ENVIRONMENTAL SCOPING AND ASSESSMENT REPORT: FOR THE PROPOSED MINERAL EXPLORATION OF BASE AND RARE METALS, DIMENSION STONE, INDUSTRIAL MINERALS AND PRECIOUS METALS ON EXCLUSIVE PROSPECTING LICENSE NO.9490

Dorob National Park, Erongo Region – Namibia

ECC Application No.: App No. 005078

2025

COMPILED BY

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info@ssconsultants.com

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Author	**Uaanao Katjinjaa**	**Proponent**	**Miss Albertina Itana**
Qualifications and Role	– **BBA (Entrepreneurship)** – **MSc. (Integrated Environmental Management and Sustainable Development)** – **Environmental Assessment Practitioner (SS Consultant CC)**	**Application Number**	**005078**
Email address	**UKatjinjaa@ssconsultants.co**	**Postal Address**	**P.O. Box 96269, W**indhoek
Signature			

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LIST OF ACRONYMS

ASL	Above Sea Level
BID	Background Information Document
DEAF	Department of Environmental Affairs and Forestry
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act No. 7 of 2007
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
ESA	Environmental Scoping Assessment
I&APs	Interested and Affected Parties
ISO	International Organization for Standardization
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MIME	Ministry of Industries, Mines and Energy
M	Meters
NDP5	National Development Plan
GG & GN	Government Gazette & Government Notice
GDP	Gross Domestic Product
HHP	Harambee Prosperity Plan
RAB	Rotary Air Blast (drilling)
RC	Reverse Circulation (drilling)

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.
Environmental Assessment (EA)	The 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.
Evaluation	The process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements to decide.
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 (IAP)	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 apply 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. There are several publics, some of whom may emerge at any time during the process depending on their 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 I&APs) 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.
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.

EXECUTIVE SUMMARY

SS Consultants cc (herein referred to as the "Consultant") has been apointed by Albertina Itana (herein referred to as the "proponent") to apply for and obtain an Environmental Clearance Certificate (ECC) for the proposed for for base and rare metals, dimension stone, industrial minerals and precious metals on Exclusive Prospecting Lice License (EPL) No.9490. The EPL is located within the Dorob National Park nearby the town of Swakopmund in the Erongo region. The EPL covers an area of 16636.13 hectares, and sits on a state land.

In terms of the Environmental Management Act No.7 of 2007, the proposed exploration activities fall under the listed activities that may not be undertaken without an ECC. An application for an environmental clearance will be submitted to the Environmental Commissioner at the Ministry of Environmental, Forestry, and Tourism (MEFT) for evaluation and approval. Once the ECC is issued, the Proponent is expected to submit it to the Ministry of Mines and Energy (MME) for approval of commodity addition prior to commencing with the proposed exploration activities.

The proposed project will entail exploration activities on EPL-9490 which will include different methods (techniques) such as field geological mapping, ground electromagnetic and geophysical surveys, drilling and soil sampling in selected targeted areas. If required, some vegetation may need to be cleared to allow access tracks and working areas to be created and for the installation of project equipment and development of exploration drill holes. The duration of exploration activities is anticipated to be conducted over the license tenure which is valid for a three (3)-year period, once an ECC has been issued for the EPLs. The duration of each exploration programme shall be refined when detailed geological information are available through a desktop study report. Once the exploration is successful and feasible, exploration operations can potentially transcend into mining a separate detailed Environmental Impact Assessment is to be undertaken.

It should be noted that Namibia's leading economic sector is mining, that accounts for roughly 10 percent of Namibia's Gross Domestic Product every year. The mining sector has been the backbone of the economy since time-immemorial in view of having a positive impact on the economy measured through job creation and income generation, among others. Mining is an important source of government fiscal receipt and source of foreign exchange. Total job creation in the sector has been volatile due to fluctuation in commodity prices and technological advancement. Therefore, this project will bring about employment and development within the area in a sense of creating job opportunities, educational skills and infrastructure development within the surrounding community.

In accordance with the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment Regulations (GG No. 4878 GN No. 30), the Environmental Assessment Scoping study is aimed at determining the potential environmental impacts arising from the proposed activities by doing a risk assessment. The findings in the EIA report and EMP will enable the Environmental Commissioner to make informed judgements regarding the exploration activities from an environmental perspective. The identification of potential included impacts that may occur during the planning, construction, operational and

decommissioning phases of the project. The assessment of impacts includes direct, indirect as well as cumulative impacts. To identify potential impacts (both positive and negative) it is important that the nature of the proposed project is well understood so that the impacts associated with the project can be assessed and the mitigations as detailed in the Environmental Management Plan (EMP) - are implemented and monitored by the Proponent. The potential impacts identified on the environment during exploration activities were related to dust, noise, health and safety, land use, waste management, impacts on soil and surface, ecological impacts, groundwater and surface water quality, heritage and socio-economic aspects.

After thorough investigation, it was determined that the proposed exploration activities will be localized (restricted within the EPLs' boundaries), thus, the potential impacts of EPL-9490 would have minor significance, provided appropriate mitigation measures are implemented. These mitigation measures are outlined in the EMP, encompassing specific actions and procedures to responsibly manage and minimize potential impacts throughout the project's duration.
Based on the conclusions of this ESA Report, it is thus recommended that an Environmental Clearance Certificate be considered and issued for the planned exploration activities. In implementing the proposed program, the Proponent shall consider the following critical requirements:

- Obtaining all additional permits and licenses that may be required before commencing with the respective project activities,
- Effectively implement and monitor the specified management and mitigation measures outlined in the EMP and ensure that they are diligently executed and adhered to, and
- Evaluate new and unforeseen potential effects that may arise during project implementation and ensure that they are addressed timely.

1 INTRODUCTION

1.1 Project Background

Ms. Albertina Itana (herein referred to as the *Proponent*) applied for Exclusive Prospecting License (EPL) 9490 to the Minister of Ministry of Industries, Mines and Energy (MIME)on the 30th of May 2023. The rights applied are to explore for base and rare metals, dimension stone, industrial minerals and precious metals **Error! Reference source not found.**.

The proponent is required to obtain an Environmental Clearance Certificate (ECC) and submit to the MIME for consideration. As part of the application process for obtaining an Environmental Clearance Certificate (ECC) for the proposed exploration activities, the proponent is required to undertake an Environmental Impact Assessment (EIA) process. This process ensures that the potential environmental impacts resulting from the project's activities are thoroughly assessed, and suitable measures are identified to mitigate them effectively.

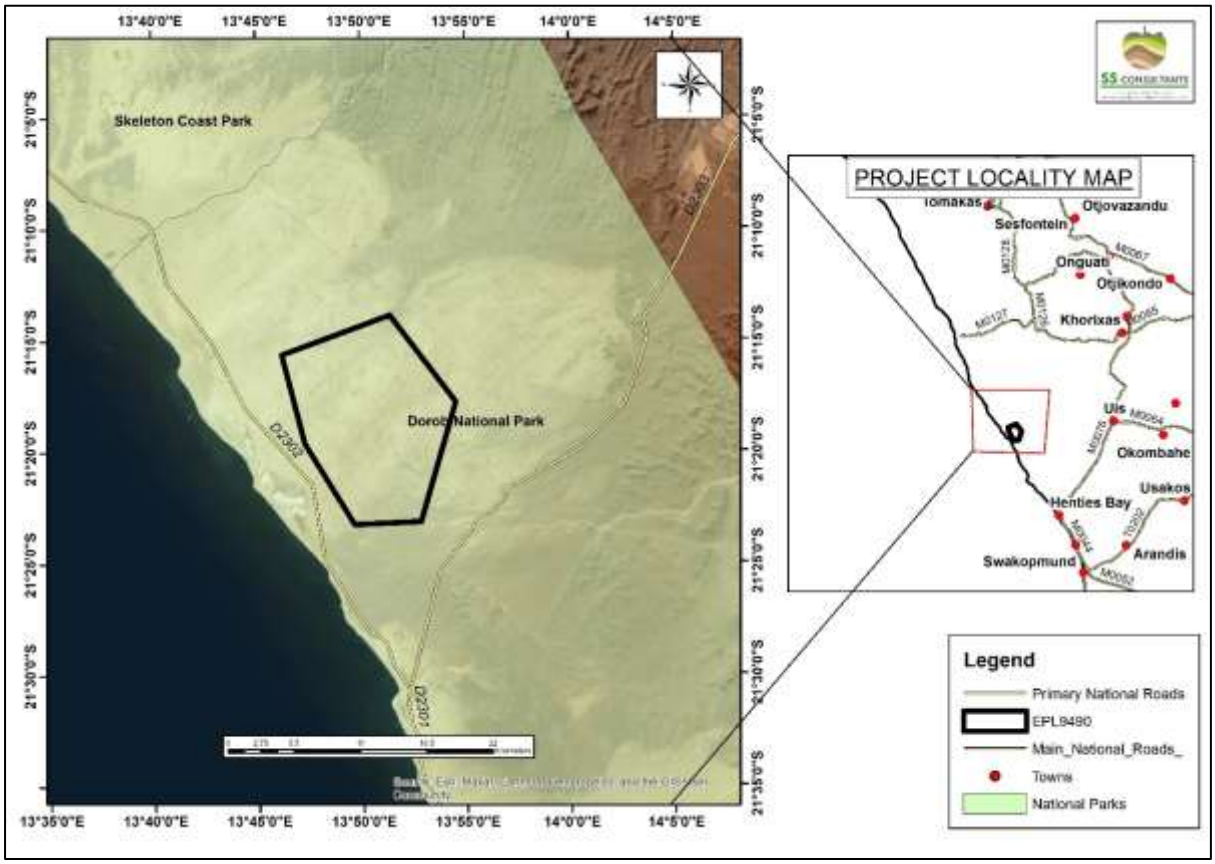
Figure 1-1: Namibia Mines and Energy Cadastre Map Portal with EPL_9490 (source: https://portal.mme.gov.na/page/MapPublic)

1.2 Locality

The EPL No.9490 is located within the Dorob National Park near the town of Swakopmund in the region of Erongo as shown on the locality map in **Error! Reference source not found.**. The project area covers an area of 16636.13 hectares and is demarcated by 6 (six) corner coordinates Table 1-1 and Table 1-2. The area sits on state land within the Dorob National Park. The Swakopmund town forms part of Erongo's commercial hub with tourism facilities, farming activities, mining explorations and retail.

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

Figure 1-2: Locality map indicating the EPL 9490 boundary, road networks towns and Dorob National Park.



The corner coordinates of the EPL are provided in Table 1-1, while the EPL locality details are provided in Table 1-2.

Table 1-1: Corner coordinated for EPL-9490.

Geographic Coordinates		
	Latitude	Longitude
1	-21.3881556	13.8274417
2	-21.327475,	13.7877806
3	13.7698278,	-21.2610972
4	21.2318528	13.8563806
5	-21.2966639	13.9087778
6	-21.3860806	13.8804972

Table 1-2: Summary of EPL-9490 location details

Location	Within Dorob National Park
Area size	16636.13 Ha
Constituency	Swakopmund
Regional Administration	Erongo Region
Nearest Town	Swakopmund

1.3 Need and Desirability of the Project

The EPL 9490 aligns with the ruling party of Namibia 2024 Swapo Party Manifesto's objectives of capitalising on favourable uranium and gold prices to revive exploration and mining activities, which is projected to create over 3,000 permanent jobs within five years. Furthermore, the project will uphold Corporate Social Responsibility (CSR) commitments, ensuring support for social development and the inclusion of local SMEs, thereby fostering sustainable community growth. The Twin Hills gold mine project exemplifies how mining initiative aligns with the Swapo Party Manifesto's goals with commencement of the mine development estimated to create over 700 temporary jobs during construction and sustaining 400 permanent positions in production directly partially contributing to the target of 3,000 new mining jobs (Mining and Energy 2025). Additionally, Osino Resources' collaboration with government agencies on environmental compliance and local recruitment underscores the project's commitment to Corporate Social Responsibility (CSR), fostering SME inclusion and community development, as advocated in the manifesto."

