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# **REPORT:**

## **EXPLORATION ACTIVITIES ON EPL 7574, //KHARAS REGION, NAMIBIA – SCOPING REPORT PLUS IMPACT ASSESSMENT**

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**PROJECT NUMBER:** ECC-139-449-REP-04-A

**REPORT VERSION:** REV 01

**DATE:** 8 AUGUST 2023

**TITLE AND APPROVAL PAGE**

Project Name: Exploration activities on EPL 7574, //Kharas Region, Namibia – Scoping report plus impact assessment

Client Company Name: Karas Lithium Resources (Pty) Ltd.

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Ministry Reference: APP-001259

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Status of Report: Final for government submission

Project Number: ECC-139-449-REP-04-A

Date of issue: 8 August 2023

Review Period N/A

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## EXECUTIVE SUMMARY

Environmental Compliance Consultancy (ECC) has been contracted by Karas Lithium Resources (Pty) Ltd. (Karas Lithium), a Namibian company and subsidiary of Continental Lithium Africa Development Corporation., to undertake an environmental and social impact assessment (ESIA). Karas Lithium is conducting an ESIA for the proposed mining of lithium, an industrial mineral, on Exclusive Prospecting Licence 7574 (EPL 7574), located south of Karasburg near the Orange River. The EPL overlaps farm Pelladrift, Oranje Fall, Kambreek and Pelgrimrust and can be accessed via the B3 to Karasburg and then the C10.

Karas Lithium is the proponent for the proposed Project, referred to as “the Proponent”. The proposed Project will Ground truthing to all defined target areas (pegmatite bodies), rock chips (grab) sampling, geological mapping, soil sampling downhill of orebodies. Channel sampling and geochemical analysis of samples will be collected and analysed by assay laboratories. To define the mineralization below the surface cover, either a Reverse Circulation (RC) technique or diamond core (DD) drill survey will be used.

In terms of the Namibian Environmental Management Act, 2007 and its regulations, the Ministry of Mines and Energy (MME) is the competent authority for the proposed Project. Mining operations trigger listed activities in terms of the Act, and as such, requires an environmental clearance certificate.

### SCREENING PHASE

The screening phase determined that the most likely potential environmental and social impacts could include:

- Surface and groundwater impacts
- Habitat alteration and impacts on biodiversity.
- Visual impacts affecting the sense of place
- Impacts on air quality
- Impacts on heritage sites and artifacts

### SCOPING PHASE

The objective of the scoping phase was to obtain a thorough understanding of the biophysical and socioeconomic environment in which the Project is located, often using baseline and specialist studies. It also provided an opportunity for the public to have input into the scope of the assessment. The following was considered during the preparation of the scoping report:

- Desktop and literature research

EPL 7574 is situated south of Karasburg and southeast of Velloorsdrift, approximately 12 km north of the Orange River and South Africa. The region has mixed agriculture (Livestock and game farms) and exploration activities. The regional geology of this area consists mainly of

the Namaqua Metamorphic Complex Group. The Namaqua Metamorphic Complex Group is a Mesoproterozoic low-pressure, granulite facies belt situated on the south-western margin of the Kaapval Craton and consists of various types of granitoids intercalated with metapelites and calc-silicate rocks. The topography of the Project site is relatively mountainous and hilly. The EPL area overlays the Orange Groundwater Basin. The groundwater quality for this area is ranked as Group D. Water in Group D is characterized as having exceedingly high levels of total dissolved solids (TDS), sulphates and fluoride, which makes it not suitable for human consumption.

The EPL is situated within the Karas dwarf shrubland in the Nama-Karoo. The dominant type is grasslands and low shrubs. The overall fauna diversity for this area is relatively low compared to other parts of the country. The //Kharas Region is the southernmost and least densely populated of the 14 regions of Namibia. The region has a well-developed energy and water network and an advanced postage and telecommunications system that links villages and towns with the rest of the country and the world at large. Water is obtained from the Orange River and a few boreholes on the farms. Whereas in the nearest major town electricity is supplied by NamPower. Excess water for irrigation is often obtained from the Orange River.

The following table summarises the outcomes of the impact assessment of the key aspects and the potentially significant impacts that could arise from the exploration activities. The significance rating is provided after the mitigations have been considered.

