. This bears relevance to the concerned project because mineral resources will be extracted from within the license area over the prospecting stage duration for drilling, trenching, pitting and testing purposes.*

iv. **Activity 8.1 (Water Resources Development):** *The abstraction of ground or surface water for industrial or commercial purposes. This bears relevance to the concerned project because surface water would be abstracted from existing water supply sources such as the Bulk water supply schemes or site boreholes for exploration drilling, to meet domestic water requirements for the exploration camps, and to supplement any drilling and metallurgical test work for latter stages of the prospecting phase.*

v. **Activity 10.1 (Infrastructure development):** *The construction of public roads and motor vehicle tracks. This bears relevance to the concerned project because access tracks for vehicles and drilling rigs may be created where existing tracks cannot be utilized.*

To support the application for an ECC, an Environmental Scoping Assessment (ESA) study must be carried out to understand how the planned project activities will interact with the current and future biophysical and socio-economic environment, and what positive and negative impacts those activities may trigger in the environment. After the ESA study a project specific Environmental Management Plan (Appendix A) shall be compiled which provides the necessary and appropriate impact management measures for all significant impacts which could be generated by the project.

The two documents with associated appendices shall then be submitted to the Department of Environmental Affairs and Forestry (DEAF) for scrutiny to allow the DEAF to make an informed and knowledge-based decision on the issuance of an ECC. The issuance of the ECC will then enable the Ministry of Mines and Energy (MME) to decide on the granting of EPL-9276 to the Proponent, as the status of the EPL application on the Namibia Mines and Energy Cadastre indicates ''pending ECC''- FIGURE 3.

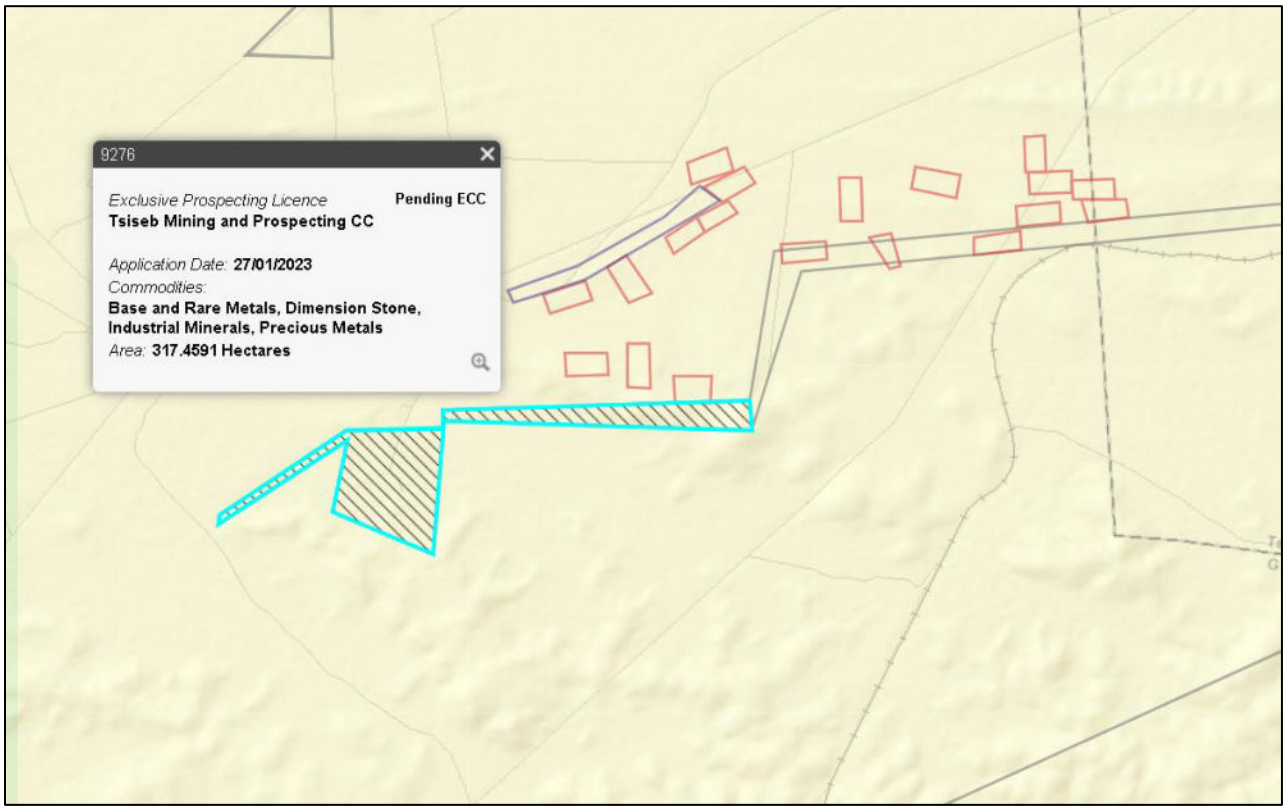

FIGURE 3. THE STATUS OF THE EPL ON THE MINES AND ENERGY CADASTRE PORTAL (SOURCE: HTTPS://MAPS.LANDFOLIO.COM/NAMIBIA/

1.4. PROJECT MOTIVATION/RATIONALE

Mining is Namibia's leading economic sector, and roughly accounts for 10% of Namibia's GDP every year. The proposed prospecting activities on EPL-9276 have potential to yield results which could lead to the development of a mine if economically viable deposits are discovered. If economically viable deposits of base & rare metals, industrial minerals, and precious metals are discovered on this property, the Namibian economy would benefit significantly from revenues generated through royalties, license rental levies and taxes to the government, procurement opportunities to local small and medium enterprises, and employment opportunities for the poverty stricken surrounding communities and where possible, the broader Oshikoto Region communities.

1.5. SCOPING ASSESSMENT LIMITATIONS

AEC assumes that all information and technical data for the Project relevant to the scope of the environmental scoping procedure provided by the Proponent, collected by AEC specialists and during the public participation process are true and correct, and that all necessary information has been disclosed.

This report is compiled as a scoping assessment. This is because the consultants believed that the magnitude of the proposed activities and the existence of similar projects in the vicinity can be used to sufficiently address potential impacts from the proposed project under the impact assessment section of the SR and to provide mitigation measures. Reviewed literature, and professional experience from similar studies in the Region and elsewhere were also considered when addressing these effects/impacts. The project specific information used in this document is as provided by the Proponent, the consultants and relevant literature reviewed/research. This report has been compiled on assumption that there will be no substantial changes to the proposed project activities or to the affected biophysical and social environment between the time of compiling this document and execution of the project, that could potentially influence the findings of this document. Where project activities alter or new impacts are identified, the EMP (**Appendix A**) should be updated to cater for the new impacts and mitigation measures should be provided therein.

2. THE EIA APPROACH AND METHODOLOGY

The ESA and EMP methodology applied for this project will take into account the provisions of the Environmental Impact Assessment (EIA) Regulations, 2012, and the Environmental Management Act (EMA) Act No. 7 of 2007. The process followed is detailed below and in FIGURE 4.

PHASE 1 – ENVIRONMENTAL SCREENING

Project initiation and registration with the Competent Authority

- This involved meeting with the proponent and discussing timeframes, logistics and project descriptions.
- Basic desktop baseline analysis and compilation of a Background Information Document (BID)
- Project registration with the Department of Environmental Affairs and Forestry (DEAF), done on the EIA online portal system.
- After the project is registered, the environmental commissioner advises whether a full EIA or scoping assessment is required for the project; for this project a scoping assessment. The required documents are outlined on the online system.

PHASE 2: ENVIRONMENTAL SCOPING ASSESSMENT INCLUDING PUBLIC PARTICIPATION PROCESS (PPP)

- An extensive desktop baseline study and review for the area is undertaken using remote sensing to identify and describe potential sites that are likely to be impacted by the project before on ground site verification.
- The consultants may conduct a site visit during this stage to form a basis for the assessment and determine the real sensitivity of the surrounding biophysical and socio-economic environment.
- The information obtained during the site visit (if done) is supplemented by a literature review and used by the environmental consultant to: (a) Determine the actual/real risks associated with the project activities, (b) Provide practical mitigation measures to minimize the risks; and (c) Make recommendations for further studies, should it be required.

Public Consultation Process and stakeholder engagement

- Public consultation is an important stage of the EIA process as it ensures public involvement. The public consultation process begins with newspaper advertisement (minimum two (2) local newspapers, advertised twice for two consecutive weeks), site notices placed at easily accessible places around the project area, in nearby towns/villages/settlements, through respective constituency offices (especially in remote areas where newspapers might not reach on time). If necessary, adverts can also be made via radio announcements. This was done to

provide the public with the opportunity to be involved in the process, provide their views and input regarding the proposed activities in the area.

- The EAP approaches different organizations and government institutions to gather information on potential stakeholders' contact details.
- During this stage, potential stakeholders (local governments, constituency offices, farmers etc.) are identified and made aware of the project as advised in writing. An invitation email was sent to the identified I&APs. All I&APs contact details are collected for future communications related to the project progress.
- The Background Information Document (BID) prepared in phase 1 is shared with all identified and registered I&APs during this period. The BID usually contains high-level summarized project information such as the project description of activities, project motivation, potential impacts, and the EIA process followed. This document was shared via email to the relevant/applicable parties. Other social media platforms such as WhatsApp could also be utilized. During this stage, face to face public engagement and information sharing could be hosted.
- All comments, inputs, issues and/ or concerns raised by I&APs during the process are recorded for consideration in the environmental assessment report and towards the development of the EMP.

PHASE 3: ENVIRONMENTAL REPORTING – ENVIRONMENTAL SCOPING ASSESSMENT REPORT (ESAR) AND ENVIRONMENTAL MANAGEMENT PLAN (EMP)

- This stage includes data reduction and analysis using appropriate techniques to produce suitable project results for interpretation and discussion. It also entails consolidation of the findings in the form of a report that can be presented to the proponent for review and comments. An EMP is drafted to mitigate negative impacts and manage all impacts identified in the scoping report.
- After approval of the documents by the Proponent, the draft ESAR and EMP is prepared for circulation to the public (I&APs) for comments over a period of 7-days.
- All comments are consolidated and included in the reports and the ESAR and EMP are finalized for submission to the competent authority MME and issuing authority (MEFT).
- The registered and identified I&APs are informed that the final documents have been submitted to the authorities for decision making and that for any further comments, they can directly contact the DEAF. Furthermore, the DEA provides another 14 days period for public participation on the online portal.

PHASE 4: FOLLOW-UP WITH THE COMPETENT AUTHORITY UNTIL FEEDBACK IS GRANTED

Should the DEAF require further information, the EAP is alerted of this request and which information to provide.

FIGURE 4 BELOW PROVIDES A SIMPLIFIED EIA PROCESS FLOWCHART

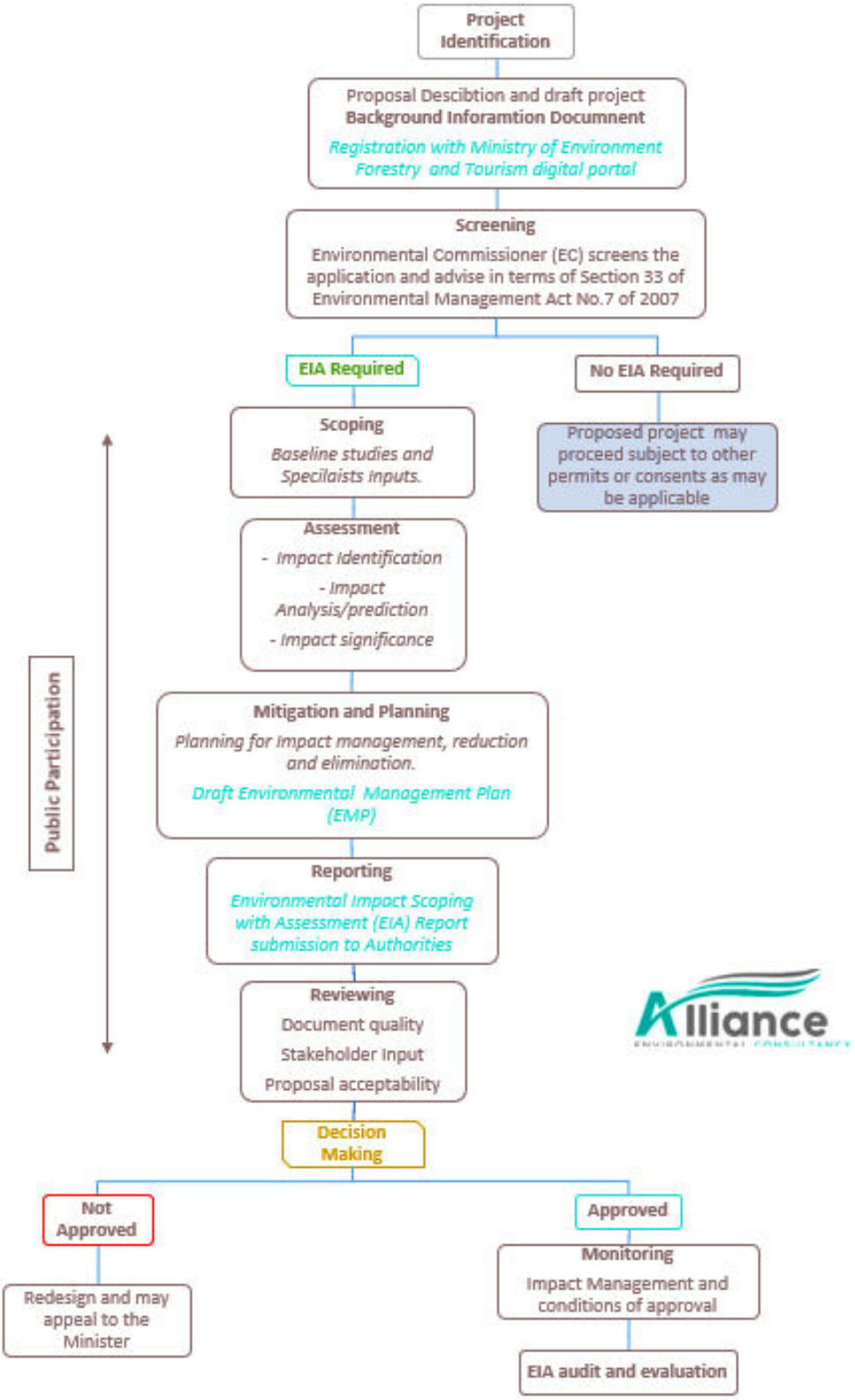

FIGURE 4. EIA FLOW CHART BY AEC

3. PROJECT BACKGROUND AND DESCRIPTION OF PLANNED ACTIVITIES

3.1. PROJECT LOCATION

Tsiseb Mining & Exploration cc (hereinafter referred to as the Proponent) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 9276 (EPL-9276) from the Ministry of Mines and Energy (MME) on the 27th of January 2023. However, the granting of the EPL is subject to an Environmental Clearance Certificate (ECC) from the Environmental Commissioner for consideration of the EPL as shown on the Namibia Mines and Energy Portal (''pending ECC'') -FIGURE 5.