Additionally, the government of Namibia has long recognised the need to enhance the country's economy and continues to strive for economic welfare through amongst others Vision 2030, National Development Plan 5 (NDP 5) and the Harambee Prosperity Plan (HPP). It is reported that in Namibia, mining has been the backbone of the economy since time-immemorial in view of having a positive impact on the economy measured through job creation and income generation, among others (Mubita & Nambinga, 2021). Mining and the extractive industry are essential to the production of goods, services and infrastructure that improves the quality of daily human lives. The 2024 Chamber of Mines annual report revealed that last year the mining sector has played a pivotal role in Namibia's economy, as demonstrated by its N$24 billion expenditure on local procurement in 2025, which underscores the industry's capacity to stimulate economic growth and diversification. This substantial investment not only strengthens local supply chains but also supports the creation of employment opportunities, with direct jobs in the sector increasing by 13.6% to 20,654 positions. At one-point, EPL 9490 will further amplify these contributions by fostering similar procurement practices and job creation, aligning with national economic goals and reinforcing the desirability of the project as a catalyst for sustainable development.

Numeral economic mineral deposits are known to exist in different parts of Namibia. These include nuclear fuel (uranium), dimension stone (granites, marbles and dolerite), industrial minerals (lithium, cement), base, rare earth elements (copper, zinc, lead, vanadium, tantalum, niobium, tin), and precious metals (gold, silver). Given that different companies, for

years have been exploring for these resources before, the Proponent intends to explore for possible mineral occurrence in the EPL area if granted a go ahead.
Prior to any mining project, like Osino proponent to EPL 9490 will need to explore for a mineral resource and during this time the exploration activities bring the following benefits:

- Provision of contractual employment opportunities.
- Contribute to the socio-economic development of the local area and region, even more, should viable discoveries be made.
- Increase in knowledge on the subsurface which then contributes to development, and geoscience research and innovation at large and
- Contributions to annual license fees to the government through the Ministry of Industry, Mines and Energy (MIME).
- Job Creation during exploration and later once mining commences.

1.4 Scope of Work

This scoping study was carried out in accordance with the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 EIA Regulations (GG No. 4878 GN No. 30). The Act defines environmental assessment as the process of identifying, predicting and evaluating the effects of proposed activities on the environment. An environmental assessment should include information about the risks and consequences of activities, possible alternatives, and steps which can be taken to lower any negative impacts on the environment.
To determine the potential environmental impacts arising from the proposed activities by doing a risk assessment, relevant environmental data has been compiled by making use of secondary data from desktop work and fieldwork. The Environmental Scoping and Assessment (ESA) report and Environmental Management Plan (EMP) will enable stakeholders and relevant Ministries to make informed judgements regarding the exploration activities from an environmental perspective.
After applying for the Environmental Clearance Certificate (ECC) with MEFT: DEAF, the first stage in the EIA process is to submit an environmental scoping report and draft environmental management plan, of which an ECC for the proposed project may be considered by the Environmental Commissioner.

1.5 The Environmental Assessment Process

The Environmental Management Act (EMA), often referred to as the EMA, mandates the conduction of an Environmental Impact Assessment (EIA) for specific developmental projects listed within the EIA regulations. The primary objective of the EIA is to systematically identify, evaluate, and confirm potential environmental impacts that could arise from the proposed activities. The EIA process in Namibia involves four main steps: (a) screening, (b) scoping and preparation of the EIA report, (c) review and decision making and (d) monitoring and auditing.

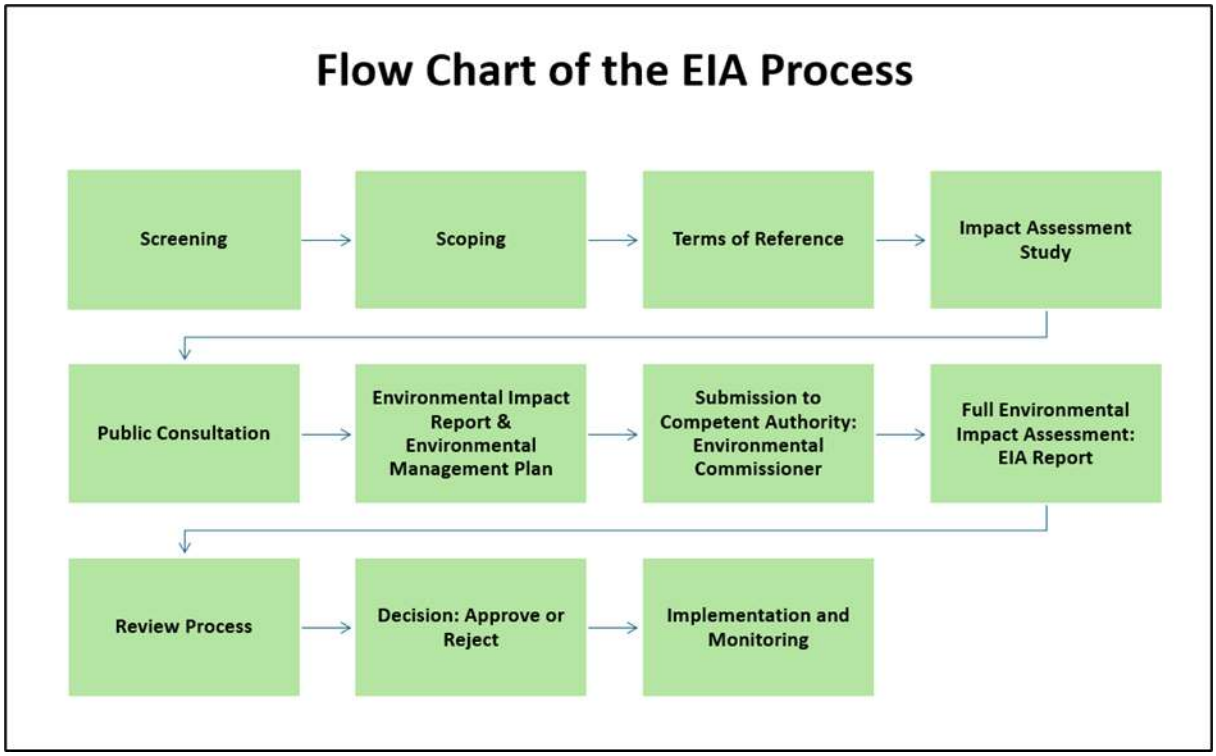


Figure 1-3:Chart showing the EIA process in Namibia.

This report provides the following chapters in Table 1-3.

Table 1-3: A summary of the contents covered by the report

Description	Section of the Report
The background and description the proposed project	Chapter 1
The relevant laws and guidelines pertaining to the proposed project	Chapter 2
The project description - Overview of the different exploration methods to be undertaken	Chapter 3
Alternatives considered for the proposed project in terms of no-go option, location, exploration methods and services infrastructure	Chapter 4
The public consultation process followed (as described in Regulation 7 of the EMA Act) whereby interested and affected parties (I&APs) and relevant authorities are identified, informed of the proposed activity, and provided with a reasonable opportunity to give their concerns and opinions on the project	Chapter 5
Geological understanding of the project area	Chapter 6
Description of the Biophysical and Social Environment	Chapter 7
The identification of potential impacts, impacts description, assessment and mitigation measures	Chapter 8
Recommendations and Conclusions to the report	Chapter 9

Description	Section of the Report
Reference List (Data Sources)	Chapter 10

The next chapter will focus on the administrative and legal framework of MEFT and associated authorities with project activities falling under exploration. Under this chapter, there is also a brief description of the legislation, policy or guidelines and their relevance to the proposed project activities.

2 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

This chapter focuses on reviewing the relevant Namibian legislation, policies and guidelines that should be considered and applied for the proposed development. This review serves to inform the Proponent, Interested and Affected Parties and the competent authority at the Ministry of Environment, Forestry and Tourism (MEFT) about the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to undertake the exploration activities.

2.1 Applicable Laws and Legislations

The list of all applicable Namibian and international legislations during the EIA process are presented as below in Table 2-1:

Table 2-1: List of applicable legislations, policies and guidelines

LEGISLATION/POLICY/ GUIDELINE	PROVISIONS	IMPLICATIONS
Environmental Management Act (EMA) No. 7 of 2007	The purpose of this Act is to give effect to Article 95 (I) and 91 (c) of the Namibian Constitution by establishing general management principles for the management of the environment and natural resources. The Act necessitate that project with adverse environmental impacts are subject to an environmental assessment process (Section 27). It details principles which must guide all environmental assessments.	EMA and its regulations should inform and guide this EA process.
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details requirements for what should be part of the Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
Minerals (Prospecting and Mining) Act No. 33 of 1992	To provide for the reconnaissance, prospecting, exploration, and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto.	The Proponent should ensure compliance with the conditions set in the Minerals Act regarding exploration activities.
The Constitution of Namibia Act No. 1 of 1990	According to Legal Assistance Centre (LAC), there is no clear right to health in the Namibian Constitution. However, the Namibian Constitution as the supreme law, under article No.95 provides for matters relating to the environment. This article state 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."	The Proponent should ensure compliance with the conditions of the Act.
Water Act No. 54 of 1956	The Water Resources Management Act 11 of 2013 is not yet gazetted; hence, the Water Act No 54 of 1956 is still in force:	The safety of ground and surface water resources must be a

LEGISLATION/POLICY/ GUIDELINE	PROVISIONS	IMPLICATIONS
	Interdict the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).	priority throughout all exploration activities.
Water Resources Management Act No.11 of 2013	The Act caters for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: Certify that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner accordant with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	
Soil Conservation Act No. 76 of 1969	The Act aims to prevent and control soil erosion and to protect, revamp, and conserve the soil, vegetation and water supply sources and resources, through directives declared by the Minister.	At a time of soil sampling, soil conservation must be taken care of, and management measures must be part of the EMP.
Nature Conservation Ordinance No.4 of 1975	To centralise and amend the laws relating to the conservation of nature; the establishment of game parks and nature reserves; the control of problem animals; and to provide for matters incidental thereto.	The Proponent should ensure that any activities done in the project area do not in any way trade-off the wildlife and the ordinance requirements are adhered to.
Agricultural (Commercial) Land Reform Act No. 6 of 1995 (Agricultural (Commercial) Land Reform	To provide for the acquisition of agricultural land by the State for the purposes of land reform and for the allocation of such land to Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been	The Proponent should ensure that relevant regulations set under this Act are always adhered to.