Aspect	Potential impact	Significance with mitigation
Water (surface - and groundwater);	Hydrocarbon leaks and spills could enter the Orange Groundwater Basin (aquifer) Causing contamination	Minor (3)
	Discharge and infiltration of non-contained wastewater	Minor (3)
	Waste items and litter can pollute drainage channels	Low (1)
Soil	Pollution of soil from spillage of hydrocarbons and hazardous waste	Low (1)
	Loss of soil quality due to mixing of earth matter, trampling and compaction	Low (1)
Visual	The creation of access roads and tracks up mountains will tarnish the scenic environment	Minor (4)
Noise and vibration	Ambient noise and vibration caused by moving or stationary machinery and equipment (e.g., drill rigs, generators, vehicles, aeroplanes)	Low (1)

Aspect	Potential impact	Significance with mitigation
	Resident and nesting organisms such as reptiles can be disturbed, injured or killed	Low (1)
Terrestrial biodiversity	Alien species and weeds can be introduced to the area	Low (1)
	Loss of grazing and organisms dying from a veld fire	Low (1)
	Loss/alteration of terrestrial habitats and loss of species	Low (1)
Community	The perceived impact from surveying activities on wild animals, livestock and humans	Low (1)
	The presence of exploration team could be blamed for stock theft and poaching	Low (1)
Air quality	Air quality, visual disturbance and loss of sense of place from dust plumes	Low (1)
Heritage	Potential damage to cultural heritage sites and artifacts	Minor (4)

Impacts concerning airborne dust are expected to be limited to vehicular traffic and drilling activities. There will be some release of exhaust fumes from machinery that will impact the immediate vicinity, but this will be of short duration. Noise impacts include those associated with drilling and other machine noise, which could be a disturbance to immediate neighbours, but this will be short in duration as well. The analysis of the impacts and the identification of mitigation and management methods, concludes that the likely significance of effects on humans from the cumulative impacts of physical disturbance, noise, dust and emissions is expected to be minor with a temporary qualitative reduction in the sense of place.

It was determined that the impacts from noise are considered to be of low significance. A major mitigation measure for the exploration activities will be that all activities will be undertaken during daylight hours.

Continual engagement with the stakeholders must be undertaken by the Proponent to identify any concerns or issues, and additional appropriate mitigation and management measures must be agreed upon and implemented.

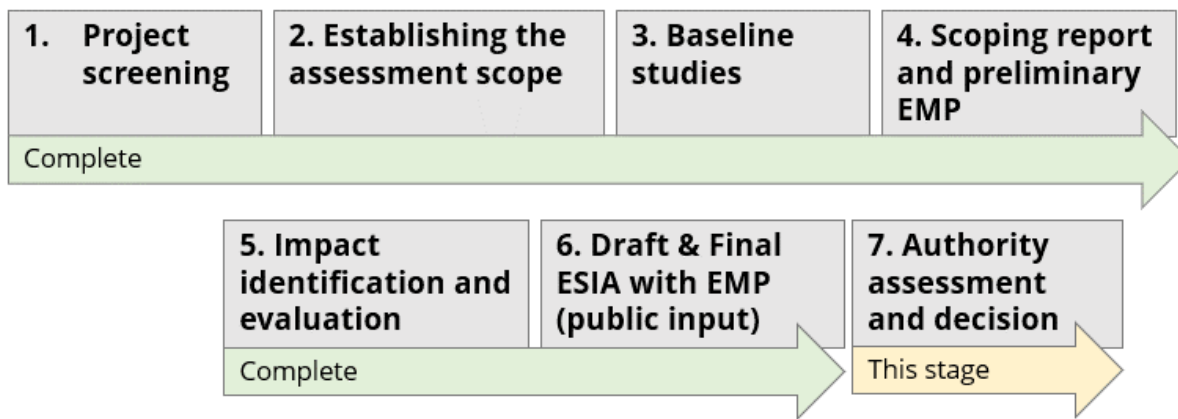
The draft scoping report with impact assessment was submitted to registered I&APs, the competent authority MME and MEFT for their review and input for a period of 7 days from the 31<sup>st</sup> of July – 6<sup>th</sup> of August 2023. All comments were captured and addressed in an addendum to this report.



The overall potential impact of this proposed Project is not considered significant as it does not exceed recognised levels of acceptable change, nor will it threaten the integrity of the receptors. The assessment is considered to be comprehensive and sufficiently identifies the potential impacts, and it is concluded that no further assessment will be required. The final EMP provides the necessary mitigations and management measures required to reduce potential impacts to accepted levels.