The Proponent intends to prospect and explore for mineral commodities within the boundaries of the EPL, and the commodities of interest are Base & Rare Metals, Industrial Minerals, and Precious Metals. The 14,563.1321 hectare (Ha) - EPL is situated about 10km west of Tsumeb in the Oshikoto Region (FIGURE 6). The EPL overlies farms such as Tsumore 761, Uris 481 and Bobos-Eluwa 1365.

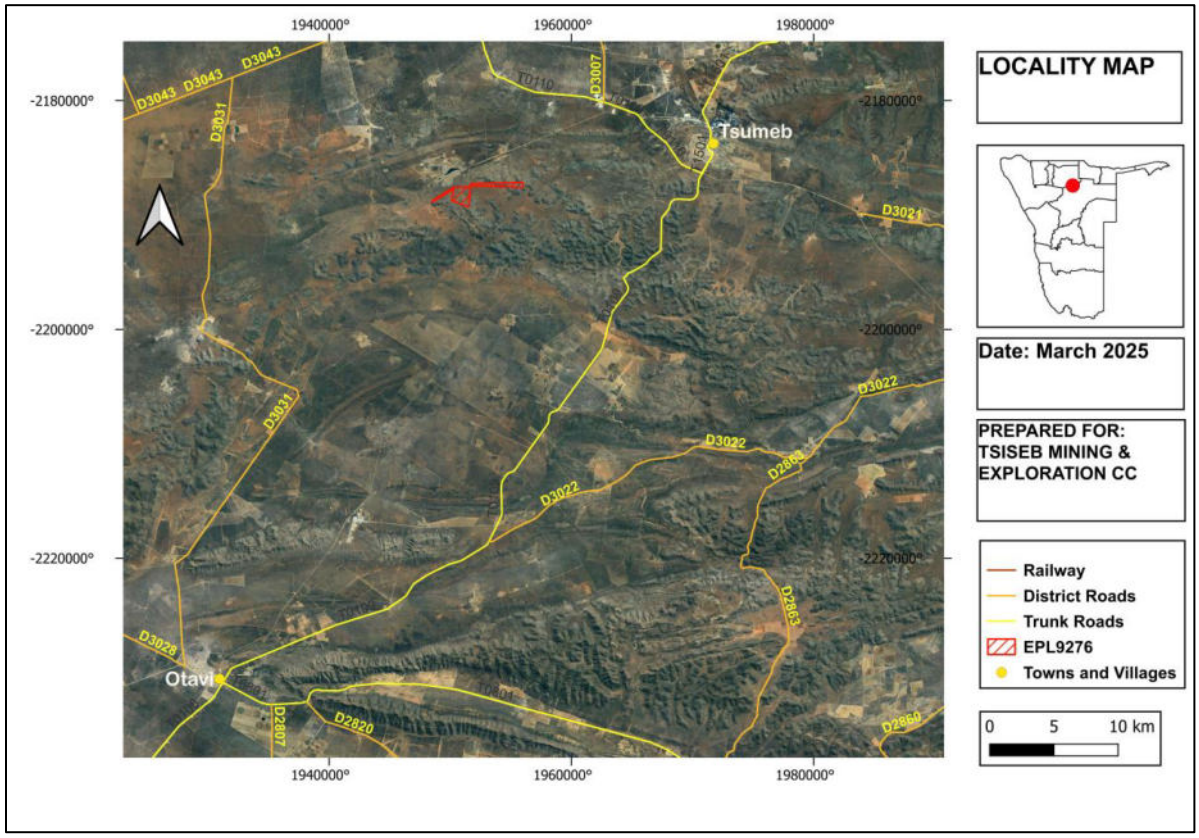

FIGURE 5. LOCALITY AND LAYOUT BOUNDARIES OF EPL-9276.

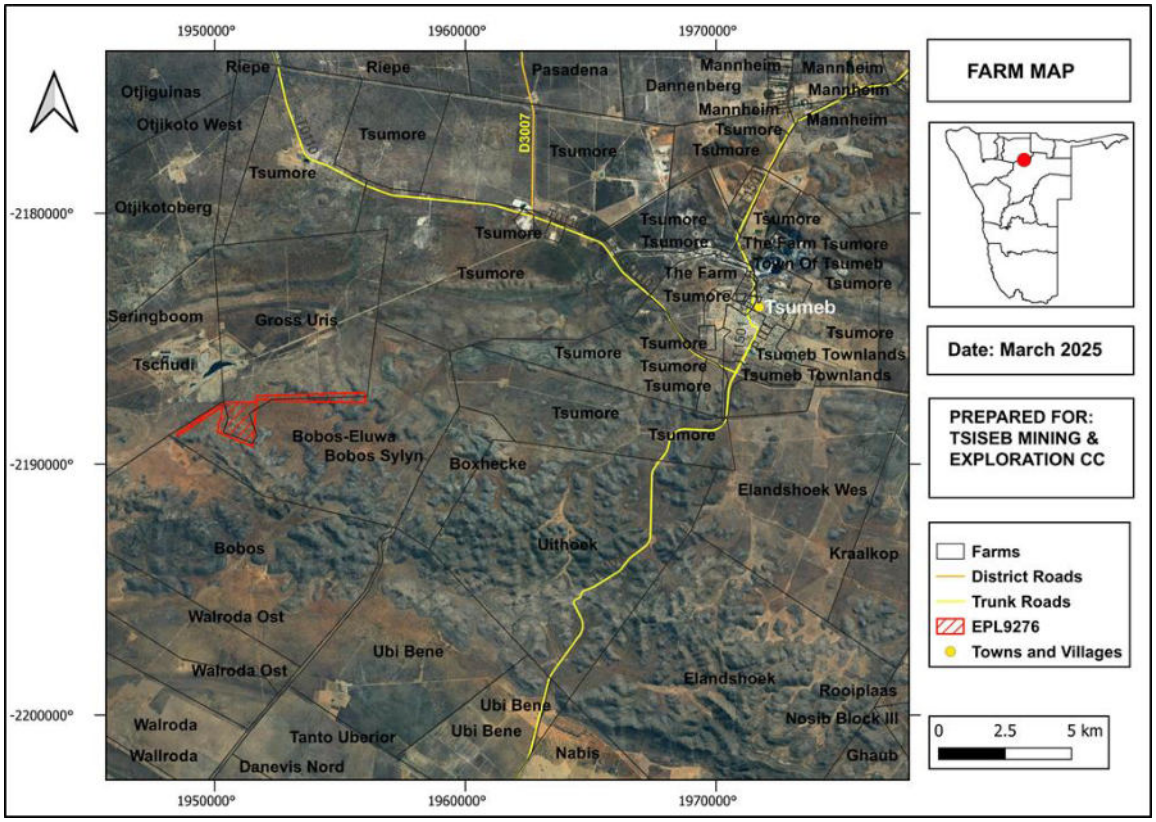

FIGURE 6. LOCALITY MAP WITH SIGNIFICANT LAND USE COVERED BY EPL-9276.

3.2. PROJECT ACTIVITIES AND PROJECT INPUTS

3.1.1. EXPLORATION OPERATIONAL ACTIVITIES

The primary exploration target on the license is for copper-lead-gold-silver-and vanadium (Cu-Pb-Au-Ag-V). The primary mineralization model is the Tsumeb-type deposits are polymetallic which is associated with calcitic pipes, and mineralization occurs within or just below the jasperoid, often accompanied by calcitic streaks.

The exploration team is envisioned to consist of up to fifteen (15) skilled, semi-skilled, and non-skilled workers. Initially the company may start with 2-3 exploration geologists and 2-3 field technicians. Additional support like logistics, labourers, cooks etc., will likely be needed, and employment will ramp up as needed for each phase of the exploration program. Casual general workers will be sourced from the communities nearest to the projects. Field operations may operate up to 10 hours a day (7am to 5pm) for up to 6-days per week, or as needed. The personnel will be transported to and from the operational base which will either be in Tsumeb or on one of the farms.

i. Vehicle, machinery, and associated equipment

At the initial stages of mineral exploration, the company will use 4x4 vehicles. Heavy machinery will be used from drilling stages. The number of vehicles will depend on the work program. The main equipment types that will be used will include 4X4 bakkies, drill rigs (Reverse Circulation (RC) or Diamond Drill Hole (DDH)), excavators and front-end loaders to be used if overburden topsoil removal is required, water tankers for the camp site and to support drilling operations, portable geophysical equipment, sampling equipment (bags, sieves, spades etc.). The equipment will be stored in designated areas at the exploration sites, camps, or accommodations.

The projected mineral exploration activities during prospecting follow a staged approach. The different work aspects and consecutive phases are summarized as follows:

ii. Desktop studies including geological mapping.

Initially the proponent would gather all existing data for the areas of interest. This may be done by purchasing data such as historical assessment reports, geochemical data, and high-resolution geophysical data from the MME/GSN. The existing data forms the basis of desktop studies, evaluation of areas of interest for mineral exploration, and target identification. Once the licences are granted, one of the initial stages in mineral exploration on the EPL would be to ground truth known mineral occurrences and conduct geological mapping at targets generated from the desktop studies. The information gathered from the various field campaigns are fed into the existing databases towards improving exploration tools and mineralization models for successful exploration. This stage of mineral exploration is non-invasive.

To map the sub-surface, in potentially mineralized areas, the company may consider trenching. Trenches may be dug / excavated to a depth of about 5m or less. The material from the trenches is put on the sides of the trenches for backfilling of these trenches once they are no longer needed. If the trenches are needed for a longer period they may be fenced off.

iii. Geophysical survey

The geophysical surveys will include the collection of information of the substrata, by ground and airborne techniques. Detection will be through sensors such as radar, magnetics and electromagnetics to detect any mineralization in the area. Ground geophysical surveys would be carried out using sensors mounted on vehicles or carried by hand FIGURE 7. Aerial geophysical surveys would be carried out using sensors mounted on unmanned drones or on the ground (refer to FIGURE 8**)**. The ground and airborne geophysical technique tries to measure electrical conductivity and magnetic variations of the ground using measuring instruments suspended underneath a helicopter, drone or aircraft. During

the survey, the magnetometer continuously records the conductivity or total magnetic field intensity immediately beneath the magnetometer. Where necessary, permits will be obtained from Namibia Civil Aviation Authority (NCAA) to support the airborne geophysical surveys. Geophysical methods used in mineral exploration are generally, non-intrusive, with little to no impact on the receiving environment.

FIGURE 7. IILUSTRATIVE IMAGE OF A GROUND-BASED GEOPHYSICAL SURVEY WITH MAGNETOMETER (PHOTO TAKEN FROM: HTTPS://IRSL.SS.NCU.EDU.TW/MEDIA/COURSE/CI/SIO_9.PDF

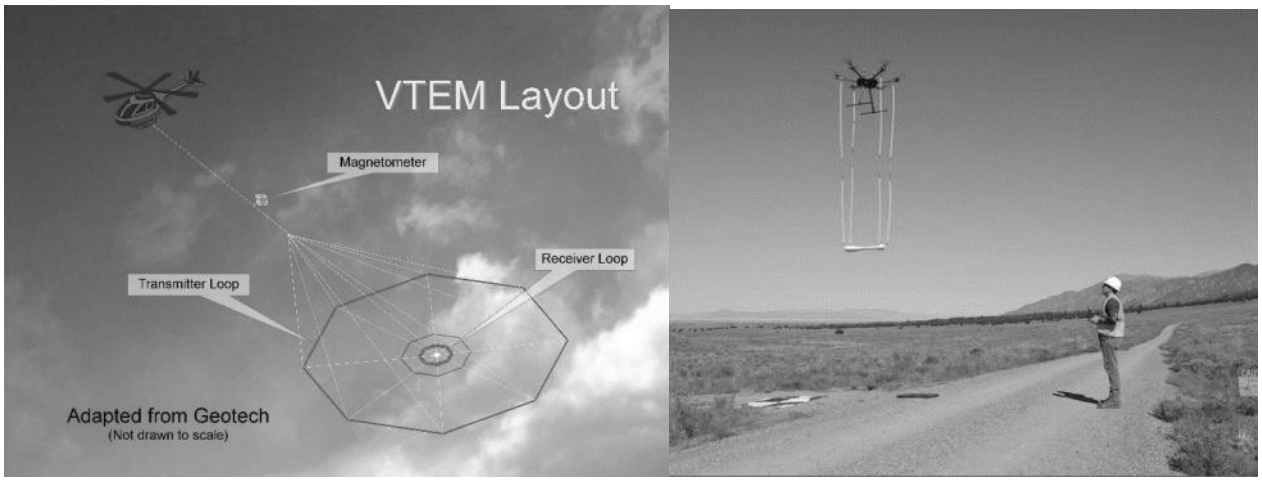

FIGURE 8. LLUSTRATIVE IMAGES OF AIRBORNE GEOPHYSICAL TECHNIQUES (PHOTO CREDITS: HTTPS://WWW.GEOLOGYFORINVESTORS.COM/AIRBORNE-GEOPHYSICAL-METHODS/)

Prior communication shall be made with the relevant landowners and general public before surveys are conducted. This is to impart information on what is taking place as some may not understand why drones are being flown back and forth (predetermined grid lines), and what the attached equipment

does. Also, depending on the height being flown, the noise from airborne surveys may present a discomfort to people and animals.

iv. Geochemical sampling

This stage incorporates the collection and geochemical analyses of material such as rocks, drill core or drill chips, stream sediments and soil (FIGURE 9**)**. Samples will be collected during ground-truthing/reconnaissance and geological mapping activities.

Soil samples are collected at depths of at least 20 - 30cm, by firstly removing the upper surface of the soil that will be filled back once a sample is collected. The samples are collected into bags of approximately 500grams to 1kg. Sampling might be carried out in up to 8 teams, each consisting of a field technician or geologist and local field assistants.

The samples collected during field campaigns are sent to an analytical laboratory (as preferred by the proponent) for geochemical trace element and whole rock analysis, mineralogy, or for heavy mineral separates. This is to determine if the desired mineralization is present, and in which quantities. Mineralogical studies on samples collected will run consecutively to geochemical sampling to determine host mineralogy and any complications that may arise later in the geo-metallurgy process.

FIGURE 9. EXAMPLES OF GEOCHEMICAL SAMPLING OF SOILS (Photo taken from: https://www.fishereng.com/post/b-understanding-geotechnical-investigations)

v. Exploration Drilling

Exploration drilling (FIGURE 10**)** is the process of sampling rock below surface, where it is suspected that there may be mineralization. Drill targets are generated from the review and interpretation of results in combination of desktop studies, geological mapping, geophysical surveys, and geochemical analysis. It may be necessary to clear tracks and drill platforms/pads in preparation for drilling activities. Efforts will be made to limit or minimize the amount of clearing of trees and shrubs for drilling. For these

purposes tree removal and clearing permits can be applied for at the Department of Forestry (DoF), at MEFT.