LEGISLATION/POLICY/ GUIDELINE	PROVISIONS	IMPLICATIONS
Amendment Act No. 1 of 2014))	socially, economically or educationally disadvantaged by past discriminatory laws or practices; to vest in the state a preferred right to purchase agricultural land for the purposes of the Act; To provide for the compulsory acquisition of certain agricultural land by the state, for the purposes of the Act; to regulate the acquisition of agricultural land by foreign nationals; to establish a lands tribunal and determine its jurisdiction; and to provide for matters connected therewith.	
Forestry Act No. 12 of 2001	The Act caters for the management and use of forests and related products/resources. It provides protection to any living tree, bush or shrub growing within 100 meters of a river, stream or watercourse on land that is not surveyed or even of a local authority area. In such instances, a license would be required to cut and remove any such vegetation. These provisions are only guidelines.	Before removing any protected plant species within the proposed exploration site, the Proponent must secure a permit from the nearest MEFT's Directorate Forestry office
Atmospheric Pollution Prevention Ordinance No. 11 of 1976	This ordinance sets for the prevention of air pollution.	Measures should be set to ensure that dust and fumes emanating from exploration activities is kept at acceptable levels.
Public Health Act No. 36 of 1919	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees/contractors should adhere to the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	
The Regional Councils Act No. 22 of 1992	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section	The relevant Regional Councils are I&APs and must be consulted

LEGISLATION/POLICY/ GUIDELINE	PROVISIONS	IMPLICATIONS
	28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment." The main objective of this Act is to initiate, supervise, manage, and evaluate development.	during the Environmental Assessment (EA) process. The Kunene Regional Council (Outjo Constituency) is the responsible Regional Authority of the area in which the proposed activity will be undertaken, therefore should be consulted for this EA.
Labour Act No. 6 of 1992	Ministry of Labour (MOL) aim to ensure harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.	The Proponent should ensure that the proposed activity does not compromise the safety and welfare of workers.
Best Practice Guide: Environmental Principles for Mining in Namibia-Exploration	Outlines the regulatory and legislative requirements for exploration in Namibia. Serves as a guiding framework for the exploration phase of the mining life cycle.	The Proponent should be guided by this framework for best practice mining and exploration activities in Namibia.
National Heritage Act (27 of 2004)	Part V Section 46 of the Act prohibits removal, damage, alteration, or excavation of heritage sites or remains. Section 48 off sets out the procedure for application and granting of permits such as might be required in the event of damage to a protected site occurring as an inevitable result of development. Section 51 (3) sets out the requirements for impact assessment. Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council. Heritage sites or remains are defined in Part 1, Definitions 1, as "any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface".	The project must ensure that no heritage resources are damaged and/or removed during its operations. All protected heritage resources (e.g., human remains, paintings etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC

LEGISLATION/POLICY/ GUIDELINE	PROVISIONS	IMPLICATIONS
		before they may be removed and/or relocated.

Table 2-2: List of applicable international legislations to which Namibia is a signatory.

LEGISATIONS	PROVISIONS
Montreal Protocol on substances that deplete the Ozone Layer - 1997	The agreement was designed to stop the production and import of ozone depleting substances and reduce their concentration in the atmosphere. Its objectives are to promote cooperation on the adverse effects of human activities on the ozone layer, including projects that require environmental assessments.
The Rio de Janeiro Convention on Biological Diversity - 1992	Article 14 of the Convention on Biological Diversity, titled Impact Assessment and Minimizing Adverse Impacts, establishes that: 1. Each Contracting Party, as far as possible and as appropriate, shall: (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures. (b) Introduce appropriate arrangements to ensure that the environmental consequences of its programs and policies that are likely to have significant adverse impacts on biological diversity are duly considered.
United Nations Framework Convention on Climate Change - 1992	Principle 17 of the Rio Declaration on Environment and Development states that: ‘‘Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

2.2 Key Regulators/ Competent Authorities

The regulatory authorities responsible for environmental protection and management in relation to the proposed exploration including their role in regulating environmental protection are listed in Table 2-3.

Table 2-3: Regulatory authorities responsible for environmental protection and management.

AGENCY	RESPONSIBILITY
Ministry of Environment, Forestry and Tourism (MEFT	Issue 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 Industries, Mines and Energy (MIME)	Competent authority. The national legislation governing minerals prospecting and mining activities in Namibia fall within the jurisdiction of (MIME) 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 licence
National Heritage Council	the National Heritage Act (No. 27 of 2004) is critical legislation in ensuring effective identification; accurate recording, reporting, interpretation and appropriate estimation of the sensitive and significant heritage resources that could be negatively affected by exploration.

2.3 Required Permits

There are a variety of permits or licenses that will be required and should be obtained by the Proponent prior to conducting certain project activities on the EPL. There are presented in Table 2-4.
It is important to note that these permits and licenses will need to be renewed and or amended as stipulated therein.
Table 2-4: Applicable permits to the proposed project

PERMITS/CERTIFICATES	ACTIVITY	VALIDITY	REGULATING AUTHORITY
Environmental Clearance Certificate	Regulates prospecting and exploration activities from the environmental management perspective	Three years and should be renewed if the project is continuing.	Ministry of Environment, Forestry and Tourism (MEFT): Department

PERMITS/CERTIFICATES	ACTIVITY	VALIDITY	REGULATING AUTHORITY
			of Environmental Affairs (Environmental Commissioner)
Exclusive Prospecting License	Mineral rights ownership and authorization	Three years	Ministry of Industries, Mines and Energy (MIME): Directorate of Mines (Mining Commissioner)
Notification of Intention to drill for mineral resource	Submitted prior to drilling	Permit dependent	Ministry of Industries, Mines and Energy (MIME): Directorate of Mines (Mining Commissioner)
Notification of Intention to drill (groundwater)	Submitted prior to drilling	Permit dependent	Ministry of Agriculture, Water and Land Reform (MAWLR): Department of Water Affairs
Water Abstraction	Regulates ground water abstraction	2-5 years	MAWLR: Department of Water Affairs (Water Law Administration Policy Division)
Wastewater (effluent) handling and discharge	Regulates the handling and disposal of wastewater in the environment	2 years or as stipulated	MAWLR: Department of Water Affairs (Water Environment Division)
Fuel Storage onsite (Consumer installation certificate)	Regulates the storage of fuel onsite in the volume of 600litres or more.		MME: Directorate of Petroleum Affairs (Petroleum Commissioner)

3 TECHNICAL DESCRIPTION OF PROJECT ACTIVITIES

Prior to mobilizing to site and undertaking any groundwork for the proposed activities on EPL-9490, the proponent is required to follow through measures that ensure environmental protection. Where the EPL overlies a private farm or part of a farm, the Proponent will be required to sign land access and use agreements with the affected landowner (farmer) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992.

3.1 Exploration Methods

The proposed activities will involve detailed exploration for base, REE, precious metals, dimension stone and industrial minerals on EPL 9490. This will entail both non-invasive and invasive exploration methods. Non-invasive exploration methods usually include desktop study, airborne geophysics and geological field mapping whereas invasive exploration methods include more destructive methods such as ground geophysical survey, surface sampling, reverse circulation or diamond drilling and pitting/trenching. Non-invasive exploration activities will be undertaken first to define the need for more invasive activities. If the results from the non-invasive activities turn out to be positive, the detailed site-specific drilling, trenching, and sampling will be undertaken.

3.1.1 Non-Invasive

The proponent intends to adopt a systematic prospecting approach starting with stakeholder engagement, desktop study, field evaluation, magnetic data interpretation, and geological mapping, The proposed activities are summarized as follows:

- Stakeholders' engagement: engagement with landowners for accessibility to the license area and investigate the infrastructure in support of the project and socioeconomic environment.
- Desktop study: the exploration program will commence with a review of geological maps and historical drilling and/ or quarrying data for the area, if any.
- Field Evaluation: the field evaluation is to be carried out by a qualified geologist, aimed at locating suitable host rock outcrops in the field.
- Airbourne geophysical data interpretation: purchase, processing, and interpretation of existing seismic, radiometric, magnetic, electromagnetic and gravity data from the Geological Survey of Namibia to identify resource without ground penetration.
- Geological Mapping: is the process of creating detailed representations (maps) of the Earth's surface to show the distribution, composition, age, and relationships of rocks, sediments, faults, and other geological features. It involves fieldwork, remote sensing, and laboratory analysis to document and interpret geological formations. Where field evaluation indicates a potentially economical viable deposit, detailed geological mapping will be conducted by means of mapping transversely across exposed/ cleaned segments of the rock unit. The mapping is aimed at delineating major geological structures such as fault and shear zones (zones of weakness), the extent of veins, as well as further delineation of fracture/ discontinuity frequencies.

Collectively, all the above will result in the production of a refined and detailed geological map for the targeted sites. This phase will last between six (6) to twelve (12) months.

3.1.2 Invasive Technique (Detailed exploration)

Invasive methods like trenching, pitting, sampling and drilling will only be employed depending on the positivity of non-invasive technique outcomes.
These techniques will execute the following based on the assessment in the EIA Report:

- Geochemical sampling method is a systematic measure one or more chemical properties aimed at identifying content of some elements or group of elements in rock, soil, streams sediments or in water.
- Laboratory analysis of all the samples collected and interpretation of the results and delineating of potential targets for further infill sampling.
- Further infill geochemical sampling aimed at verifying the prospectively of the target/s delineated during the initial surveys.
- Ground geophysical survey involves planning, selecting a suitable method depending on type of mineralization model (e.g., seismic, resistivity, magnetics), laying out survey grids, collecting subsurface data using specialized instruments, processing the data to identify anomalies, and interpreting results for applications like mineral exploration or groundwater detection. While generally low impact compared to drilling, it can affect the environment through ground disturbance from equipment, vegetation clearance, and noise pollution (seismic surveys), potentially disrupting wildlife and ecosystems. Electromagnetic and resistivity methods may introduce weak currents into the ground, though effects are typically minimal. Proper mitigation such as minimizing survey footprint, avoiding sensitive habitats, and restoring terrain helps reduce environmental harm.
- Trenching/pitting involves excavating narrow trenches or small pits to expose and study subsurface geology, mineral deposits, or soil layers. The process includes site selection, manual or mechanical digging (using backhoes or excavators), logging geological features, sampling, and backfilling or stabilizing the site afterward. While trenching provides direct, high-quality data, it has significant environmental impact.
- drilling (last resort): involves penetrating the Earth's subsurface using mechanical rigs to extract rock cores or chips for geological analysis and resource exploration. The process includes site preparation including clearing and road creation, rig setup, drilling with techniques like rotary, percussion, or diamond core methods, sample collection, and well abandonment or restoration.

These techniques will take up to two years and will give insightful information based on the results as to whether there is mineral potential within the area or not, and whether to continue with the project or not. By the end of this phase, if the Proponent desires to continue with the project, they may launch a renewal application for the ECC and once renewed, they may proceed to conduct exploration on the license area.
If the need arises a temporary camp may be setup at suitable locations within the EPL area in line with the EMP provisions. The size of the exploration camp will be of very limited footprints during the exploration phase but may be expanded for the test mining and mine development phases in an event of a discovery of economic minerals resources.

3.2 Exploration utilities

3.2.1 Infrastructure and Services

The required infrastructure services are water, electricity, roads network, accommodation and transportation needed for this project are vital and were considered during this EA. It should be noted that depending on the technique demand for infrastructures and services varies. Therefore, during the non-invasive techniques not much infrastructure and services will be needed and during the invasive techniques i.e. ground geophysical, pitting/trenching and drilling this will require most of these services daily. As mentioned in the previous chapter, to meet the increased infrastructure and service requirements, a temporary campsite will be established within the EPL 9490. The campsite will adhere to the provisions outlined in the Environmental Management Plan (EMP) to mitigate any potential harm to the environment. During the exploration phase, efforts will be made to minimize the campsite's footprint and its impact on the surroundings.

3.2.2 Water

Exploration activities usually require water supply. Water will be required for general usage, diamond-core drilling, domestic use and for dust suppression. The utilization of water from existing boreholes will be determined through individual agreements with landowners and community members. All necessary permits and requirements for water drilling will be obtained from mandated authorities i.e. Department of Water Affairs (Ministry of Agriculture, Water and Land Reform (MAWLR]). Additionally, water used for drilling will be recycled to promote efficiency and conservation. Alternatively, water can be obtained from other water suppliers (the Outjo Municipality) if need be. The Proponent will need to enter into water supply purchase agreements with water supplier(s) from outside the Project area to truck and cart water for drilling to the Project Site.