The final scoping report with impact assessment will be submitted to the competent authority MME and MEFT for their review and record of decision.

The phases of the ESIA are provided in Figure 1.



**Figure 1 – Simplified Namibian ESIA process noting Karas Lithium EPL 7574 progress.**

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## TERMS AND ABBREVIATIONS

TERM OR ABBREVIATION	DESCRIPTION
<	The less than symbol means that the number on the left is less than the number on the right
°C	degrees Celcius
%	percentage
BID	Background information document
ECC	Environmental Compliance Consultancy (Pty) Ltd
cm	A centimeter is a unit of displacement (distance or length)
CIA	Cumulative impact assessment
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
Competent Authority	Government Ministry that assists the MEFT in assessing a project and issuing a record of decision
Corp.	corporation
CSA	CSA Global - mining industry consultants
DD	diamond drilling
DEA	Directorate of Environmental Assessment
DWA	Department of Water Affairs
E	endemic
EAP	environmental assessment practitioner
ECC	Environmental Compliance Consultancy
ECC	environmental clearance certificate
EHS	environmental health and safety
EIA	environmental impact assessment
EMA	Environmental Management Act
EMP	environmental management plan
ENE	East northeast
EPL	exclusive prospecting licence
ESIA	environmental and social impact assessment
GDP	gross domestic product
GG	government gazette
GN	government notice
GROWAS	groundwater survey
ha	hectares
I&APs	interested and affected parties
i.e.	that is
IFC	International Finance Corporation
IUCN Red List	The International Union for Conservation of Nature Red List of Threatened Species
km/h	Kilometre per hour
Ltd.	Limited
Localised plant endemism	That plant species exist naturally only in one geographic place, restricted to a specific area.
Mesoproterozoic	A geologic era that occurred from 1,600 to 1,000 million years ago.

TERM OR ABBREVIATION	DESCRIPTION
m	metre
m/s	metre per second
m <sup>3</sup>	cubic metres
m <sup>3</sup> /day	cubic metres per day
Ma	million years ago
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
mg/m <sup>2</sup> /day	milligrams per metre squared per day
ML	mining licence
mm	millimetre
Mm <sup>3</sup>	million cubic metres
MME	Ministry of Mines and Energy
MRE	Mineral Resource Estimates
No.	number
N\$	Namibian dollar
Na	sodium
NDP	national development plan
NHC	National Heritage Council
NSA	National Statistics Agency
NSR	noise-sensitive receptor
NT	near-threatened
ORKCA	Orange River Karoo Conservation Area
PEA	preliminary economic assessment
Project	Karas Lithium EPL 7574 Project
Proponent	Karas Lithium Resources (Pty) Ltd.
Pty	proprietary
QGIS	free and open-source cross-platform desktop geographic information system application that supports viewing, editing, printing, and analysis of geospatial data
RC	Reverse circulation
REE	Rare Earth Elements
Reg	registration
RH	Relative humidity
SOP	Standard operating procedure
SW	Southwest
TDS	total dissolved solutes
W	West
WSW	West Southwest

# 1 INTRODUCTION

## 1.1 COMPANY BACKGROUND

Environmental Compliance Consultancy (ECC) has been engaged by Karas Lithium Resources (Pty) Ltd (Karas Lithium) to conduct an environmental impact assessment for their proposed exploration activities on exclusive prospecting licence (EPL) 7574 in the //Kharas Region, Namibia. The EPL is located in the Karasburg district, south of Karasburg near the Orange River. The EPL overlaps farm Pelladrift, Oranje Fall, Kambreek and Pelgrimrust and can be accessed via the B3 to Karasburg and then the C10, as shown in Figure 2.

The Proponent has focused on the acquisition and development of potential lithium resources. The EPL was originally granted in 2020, to explore for base and rare metals, dimension stones, industrial minerals (lithium and tantalum), non-nuclear fuels, precious metals, and precious stones. Non-invasive exploration such as remote sensing and reconnaissance began in 2022.