Initially, drilling would be localized on discrete targets identified from the geophysical and soil sampling anomalies.

The drilling techniques to be adopted shall be Reverse Circulation Drilling (RC) and later on Diamond Drilling. Both methods are applied in mineral exploration, resource evaluation and subsequently in defining an ore reserve. Storage of the drill products (rock chips and/or drill core) may be near the exploration site, the exploration camp, a storage warehouse in proximity to the project, or rental of a warehouse near the project. Additional work may be required on the drill products, such as XRF analysis, core cutting and sampling, which may be conducted at the storage facility.

FIGURE 10. ILLUSTRATIVE IMAGE OF A DRILLING OPERATION (Photo credits: https://www.juniorminingnetwork.com/junior-miner-news/press-releases/394-tsx-venture/sgn/100723-scorpio-gold-commences-exploration-drilling-program-on-manhattan-mine-nevada.html)

During Diamond drilling a solid tubular rock known as core is extracted (FIGURE 11). The cored rock represents the lithology/rocks below ground, and is extracted from depth, for examination at surface. The key technology of the diamond drill is the diamond bit. It is composed of industrial diamonds set into a soft metallic matrix. The drill produces a "core" which is logged, photographed and which can be split longitudinally for sampling. Half of the split core is assayed while the other half is stored for future uses and as a reference.

FIGURE 11. IILUSTRATIVE IMAGE OF A DIAMOND DRILL CORE (PHOTO CREDITS: HTTPS://WWW.ISTOCKPHOTO.COM/PHOTOS/CORE-DRILLING)

RC Drilling uses a pneumatic hammer, which drives a rotating tungsten-steel bit. The technique produces an uncontaminated large volume sample, which is comprised of rock chips (FIGURE 12). RC is relatively quick and cheap compared to Diamond Drilling. In mineral exploration RC drilling is commonly used in uncomplicated geology at shallow levels, or for infill drilling, at a much higher density or narrower spacing for confidence in the mineralization and to allow extrapolations of the mineralization host rock units.

FIGURE 12. IILUSTRATIVE IMAGE OF RC DRILLING ROCK CHIPS (PHOTO TAKEN FROM: HTTPS://WWW.MARKETINDEX.COM.AU/NEWS/ALDOROS-PEGMATITE-INTERSECTIONS-AT-MURCHISON-LOOK-ENCOURAGING)

Drilling platforms/pads in RC and diamond drilling, are approximately 15 m x 15 m. This space is needed for the machinery and working areas of the drill teams. When the machines are on, for safety, the drilling site is off-limits to those who are not part of the exploration team.

The drill results once received and the drilling phase is completed, the results are evaluated, and a decision will be taken whether to continue to the next phase of mineral exploration on the EPL. If exploration drilling results are positive the information will be used to determine follow-up drilling phases which may lead to resource definition and modelling.

vi. Advanced prospecting/exploration

In the advanced stages of mineral exploration, and if an economic mineral deposit is found on the EPL, larger quantities of rock sample material may be required for performing processing trials and for metallurgical testing programs. Ground conditions and geotechnical parameters also need to be established for planning and costing purposes to move to the next phases of the project.

Bulk sampling for metallurgical tests and processing trials will be done to complement the material obtained during drilling. A bulk sample can be collected via trenching if the weathering of the rocks is not too deep, or from drilling with larger bit sizes, or from localized blasting. The size of the sample required depends on the nature of the mineralization as observed from drilling and sampling.

vii. Pre-feasibility and feasibility studies

If the advanced exploration activities yield positive results the project will move to feasible evaluation. A feasibility study is conducted to determine whether the defined mineral resource on a certain project can be mined economically.

In addition to the data previously gathered on the project, this stage may require additional detailed and site-specific resource and geotechnical drilling, bulk sampling, laboratory and metallurgical testing, and possibly trial mining.

3.1.2. DECOMMISSIONING AND FINAL REHABILITATION (IF NO DISCOVERY IS MADE)

Decommissioning activities will include the removal of any temporary infrastructure, rehabilitation of roads and other linear infrastructure, drill sites and bulk sampling pits. This is done to reduce the effects of soil erosion and to re-establish normal ecosystem functionality so as to rehabilitate the environment. Functional water boreholes (if any were drilled by the proponent) and solar panels could be donated to the local communities. Rehabilitation efforts can be expected to be low if economic mineralization is not found on the EPL, because the mineral exploration activities would have had minimal impact on the environment or may have been limited to non-invasive activities, if there was no justification from surface observations to trench or drill test any of the targets.

4. ALTERNATIVES CONSIDERED

In terms of the Environmental Management Act, No. 7 of 2007 and EIA Regulations, alternatives considered should be analyzed to identify different means of meeting the general purpose and requirements of the activity, which may include alternatives to, location, type of activity, design and layout, technology, and operation aspects. This is to ensure that during the design evolution and decision-making process, potential environmental impacts, costs, and technical feasibility have been considered, which leads to the best option(s) being identified. The alternatives considered are tabulated below. Refer to TABLE 2.

TABLE 2. CONSIDERATION OF ALTERNATIVES CONCERNING THE PROJECT ACTIVITIES

ALTERNATIVE	JUSTIFICATION
Site/Location	**Minerals Occurrence Location**- Several economic deposits are known to exist in various locations of Namibia, some of which have been explored and mined by various companies throughout the years. However, economic mineral occurrences are highly localized and therefore primarily determined by the site geology. In this specific EPL, the proponent proposes to explore and potentially mine for base & rare metals, precious metals, industrial minerals, and nuclear fuel minerals. The proponent has evaluated the geology of the matchless belt and identified areas where there are potential mineralization zones which may host the metals of interest. They thus decided to apply for EPLs in these areas of interest.
Infrastructure	**Access Roads –** The access routes to target areas and around the EPL have not been determined yet, however the proponent will use the existing external and internal road networks during the various phases of the project, should any new access be created, it will be done in consultation with the landowners/land custodians as well as MEFT. At a later stage in the exploration, the Proponent may need to upgrade some of the tracks to ensure that they are fit to accommodate project vehicles, such as rig bearing trucks, and may erect temporary road signs for the duration of the project. **Equipment and infrastructure –** The equipment and infrastructure options considered by the proponent are deemed sufficient at this stage of the project and were chosen based on cost, the environment, as well as accuracy in terms of required mineral information. However, in the world of revolving technology, the proponent may opt to employ other improved and environmentally safe to use equipment/infrastructure, in future and if deemed necessary, to maximize the project output.
Water supply	The proponent will use existing water infrastructure. Water may be brought to site from the nearest town/settlement and stored in tanks on site for basic water needs (drinking, cooking, ablutions etc). The alternative is to use existing boreholes or do a hydro search to drill a new borehole. Extra water needs may be supplemented with borehole water or other alternatives to be sought when the need arises.

Power supply	The first alternative is to use existing power supply sources in the area. If there are no existing power infrastructure in the area, power may be sourced from a diesel generator. Another alternative is to Install photovoltaic solar panels.

4.1. NO GO ALTERNATIVES

The no-go option to not conduct mineral exploration on the license will deprive the proponent of an opportunity to pursue its business and to strive for mineral resource discoveries, it will also constitute an opportunity loss for the Namibian economy and overall wealth of the Namibian people. As such, it will also deny other key stakeholders an opportunity to earn a much-needed income. The local authority and central government agencies will not earn revenue through rates and taxes. Considering the above losses, the "no-action/go" alternative was not considered a viable option in the interest of the directly affected community and the proponent.

5. LEGAL REQUIREMENTS

5.1. LIST OF APPLICABLE LAWS AND LEGISLATIONS

A list of legislation that is applicable to the proposed project is presented in TABLE 3.

TABLE 3. LIST OF APPLICABLE NATIONAL LAWS AND LEGISLATIONS

LAW	SUMMARY DESCRIPTION & APPLICABILITY
Constitution of the Republic of Namibia, 1990	The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature, and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled "promotion of the Welfare of the People". This article states that the Republic of Namibia shall – "Actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at; maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for all Namibians, both present and future. The Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory."
Minerals (Prospecting and Mining) Act, No. 33 of 1992 *Ministry of Mines and Energy*	Minerals (Prospecting and Mining) Act 33 of 1992 and special regulations Sections 50, 52, 54, 57 and 130 of this Act sets out provisions for environmental management for activities arising from mineral, Exploration, and exploitation of mineral resources
The Minerals Policy of Namibia, 2003 *Ministry of Mines and Energy*	This policy sets out guiding principles and directions while communicating the values of the Namibian people in pursuit of the development of the mining and mineral resources beneficiation sector.
Charter for Sustainable and Broad-Based Economic and Social Transformation in the Namibian Mining Sector 2014 – 2020 (The Namibian Mining charter)	This charter aims to facilitate meaningful participation of historically deprived Namibians in the mineral exploration, mining and mineral beneficiation industry. It has effectively been developed as an instrument to effect transformation and sets specific targets for mineral license holders and Operators of mineral processing facilities active in Namibia.

Environmental Management Act (2007) *Ministry of Environment, Forestry and Tourism (MEFT)*	The purpose of the Act is to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. - to promote the coordinated and integrated management of the environment to give statutory effect to Namibia's Environmental Assessment Policy. - to enable the Minister of Environment, Forestry and Tourism to give effect to Namibia's obligations under international conventions. - In terms of the legislation, it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring environmental assessments. - Activities listed as per the provisions of the Act will require environmental assessment unless the Ministry of Environment, Forestry and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception. The provision of listed activities is listed under **section 1.4.**
Environmental Assessment Policy (1994) *Ministry of Environment, Forestry and Tourism (MEFT)*	This policy aims to promote sustainable development and economic growth while protecting the environment in the long term by requiring environmental assessment prior to undertaking of certain activities. Annexure B of the policy contains a schedule of activities that may have significant detrimental effects on the environment, and which require authorisation prior to undertaking.
Water Act 54 of 1956 Water Resources Management Act (Act No. 11 of 2013) Ministry of Agriculture, Water and Land reform (MAWLR)	This Act provides for the control, conservation, and use of water for domestic, agricultural, urban, and industrial purposes. In terms of Section 6, there is no right of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the proposed project must ensure that mechanisms are implemented to prevent water pollution. water permits will also be required to abstract groundwater as well as for "water works."
Forest Act 12 of 2001 - Minister of Environment, Forestry and Tourism (MEFT)	The Act provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires.

	Section 22 requires a permit for the cutting, destruction or removal of vegetation that are classified under rare and or protected species; clearing the vegetation on more than 15 hectares on any piece of land or several pieces of land situated in the same locality which has predominantly woody vegetation; or cut or remove more than 500 cubic metres of forest produce from any piece of land in a period of one year. Should the above be unavoidable, it will be necessary to obtain a permit from the Ministry. Minimal vegetation clearing will be required to support the project activities. The necessary permit should be obtained from the MEFT, where the application should satisfy that the cutting and removal of vegetation will not interfere with the conservation of soil, water, or forest resources.
Hazardous Substance Ordinance 14 of 1974 *Ministry of Health and Social Services (MoHSS)*	Provisions for hazardous waste are amended in this act as it provides "for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing 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."
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001) *Ministry of Mines and Energy*	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area. The project will require diesel storage for supplying power, and machinery operation. The necessary permits should be acquired in this regard.
Atmospheric Pollution Prevention Ordinance 11 of 1976. Ministry of Health and Social Services (MoHSS) WHO guideline on noise levels. Occupational Safety and Health Administration (OSHA) guidelines	This regulation sets out principles for the prevention of the pollution of the atmosphere and for matters incidental thereto. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles. The proposed prospecting activities would not entail the discharge of large quantities of gaseous pollutants into air but may result in increased noise levels, dust generation, destruction of in situ soil structure during such operations.

The Nature Conservation Ordinance 4 of 1975, Ministry of Environment, Forestry and Tourism (MEFT)	Care must be taken to ensure that protected plant species and the eggs of protected, and game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment, Forestry and Tourism. Should the Proponent operate a nursery to propagate indigenous plant species for rehabilitation purposes, a permit will be required.
Soil Conservation Act, No. 76 of 1969 and the Soil Conservation Amendment Act, No. 38 of 1971	The act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil and vegetation
Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007 *Ministry of Labour, Industrial Relations, and Employment Creation (MLIREC)*	The Labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and maintain the welfare of the people. This Act is aimed at establishing a comprehensive labour law for all employees. to entrench fundamental labour rights and protections. to regulate basic terms and conditions of employment. To ensure the health, safety and welfare of employees under which provisions are made in chapter 4. Chapter 5 of the act improvises on the protection of employees from unfair labour practice.
Affirmative Action (Employment) Act No. 29 of 1998	Fair employment practice
Regional Councils Act (Act No. 22 of 1992)	The Regional Councils Act legislates the establishment of Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to initiate, supervise, manage, and evaluate development in the regions.
Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995	Prescribes Environmental Impact Assessments for any developments with potential negative impacts on the Environment
Nature Conservation Amendment Act 5 of 1996	To provide for an economically based system of sustainable management and utilization of game in communal areas

Draft Pollution and Waste Management Bill (1999)	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. The Bill repeals the Atmospheric Pollution Prevention Ordinance (11 of 1976). In terms of water pollution, it will be illegal to discharge of, or dispose of, pollutants into any watercourse without a Water Pollution Licence (apart from certain accepted discharges). Similarly, an Air Quality Licence will be required for any pollution discharged to air above a certain threshold. The Bill also provides for noise, dust or odour control that may be considered a nuisance. The Bill advocates for duty of care with respect to waste management affecting humans and the environment and calls for a waste management licence for any activity relating to waste or hazardous waste management.
Convention on Desertification of 1994	Combating desertification and mitigation of the effects of drought
National Heritage Act 27 of 2004 *Ministry of Education, Arts and Culture (MEAC)*	This Act provides provisions for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The proposed activities will ensure that if any archaeological or paleontological objects, as described in the Act, are found during the implementation of the activities, such a find shall be reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage

TABLE 4. INTERNATIONAL LAW TO WHICH NAMIBIA IS A SIGNATORY

INTERNATIONAL LAW TO WHICH NAMIBIA IS A SIGNATORY
The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal – 1989
The Rotterdam convention on the Prior Informed Consent Procedure for Certain Hazardous chemicals and Pesticides in International Trade – 1989
The Rio de Janeiro Convention on Biological Diversity - 1992
United Nations Framework Convention on Climate Change - 1992

5.2. KEY REGULATORS / COMPETENT AUTHORITIES

The regulatory authorities responsible for environmental protection and management in relation to the proposed project, including their role in regulating environmental protection are listed in TABLE 5.

TABLE 5. AGENCIES REGULATING ENVIRONMENTAL PROTECTION IN NAMIBIA.