3.2.3 Power

The project's location a few kilometres from Outjo town presents the option to source power from the Outjo Municipality. Alternatively, diesel power generation will be utilized, and the fuel will be stored in mobile fuel bowsers of small to medium sizes. The primary electricity demand will be for operating small machinery during the exploration process and, if necessary, providing power to temporary office blocks or containers. Refuelling of the drill rigs can be accomplished using Jerry cans or directly from the fuel bowser. This approach ensures flexibility and mobility in power supply, making it suitable for situations where connection to the Outjo Municipality is not feasible or reliable. All potential environmental impacts resulting from diesel power generation will be thoroughly assessed, and efforts will be made to explore alternative power sources.

3.2.4 Road Access

Within the EPL, there are several smaller track roads. The EPL is conveniently accessible via a secondary road M63 that branches off from the main C38 tarred road (Outjo - Otjiwarongo). To minimize environmental impact during geological mapping, sampling, and geophysical surveys, motorized access will be limited to the existing tracks. However, if new access routes are needed for drilling, they will be identified, marked, and assessed for environmental

sensitivity before drilling commences. Prior to initiating exploration activities, the final alignment of any new access tracks will be discussed and mutually agreed upon with the landowner or community members to ensure their input and address any concerns.

3.2.5 Human Personnel and Site Safety

The exploration project will employ a total of 6 (six) individuals at commencement, and it is set to increase, all of whom will be provided with appropriate personal protective equipment (PPE) that will be regularly replaced or repaired to ensure their occupational health and safety. As a safety and security precaution, areas with high risk of incidents will be temporarily fenced off. Additionally, fire extinguishers will be equipped in exploration vehicles and at all drilling sites to handle potential fire outbreaks during exploration activities. All employment during the exploration phase will be temporary. Most of the workforce for the exploration project will be recruited from Outjo and the surrounding towns.

3.2.6 Transportation

Transportation will range from trucks to double and single cab 4 by 4 pickups for daily exploration activities and for personnel transport. The trucks will be used to transport the exploration services, materials and goods. To avoid major road damages, water trucking will be done once or twice a month. In cases where the project progresses, there will be drilling machines within the project area.

3.2.7 Domestic and hazardous waste

The domestic wastes (non-hazardous) are to be disposed of appropriately in designated waste bins onsite that will be regularly emptied at the nearest approved solid waste facility, likely in Outjo twice or once a week.
On the other hand, hazardous waste, all vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel or oils will be transported to and disposed of at an appropriate facility in the nearest town equipped for the disposal of hazardous substances to ensure that the area is not polluted. The nearest hazardous management facility in the area would be Outjo town.

3.2.8 Resources and Working Team

To fully define the resources being explored, various geological consultants and contractors will be appointed during different exploration phases. Various exploration methods will be involved, and each method produces results that determine the next exploration phase. Therefore, a geophysics expert will potentially be contracted during exploration to conduct geophysical surveys whether it is on the ground or air. In addition, drilling will be executed by an appointed drilling contractor, and it is expected that they will have their own workforce (drilling crew). Furthermore, temporary employment will potentially be available for graduate geologists (2 positions) and geotechnical technicians (2 positions) for the purpose of geological mapping and geochemical surveys. The nearest populated town is Outjo from which unskilled labour can be sourced. It is anticipated that the workforce will be housed in temporary site camps or may reside in the nearest towns throughout the exploration activities.

3.3 Rehabilitation and Decommissioning

Once the exploration program is completed, any damages or impacts resulting from the exploration activities will be addressed and rehabilitated in accordance with the Environmental Management Plan (EMP) requirements. The EMP outlines the necessary measures and procedures to mitigate and restore any environmental damage or disturbances caused by the exploration activities.

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

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

Further decommissioning and rehabilitation practice onsite will include:

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

The alternatives considered for the proposed Project in terms of ''No-Go'', location, methods and supporting services and infrastructures are presented under the next chapter.

4 PROJECT ALTERNATIVES CONSIDERED

Alternatives are defined as the "different means of meeting the general purpose and requirements of the activity" (Environmental Management Act (2007) of Namibia and its regulations (2012). This chapter will mainly point out the different ways in which the project can be undertaken, and identify the alternatives that, in a practical way, can be employed while ensuring minimal damage to the environment.
Once the alternatives have been established, they are examined by considering these three questions:

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

There have been diverse alternatives that are identified for proposed exploration activities. The most common and pivotal alternatives considered are the no-go option, location, services infrastructure, and exploration drilling methods. These alternatives are discussed as follows.

4.1 No-Go Option

The "No-Go" alternative refers to the option of discontinuing with the project. This implies that no activities will take place on the EPL area, and none of the potential impacts (positive and negative) identified would occur. If the proposed project is to be discontinued, the (current) land use intended for the proposed site would remain unchanged. When the No-Go option is considered, a comparative assessment of the environmental and socio-economic impacts of the "no-action" alternative is undertaken, to establish what benefits might be lost if the project is not implemented. With the No-Go option, the key losses that may never be realized if the proposed project does not go ahead include:

- Loss of in-depth geological understanding of the site area regarding the targeted commodities.
- No realization of local business supports through the consumable items procurement such as the Personal Protective Equipment, machinery spare parts, lubricants, accommodation and catering services.
- Loss of potential income to the local and national government through land lease fees, license lease fees, and various tax structures.
- Loss of foreign direct investment.
- Loss of potential employment opportunities is curtailed; hence, there will be no local, regional, and national economic contribution from the project.
- Socio-economic benefits such as skills acquisition to local community members would be not realized.

Therefore, this alternative was not considered for the project considering the above losses. In the case where parts of the project site are considered environmentally sensitive and/or protected, one or severally sections of the site may be identified sensitive, thus, can be excluded from the exploration.

4.2 Alternative Project Location

No alternative sites were considered for this project because the decision to pursue exploration activities in this area was primarily based on geological assessments(regional and

local), previous exploration data, and indication of mineralization in the area. Several minerals of economic potential deposits are known to exist in the general area and linked to the regional geology of the EPL area. The Proponent intends to explore or prospect for all the licensed minerals groups likely to be associated with the regional and local geology. It is worth noting that when selecting a site for exploration, multiple factors are typically considered, such as geological characteristics, accessibility, existing infrastructure, and potential mineral resources.

Furthermore, the Ministry of Industry, Mines and Energy through its geological surveys and assessments, conduct studies to identify areas with potential mineral deposits. These studies involve geological mapping, sampling, and analysis to understand the mineral potential of different areas within Namibia. Based on the findings of these studies, the Ministry categorizes the identified areas according to their mineral potential, considering factors such as the type of mineralization, geological characteristics, and historical mining activities. This categorization helps in prioritizing exploration efforts and guiding potential investors in identifying areas of interest. The Namibia Mining Cadastral Map serves as a centralized database and visual representation of the mineral potential and existing mining rights across Namibia.

4.2.1 Justification for Exploration Methods

Both invasive and non-invasive exploration activities are expected to be used for exploration works. If an economically viable discovery is made, the project will proceed to the mining phase and this is based on the approval of a mining ECC and issuance of a mining license. The combination of prospecting methods (non-invasive techniques) has no alternatives; therefore, these will be implemented as presented. This section rather focuses on the invasive technique (drilling). Drilling provides most of the information for the final evaluation of a prospect and will ultimately determine if the prospect is mineable.

4.2.1.1 *Reverse Circulation (RC)*

Reverse Circulation drilling creates small rock chips instead of solid core. Furthermore, the method allows full recovery of samples continuously and quick installation with no contact between the walls and cuttings taken at the bottom as well as the penetration rate is fast.

4.2.1.2 *Diamond (Core) Drilling*

Diamond (Core) drilling methods provide more reliable data collection and analysis. Core Drilling can penetrate deeper than RC Drilling, and is required in dimension stone drilling, to give a full picture of colour variation and textural variations as well as micro-discontinuities and weathering.

4.3 Services Infrastructure

In terms of the services that may be required for the proposed exploration works, their alternatives are presented in **Error! Not a valid bookmark self-reference.**.

Table 4-1: Alternatives considered in terms of services infrastructure

SERVICES	PROPOSED SOURCE	ALTERNATIVE SOURCE
Water	Hauling water from other sources out of the project area. The proposed source will be used to ensure that the project will not cause any further depletion on the local aquifer water table.	Water to be obtained from boreholes located on the farms or communal areas – with farmer permission. Although this is an alternative, the farmers have expressed major reduction on the aquifer water table (lowered water levels) in the previous years, and hence the project will source its water from outside, preferably purchasing from the nearest willing local authorities.
Power (electricity) for drilling	Solar sources will be used to power the project. This is not only because it will reduce carbon emission but also because it will mitigate soil and groundwater pollution that could have otherwise developed from always using a diesel generator.	Electric drives and generators will alternatively be used in cases when there is not enough sunlight to enable solar power usage.
Power for cooking	Gas stoves will be used for cooking during the project activities. Using gas stove ensure that the contractors will not use any firewood from the area which would increase deforestation.	Firewood (purchased from permit holding suppliers) will be used in cases of emergencies (for instance when the gas unexpectedly gets finished). However, there will be no onsite camping. Therefore, personnel will continue to use the source of power used in their houses before the project. For out-of-town project skilled personnel, they will be accommodated in already established

SERVICES	PROPOSED SOURCE	ALTERNATIVE SOURCE
		and furnished accommodation facilities. Therefore, they will not need firewood or own cooking sources.
Workers' accommodation	Local personnel will commute from the homes, if needed, a temporary campsite may be developed with precautionary measures in place.	Local personnel from the towns will not require accommodation as they will commute from their homes. Skilled personnel form outside towns will be accommodated in local established accommodation facilities. If skilled personnel prefer camping in town or at the nearest farm, permission will need to be obtained from landowner.
WASTE MANAGEMENT		
Sewage	Portable toilet – these are easily transportable and have no direct impact on the environment and ecology (if properly disposed). These are chosen at the drill sites.	Ventilated improved pit (VIP) latrine. This would be best suited at the contractors' camp.
Domestic waste	Onsite waste bins, regularly emptied at the nearest landfill is the chosen option. This will prevent an everyday drive from and to the nearest town for waste disposal, which can cause road damages.	Driving waste to the nearest town landfill which is Outjo is an alternative, but not viable as it can result in road damaging.
Drilling waste (chemicals)	Waste generated is to be transported to and disposed of at an appropriate facility in the nearest town equipped for the disposal of hazardous waste to ensure that the area is not polluted.	In cases of emergencies, organic chemicals will be used.

5 PUBLIC CONSULTATION

5.1 Objective

One of the major components of the Environmental Assessment (EA) processes is public consultation. It can be described by a spectrum or continuum of increasing levels of engagement in the decision-making process regarding the exploration (Chikova & Chilunjika, 2021). This is because, in the extractive industry, the engagement provides an opportunity for all the I&APs to comment on and raise any issues or concerns they may have regarding the project. Public consultation assist the Environmental Practitioners in identifying all potential impacts and to what extent further investigations are necessary.

Regarding public engagement, the principles set out in subsection (2) of as the EMA and its 2012 EIA regulations is that; (i) community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated and (ii) the participation of all interested and affected parties must be promoted and decisions must take into account the interest, needs and values of interested and affected parties. Thus, the proposed exploration activity intends to recognize the public as to accumulate information that aids the process of identifying possible ways of impacts monitoring and mitigations measures.

5.2 Approach to Stakeholder Engagement

The approach taken for public participation is guided by the public consultation definitions and guidance given by the MEFT as per the regulation 21 of the EIA. Communication with I&APs about the proposed development was facilitated through the following procedure:

a) Interested and Affected Parties (I&APs)

This assessment report made use of the ISO 14001:2015 to identify and define the anticipated needs and expectations from the identified interested and affected parties (I&APs) – at both national, regional and local levels.. ISO 14001: 2015's goal is to ensure that environmental aspects and inputs are identified and managed. I&APs are the people who are affected in one way or another by the project development, directly and indirectly. SS Consultants CC identified specific I&APs in the region and immediate towns to the EPL, who were considered interested in and/or affected by the proposed exploration activities. In addition, notices regarding the project were

placed in widely circulated national newspapers for two consecutive weeks inviting members of the public to register as I&APs.