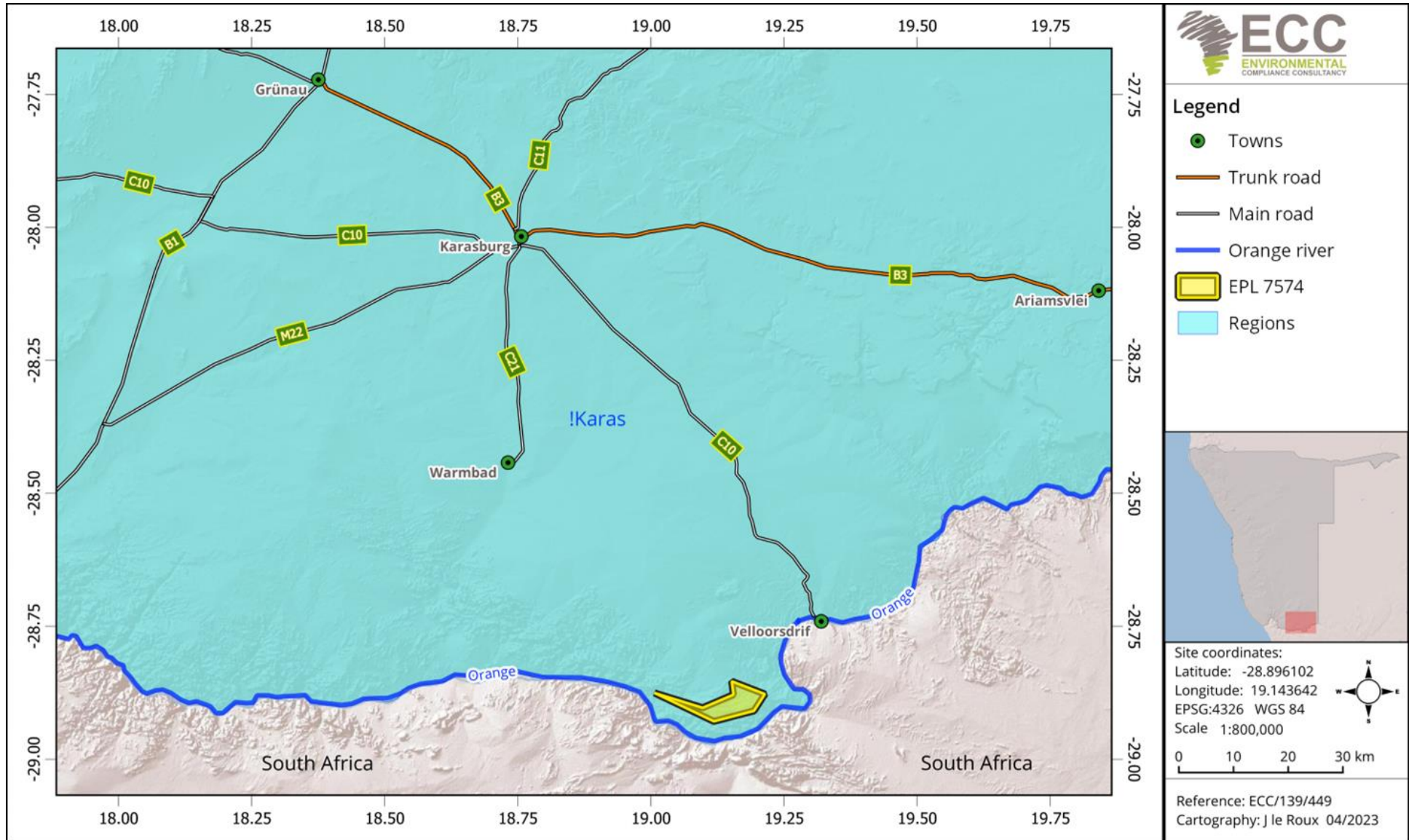


Figure 2 – Project location and regions

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## 1.2 PURPOSE OF THE SCOPING REPORT

An environmental and social impact assessment (ESIA) has commenced in accordance with the requirements of the Environmental Management Act, No. 7 of 2007 (EMA 2007) and its regulations. The purpose of this report is to present the findings of the scoping study phase that forms part of the larger ESIA process.

The final scoping report with impact assessment summarises the prescribed ESIA process followed, provides information on the baseline biophysical and socioeconomic environments, and project description details, outlines the methodology for the assessment phase, assesses the potential impacts of the proposed Project and provides a rating of the impact before and after mitigation and management measures have been provided and prepares a final environmental management plan (EMP).