AGENCY	RESPONSIBILITY
Ministry of Environment, Forestry and Tourism (MEFT)	Issuance of Environmental Clearance Certificate (ECC) based on the review and approval of the Environmental Assessments (EA) reports comprising Environmental Scoping and Environmental Management Plan (EMP) prepared in accordance with the Environmental Management Act (2007) and the Environmental Impact Assessment Regulations, 2012
Ministry of Mines and Energy (MME)	Competent authority. The national legislation governing minerals prospecting and mining activities in Namibia fall within the jurisdiction of the Ministry of Mines and Energy (MME) as the Competent Authority (CA) responsible for granting authorisations. The Minerals Prospecting and Mining Act No.33 of 1992 approves and regulates mineral rights in relation to exploration, reconnaissance, prospecting, small scale mining, mineral exploration, large-scale mining, and transfers of mineral licences.

5.3. PERMITS

Some permits related to exploration activities are listed in TABLE 6.

TABLE 6. APPLICABLE PERMITS TO THE PROPOSED PROJECT

PERMITS/CERTIFICATES	ACTIVITY	VALIDITY
Exclusive Prospecting Licence - MME	Issued once the mining commissioner is satisfied if all requirements outlined in the preparedness to grant are met.	3- Years
Environmental Clearance Certificate - MEFT	Issued once the environmental commissioner is satisfied with the EMP submitted in support of the project. The EMP will be the legally binding document between the MEFT and the proponent.	3-Years
Fuel Consumer Installation Certificate - (MME)	Regulates the amount of fuel product in possession	Temporary/ permanent
Notice of intention to drill – (MME)	This is submitted to the mining commissioner prior to drilling operation.	Valid for the drilling period in notice
Water abstraction permit – (DWA)	This is applied for at the Directorate of Water Affairs to outline the borehole locations and the quantities of water you intend to abstract and for what sort of activities	Permit dependent
Forestry Permits – (DOF)	Regulates the forest species to be cleared.	Temporary.

6. BASELINE ENVIRONMENT/ STUDY AREA

This section provides an overview of the current status quo of the climatic, biophysical and socio-economic landscape through the analysis of baseline data and information as deduced from field observations/ assessments, literature and engagement.

For this project the data has been collected through a desktop study of various data sources, existing literature as well as site observations and consultations with the immediate affected people. In this respect, baseline information is provided on the receptors described under the following subsections:

The aim of this section is to provide a baseline against which changes that may occur as a result of the current and proposed project activities can be measured, gauged and monitored through time.

6.1. CLIMATIC CONDITIONS

The Tsumeb area is one of the few areas in Namibia that receive some good rains and according to Lohe et al, (2021), Tsumeb receives an average annual rainfall of between 550 to 600mm.

The rainiest months of the year are from November to March. The highest recorded rainfall event from the year 2009 to 2021 was 708.7 mm in January 2021, followed by 699.2mm in December 2011 and 690.69mm in January 2011. The graphs of the rainfall and rain days as well as for monthly average rainfall for the period of 2009 to 2022 – the rainfall information is shown in FIGURE 13 and Figure 14.

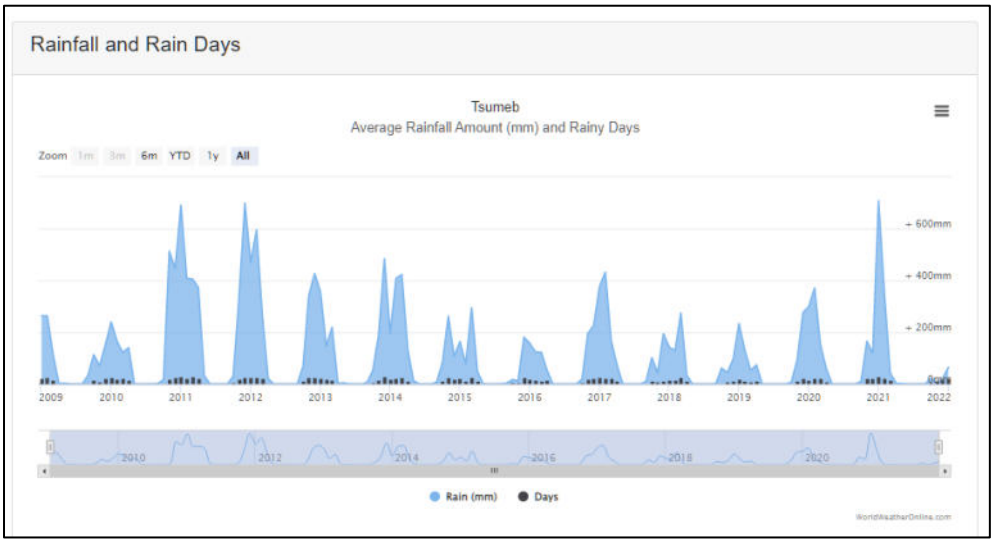

FIGURE 13. THE RAINFALL AND RAIN DAYS CHART FOR TSUMEB AREA (SOURCE: WORLD WEATHER ONLINE, 2022)

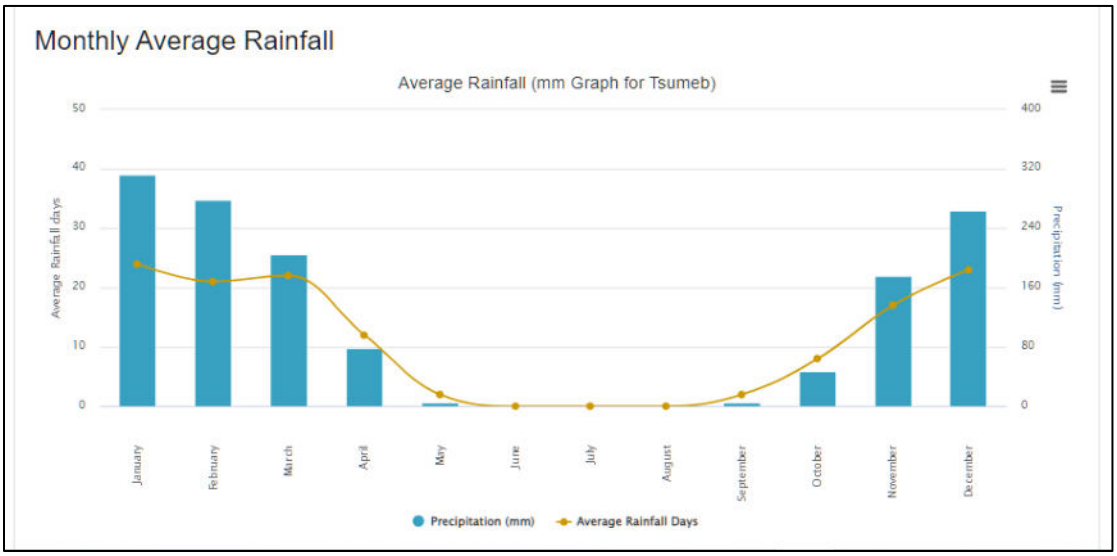

Figure 14. THE MONTHLY AVERAGE RAINFALL CHART FOR TSUMEB AREA (SOURCE: WORLD WEATHER ONLINE, 2022)

In terms of temperatures, the maximum values recorded for the Tsumeb area which is hosting the project site for the period of 2009 and 2022 range between 20°C and 36°C whereas the minimum temperatures range between 5°C and 21°C. The average low and high temperatures are 7°C in July and 32°C in September (World Weather Online, 2022).

6.2. AIR QUALITY AND WIND DIRECTION

The potential current known sources of air pollution around the project site are dust emissions from unpaved access roads, and emissions from heavy vehicles such as trucks that may be travelling into and through the area on unpaved gravel roads.

According to IQ Air (2022), the current air pollution level around Tsumeb is good. The air quality index (AQI) is 25 US AQI. The main pollutant is the atmospheric particulate matter (PM) 2.5. PM, which are microscopic solid or liquid matter suspended in the air with a diameter of 2.5 micrometres (µm) or less. The PM2.5 concentrate of Tsumeb is 6.1 µg/m^3.

The PM2.5 concentration in Tsumeb air is currently 1.2 times above the World Health Organization (WHO) annual air quality guideline value (IQ Air, 2022).

Wind direction and speed: according to the wind rose for Tsumeb in FIGURE 15, the wind is blowing from the indicated direction (Southwest (SW) to Northeast (NE) at a speed of 12 and 19 kilometres per hour (km/h). The wind chart shows the days per month, during which the wind reaches a certain speed. For instance, there was recording of 15, 16 and 17 days of wind with speeds of more than 19 km/h in July, October and September, respectively.

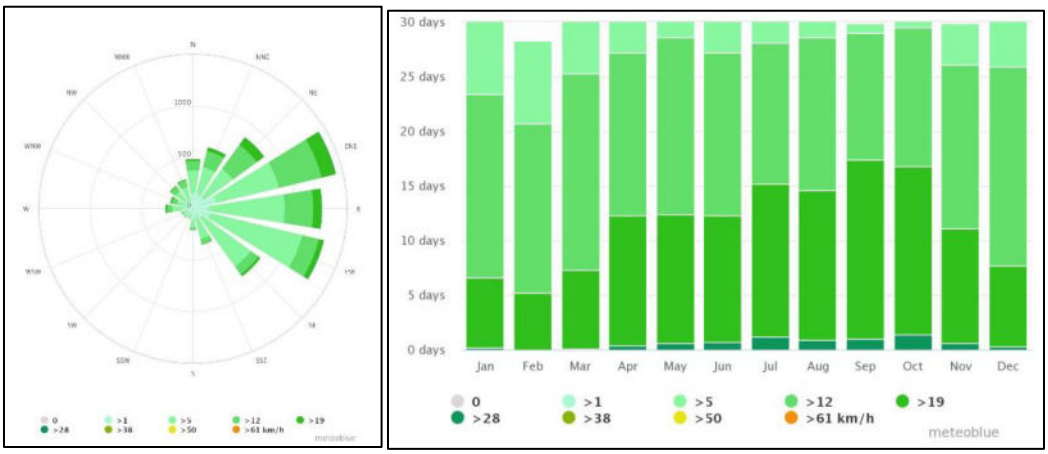

FIGURE 15. WIND ROSE FOR THE TSUMEB AREA (SOURCE: WORLD WEATHER ONLINE, 2022)

6.3. GEOLOGY

The geology of the Tsumeb area is characterized by the members of the Nosib group that are directly overlain by a thick sequence of shelf carbonates of the Otavi group. The Otavi group is stratigraphically subdivided into two subgroups, namely the:

- Abenab sub-group consists mostly of laminated dolomites in the lower part, and of intercalating bedded limestone and shale with massive dolomites in the upper part.

- Tsumeb sub-group is composed mostly of limestones and dolomites with horizons of spectacular diagenetic chert in the uppermost part of the unit (Shagama 2015 after Kribek, 2005).

From a local and simplified perspective in FIGURE 16 the EPL is underlain by the rock units of dolomite, limestone, shale and quartzite. The minor units include phyllite, quartzite and schist.

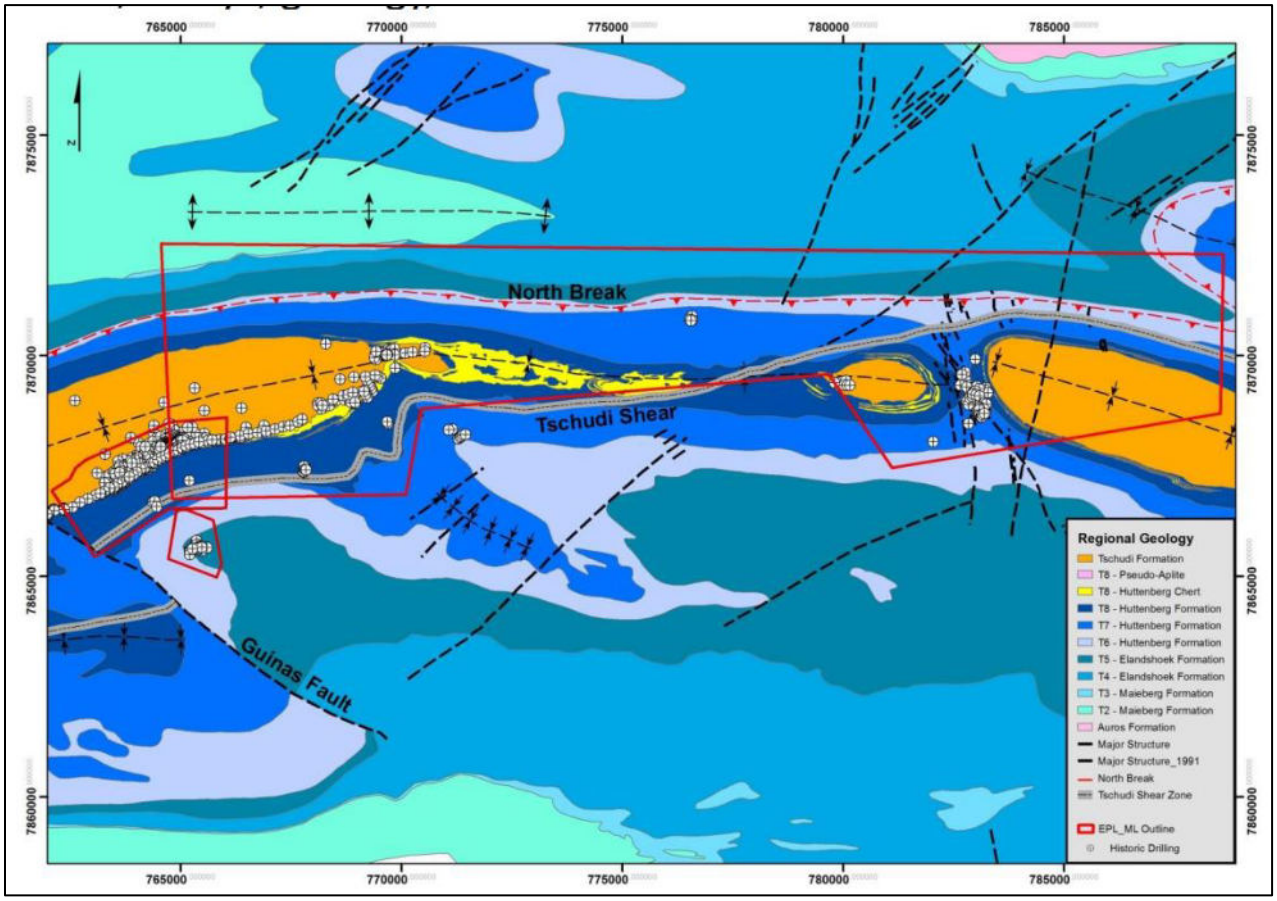

FIGURE 16. THE ROCK TYPES UNDERLYING THE EPL AND IMMEDIATE SURROUNDINGS.

Some of the rock units observed during area visit are shown in FIGURE 17 below.

FIGURE 17. THE WEATHERED DOLOMITE AND SHALE UNDERLYING SOME AREAS OF THE EPL

6.2.1. SOILS

The site soils are sandy loamy with a light brown colour, overlain by short and medium grass. Some areas are overlain by rocky surfaces as shown in FIGURE 18.