Table 5-1 Interested and Affected Parties (I & APs) in the region and immediate towns

Interested and / Affected Parties	Needs and Expectations
Owners/Proponent	• Sustained profitability • Decent work environment
National (Ministries and State-Owned Enterprises)	
Ministry of Environment, Forestry and Tourism	• Compliance with statutory and regulatory requirements • Ethical behaviour • Environmental protection • Transparency • Risk management • On time tax payments and other fees
Ministry of Mines and Energy	
Ministry of Health and Social Services	
Regional, Local and Traditional Authorities	
Erongo Regional Council	• Ethical behaviour • Transparency • Mutual benefits and continuity • Significant development of local environment and communities.
Swakopmund Community	
General Public	
Farm and or Landowners /Interested members of the public	• Ethical behaviour • Transparency • Job security • No excess noise and emissions

b) A Background Information Document (BID)

A summarized document containing descriptive information about the proposed exploration activities was compiled **(Appendix I)** and shared upon request to the identified and registered interested and affected (I&APs).

c) Advertisements

Newspaper adverts were placed in local newspapers; the Confidence dated 20 December 2024 – 10th January 2025 and 10th January 2025 to 17th January to 23rd January 2025 and the Namibtimes newspaper 10th January 2025 and 20th December 2024 briefly explaining the activity and its locality, and inviting members of the public to register as I&APs and to register their concerns as well. The newspaper adverts are

included in **(Appendix C.)** respectively, briefly explaining the activity and its locality, and inviting members of the public to register as I&APs and to register their concerns.

d) Site Notices

During site visits to the EPL, site notices were fixed at Henties bay Nampost, Police station and Spar grocery shop **(Appendix.C)**.

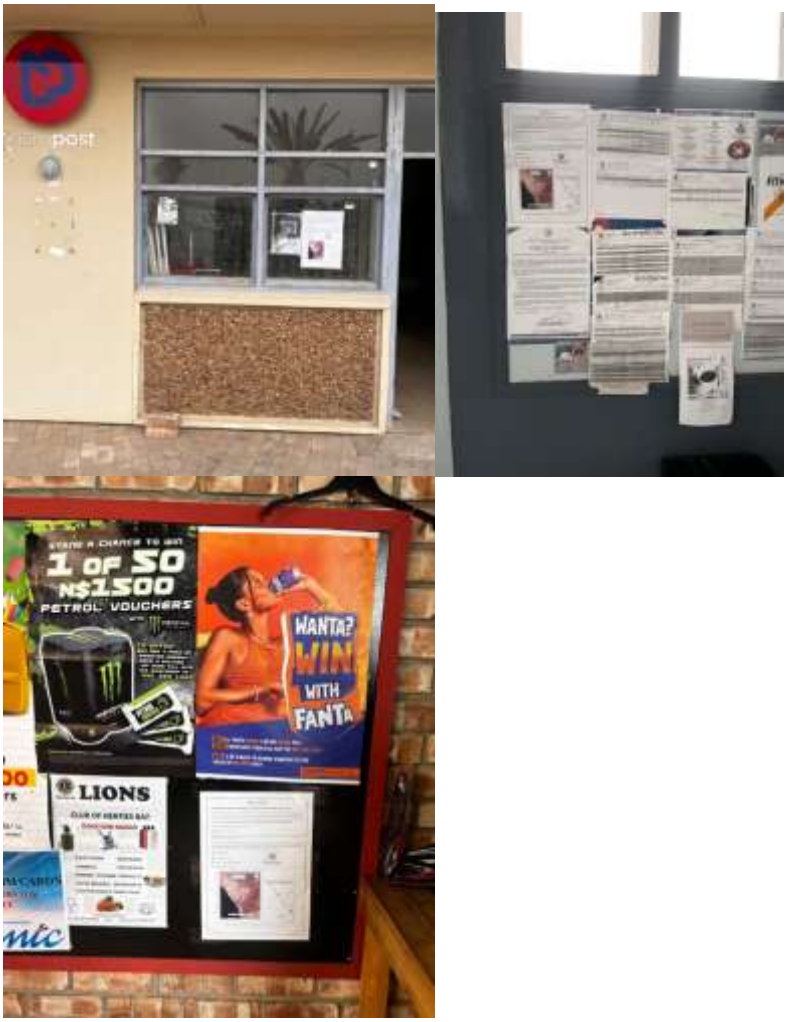


Figure 5-2: Images of the site notice at Henties Bay Nampost, Police station and Spar grocery shop

5.3 Consultation Meeting

Based on the newspaper advert, the public consultation date was going to be announced once the I & AP's have registered. Unfortunately, no I & AP's had registered for the public consultation meeting, hence no meeting took place. The consultant is open to any stakeholders that wishes to be consulted.

Table 5-2: Summary of main concerns and comments

Concerns	Comments
Water Resources	• Contamination of the underground water for contamination on the irrigation systems
Land Use Conflicts	• Encroachment upon valuable agricultural land and theft or introduction of unauthorized people in the private farms. • Potential displacement of farming communities
Environmental Concerns	• Potential environmental degradation resulting from mining activities, such as soil erosion, noise and emissions • Damage to ecosystems
Economic Opportunities	• Interest in leveraging mining activities for economic opportunities (job creation and local business development)
Environmental Mitigation Measures	• Reclamation and rehabilitation plans, to minimize the long-term impact
Community Development	• Corporate social investment (infrastructure improvement, education, healthcare)

The next chapter of the environmental scoping report discusses the naturally occurring geological features of the project area and the surrounding areas. Under this chapter, the description of the land surfaces in the EPL is given.

6 GEOLOGY AND TOPOGRAPHY

6.1 Regional geology

Regionally, the geodynamic evolution of the late-Proterozoic Pan African Damara orogen was accompanied by magmatic activity of essentially granitic character. Broad swarms of zoned and unzoned pegmatites with contained *Li, Ta,* Sn, and Nb deposits are associated with the late- to post-tectonic stages of granite intrusion. Later, during the Jurassic and Cretaceous, widespread magmatic activity occurred in response to processes of rifting and the break-up of Gondwana. The numerous granite-related base and rare metals deposits in the Damara orogen can be assigned to a Northern Group (Brandberg West-Strathmore area).

6.2 Local Geology surrounding EPL-9490

Locally, the two EPL covered by the Damaran igneous rocks of the Cambrian age in the northern coastal arm and intracontinental branch of the Damara orogen. These are mainly mafic complex of Damaran age and by syn- to post-tectonic leucogranites and (porphyritic)biotite granites Figure 6-1. These granites intruded the metasediments of the Amis formation marbles and schists that form part of the Zerrissene Group located outside the EPLs boarders mainly in the northeastern part.

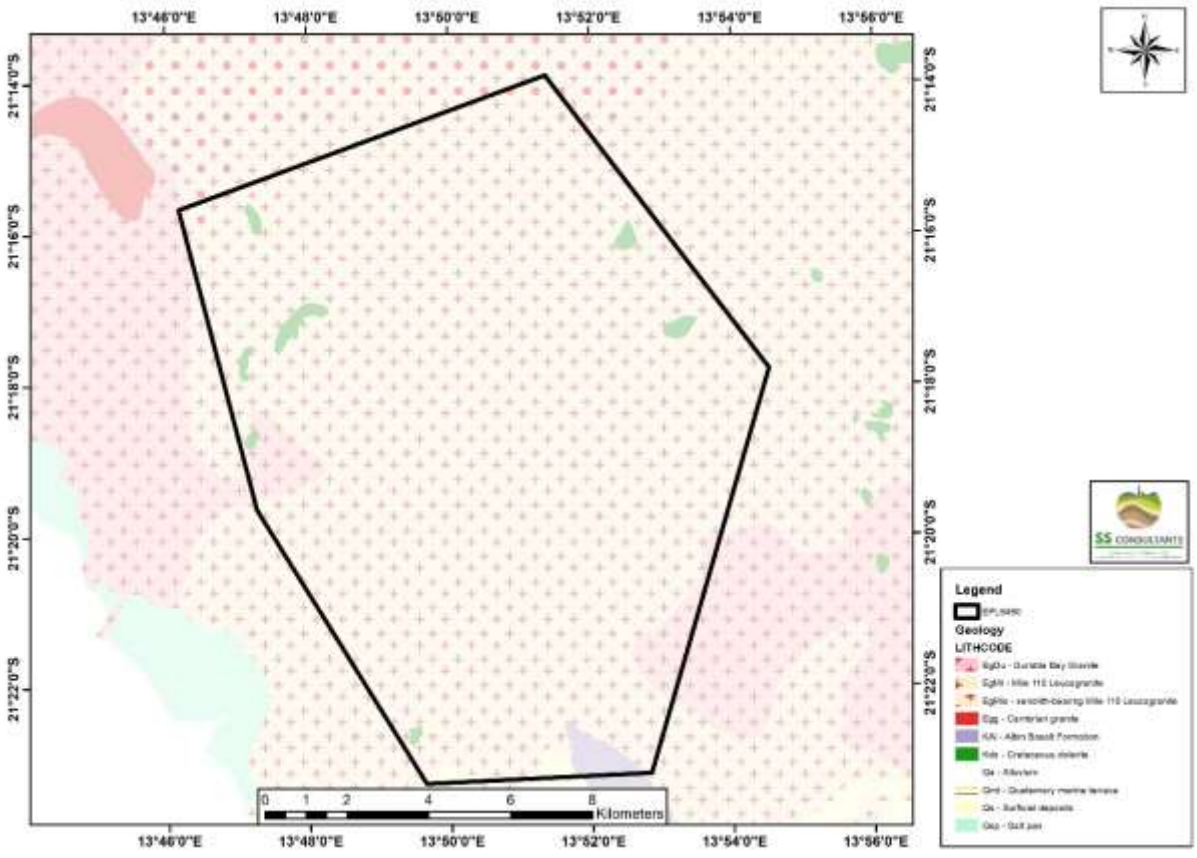


Figure 6-1: geological map for EPL 9490.

6.3 Field images of the various Rock types

Figure 6-2: Granite rock units.

Figure 6-3: Dolerite sills.

Figure 6-4: cover composed of scree (calcrete, sand and course material, shells and quartz).

7 ENVIRONMENTAL AND SOCIAL BASELINE

The proposed exploration activities will be undertaken in an environment with specific conditions. The environment will be affected in one way or another. It is therefore vital that prior to the project development, there is a thorough understanding of the pre-project conditions. It is equally important to form a baseline understanding of the area and make sound conclusions on certain issues that may arise during or after the projects, operations. Understanding pre-project conditions of the environment helps the Environmental Practitioner in identifying the sensitive areas that may need to be protected through recommendations and effective implementation of the provided mitigation measures. The environmental and social baseline for the project area is presented under the subchapters below.

7.1 Biophysical Environment

7.1.1 Climate

Climate has a major influence on the exploration activities proposed on the EPL. Understanding climatic conditions is crucial as it helps determine the suitable and unsuitable times for conducting exploration activities and to avoid unfavourable or hazardous times. Below are the descriptions of the rainfall and temperature conditions in the area.