ECC's terms of reference for the assessment are strictly to address potential impacts, whether positive or negative, and their relative significance, explore alternatives for technical recommendations and identify appropriate mitigation measures.

This report provides information to the public and stakeholders to aid in the decision-making process for the proposed Project. The objectives are to:

- Describe the proposed activity and the site on which the activity is to be undertaken, and the location of the activity on the site;
- Describe the environment that may be affected by the activity;
- Identify the laws and guidelines that have been considered in the assessment and preparation of this report;
- Provide details of the public consultation process;
- Describe the need and desirability of the activity; and
- Report the assessment findings, identifying the significance of effects, including cumulative effects, and effective and feasible mitigation measures.

In addition to the environmental assessment, a preliminary Environmental Management Plan (EMP) (Appendix A) is also required in terms of the Environmental Management Act, No. 7 of 2007. A preliminary EMP has been developed to provide a management framework for the planning and implementation of exploration activities. The EMP provides exploration standards and arrangements to ensure that the identified environmental and social impacts are mitigated, prevented, and/or minimised as far as reasonably practicable and that statutory requirements and other legal obligations are fulfilled.



### 1.3 THE PROPONENT OF THE PROPOSED PROJECT

The Proponents’ details are provided in Table 1.

Table 1 – Proponent’s details

Company Representative:	Contact Details:
Mr William Morrell Director	Karas Lithium Resources (Pty) Ltd Private Bag 12012 Ausspannplatz Windhoek <a href="mailto:william@continentalafricali.com">william@continentalafricali.com</a> +264 81 703 6882 / +27 (78) 663 9653

### 1.4 ENVIRONMENTAL AND SOCIAL ASSESSMENT PRACTITIONER

The report has been prepared by Environmental Compliance Consultancy Pty Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent.

Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the accuracy, completeness, or currency of the information cannot be guaranteed.

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### 1.5 ENVIRONMENTAL REQUIREMENTS

The Environmental Management Act, 2007, and its regulations stipulate that an environmental clearance certificate is required before undertaking any of the listed activities that are identified in the Act and its regulations. Potential listed activities triggered by the Project are provided in Table 2.

**Table 2 – Activities potentially triggered by the Karas Lithium Project**

Source: Environmental Management Act, 2007, and its regulations

Listed activity	As defined by the regulations of the Act	Relevance to the project
<b>Waste management, treatment, handling, and disposal activities</b>	(2.2) Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976. (2.3) The import, processing, use and recycling, temporary storage, transit or export of waste	<ul style="list-style-type: none"> <li>– Waste generated, which will be mainly solid waste and general waste during the exploration phase will be removed and will be disposed of at the nearest licensed municipal landfill site.</li> <li>– A portable toilet or chemical toilets will be used during exploration activities.</li> </ul>
<b>Mining and quarrying activities</b>	(3.2) Other forms of mining or extraction of any natural resources whether regulated by law or not. (3.3) Resource extraction, manipulation, conservation and related activities.	<ul style="list-style-type: none"> <li>– The proposed project requires an environmental clearance from DEA/MEFT for the extraction of industrial minerals.</li> <li>– Minerals (soil and sand), and industrial minerals will be sourced within the project’s footprint through bulk sampling.</li> <li>– The Proponent will also undertake geochemical surveys, geophysical surveys, airborne surveys and recirculation and diamond core drilling.</li> </ul>
<b>Forestry activities</b>	(4.) The clearance of forest areas, deforestation, aforestation, timber harvesting or any other related activity that requires authorisation in terms of the Forest Act, 2013.	<ul style="list-style-type: none"> <li>– During operations, limited vegetation clearing will be required as the Project develops. The necessary permits will be acquired as needed.</li> </ul>
<b>Water resource development</b>	(8.1) The abstraction of ground or surface water for industrial or commercial purposes	For the drilling of exploration boreholes, groundwater may need to be abstracted or surface water will be sourced.
<b>Hazardous substance treatment, handling and storage</b>	(9.1) The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.	Portable toilets, or chemical toilets will be used during exploration activities.

## 2 APPROACH TO THE ASSESSMENT

### 2.1 PURPOSE AND SCOPE OF THE ASSESSMENT

This assessment aims to determine which impacts are likely to be significant, to scope the available data and identify any gaps that need to be filled, to determine the spatial and temporal scope, and to identify the assessment methodology.