FIGURE 18. THE SOIL COVER OBSERVED AROUND THE EPL

The EPL is mainly overlain by rock outcrops and a part of chromic cambisols as shown on the soil map in FIGURE 19. According to Mendelsohn eta al (2002), the chromic soils are these that are have bright colours, while the cambisols (second part of the soil name) are defined as soils that were formed quite recently in geological time, mainly from medium and fine textured parent material deposited during sporadic flooding. Since the parent material is only slightly weathered, cambisols are characterized by the absence of appreciable quantities of accumulated clay, organic material, aluminium and iron.

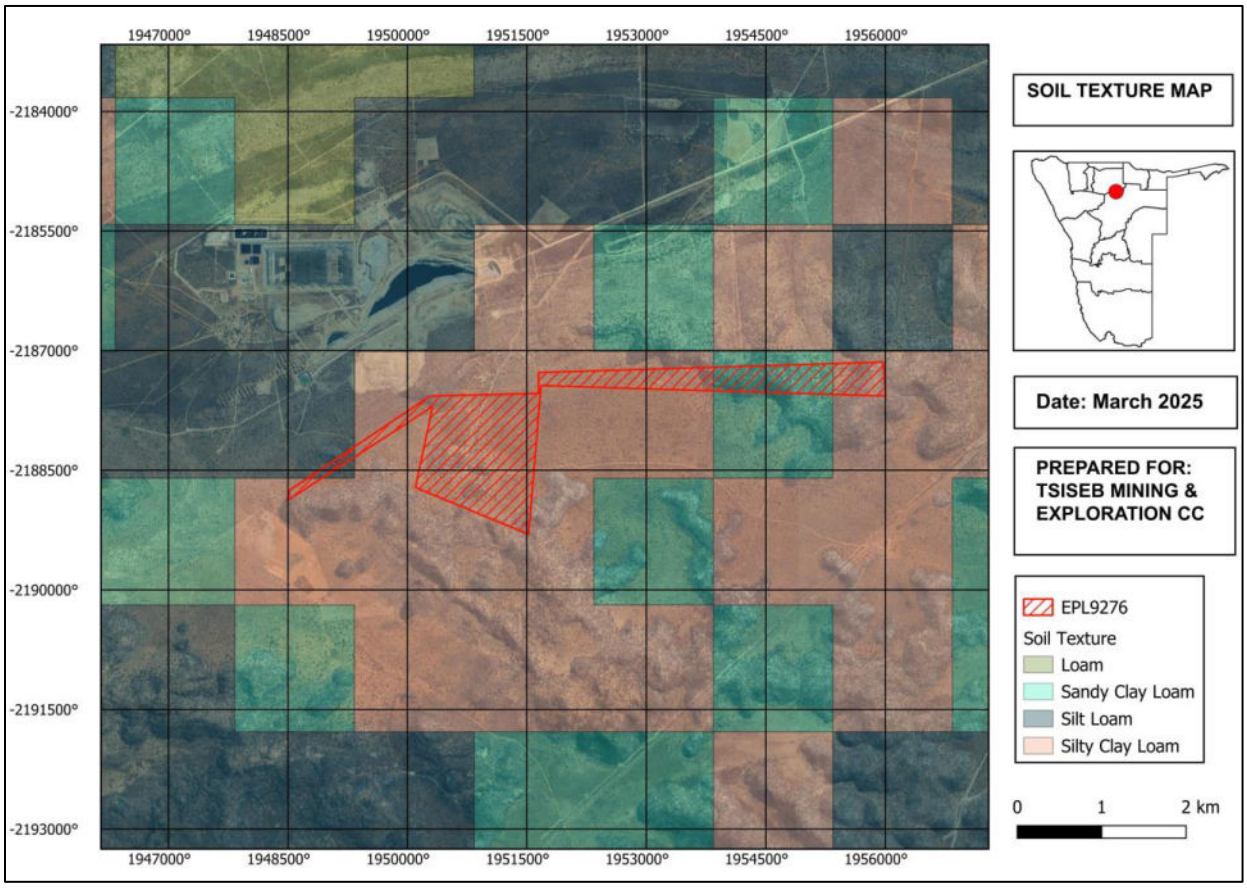

FIGURE 19. THE SOIL TYPES ON AND AROUND THE EPL.

6.4. WATER RESOURCES

There are no visible ephemeral rivers and stream on and around the EPL.

In terms of groundwater (hydrogeology), the project site area falls under the Otavi Mountainland groundwater basin. Located in the Central Northern Namibia, the Otavi Mountainland comprises a series of dolomite units that have been subjected to an erosion process of carbonate dissolution to form karstified landforms. The Mountainland region is a major groundwater resource known as the "Karst Area" or "Karstland" which comprises the mountainous landscapes of Otavi, Tsumeb and Grootfontein.

The EPL is mainly underlain by fractures, fissured and karstified aquifers. The northwester part is underlain by rock bodies with little groundwater potential as shown on the water resources map in FIGURE 20.

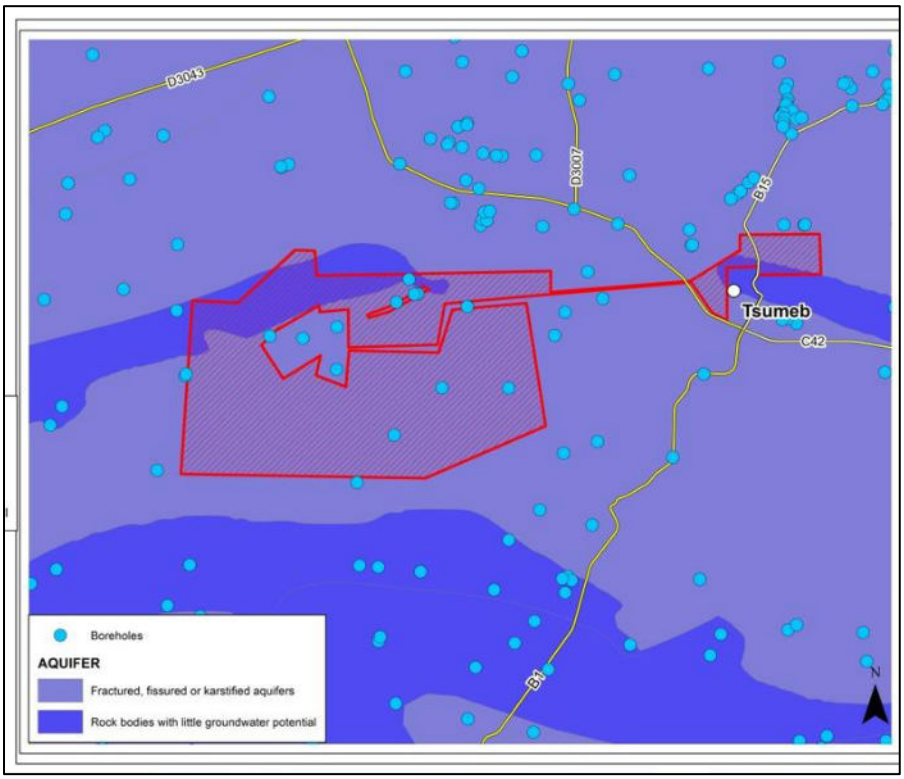

FIGURE 20. THE HYDROLOGICAL AND HYDROGEOLOGICAL CONDITIONS OF THE EPL AND SURROUNDINGS.

6.5. TOPOGRAPHY AND LANDSCAPE

The topography of the area is characterized by rocky hills and mountains as well as in some areas, flat surfaces. The EPL area mianly falls within the elevation range of 1,216 to 1,453 meters above sea level (masl). There are seldom high mountains (with an elevation ranging from 1,453 to 2,559 masl) to the south and south eastern parts of the EPL as shown on the topographic map in FIGURE 21.

The EPL area is characterized by the Karstveld landscape as shown in FIGURE 21. Mendelsohn et al (2002) stated that most of this landscape extends as a narrow, raised margin that encircles the lower-lying Owambo Basin in central northern Namibia. The rocks are dominated by limestone that easily dissolves water, forming large underground caverns, lakes (such as Lake Otjikoto and Lake Guinas) and aquifers of underground water. There is little surface water run-off from the Karstveld landscape, and no major rivers drain it. Typically, areas with greater elevations around Grootfontein, Otavi and Tsumeb receive higher rainfall than the surrounding lowlands. White calcrete rocks litter the surface in most lower-lying areas.

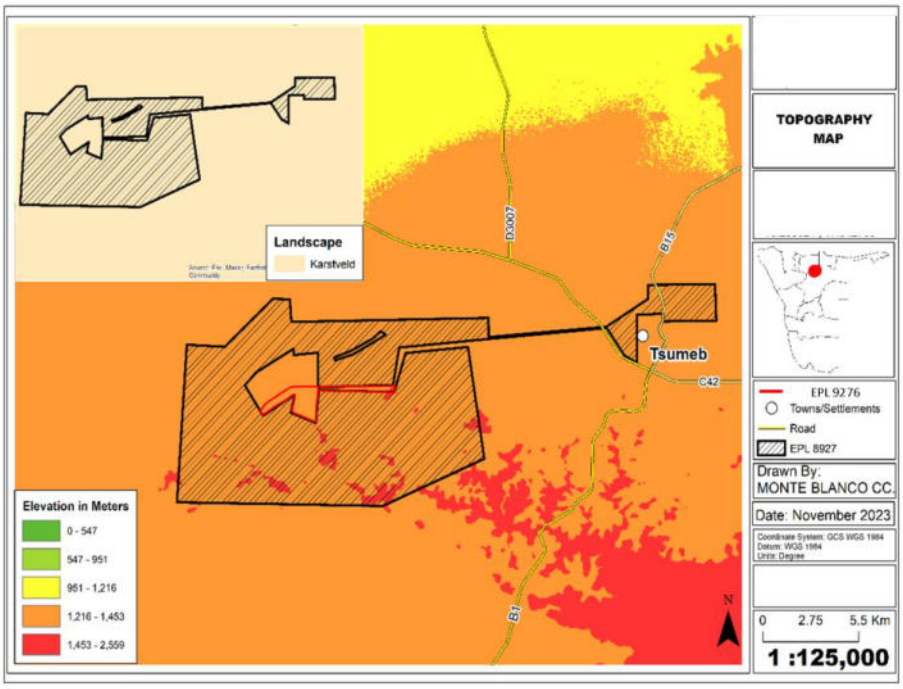

FIGURE 21. THE TOPOGRAPHIC AND LANDSCAPE MAP OF THE EPL AND SURROUNDINGS

6.6. BIOLOGICAL ENVIRONMENT

6.3.1. FAUNA

The EPL falls within farms that have livestock and wildlife. During the site visit, some farmers indicated that the common wildlife known to occur in the area are kudus, elands, Damara dik dik, brown hyena, warthogs, springboks and occasionally leopards, among others. However, during the time of the visit in the area, no wildlife was observed at the visited areas of the EPL, however, signs of wild animals was observed from the droppings of kudus and elands - FIGURE 22.

FIGURE 22. THE OBSERVED DROPPINGS OF KUDUS AND ELANDS

In terms of domestic animals, the EPL area is home to goats, sheep and cattle. Some of the livestock observed on the visited farm areas are shown in FIGURE 23.

FIGURE 23. LIVESTOCK (CATTLE AND GOATS) ON FARM BOBOS .

6.3.2. FLORA

The vegetation structure of the EPL area is characterized by woodlands, which are typical for northern Namibia (Mendelsohn et al., 2002) as also shown on the vegetation map in FIGURE 24.

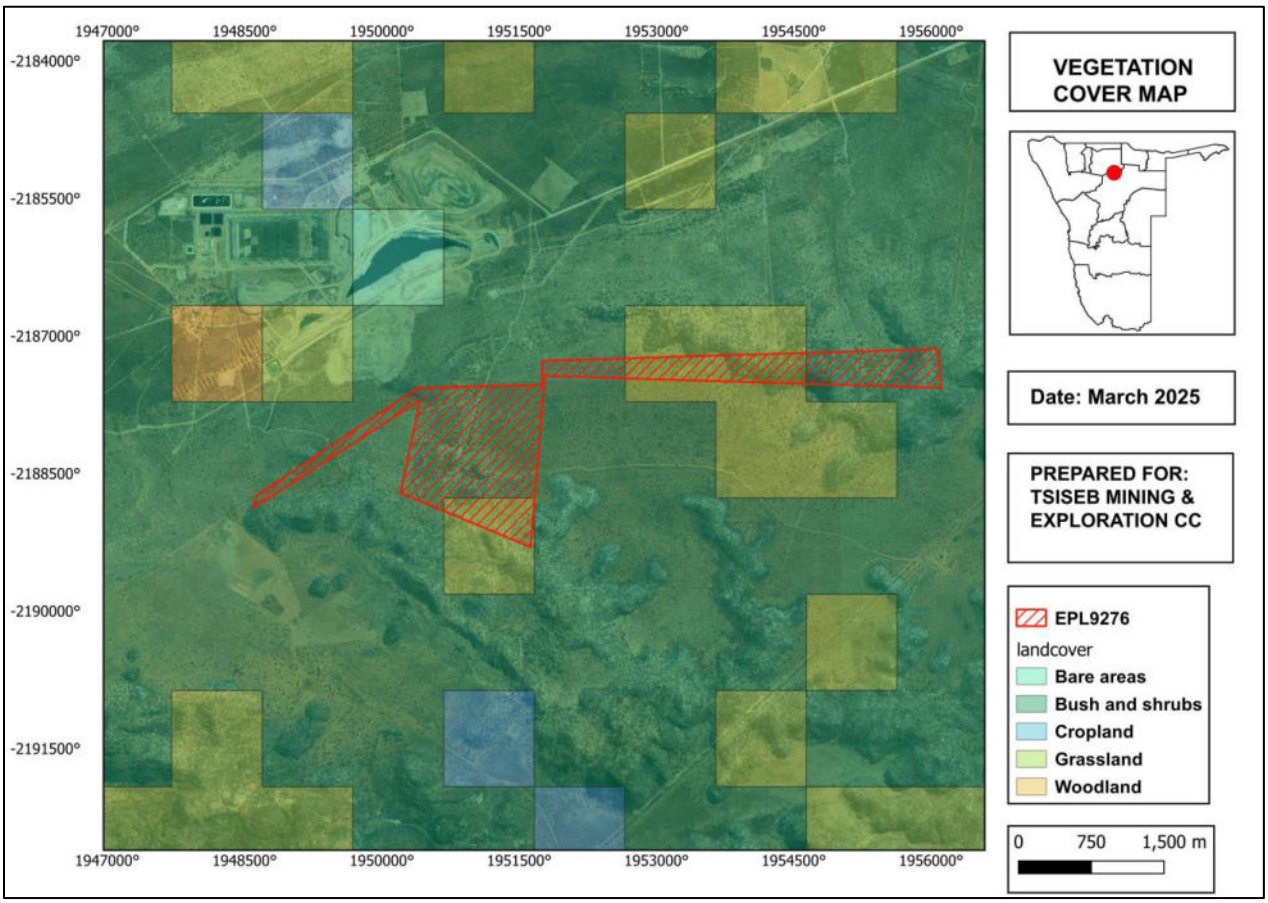

FIGURE 24. THE VEGETATION MAP OF THE EPL AREA

The Tsumeb area falls in the dry woodland, savanna vegetation zone. The typical vegetation observed on and around the site are camelthorn (*Vachellia erioloba*), purple-pod cluster-leaf (*Terminalia prunioides*), *Colophospermum mopane* (mopane), marula (*Sclerocarya birrea*) shrubs and trees as well as some seldom *Commiphora* species.