Climate Erongo: Monthly Averages

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	29.0 (84.2)	28.0 (82.4)	36.0 (96.8)	32.0 (89.6)	33.0 (91.4)	30.0 (86.0)	31.0 (87.8)	32.0 (89.6)	31.0 (87.8)	30.0 (86.0)	29.0 (84.2)	26.0 (78.8)	36.0 (96.8)
Average high °C (°F)	22.16 (71.89)	22.69 (72.84)	23.55 (74.39)	23.76 (74.77)	23.82 (74.88)	22.25 (72.05)	22.13 (71.83)	20.53 (68.95)	20.34 (68.61)	20.52 (68.94)	21.12 (70.02)	21.39 (70.5)	22.02 (71.64)
Daily mean °C (°F)	20.69 (69.24)	21.11 (70.0)	21.81 (71.26)	21.75 (71.15)	21.44 (70.59)	19.65 (67.37)	19.39 (66.9)	17.81 (64.06)	17.9 (64.22)	18.44 (65.19)	19.34 (66.81)	19.86 (67.75)	19.93 (67.87)
Average low °C (°F)	18.49 (65.28)	18.86 (65.95)	19.26 (66.67)	18.89 (66.0)	18.24 (64.83)	16.09 (60.96)	15.55 (59.99)	14.02 (57.24)	13.99 (57.18)	14.82 (58.68)	16.06 (60.91)	17.06 (62.71)	16.78 (62.2)
Record low °C (°F)	14.0 (57.2)	16.0 (60.8)	14.0 (57.2)	13.0 (55.4)	13.0 (55.4)	11.0 (51.8)	11.0 (51.8)	10.0 (50.0)	11.0 (51.8)	10.0 (50.0)	12.0 (53.6)	14.0 (57.2)	10.0 (50.0)
Average precipitation mm (inches)	16.48 (0.65)	27.45 (1.08)	28.9 (1.14)	10.27 (0.4)	5.1 (0.2)	0.37 (0.01)	0.34 (0.01)	0.53 (0.02)	3.47 (0.14)	2.87 (0.11)	4.87 (0.19)	12.7 (0.5)	9.45 (0.37)
Average precipitation days (≥ 1.0 mm)	3.45	3.73	3.91	2.45	0.45	0.09	0.09	0.09	0.55	0.64	1.09	2.09	1.55
Average relative humidity (%)	77.77	76.25	70.54	63.12	56.07	55.23	53.29	62.99	68.32	71.04	71.81	75.96	66.87
Mean monthly sunshine hours	11.46	11.47	11.5	11.23	11.01	10.89	10.91	11.16	11.47	11.56	11.57	11.54	11.31

Figure 7-1: *Monthly averages for Erongo region (source:* https://weatherandclimate.com/namibia/erongo

7.1.1.1 Rainfall

The Erongo region which is on the western part of Namibia is characterised by a semi-arid climate with distinctive weather patterns. The region has a subtropical desert climate and it is located at an elevation of 930.27 meters above the sea level. It typically receives about 9.45 milimetres of precipitation annually.

7.1.1.2 Temperature

Dorob National Park experiences a hyper-arid desert climate. Erongo region has a high daytime temperature, especially during summer. Daily temperatures in the park typically range from 17°C to 22°C, with cooler nights and moderate UV exposure (WeatherCrave, 2025).

Additionally, the nighttime temperature can drop significantly due to the arid condition of the area. The region's annual temperature is about 19.93^{o}C and it is -4.53% lower than Namibia's averages.

7.1.2 *Water Resources: Surface and Groundwater*

EPL 9490 is in Western coastal of Namibia and within the Dorob National Park. Water is extremely scarce in the Erongo Region. Groundwater is the primary source, but it's under pressure due to mining and urban growth. Surface water is virtually absent except for ephemeral rivers like the Swakop and Omaruru, which flow only during rare rain events (Jadav, 1997). Desalinated seawater from the Atlantic Ocean is increasingly used, especially for industrial and mining operations (Iiyambo, 2011).

7.1.3 Topography

Dorob National Park spans 1,600 km of coastline and includes gravel plains, dune hummocks, and sandy beaches (Ministry of Environment, Forestry and Tourism (MEFT), 2025). Elevation ranges from sea level to over 2,400 meters in the broader Erongo Region, though the park itself is mostly low-lying with an average elevation of 24 meters near the coast.

Figure 7- 4: Images of the landscapes in different parts of the EPL area

7.1.4 Fauna and Flora

The Dorob National Park, located along Namibia's central coast, hosts a remarkable diversity of flora and fauna uniquely adapted to its hyper-arid desert environment. The park's vegetation is characteristic of the Namib Desert Biome, dominated by hardy, drought-resistant species such as the iconic *Welwitschia mirabilis*, a living fossil that can survive for centuries, and the *Pencil bush* (*Arthraerua leubnitziae*), *Dollar bush* (*Zygophyllum stapfii*), and *Shepherd's tree* (*Boscia albitrunca*) ((MEFT, 2025). Extensive lichen fields, particularly

north of Wlotzkasbaken and Cape Cross, are ecologically significant and highly sensitive to disturbance (MEFT, 2025). The fauna of Dorob National Park is equally adapted to the harsh conditions, with mammals such as oryx, springbok, brown hyena, black-backed jackal, Cape fox, and Hartmann's mountain zebra roaming the gravel plains and dune fields (National Parks Association, 2025). Smaller species like meerkats, rock hyraxes, and ground squirrels also thrive here, while the coastal and marine zones support Cape fur seals and occasional sightings of dolphins and whales (MEFT, 2025). The park is internationally recognized as an important Bird Area, hosting over 270 bird species, including the endemic and endangered Damara tern (*Sternula balaenarum*), as well as Ludwig's bustard, Rüppell's korhaan, African black oystercatcher, and Gray's lark (MEFT, 2025). This rich biodiversity, despite the extreme climate, underscores the ecological importance of Dorob National Park as a conservation stronghold in Namibia.

Flora

EPL-9490 is situated within an ecoregion characterized by limited vegetation cover and scattered open spaces, where sparsely distributed trees and shrubs are found. The park lies within the Namib Desert Biome, characterized by sparse vegetation adapted to arid conditions. Dominant species include:

- Welwitschia mirabilis – a living fossil endemic to the Namib
- Pencil bush (*Arthraerua leubnitziae*)
- Dollar bush (*Zygophyllum stapfii)*
- Shepherd's tree (*Boscia albitrunca*)
- Extensive lichen fields north of Cape Cross (MEFT, 2025)

During the field excursion not much flora has been encountered as the area is vastly covered by rock outcrops.

Figure 7-6: Calicorema capitata within the EPL area.

7.1.4.1 Avifauna

Namibia is home to a diverse avian population, with a recorded count of around 687 bird species. Among these, 61 species are categorized as vagrants. Notably, a significant 71% of these species hold national recognition as threatened or near-threatened Red Data Species, as reported by Simmons, Brown, and Kemper in 2015. Dorob is a globally recognized important Bird Area (IBA). It hosts:

- Over 1.6 million birds across 75+ species
- Endemic and threatened species like the Damara tern (Sternula balaenarum)
- Rüppell's korhaan, Ludwig's bustard, African black oystercatcher, and Gray's lark
- Coastal birds such as Cape cormorants, Hartlaub's gull, and flamingos (Wikipedia, 2025; MEFT, 2025)

Table 7-1: Bird species that are likely to occur within the site area

Scientific Name	Common Name
Cinnyris mariquensis	Mariqua Sunbird
Pycnonotus nigricans	African Red-Eyed Bulbul

Pytilia melba	Green-winged Pytilia
Ploceus velatus	Southern Masked Weaver
Prinia flavicans	Black-Chested Prinia
Philetairus socius	Sociable Weaver
Amadina erthyrocephala	Red-headed Finch
Leptoptilos crumenifer	Marabou stork
Laniarius atrococcineus	Crimson-breasted Ganolek
Plocepasser mahall	White-browed sparrow-weaver
Turdoides gymnogenys	Bare-Cheeked Babbler
Ploceus velatus	Southern Masked Weaver
Pternistis adspersus	Red-billed-spurfowl
Tricholaema leucomelas	Acacia Pied Barbet
Polemaetus bellicosus	Martial Eagle

7.2 Social Environment

Dorob National Park where the EPL is located is situated within Namibia's Erongo Region, is embedded in a dynamic social environment shaped by urbanization, tourism, and conservation. The park encompasses and borders key coastal towns such as Swakopmund, Walvis Bay, and Henties Bay, which are home to a diverse and growing population. These towns serve as economic and social hubs, offering employment in sectors like tourism, fishing, and mining, while also providing access to education, healthcare, and modern infrastructure (MEFT, 2025). Furthermore, the region is characterized by a youthful demographic, with a median age of 26.5 years and a high literacy rate of over 90% (Namibia Statistics Agency, 2023). Swakopmund, in particular, is a multicultural town with a blend of German colonial heritage and Namibian traditions, reflected in its architecture, language, and festivals. The social fabric of the area is further enriched by community-based conservation initiatives, such as communal conservancies that empower local populations to manage and benefit from natural resources (MEFT, 2025). These initiatives foster environmental stewardship while supporting livelihoods through eco-tourism and sustainable land use. The integration of

protected areas like Dorob National Park into the urban and social landscape of Erongo demonstrates Namibia's commitment to balancing development with conservation, ensuring that both people and nature thrive in this unique desert-coastal ecosystem (MEFT, 2025).

7.2.1 Social Demographics

The Erongo Region had a population of approximately 240,206 as of 2023, with a median age of 26.5 years (CityFacts, 2025). The region is highly urbanized, with 80% of the population living in urban areas, particularly in towns like Swakopmund and Walvis Bay (NSA, 2023). Swakopmund alone had a population of 75 921 in 2011, with a density of 386.7 people/km² (NSA, 2023). The region is ethnically diverse, with major language groups including Oshiwambo, Afrikaans, and Damara/Nama. Literacy rates are high, with 92% literacy among those aged 15 and older (NSA, 2023).

7.2.2 Economy

Erongo's economy is driven by mining, fishing, tourism, and manufacturing. Swakopmund and Walvis Bay are economic hubs, with Dorob National Park contributing significantly through eco-tourism and recreational activities (Namib Enviro Consultants, 2022). The park supports local employment through tourism concessions, park management, and conservation initiatives. Mineral exploration within the park, such as EPL 9490, can contribute to foreign exchange and job creation (Namib Enviro Consultants, 2022).

7.2.3 Land Use

Land use in the Dorob National Park and surrounding Erongo Region is characterized by a complex balance between conservation, tourism, urban development, and mineral exploration. The park is a multi-use protected area where activities such as eco-tourism, scientific research, and controlled mineral prospecting are permitted under strict environmental regulations. According to the Environmental Scoping Assessment for one of the EPLs done by Excel Dynamics 2024, land use within the park includes non-invasive and invasive exploration techniques, such as geological mapping and core drilling, which are subject to Environmental Clearance Certificates (ECCs) and must comply with Namibia's Environmental Management Act (No. 7 of 2007) (Excel Dynamic Solutions , 2024). The park

also accommodates urban settlements like Swakopmund and Henties Bay, which are surrounded by designated conservation zones. Recreational land use includes angling, off-road driving, and camping, with specific zones demarcated to minimize ecological disturbance. The Environmental Assessment emphasizes that rehabilitation of disturbed areas is mandatory after exploration activities, and land use access agreements must be obtained from the Ministry of Environment, Forestry and Tourism (Excel Dynamic Solutions , 2024). This integrated land use model aims to support both biodiversity conservation and sustainable economic development in the region.

7.2.4 Infrastructure

Dorob National Park is accessible via the B2 highway and the Trans-Kalahari Corridor, with proximity to Walvis Bay Airport and Swakopmund's urban infrastructure. The park includes four campsites (Mile 14, Jakkalsputz, Mile 72, and Mile 108), walking trails, and upgraded facilities such as ablution blocks and barbecue areas (MEFT, 2025). Infrastructure development is supported by the Game Products Trust Fund to enhance tourism and conservation (MEFT, 2025).