The scope of the assessment was determined by undertaking a preliminary assessment of the proposed Project against the receiving environment, obtained through a desktop review and available site-specific literature.

### 2.2 THE ASSESSMENT PROCESS

The ESIA methodology applied to this assessment has been developed using the International Finance Corporation (IFC) standards and models, in particular, Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012), which establishes the importance of:

- Integrated assessment to identify the environmental and social impacts, risks, and opportunities of Projects;
- Effective community engagement through disclosure of Project-related information and consultation with local communities on matters that directly affect them; and
- The Proponent's management of environmental and social performance throughout the life of the Project.

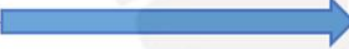


Furthermore, the Namibian Draft Procedures and Guidance for ESIA and EMP (Republic of Namibia, 2008), as well as international and national best practices, and over 25 years of combined EIA experience, were also drawn upon in the assessment process. This impact assessment is a formal process in which the potential effects of the Project on the biophysical, social, and economic environments are identified, assessed, and reported so that the significance of potential impacts can be taken into account when considering whether to grant approval, consent, or support for the proposed Project.

### 2.3 SCREENING OF THE PROJECT

The first stages in the ESIA process are to register the Project with the DEA/MEFT (completed on the 4<sup>th</sup> of April 2023) and undertake a screening exercise to determine whether it is considered a listed activity under the Environmental Management Act, No. 7 of 2007 and associated regulations, and if significant impacts may arise from the Project. The location, scale, and duration of Project activities will be considered against the receiving environment. The full ESIA process is shown in Figure 3.

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The proposed Project is a listed activity and potential impacts could occur. Thus, it was concluded that a scoping report with an impact assessment would suffice for the exploration project and that a preliminary EMP would be submitted with the scoping report as part of the application process for the environmental clearance certificate.

1. Project screening	2. Establishing the assessment scope	3. Baseline studies
Complete	Complete	Complete
<p>The first stages in the ESIA process are to undertake a screening exercise to determine whether the Project triggers listed activities under the Environmental Management Act, 2007, and its regulations. The screening phase of the Project is a preliminary analysis, in order to determine ways in which the Project might interact with the biophysical, social, and economic environments.</p> <p>Stakeholder engagement:</p> <ul style="list-style-type: none"> <li>• Registration of the project</li> <li>• Preparation of the BID</li> </ul> 	<p>Where an ESIA is required, the second stage is to scope the assessment. The main aim of this stage is to determine which impacts are likely to be significant; to scope the available data and any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.</p> <p>The scope of this assessment was determined through undertaking a preliminary assessment of the proposed Project against the receiving environment. Feedback from consultation with the public and the Proponent informs this process. The following environmental and social topics were scoped into the assessment, as there was the potential for significant impacts to occur. Impacts that are identified as potentially significant during the screening and scoping phase are taken forward for further assessment in the ESIA process. These are:</p> <p><b>SOCIOECONOMIC ENVIRONMENT</b></p> <ul style="list-style-type: none"> <li>• Visual impacts on sense of place</li> </ul> <p><b>BIOPHYSICAL ENVIRONMENT</b></p> <ul style="list-style-type: none"> <li>• Noise and air quality, including dust emissions</li> <li>• Surface and ground water</li> <li>• Heritage and culture</li> <li>• Biodiversity</li> <li>• Soils</li> </ul> <p>The following topics were scoped out of the ESIA, and they are therefore not discussed further in this report.</p> <ul style="list-style-type: none"> <li>• An assessment of safety impacts or risks associated with exploration are not included within the scope of this assessment, and will be addressed by the Proponent in a site-specific safety management plan.</li> </ul> 	<p>A robust baseline is required, in order to provide a reference point against which any future changes associated with a Project can be assessed, and to allow suitable mitigation and monitoring to be identified.</p> <p>The region and general area have been studied for various projects and assessments. This literature was available to be referenced. The Project site-specific area has been studied as part of the ESIA process, and the following has been conducted as part of this assessment:</p> <ul style="list-style-type: none"> <li>• Field surveys</li> <li>• Desktop studies</li> <li>• Consultation with stakeholders</li> </ul> <p>The environmental and social baselines are provided in the scoping study.</p> 