The observed vegetation are shown in FIGURE 25.

FIGURE 25. SOME OF THE VEGETATION OBSERVED DURING THE EPL AREA VISIT

Due to its rich groundwater, and regular rainfall in the summer month, the area is very productive when it comes to irrigation. The typical crops that are grown on the farms in the area are citrus fruits with the main crops grown being maize, sorghum, and sunflowers.

6.7. DEMOGRAPHIC ASPECTS

The EPL is in Oshikoto Region with a population of 181 973 (94 907 females and 87 066 males) according to National Housing and Population Census conducted in 2011 (2011).on a constituency level, the EPL is within the Tsumeb constituency, which has a population of 19 840 in 2011. According to van Zyl and Kinghorn (2017) after Yarmoshuk 2015, Tsumeb's population has grown by at least 25% since 2011 to over 25,000 inhabitants driven primarily by the growth of informal settlements).

6.8. ECONOMIC ACTIVITIES

Oshikoto Region has four main tourist destinations, namely Etosha National Park, Otjikoto Lake, King Nehale Conservancy and Okashana RDC.

According to van Zyl and Kinghorn (2017), as with occupation categories, Census 2011 data on the main industries within which workers are employed reveals that Oshikoto is heavily reliant on agriculture where 49% of jobs are to be found. According to Lohe et al., (2021), cash crops are irrigated within the so-called maize triangle between Grootfontein, Otavi and Tsumeb. The next most prominent employer is administrative and support service activities (7% of jobs), followed by education and activities of private households (6% of jobs each). The manufacturing sector only contributes 1,123 (or 3%) to total direct employment in Oshikoto. This serves to emphasise the importance of plants such as Dundee Precious Metals Tsumeb Smelter, which employs 457 people, in providing diversification (van Zyl and Kinghorn, 2017).

Due its good groundwater potential, the Tsumeb area relies on commercial farming and according to van Zyl and Kinghorn (2017), for Oshikoto's employed population, agriculture is the most common occupation (47%), followed by elementary occupations (13%), service workers (11%), craft and related trades workers (8%) and professionals (8%). Various occupation categories make up the remaining 13%.

6.9. LAND-USE ACTIVITIES IN THE SURROUNDS

The EPL falls within farmland where livestock, crop farming (including cash crops), small-scale mining are undertaken. Some observed activities on the visited parts of the EPL include existing old mine workings (mining holes) and charcoal activities. These land uses are shown in FIGURE 26 below.

FIGURE 26. SOME OF THE EXISTING ECONOMIC ACTIVITIES WITHIN EPL-9276 INCLUDING LIVESTOCK & CROP FARMIN, CHARCOAL PRODUCTION, OLD MINE WORKINGS AND FARMING OF CITRUS FRUITS

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6.10. SURROUNDING MINERAL LICENSES

There are surrounding mineral licenses such as mining licenses, EPLs and mining claims as shown in FIGURE 27.

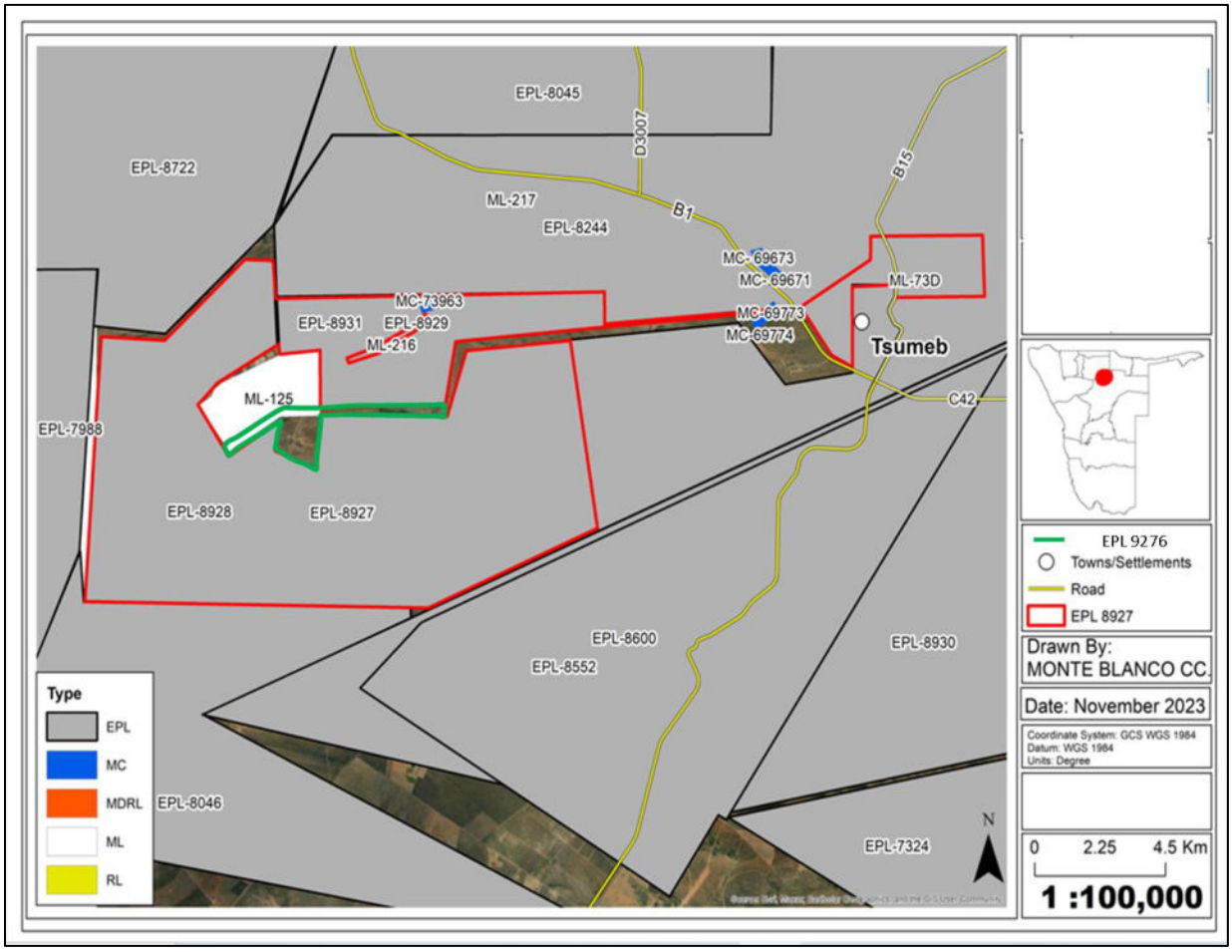

FIGURE 27. THE SURROUNDING MINERAL LICENSES ON AND AROUND EPL-9276.

6.11. INFRASTRUCTURE AND UTILITIES

The EPL area has the following main services and infrastructure:

- **Roads (accessibility)**: The nearest registered roads are D3043, D3031 gravel roads as well as B1 in the area. Therefore, these will be utilized for the exploration activities.
- **Railway**: There is a railway line connecting Tsumeb to the north western and southern part of the country.
- **Power Supply**: Tsumeb area and surrounding is supplied with electricity by the Central North Regional Electricity Distributor Company (CENORED), which also supplies the ECSF where the proposed project site is (the electricity line supplying the ESCF is named HLPCD 22kV). Some residences and business may be using generators as well as solar power for electricity.

- **Water Supply**: The Tsumeb area has good groundwater potential that urban areas are supplied by the municipality through water boreholes and farms
- around the town have their own boreholes. Farms use water for irrigation, domestic, livestock, etc.
- **Aerodromes (airports/strips)**: There is a private airport located on the eastern side of Tsumeb Town.
- **Health care services**: Tsumeb District has a District Hospital and Tsumeb Primary Health Care (PHC) Clinic in Tsumeb, Lombard PHC Clinic, Oshivelo PHC Clinic, and Tsintsabis PHC Clinic.
- **Telecommunication**: the area has good network coverage in some area, and very poor to no telephone signal in some area on the farms.

6.7.1. HERITAGE AND ARCHAEOLOGICAL ASPECTS

The An archaeological & heritage impact assessment (AHIA) was done by TARO Archaeology & Heritage Consultants in December 2023, with a site visit conducted on the 06th of December 2023 within the accessible areas of the EPL. The AHIA Report was compiled to be submitted to the National Heritage Council for evaluation and consideration of the Heritage Consent letter.

According to TARO Consultants (2023), from the geospatial information extracted from the database, EPL-9276 is somewhat situated in an archaeological-sensitive landscape, as it can be observed from the geo-spatial analysis, two sites of significance are located Southwest and Southeast of the southern boundary of the EPL. The closest site is 7km away from the license, and the second site is about 10km away as shown in FIGURE 28.

The AHIA findings made within the traversed landscape of the EPL and the areas in the vicinity is shown on the map in FIGURE 29 which depicts the representation of clusters of sites recorded to have significant features like abandoned mine sites from which copper ores were extracted by the Germans in the 1900s. It is advised and recommended to the project proponent and exploration crews to be aware of the demarcated no-go-zones and compliance with the recommendation made is mandatory.

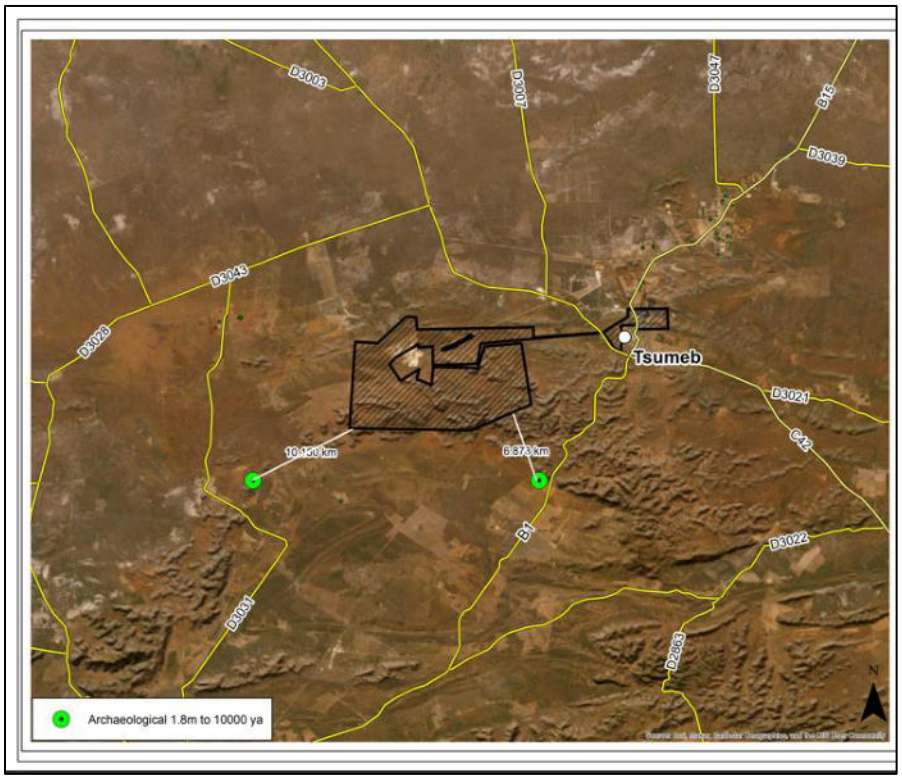

FIGURE 28. THE ARCHAEOLOGICAL SITES RECORDED IN THE NHC DATABASE AROUND THE EPL (TARO AHC, 2023)

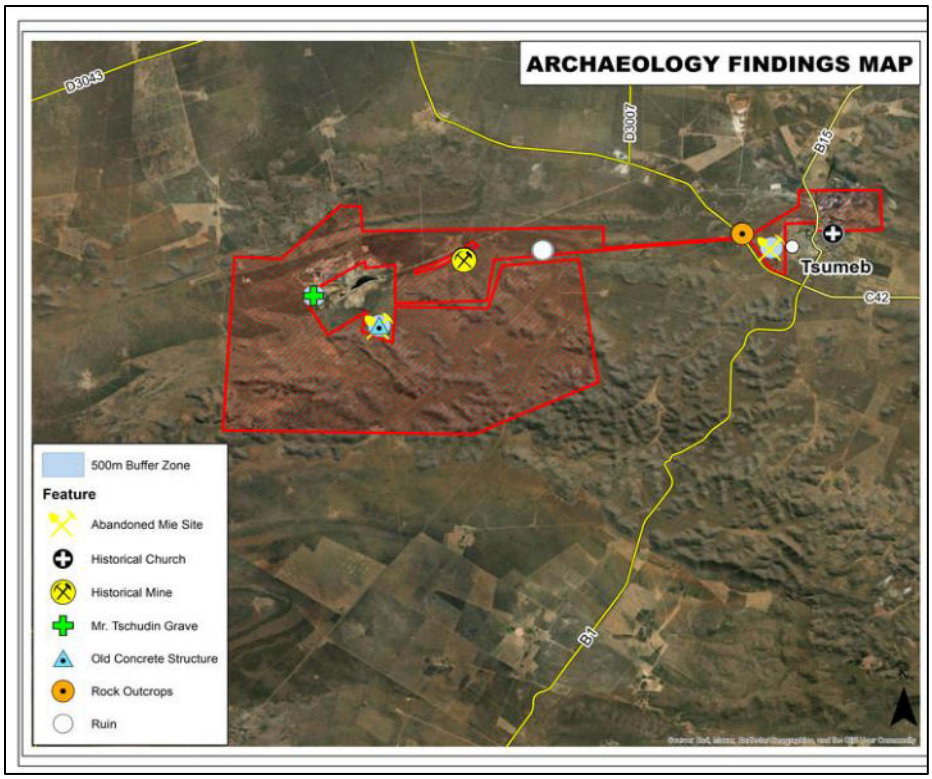

FIGURE 29. SITES OF THE RECORDED FINDINGS (TARO AHC, 2023)

The public consultation and engagement activities carried for the ESIA Study are provided under the next chapter.

7. STAKEHOLDER ENGAGEMENT

7.1. PUBLIC PARTICIPATION

The Public Consultation process aims to ensure that all persons or organizations who may be affected or interested in the project are kept informed of the project activities, potential issues and benefits, and can register their views and concerns. Building from there, the process provides an opportunity to interested and affected parties to influence the project design so that its benefits can be maximized, and potential negative impacts minimized.