7.2.5 Archaeological and Heritage Resources

Dorob National Park is rich in archaeological and cultural heritage, particularly in the Messum Crater and surrounding areas. These sites contain San rock paintings, stone tools, and archaeological remnants from Damara nomads, offering insight into early human settlement in the Namib Desert (MEFT, 2025; National Parks, 2025). The park also features shipwrecks along the Skeleton Coast, which have become part of the cultural landscape and serve as nesting sites for birds (National Parks, 2025). Heritage assessments in the broader Erongo Region, such as those near Uis and Cape Cross, have identified cairns, stone tools, and fossilized remains, emphasizing the need for conservation during development activities (Endjala & Mowa, 2023). These resources are protected under Namibia's National Heritage Act (Act 27 of 2004), and any exploration or construction in the area must comply with heritage preservation protocols.

8 IMPACTS IDENTIFICATION, DESCRIPTION AND ASSESSMENT

8.1 Impact Assessment

The purpose of this section is to assess and identify the most permanent environmental impacts by listing and addressing certain quantifiable aspects of these impacts. To provide possible mitigation measures to minimize the magnitude of the impacts that would be expected from the various activities that constitute the proposed mineral exploration on EPL-9490.

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

Positive impacts:

- Identification of potential mineable mineral resource.
- Creation of jobs to the locals (primary, secondary and tertiary employment).
- Benefits of potential Corporate Social Responsibility (CSR) where possible, by the Proponent and his partners while operating in the area.
- Production of a trained workforce.
- Boosting of the local economic growth and regional economic development.

Negative impacts:

- Land degradation and biodiversity loss.
- Generation of dust
- Water resources use
- Soil and water resources pollution
- Waste generation
- Occupational and community health and safety risks
- Vehicular Traffic use and safety
- Noise and Vibrations
- Disturbance to archaeological and heritage resources
- Impact on local roads

- Impact on aesthetics (visual impact) and tourism
- Social Nuisance: job seeking and differing norms, culture and values
- Impacts associate with closure and decommissioning of exploration works.

The identified impacts were evaluated in terms of probability (likelihood of occurrence), scale/extent (spatial scale), magnitude (severity), and duration (temporal scale). Certain biophysical and social features will be impacted by the proposed exploration activities. As presented in Table 8-1, Table 8-2, Table 8-3, Table 8-4 and Table 8-5. Each rating scale is assigned a numerical value to facilitate a scientific approach to determining environmental significance. This methodology ensures consistency and that potential impacts are addressed in a consistent manner, allowing a wide range of impacts to be compared.

It is assumed that determining the significance of a potential impact is a good predictor of the risk associated with that impact. Each potential impact will be subjected to the following process:

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

The recommended mitigation measures prescribed for each of the potential impacts contribute to the project's achievement of environmentally sustainable operational conditions for various biophysical and social Environment.

The following criteria were applied in this impact assessment:

8.1.1 Extent (spatial scale)

Extent is an indication of the physical and spatial scale of the impact. Table 8-1 shows rating of impact in terms of extent of spatial scale.

Table 8-1: Extent or spatial impact rating

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

8.1.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project. Table 8-2 shows the rating of impact in terms of duration.

Table 8-2: Duration impact rating

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

8.1.3 Intensity, Magnitude / severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These were also taken into consideration during the assessment of severity. Table 8-3 shows the rating of impact in terms of intensity, magnitude or severity.

Table 8-3: Intensity, magnitude or severity impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration, high quantity of deaths, injury of illness /	Substantial deterioration, death, illness or injury, loss of habitat /	Moderate deterioration, discomfort, partial loss of habitat / biodiversity	Low deterioration, slight noticeable alteration in habitat and	Minor deterioration, nuisance or irritation, minor change in species /

	total loss of habitat, total alteration of ecological processes, extinction of rare species	diversity or resource, severe alteration or disturbance of important processes	or resource, moderate alteration	biodiversity. Little loss in species numbers	habitat / diversity or resource, no or very little quality deterioration .

8.1.4 Probability of occurrence

Probability refers to the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. Table 8-4 below shows the criteria for impact rating in terms of probability of occurrence.

Table 8-4: Probability of occurrence impact rating

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

8.1.5 Significance

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

Once the above factors (in the Tables above) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

Significance (SP) = (magnitude + duration + scale) x probability

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate or low significance, based on the following significance rating scale (Table 8-5).

Table 8-5: Significance rating scale

SIGNIFICANCE	ENVIRONMENTAL SIGNIFICANCE POINTS	COLOUR CODE
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	<30	L
Neutral	0	N
Low (negative)	>-30	L
Medium (negative)	-30 to -60	M
High (negative)	>-60	H

Mitigation measures are recommended for an impact with a high significance rating to reduce the impact to a low or medium significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. Monitoring for a period is recommended to confirm the significance of the impact as low or medium and under control in order to maintain a low or medium significance rating.

For pre-mitigation and post-mitigation, an exploration phase assessment needs to be done. There are three factors that drive the risk/impact assessment:

Source: The main cause/source of contamination

Pathway: The rout taken by the source ti reach a given receptor

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

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

The impact assessment for the proposed exploration activities is given in following subchapters.

8.2 Description of Positive Impacts

The following key positive impacts are anticipated from the proposed project activities:

- Temporary employment: there will be a creation of job opportunities to some locals from sampling throughout to drilling. This will include casual labourers, technical assistants, cleaners, etc.
- Land access use fees to the affected farmer and land custodian for socio-economic development: Payment of land use fees to the farmer in accordance with the Mining Act and possibly to MEFT would generate an income for the farm and government during exploration duration, respectively.
- Empowerment of local businesses: Procurement of local goods and services (such as site clearing, cleaning, etc.) by local business will promote local entrepreneurship empowerment and local economic development (income generation).
- Benefits of potential Corporate Social Responsibility (CSR) where possible, by the Proponent and his partners while operating in the area to fund existing or new projects that can be sponsored through the exploration project.

8.3 Description and Assessment of Adverse (Negative) Impacts

This section focuses on the description and assessment of potential adverse (negative) impacts noted during the ESA (including inputs from the public consultations) that are likely to be resulting from exploration activities. The potential impacts include impacts on wildlife (biodiversity), dust (air quality issue), soil and groundwater pollution, waste, social, archaeological resources, noise, visual and health and safety. The management and mitigation of impacts have also been provided under each impact as well as in the EMP.

8.3.1 Impact Assessment of Biodiversity Loss

The impact on the wildlife may occur beyond the site boundary. Firslty, to the wildlife roaming in that area, as they would not be able to roam freely due to the exploration activities taking place. The potential impact can occur if activities such as trenching, pitting, and drilling activities are not carefully conducted, this would result in land degradation. The degradation would lead to habitat loss for a diversity of flora and fauna onsite. This can range from microorganisms to large animls and trees. However, exploration activities will be limited to specific target areas only within the EPL. The presence and movement of the exploration

personnel and operation of project equipment and heavy vehicles would disturb wildlife present near the EPL area. Endemic species are mostly the ones at risk as they can be disrupted even by the slightest exploration activities which can lead to extinction.

In terms of site vegetation (flora), these would be impacted through clearing to create exploration access roads, setting up project equipment and infrastructures, and actual exploration activities such as sampling, drilling, and trenching. Drilling activities may potentially impact vegetation through the fallout dust settling on the leaves of the plants, hindering, or preventing photosynthesis. The clearing of vegetation, where deem necessary will be limited to the specific route and minimal, therefore, the impact will be localized, site-specific, therefore manageable.

Whilst the mining industry plays a vital role in the growth and development of Namibia, it must be noted that protected areas are essential for biodiversity and ecosystem services conservation. Therefore, prospecting activities within biodiversity priority areas must be guided by frameworks that ensure prohibition on related impacts. Thus, the impacts stemming from EPL-9490 will be cumulative to the environment, particularly the wildlife (animals and plants). The existing exploration and mining activities can be considered sustainable under the conditions that mitigation measures and action plans are effectively implemented during operational phases.

A few areas of the site may need to be cleared in preparation for the proposed exploration activities. This may have an impact on the existing biodiversity in the area such as destruction of faunal habitats and floral communities in an already sensitive environment. The creation of tracks to access specific areas of the EPL may have an additional impact on the area's biodiversity. To ensure minimal disturbance in the area, care should be taken during the necessary removal of vegetation for site preparation. The anticipated impact on biodiversity at the project site is not expected to be of such magnitude and/or significance that it will have irreversible effects on the biodiversity and endemism of the area and Namibia as a whole. The assessment of this impact is presented in Table 8-6.

Table 8-6: Assessment of the impacts of the exploration activities on biodiversity loss

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M: -3	M: -3	M: -6	M / H: 4	M: -48

Post-mitigation	L - 1	L- 1	M/L- 4	M/L – 2	L – 16

Mitigations and recommendations to biodiversity loss

- Vegetation should only be cleared when necessary, and the number of protected, endemic, and near-endemic species removed should be documented.
- Identify protected areas and ensure no harmful exposure to the biodiversity.
- Trees with trunk diameters of 150 mm or greater should be surveyed, marked with easily visible paint , and protected.
- Trees and plants protected by the Forest Act No. 12 of 2001 may not be removed unless accompanied by a valid permit from the local Department of Forestry.
- Poaching of wildlife is strictly prohibited and is punishable by law.
- Avoid off-road driving as it leads to the destruction of site vegetation. Therefore, rather stick to provided and approved access tracks.
- Working hours should be limited to during the day, thus enabling the wildlife to roam freely at night.
- No snaring, hunting, or capturing of wildlife shall be permitted.
- There should be a no-theft policy in place for the duration of the exploration activities to be strictly adhered to by exploration workers.

8.3.2 Impact Assessment of Soil, Surface and Groundwater

Water resources and soil surface can be impacted during project development activities, either through pollution or over-abstraction, and/or both. The proposed exploration activities are usually associated with a variety of potential pollution sources (i.e wastewater, lubricants, fuel, and others) that may contaminate soil and evetually surface and groundwater.

Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil, surface, and groundwater contamination, in case of spills and leakages. The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-7.

Table 8-7: Assessment of the impacts of the exploration activities on soil, surface and groundwater

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M/H - 4	M/H - 8	M - 3	M - 48
Post-mitigation	M - 3	L/M- 2	M- 6	L/M - 2	L - 22

Mitigations and recommendations to soil, surface and groundwater impacts

- Employees must be trained on the correct hydrocarbon storage and handling techniques.
- Vehicles and machinery must be stored in bounded areas when not in use or a drip tray should be placed beneath potential leakage points.
- Spill control preventative measures should be put in place to manage soil contamination.
- Employees must be trained in spill management.
- All contaminants (e.g. hydrocarbons) which might potentially be carried in run-off should be contained on-site in the appropriate manner (e.g. temporary storage in designated containers, installation of oil-water separators etc.) and disposed of as hazardous waste, so that they do not contaminate soil or groundwater.
- Appropriate storage and handling of hydrocarbons on site are essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and groundwater.
- An emergency plan should be available for major / minor spills at the site during operation activities (with consideration of air, groundwater, soil and surface water) and during the transportation of the product(s) to the site.

8.3.3 Impact Assessment of Physical land (soil) disturbance resulting in erosion

The 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 impact would be probable at site areas with little to no vegetation cover, to the soils in place. Exploration activities may also result in erosion from the removal of vegetation which could impact water run-off and loss of topsoil, especially for the desert soils that are prone to

erosion and tracks may take up to 100 years to disappear. The movement of heavy vehicles and equipment may lead to compaction of the soils during exploration. This, however, will be a short-term and localized impact.

The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-8.

Table 8-8: Assessment of the impacts of the exploration activities on soil erosion

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M/H - 4	M/H - 8	M - 3	M - 48
Post-mitigation	M - 3	L/M- 2	M- 6	L/M - 2	L - 22

Mitigations and recommendations to erosion

- Where possible, avoid the unnecessary destruction of habitat (e.g. large trees or bushes) and/or degradation of the environment, including the sensitive drainage lines and other vegetated areas.
- Ensure erosion control and prevention measures are in place when vegetation is removed.
- Avoid drainage lines when planning for access routes/tracks.