Current best practice model involves engaging in a process of continuous dialogue with the affected communities and other stakeholders as plans for the project evolve and the environmental assessment is advanced. A high level of interaction is maintained, potential and actual socio-economic plus environmental impacts are identified, and stakeholder needs and concerns are discussed and wherever possible built into the planned activities of the project, including decision-making and management practices. Good and transparent consultation helps foster genuine and positive relationships with mutual respect, shared concerns and objectives between the company pursuing or involved in the project and the affected community.

The public participation facilitator's role is to coordinate the above process of dialogue to ensure there is transparency and accountability in decision-making and public confidence in the proposed activities and its management.

7.1.1. REGISTERED INTERESTED AND AFFECTED PARTIES (IAPs)

At the beginning of this environmental assessment process, a preliminary list of the obvious stakeholders who needed to be informed about the proposed project was drawn up. As the public participation process evolved, this list was continuously updated. A complete summary of the I&APs identified and registered for the project is attached hereto. The pre-identified interested and affected parties (I&APs) were notified about the planned activities by e-mail, formal communication letters, advertisement in local newspapers, and display of written notices at strategic points in the Region.

Amongst key stakeholders identified and registered for this project were:

- Central or national government: Ministry of Environment, Forestry & Tourism, Ministry of Mines & Energy; Ministry of Agriculture & Land Reform, National Heritage Council of Namibia (under the Ministry of Education, Arts & Culture)
- Regional government: Oshikoto Regional Council including the Tsumeb Constituency.

Members of the public, including the individual farm owners.

7.1.2. SUMMARY OF CONSULTATION ACTIVITIES UNDERTAKEN

To ensure that I&APs were timeously and openly notified of the planned project activities, the following tasks were undertaken by OMAVI:

- A list of pre-identified stakeholders was compiled. These formed part of the first email communication sent out soon after the first newspaper adverts for the ESIA Study.
- Formal public notices announcing the commencement of the Environmental Assessment process, inviting the public to register as I&AP and attend the public consultation meeting were published in *Die Republikein, Namibian Sun and Allgemeine Zeitung* newspapers (dated 05 & 11 February 2025) - please refer to Appendix C.
- Printed formal written site notices were placed at various publicly accessible locations in Tsumeb in January 2025 as outlined below (as per some photos in FIGURE 30.The site notices contained a high-level and preliminary description of the planned scope of activities for the proposed mineral prospecting project
    - Tsumeb Municipality
    - Tsumeb Constituency Office at the Oshikoto Regional Council Offices
    - Tsumeb Industrial Park
    - Tsumeb State Hospital
    - Tsumeb OK Food
    - Tsumeb Shopping Mall

The clear copy of the site notice (poster) is also attached to the Report in Appendix C.

Site notice placed at the Tsumeb OK Foods supermarket

Site notice placed at the Oshikoto Regional Council

Site notice placed at the Tsumeb State Hospital

Site notice placed at the Tsumeb Industrial Park

Site notice placed at the Tsumeb Shopping Mall

FIGURE 30. THE A3 POSTERS PASTED IN TSUMEB TOWN

Overall, no objections were raised or received from the I&APs in relation to the project. Additionally, no comments were sent or received during the stakeholder engagement phase of the project.

The comments period (submission of inputs, concerns, issues) on the ESIA as well as public registration as I&APs ended on the 26th of February 2025.

8. EVALUATION OF IMPACTS

8.1. KEY IMPACTS IDENTIFIED

The following impacts have been identified as associated with the proposed exploration activities.

Positive impacts:

- Socio-economic development through local (temporary) employment creation resulting in the generation of income for the communities.
- Empowerment of local businesses: procurement of goods and services for exploration activities, where possible.
- Commitment to the implementation of corporate social responsibility (CSR) in the community by supporting with long-term needs to improve livelihoods.
- Payment of land access fees, and if necessary, the payment of rental fees for setting up structures such as campsites in the area.
- Where possible, exploration holes that have good water strike would be donated to the community or respective farmers, after completion of exploration works in such holes.
- Contribution towards national economy through the payment of taxes and royalties to the responsible institutions of the Government of the Republic of Namibia.

Negative impacts:

- Impact on water resources (groundwater) in terms of quantity (over-abstraction) to meet project water demand.
- Disturbance to grazing land.
- Loss of biodiversity (fauna and flora) through the removal of vegetation that may be found within the project footprints, and loss of habitats for small animal under the rocks.
- Illegal hunting (poaching) of wildlife by project workers on farms.
- Air pollution by potential dust and gas emissions from exploration activities.
- Vehicular traffic: potential increase in local traffic due to project activities.
- Impact on services infrastructure such as Impact on services infrastructure such as roads and damages to buried pipes and cables.

- Occupational and community health and safety: improper handling of site materials and equipment may cause health and safety risks.
- Noise (nuisance): potential increase in noise level generated by machinery and vehicles may lead to nuisance to the locals (farm residents).
- Potential conflicts between the Proponent and small-scale miners who applied for Mining Claims (MC) or actively within the boundaries of the EPL (if issues measures are not put in place or issues not resolved amicably).
- Physical soil disturbance (soil compaction) to enable exploration works.
- Soil and water pollution: improper handling of wastewater may lead to surrounding soil pollution and water resources systems.
- General environmental pollution through mishandling of waste leading to environmental pollution.
- Visual impact from the explored-out areas on the EPL may pose as an eyesore to travellers (including tourists) using the local roads.

Archaeological or cultural heritage impact through uncovering, and damaging of archaeological objects or sites from unintentional project activities on the EPL.

8.2. KEY IMPACTS IDENTIFIED

An impact assessment matrix was used to assess all possible impacts of the project on the environment. In line with EMA No. 7 of 2007 and the EIA Regulations (GN 30 in GG 4878 of 6 February 2012) with the direction on impacts analysis the following impact assessment criteria (*TABLE 7*) was deemed suitable:

TABLE 7. IMPACT EVALUATION/ ASSESSMENT CRITERIA

Status	Whether the impact/risk on the overall environment will be
	• **Positive -** Environment overall will benefit from the impact/risk. • **Negative -** Environment overall will be adversely affected by the impact/risk. • **Neutral -** Environment overall not be affected.

In addition to the above, the impact assessment methodology includes the following aspects:

Spatial Extent	The size of the area that will be affected by the impact:

	Site specific - Only within the site boundaries **Local -** limited to within 15 km of the area. **Regional -** limited to ~100 km radius **National -** limited to within the borders of Namibia. **International -** extending beyond Namibia's borders

Consequence	The anticipated consequence of the impact:
	• **Extreme -** Environmental functions and processes are altered such that they permanently cease; • **Severe -** Environmental functions and processes are altered such that they temporarily or permanently cease. • **Substantial -** environmental functions and processes are altered such that they temporarily cease. • **Moderate -** Environment continues to function but in a modified manner; or • **Slight -** No natural systems/environmental functions, patterns, or processes are affected.

Duration	The timeframe during which the impact/risk will be experienced
	• **Very short term** - Less than a month • **Short term** - less than 1 year. • **Medium term** - 1 to 10 years. • **Long term** - The impact will occur for the project duration. • **Permanent -** The impact will occur beyond the project decommissioning.

Reversibility of the Impacts	The extent to which the impacts/risks are reversible assuming that the project has reached the end of its life cycle (decommissioning phase)
	• **Yes** - High reversibility of impacts (impact is highly reversible at end of project life); • **Partially -** Moderate reversibility of impacts; or • **No -** Impacts are non-reversible (impact is permanent).

Using the criteria above, the impacts will further be assessed in terms of the following:

Probability	The probability of the impact/risk occurring
	• Very likely. • Likely. • Unlikely. • Very unlikely; and

	• Extremely unlikely.

The application of the above criteria will be used to determine the significance of potential impacts using a combination of duration, extent, and intensity/magnitude, augmented by probability, cumulative effects, and confidence. Significance is described as follows in TABLE 8.

TABLE 8. IMPACT RATING CRITERIA

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/ magnitude, if at a local scale/ extent and of temporary duration/time.
Medium	Where the impact could have an influence on the environment, which will require modification of the development design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.
High	Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(ies) causing it, should not be permitted (i.e., there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.

9. IMPACTS ASSESSMENT

The potential negative impacts can occur if the planning and design of an activity is not properly done. At times, the planning and designs are properly done, and environmental management and mitigation measures provided to avoid and/or minimize these impacts. However, if these management measures are not effectively implemented on site, the potential impacts would be inevitable.

The potential positive and adverse impacts anticipated from the project activities. However, since the positive impacts are few, this assessment focuses on the potential negative impacts where mitigations will need to be implemented to minimize the impact on the environment. These impact are described and assessed in TABLE 9. The management actions (measures/mitigations) are provided in the accompanying Draft EMP (EMP) developed for the proposed project activities.

TABLE 9. ASSESSMENT OF THE POTENTIAL IMPACTS STEMMING FROM THE PROPOSED EXPLORATION ACTIVITIES

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
Planning, Exploration and Maintenance Phase – Adverse (Negative) Impacts								
Physical land / soil disturbance	-The movement of heavy vehicles and equipment may lead to compaction of the soils. -The exploration and mining activities such as excavations and land clearing to enable siting of project structures and equipment will potentially result in soil disturbance which will leave the site soils exposed to erosion. This would also trigger.	Local	Short-term	Medium	Definite	High	-Exploration activities should be restricted to defined areas of the EPL. -The topsoil stripped from certain site areas should be returned to its initial position during rehabilitation. -Soils not within the intended footprints of the site areas should be left undisturbed and conserved. -Project vehicles should stick to access roads provided to avoid re-creation of further tracks resulting in soil traffic compaction. -Overburden should be handled more efficiently during exploration to avoid erosion when subjected erosional processes	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							-Stockpiled topsoil and overburden waste rocks should be used to backfill the explored site areas/spots for rehabilitation. Further measures are provided in the Draft ESMP.	
Impact on biodiversity: Fauna	-Small reptiles and site animals in the locality are bound and likely to be affected by exploration activities. -The site activities would push away fauna that live onsite (in vegetation and rocky environment). -The noise from exploration activities will also drive away site wildlife. -There is risk of illegal hunting of wildlife by project personnel especially that the EPL. -The exploration trenches and uncapped holes may pose a risk to wildlife onsite, if not backfilled or fenced off.	Local	Short-term	Medium	Definite	High	-Workers should refrain from disturbing, killing or stealing animals and killing small soil and rock outcrops' species found on sites. -Minimize animal fatalities from collisions with vehicles by adhering to speed limits onsite and avoid night driving. -The hazardous substances such as fuel should kept in tightly close tanks and fenced off. -The hunting (illegal hunting) or snaring or intentionally disturbing wildlife in and around the EPL area is strictly prohibited. -Exploration trenches should be backfilled or fenced off, when in use for a longer period and unattended. This is to prevent the injuries to both animals and people in the area owing to open and unsecured trenches.	Low
Impact on biodiversity: Flora	-The removal of vegetation to enable exploration and associated	Local	Long-term	Medium	Probable	High	-Vegetation outside the site boundary should not be disturbed. -Trees onsite must be marked and pegging personnel must know that	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	infrastructure and service would lead to the reduction of the vegetation on and around the site. -The uncontrolled dust emanating from the drilling activities may be trapped on the vegetation leaves, resulting in reduced photosynthesis which would affect vegetation functionality. -The disposal of hazardous waste such as oils and fuels would affect vegetation health. Therefore, should be prohibited.						marked trees must not be touched for continued preservation). -Trees within the site boundaries should be preserved. -The Proponent should aim to use the already damaged area with little to no vegetation for the site activities. -Onsite vegetation should NOT be cut or used for firewood related to the project outside the site boundaries. -Provide environmental awareness training to promote environmental education on the importance of floral biodiversity preservation to workers.	
Environmental pollution (solid, domestic and wastewater)	Exploration activities are associated with generation of waste of all kinds (domestic, hazardous, and general). Improper handling, storage and disposal of wastes may lead to environmental degradation/pollution. If not handled, store and disposed of properly, the waste	Local	Long-term	Medium	Definite	Medium	-Waste should be disposed of in designated waste containers onsite. -No waste should be buried or burned on site in both phases. -Waste burning onsite should be done at designated sites only outside the EPL area. -The site should be equipped with separate waste bins for hazardous and general waste/domestic. -A penalty system for irresponsible disposal of waste on site and	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	may scatter around the EPL and pollute the immediate project area.						anywhere in the area should be implemented. -The site should be equipped with sufficient portable toilets for workers, and visitors.	
Environmental contamination by hydrocarbons release into the environment (grease, oils, fuel spills and leakages from machinery and fugitive wastes.)	There is a potential of oils and fuel storage on site to supply the vehicles and equipment. Therefore, there is a risk of spillage of hydrocarbons from vehicles and machinery through leakages and spillages which may result in: -Washing away of contaminated soils by rains into nearby rivers resulting in both possible surface water and groundwater pollution -Pollution of soil and affecting small living organisms habituating the soil. -Possible fire risk on and around the site from these flammable substances.	local	Short Term	Medium	Probable	Medium	-The Proponent should implement a maintenance programme to ensure all vehicles, machinery and equipment are and remain in proper working order. -Vehicle maintenance should be done in designated areas only, preferably off-site. If maintenance is to be conducted on site, these areas should be designed to contain spillages i.e., maintenance site must be bundled and paved, and the use of chemicals must be controlled. -Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler. -Spill kits will be easily accessible, and workers will be trained in the use thereof. -Personnel should be trained in the handling and storage of oils, fuels, chemicals and other hazardous substances.	-Low
Contamination of soils and water	-The mishandling and poor disposal of	Local	Temporar y	Medium	Probable	Medium	-All runoff materials such as hydrocarbons, wastewater and	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
resources (groundwater and surface water)	contaminants such as hazardous waste and wastewater from site activities would pollute soils, get washed into surface water run-off and eventually infiltrating into the ground and pollute aquifers (groundwater).						other potential contaminants should be contained on site in designated containers and disposed of in accordance with municipal wastewater discharge standards, so that they do not reach to water systems. -Consider exploration works such as drilling to be carried out during dry months of the years and not during rainy months (to avoid ease contaminants like hydrocarbons from transported off site through run-off). -No washing of vehicles or equipment near or in ephemeral river or streams onsite.	
Water resources (over-abstraction of water) and soils pollution	-Drilling requires a lot of water. Therefore abstraction of water from local aquifers would negatively affect these aquifers due to low groundwater potential of the area in some areas of the EPL.	Local	Temporary	Medium	Definite	High	-Avoid abstraction of water from local boreholes but rather obtain a permit to abstract and use water from bulk water supply sources. -Water should be efficiently used by implementing water saving measures such as recycle and re-use where necessary and possible. This includes using water for cooling exploration equipment for the cleaning of project equipment. -Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							importance of conserving water and become accountable.	
Occupational and public health and)	The risk of injuries from mishandling of project equipment and machinery by workers.	Local	Temporary to Long-term	Medium	Definite	High	-The site workers and visitors should be equipped with appropriate and sufficient PPE (hand gloves, safety googles, boots, earplugs, overalls, face masks, hard hats, etc.). -Workers should be provided with refresher training on machinery and equipment use. -Trainings and ''know-how'' to use PPE should be provided to all workers as part of their induction. -The site should be equipped with a minimum of two first aid kits. Two or three of the workers should be trained on how to administer first aid. -Risk areas such as open trenches should be fenced off and warning signs written in English and Afrikaans languages for better understanding and placed on the fences. -The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the personnel or wild animals. -Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.	Medium / Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							-An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to drink alcohol prior to and during working hours.	
Air quality (drilling dust & emissions from vehicles and unpaved access roads)	Exploration drilling is usually associated with dust and vehicles travelling on gravel and unpaved access sandy roads. This will lead to the decrease in the air quality around the site.	Local	Short-term	Medium	Definite	Medium	-During extremely windy days, a reasonable amount of water should be used to suppress the dust that may be emanating from certain site areas (limited to the site only) or certain parts of the local utilized gravel roads that is generating a lot of dust. -All access roads leading to the site should have speed limits of no more than 30km/h to minimise the amount of dust generated by the vehicles, which will minimise air quality concerns to any potential receptors. -Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) should be provided to the workers on site operating or working at the excavated areas, where they may be exposed to dust. -The transportation of project materials, equipment and machinery should be limited to twice a week to reduce dust generated by heavy vehicles in the area.	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							-Project vehicles and heavy machines should not be left idling when not in use, such that they emit air polluting gases. -Project vehicles and machinery should be maintained through regular servicing to ensure that they do not release harmful and air polluting fumes while on and off site.	
Vehicular traffic	Project associated heavy vehicles will obtain access to the site from the local roads that connects the EPL to exploration activities' service providers (water exploration machinery, equipment, and others). The movement of trucks would potentially increase slow moving heavy vehicular traffic in the area. The impact would not only be felt by the road users but the local road users. This would add additional pressure on the roads.	Local	Short-term	Medium	Probable	Medium	-The transportation of exploration materials, equipment and machinery should be limited to once or twice a week only, but not every day. -The heavy truck loads should comply with the maximum allowed limit while transporting materials and equipment/machinery on the public and access roads. -Vehicles drivers should be in possession of valid and appropriate driving licenses. -Vehicle drivers should adhere to the road safety rules. -Drivers should drive slowly (30km/hour or less), and on the lookout for livestock and wildlife. -Ensure that the site access roads are well upgraded and in good condition to cater for vehicles travelling to and from site. -Project vehicles should be in a road worthy condition and	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							serviced regularly to avoid accidents due to mechanical faults of vehicles. -Vehicle drivers should only make use of designated site access roads provided. -Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.	
Archaeological or cultural heritage impact	Data collected during the site surveys on the archaeological and cultural heritage assessment revealed that the proposed project activities may have the potential to cause positive and negative, direct and indirect impacts during the prospecting and exploration, and at a later stage and mining phases. The purpose of the assessment was to identify potential sites or areas of cultural heritage importance, consider potential impacts thereof and thereafter enhance the positive impacts and minimize or avoid the negative impacts,	Local	Short-term	Medium	Probable	High	-The creation of any additional tracks should be avoided at all costs by ensuring that the final (preferred) access routes are adhered to at all times. Similarly, the disturbance at work, prospecting and exploration within the targeted sites and storage sites should be strictly limited to what is necessary. -If any archaeological materials or human burials or skeletal remains are uncovered during mining activities, then the work in the immediate area should be halted, the finds would need to be reported to the Heritage Authority and may require inspection by an Archaeologist. The ECO should have the area fenced off and contact NHC (Tel: +264 61 244 375), National Forensic Laboratory (+264 61 240 461) immediately.	Medium / Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	thereby encouraging the protection of these sites in totality as the priority. Direct or indirect impacts or risks of impact on archaeological sites located near or in the vicinity of the proposed exploration project can be reduced to acceptable levels by the adoption of appropriate recommended mitigation measures including integration of the archaeological heritage record and Chance Finds procedure in the project EMP. Special efforts should be made to reduce and avoid impacts on any discovered site, artefacts or yet-to-be-discovered archaeological sites.						-Known sites should be marked so that they can be avoided during exploration activities. -All accidental discoveries shall be reported immediately to an archaeologist/heritage practitioner so that an investigation and evaluation of the finds can be made, acting upon advice the Environmental Control Officer will advise the necessary actions to be taken; -Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Act (Act No. 27 of 2004), Section 52 (2). -Buffer zones should be maintained & respected around known significant archaeological, historical or cultural heritage sites as far as possible. Graves, old abandoned mines, stratigraphic profiles and areas with historical and cultural significance are excluded from any development. -A "No-Go-Area" should be put in place where there is evidence of	

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							sub-surface archaeological materials, archaeological sites, gravesites, historical, rock paintings, cave/rock shelters or past human dwellings. It can be a demarcation by fencing off or avoiding the site completely by not working closely or near the known site. The 'No-Go Option' might have a NEUTRAL impact significance. -Direct damage to archaeological or heritage sites should be avoided as far as possible and, where some damage to significant sites is unavoidable, scientific/historical data should be rescued. -There should be controlled movements of people and heavy loads such as abnormal vehicles or any kind of heavy-duty machinery within the project boundaries. This means avoiding chances of crossing paths that may lead to the destruction of on and sub-surface archaeological materials -Cognizance must be taken of the larger cultural & historical landscape of the area to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage or archaeological resources be exposed or uncovered during the	

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							development phases of the proposed project, these should immediately be reported to the heritage specialist or heritage authority (National Heritage Council of Namibia). -It should also be noted that the sub-terranean presence of archaeological and/or historical, cultural sites, features or artefacts is always a distinct possibility. Therefore, extra care should be taken during any development activities so that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate. -Bi-annual auditing of heritage sites should be necessary when is possible to keep track of the compliance to the protection of the significance sites. -The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in the event significant heritage and cultural features are discovered in the course of developmental works.	
Noise associated with drilling activities and heavy vehicles moving on and around the EPL	-The noise created by moving heavy trucks, drilling works would be a nuisance to the residents on the farms	Local	Short-term	Medium	Definite	High	-All workers on site must be equipped with ear plugs to be used when exposed to excessive noise.	Medium / Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	and surroundings. Prolonged exposure to excessive noise to the site personnel would also be a health risk if there is no appropriate Personal Protective Equipment (PPE). -Excessive noise may impact the animals such as birds and reptiles. Birds tend to abandon their nests if subjected to continuous noise. -Noise would also disturb wildlife moving within the EPL.						-Switch off machines that are not used. -All locals must be notified on time about drilling activities prior. -All noisy exploration works such as drilling activities must not be carried out in the night, early morning (before 08h00) and evenings (after 17h00). -Avoid drilling within 100m of trees where birds are likely to have nests. -Target exploration sites that may be found to be within less than 1.5km from houses, existing accessories and structures, should be avoided at all cost. This is done to preserve some tranquillity for the residents. -Farm owners should be notified of drilling dates and locations on the EPL.	
Visual impacts	-The project structures and dust created by heavy vehicles may create a visual impact. -The sight of exploration equipment and vehicles on the EPL may be a nuisance to the residents, motorists and tourists travelling on the local roads.	Local	Long-term	Medium	Probable	Medium	-A buffer zone of 1km should be created to minimize visual intrusion. -There should be no exploration works done after 17h00 to avoid night lightings. -All gravel roads should have a speed limit of no more than 30km/h to minimise the amount of dust generated by the vehicles. -The support infrastructure lights should be installed at low level on the structures and facing the side without homes to impact.	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	-The lights associated with the campsite infrastructure such as ablution would be a nuisance in the nights.						-The color of the infrastructure should not be bright to cause a discrepancy, thus, visual nuisance.	
Lack of communication cooperation and transparency	-A campsite will be required and because of this, some of the project workers may behave contrary to the wishes of the landowners or nearby occupiers of land. Not only the workers potential unacceptable behaviors but other inconveniences to the landowners' biophysical and social aspects related to the project activities. If not managed effectively, these have the potential to result in destructive conflicts between the Proponent and local leaders.	Local	Long-term	Medium	Probable	Medium	-A Public Relation Officer (PRO) should be appointed for the project. They will be responsible for ongoing consultations (liaising) with the affected landowners as well as handling potential grievances related to the project activities, as and when required. -The PRO should be introduced to the landowners and his or her contact details provided to them prior to undertaking activities for easy communication during the exploration activities. -The Proponent should compile a clear communication procedure / plan which should include a grievance and response mechanism.	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
Farm and surrounding services Infrastructure (roads, fence, and pipelines)	The movement of vehicles such as heavy truck around private land may lead to the destruction / damaging of buried public and private water pipelines and or power supply cables. This is likely to happen; especially during rainy seasons when the buried pipes get compacted or deformed once driven over by heavy vehicles.	Local	Long-term	Medium	Probable	Medium	-Consult with the landowners/farmers to help with locating possible buried cables and pipelines on properties to avoid damages to buried services such as water and power supply lines and cables. -If possible, heavy trucks should avoid driving over areas that are known to have pipelines or any related infrastructure buried. -Project equipment and machinery should not be left leaning on the fences (using the fences as support). -Agreement and continued engagement with landowners on use and maintenance of infrastructure (roads) should be implemented and maintained.	Low
Social Grievance: Property intrusion and Disturbance or Damage	The presence of some workers may lead to social annoyance to the locals. This could particularly be a concern when workers enter or damage properties of the locals. The locals' private properties could be homes, yards/fences, vegetation, or	Local	Long-term	Medium	Probable	Medium	-Workers should be informed of the importance of respecting the locals' properties by not intruding or damage their homes, fences or snaring and killing of farm and surrounding animals. -Any workers or site employees that will be found guilty of intruding peoples 'privately owned properties should be called in for disciplinary hearing and/or dealt with as per their employer'	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	domestic or wild animals or any properties of value to the communities or occupiers of the land. The damage or disturbance to properties may not only be private but local public properties. The unpermitted and unauthorized entry to certain significant farm sites may cause social crashes between the affected property owners and the Proponent (being responsible for the overall project activities).						(Proponent)'s code of employment conduct -Site workers should be advised to respect the locals' properties, values, and norms. -No worker should be allowed to wander in people's private yards or fences without permission. -Workers are not allowed to kill or in any way disturb local livestock. -No worker should be allowed to cut down or damage farm or surrounding trees.	
Impact on tourism and associated land use conflicts	The exploration activities will potentially have an impact on tourism due to the fact that the area is presently undisturbed. The disturbance caused by exploration may reduce the attractiveness of the area to tourists, thus negatively impact the industry.	Local	Long term	Medium	Definite	High	-Exploration activities should be done away from the local access roads to reduce visual impacts emanating from drilling dust and exploration set ups, thus limiting the impact on tourism. -The disturbed areas should be rehabilitated soon after completion of work (progressive rehabilitation). -The poaching of wildlife should not be tolerated. -The venting of project workers should be done to ensure that the	Medium/Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							workers can be trusted to work in such a sensitive area where tourists are visiting.	
The spread of HIV/AIDS and other STDs throughout the project.	-The inflow of employees and other people into the area can result in the spread of HIV/AIDS, other STDs	Local	Long term	Medium	Highly probable	Low	-Awareness should be raised at workplace and provision of condoms to all onsite workers. -Promote the education of the employees and the public on the importance of having protected sex	Low
Occupational and community health and safety	-Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These are in terms of accidental injury, owing to either minor or major (i.e., involving heavy machinery or vehicles) accidents. The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the Proponent's personnel or wildlife. The use of heavy equipment, especially during drilling and the presence of hydrocarbons on sites	Local	Long-term	Medium	Probable	Medium	-The Proponent should commit to and make provision for bi-annual full medical check-up for all the workers at site to monitor the impact of project related activities on workers. -As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs. -When working on site, employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. -Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.	Low

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
	may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and equipment and vehicles too. If machinery and equipment are not properly stored and packed, the safety risk may not only be a concern for project workers but residents and animals (wildlife).						-Drilled holes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off. -Ensure that after completion of exploration holes, drill cuttings are put back into the hole and the holes filled and levelled. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to drink alcohol prior to and during working hours as this may lead to mishandling of equipment which results into injuries and other health and safety risks. -Workers should not be allowed on site if under the influence of alcohol. -The site to be equipped with "danger" or "cautionary" signs for any potential danger or risk area identified on site. -Temporary enclosed boundaries should be erected around high-risk area sites for the duration of project activities at that specific site area. -A security guard or guards should be part of the team so that they can look after the project equipment and vehicles that would	

Impact	Triggering activity and potential Impact	Extent	Duration	Intensity	Probability	Significance of an Impact		
						Before Mitigation	Impact mitigation & enhancement measures (high-level)	Post Mitigation
							be left on site in weekends or public holidays (when no work is done) to ensure that no unauthorized person enters the area. -All employees and contractors (personnel) to be trained on environmental awareness, the Proponent's internal Environmental Health and Safety Policy, and EMP.	

10. RECOMMENDATIONS AND CONCLUSIONS

The impact assessment done for the proposed exploration and associated activities indicates that the activities will have some negative impacts on the biophysical and socio-economic environment. However, based on the impacts' description and assessment, it showed that most of the impacts have a medium/high to high significance, if any mitigation measure is not implemented. However, upon re-assessing the impacts after the implementation of mitigation measure, the significance would be reduced from high to medium and eventually low or from medium to low. Therefore, the significance can be reduced by the effective implementation of the provided management and mitigation measures accompanied by monitoring.

It has also been noted that the project will bring about few temporary positive impacts on the social and economic aspects. To prevent or mitigate negative impacts, coordinated project management strategy according to an Environmental Management Plan (EMP) / Rehabilitation Plan (EMRP) has been developed for the proposed project (exploration). The EMP contains the mitigation measures to reduce the impact's significance during project implementation when avoidance is not possible, to ensure that the project activities are undertaken in an environmentally and socially sustainable manner.

To ensure that the EMP (ESMP) implementation is effective and yields the desired management results/indicators, monitoring of such implementation should be done by an Environmental Control Officer/ Safety Health Environment (SHE) Officer reporting to the Proponent during project implementation. Therefore, the Environmental Clearance Certificate (ECC) may be issued by the Environmental Commissioner for the proposed activities, on condition that the Proponent and their associated contractors implement the EMP for impacts' management and monitoring measures outlined in this Report and its EMP.

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APPENDIX A – DRAFT ENVIRONMENTAL PLAN (EMP)

APPENDIX B – CV OF ENVIRONMENTAL ASSESSMENT

APPENDIX C – PROOF OF STAKEHOLDER CONSULTATION/ COMMUNICATION PLATFORMS USED FOR PUBLIC NOTIFICATION AND SENSITIZATION ABOUT THE PROJECT