8.3.4 Impact Assessment of Waste

Domestic and general waste is produced on site during the prospectinga nd exploration activities. Land pollution may occur on the EPL site if waste is not disposed off responsibly. Improper handling and poor management of waste such as solid, wastewater and possibly hazardous onsite during exploration may result in land pollution on the EPL or around the site. If solid waste such as papers and plastics is not properly stored or just thrown into the environment (littering), these may be consumed by animals in the area which could be detrimental to their health. The poor handling, storage and disposal of fuels and oils may lead to soil and groundwater contamination, in case of spills and leakages. The pre-mitigation impact is assessed to be “low” in significance and after mitigation, the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-9.

Table 8-9: Assessment of the impacts of the exploration activities on waste

	Extent	Duration	Intensity	Probability	Significance

Pre-mitigation	M: -3	M: -3	M / L: -4	M / H: 4	M: -40
Post-mitigation	L - 1	L- 1	L- 2	M/L - 2	L - 12

Mitigations and recommendations to waste management

- Waste generated on site is to be collected and disposed of daily at the nearest licenced solid waste management facility such as Outjo Town Council site.
- Separate waste bins for domestic and hazardous waste should be available on site.
- No waste may be buried or burned on site or anywhere else.

8.3.5 Impact Assessment of occupational and community Health and Safety

Exploration activities may cause health and safety risks to people operating onsite and surrounding areas. Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These are in terms of accidental injury involving heavy machinery or vehicles accidents. The careless storage and handling of heavy vehicle, equipment and fuel may result in harm or injury to the personnel, residents and animals. Another potential risks to both people and animals within the EPL are unfenced exploration trenches or trenches that are not backfilled after completing the sampling works. Unsecured exploration trenches and even uncapped holes could pose a risk of people or animals falling into the open trenches leading to injuries.

The use of heavy equipment, especially during drilling and the presence of hydrocarbons (fuel residue) on sites may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and locals too. Furthermore, the influx of people into the project area may also lead to sexual relations between these out-of-area workers and the locals. This would lead to the spreading of sexual transmitted diseases (i.e., HIV/AIDS) when engaging in unprotected sexual intercourse.

The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-10.

Table 8-10: Assessment of the impacts of the exploration activities on occupational and community health and safety

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/L - 2	M/L - 2	M - 6	M/H - 4	M - 40
Post-mitigation	L - 1	L- 1	M/L- 4	M - 3	L - 18

Mitigations and recommendations to occupational and community health and safety

- Exploration workers should be provided with awareness training about the risks associated with hydrocarbon handling and storage.
- During the works conducted, workers should be properly equipped with the appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, safety glasses etc.
- Regular health and safety training should be carried out to remind workers of the risks and the need to be vigilant.
- Loads should be securely fastened on vehicles or places they are stored.
- Site areas that pose as a risk to people and animals should be temporary fenced off until the hazard is removed.
- Exploration holes and trenches should be capped, backfilled and secured until they can be completely backfilled and rehabilitated upon completion of exploration sampling.

8.3.6 Impact Assessment of Dust (Air quality)

Dust generation may occur during exploration activities emanating from site access roads when transporting exploration equipment and supply to and from site as well as actual excavations and drilling. This may compromise the air quality in the area. Additionally, the carried out activities that are part of the exploration works such as drilling can contribute to the air dust level.

The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-11.

Table 8-11: Assessment of the impacts of the exploration activities on dust generation

	Extent	Duration	Intensity	Probability	Significance

Pre-mitigation	L/M - 2	L/M - 2	M/H - 8	M - 3	M - 36
Post-mitigation	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Mitigations and recommendations to dust generation

- Dust abatement techniques should be implemented e.g. spraying of water as needed to supress dust. However, caution should be taken during times of low water availability then waterless dust suppression means should be considered.
- Exploration workers should be provided with and wear dust masks during exploration works if needed.
- Vehicles should be driven at a speed less than 40km/hour to reduce the generation of excess dust in the area.

8.3.7 Impact Assessment of Noise

Exploration equipment, heavy vehicles (trucks) and machinery may produce high levels of noise during operations. This can be a nuisance to the communities surrounding the EPL site. Similarly, the use of aircrafts for remote sensing techniques during exploration over large areas may disrupt animals and human activity due to excessive noise. The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-12.

Table 8-12: Assessment of the impacts of the exploration activities on noise

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	L/M - 2	L/M - 2	M/H - 8	M - 3	M - 36
Post-mitigation	L - 1	L- 1	M- 6	L/M - 2	L - 16

Mitigations and recommendations to noise

- Exploration activities should only be undertaken between 07h30 and 17h00 only and not in the night or morning hours before 07h30.
- Avoid flying aircrafts directly over human settlements.

- Consult with the relevant stakeholders when would be the best suited time to fly prior to commencing with the flights.
- Noise levels should adhere to the South African National Standards (SANS) regulations 10103.

8.3.8 Impact Assessment of Archaeological and Heritage Resources

The proposed exploration activities may impact areas that could potentially house archaeological and heritage resources. The excavation on the EPL site may result in inadvertent destruction of subsurface heritage resources such as artefacts and unknown graves. If such materials are found or discovered, the area must be mapped, and coordinates taken to establish a "No-Go-area". Additionally, the area must be documented because of its sensitivity.

The pre-mitigation impact is assessed to be "medium" in significance and after mitigation the impact is assessed to have a "low" significance. The assessment of this impact is presented in Table 8-13.

Table 8-13: Assessment of the impacts of the exploration activities on archaeological and heritage resources

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	L/M - 2	L/M - 2	M - 6	H – 5	M - 50
Post-mitigation	L - 1	L- 1	M- 6	L/M - 2	L - 16

Mitigations and recommendation to archaeological and heritage resources

- An archaeological expert must be appointed to undertake a detailed archaeological survey once targets have been identified for drilling and/or other mechanically assisted exploration, and prior to the commencement of any such activities.
- All works are to be immediately ceased should an archaeological or heritage resource be discovered during activities on site.
- The project should adopt an Archaeological Chance Finds Procedure (Appendix G) to cater for unexpected discoveries of archaeological remains during exploration.
- The National Heritage Council of Namibia (NHCN) should advise with regards to the removal, packaging and transfer of the potential resource.

8.3.9 Impact on aesthetics (visual impact) and tourism

The exploration works are associated with visual impacts due to land scars owing to dimension stone exploration activities, resulting in the impact on tourism. Visual impact from unrehabilitated explored areas on the EPL may pose as an eyesore to travellers (including tourists) using the local access roads. Mining related activities such as exploration, particularly dimension stone leave scars on the local landscape. If the explored sites are close to or along roads or frequented areas, these scars in many cases contrast with the surrounding landscape and thus may potentially become a visual nuisance, especially in tourist-prone areas such as the EPL site area. The project is located close to the B2 road that is used by local travelers, coastal holiday makers, and tourists too. The sight of the explored and unrehabilitated sites in the areas may be an eyesore.

The pre-mitigation impact is assessed to be “medium” in significance and after mitigation the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-14.

Table 8-14: Assessment of the impacts of the exploration activities on visual aesthetics and tourism

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/L - 2	M/L - 2	M - 6	M/H - 4	M - 40
Post-mitigation	L - 1	L- 1	M/L- 4	M - 3	L - 18

Mitigations and recommendations to visual impact

- The EPL portions or areas close to the roads (M63 and C39) should be progressively rehabilitated during exploration over the shortest timescale possible to ensure that there are no prolonged visible and excessive land disturbances.
- All access roads leading to the EPL should have speed limits of no more than 30km/h to minimise the amount of dust generated by the vehicles.
- Utilize stockpiled topsoil to partially back fill explored sites, thus, minimizing visual impacts.

- Consider a phased exploration and direct placement of overburden (topsoil and waste rocks) and other site-derived materials to allow progressive restoration around the margins of the explored site areas.

8.3.10 Impact Assessment of Social Environment

The proposed activity may provide employment opportunities for local people within proximity of the exploration site. Additional benefits may arise depending on the agreements reached between the landowners, communities and the Proponent. The assessment of this impact is presented in Table 8-15.

Table 8-15: Assessment of the impacts of the exploration activities on social environment

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	L - 1	L/M - 2	L - 2	M - 3	L - 15
Post-mitigation	L - 2	M- 3	M- 6	M/H - 4	M - 44

Mitigations and recommendations to the social environment

- Should any job opportunities result, it should be made available to the local people in the area.

8.4 Decommissioning Phase

Once the exploration activities are decommissioned, the main potential impacts are groundwater pollution and loss of jobs to the people employed by the activities.

8.4.1 Impact on Groundwater

Should the exploration activities be decommissioned, and the exploration area be rehabilitated groundwater pollution may occur if contaminated soils are utilized during rehabilitation. The pre-mitigation impact is assessed to be “medium” in significance and after mitigation, the impact is assessed to have a “low” significance. The assessment of this impact is presented in Table 8-16.

Table 8-16: Assessment of the impacts of decommissioning of exploration activity on groundwater

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/H - 4	M/H - 4	M/H - 8	M - 3	M - 48

Post-mitigation	M - 3	L/ML- 2	M- 6	M/L - 2	L - 22

Mitigations and recommendations on groundwater impacts

- Rehabilitation of the site to acceptable standards should be commenced once exploration works cease.
- Landowners should be consulted to indicate acceptance of the rehabilitation.
- Ensure that the integrity of all aquifers remains consistent with the existing natural and operational conditions

8.4.2 Impact on Employment

Once the exploration activities are decommissioned those employed on contract basis may lose their jobs. The pre-mitigation impact is assessed to be "medium" in significance and after mitigation the impact is assessed to have a "low" significance. The assessment of this impact is presented in Table 8-17.

Table 8-17: Assessment of the impacts of decommissioning of exploration activity on employment

	Extent	Duration	Intensity	Probability	Significance
Pre-mitigation	M/HL/M - 4	M/H - 4	M/H - 8	M - 3	M - 48
Post-mitigation	L/M - 3	L/M- 2	M- 6	L/M - 2	L - 22

Mitigations and recommendations on loss of employment

- The Proponent should inform the employees, of its intentions to end the exploration activities, and the expected date well in advance.
- The Proponent should raise awareness of the possibilities for work in other related sectors if possible.

9 CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion

The aim of this environmental scoping assessment was to identify the potential impacts associated with the proposed exploration activities on the EPL area, to assess their significance and recommend practical mitigation measures. The public and all directly affected stakeholders were consulted as required by the EMA and its 2012 EIA Regulations (Section 21 to 24). The central potential biophysical impact related to the pre-operational, operational and maintenance and decommissioning phases of the proposed project activities have been identified and assessed. The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of medium magnitude.

To uphold environmental management principles, appropriate mitigation measures (where required and possible) were recommended. The deduction from the scoping study is that the proposed exploration for the commodities (dimension stone and nuclear fuel minerals) holds the potential to contribute to Namibia's economy through the creation of employment, transformation of existing technology and uplifting of living standards in general.

9.2 Recommendation

Based on the information provided in this environmental assessment report, SS Consultant CC is confident the identified risks associated with the proposed development can be reduced to acceptable levels and ensure minimal damage to the environment, should the measures recommended in the EMP be implemented and monitored effectively.

It is therefore recommended that the Proponent is awarded an Environmental Clearance Certificate, grounded on the following conditions:

- The EMP be implemented by the proponent and all appointed consultants.
- The Proponent is to consult with the affected farm owners and relevant authorities prior to commencement of the exploration activities.
- That once a target area has been identified, all invasive work should be conducted in accordance with the EMP.

- In cases where baseline information, guidelines, or mitigation measures have not been supplied or do not adequately address the site-specific project effect, the Proponent must use the precautionary approach.

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