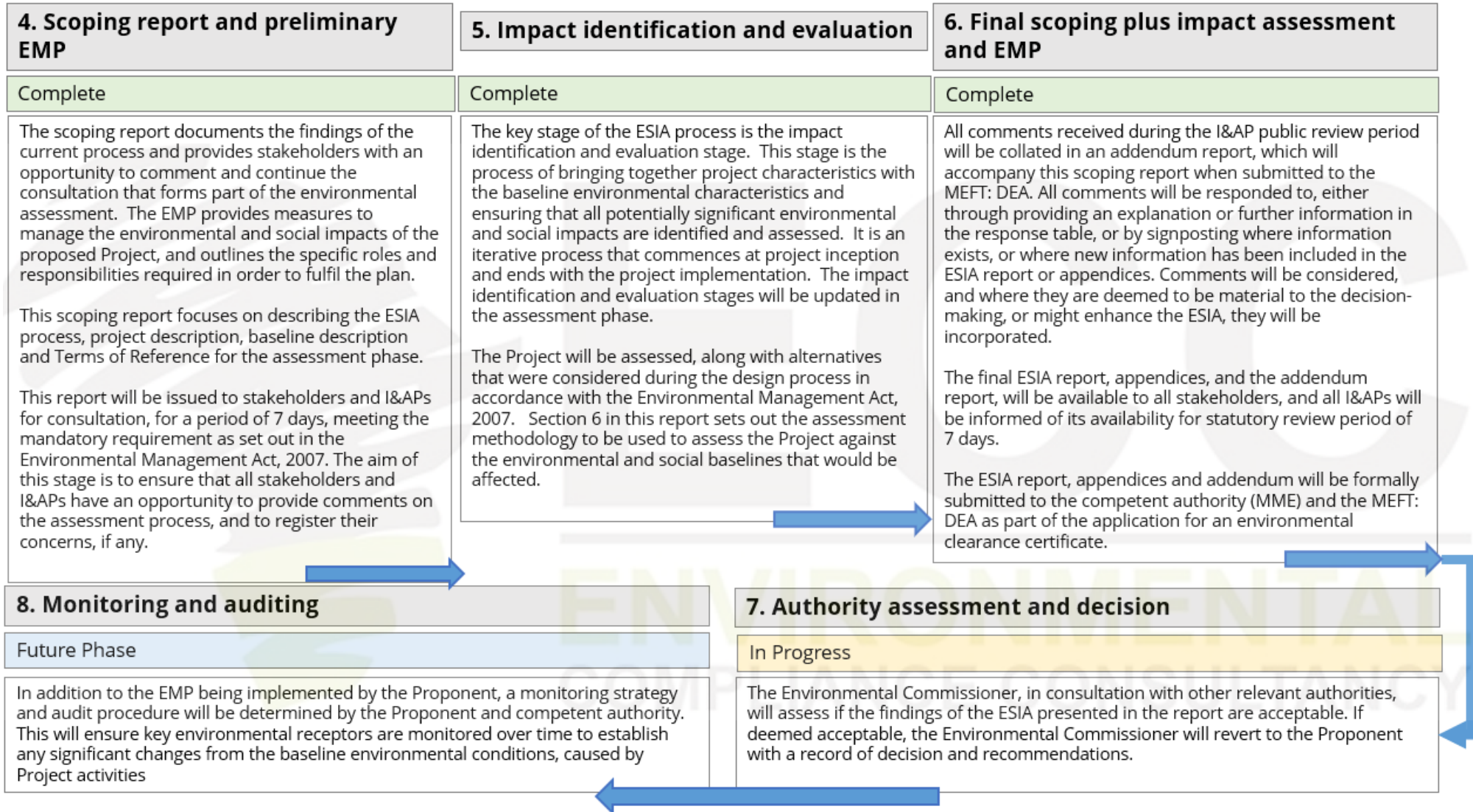


Figure 3 – ESIA process and stages complete.



## 2.4 SCOPING AND THE ENVIRONMENTAL ASSESSMENT

Where a detailed assessment is required, the second stage is to scope the assessment. The main aims of this stage are to determine which impacts are likely to be significant; scope the available data and any gaps which need to be filled; determine the spatial and temporal scope and identify the assessment methodology.

The scoping phase of the Project is a preliminary analysis to determine ways in which the Project interacts with the biophysical, social, and economic environment. Potential impacts are identified, and the significance is assessed during the screening and scoping phase. The details and outcome of the impact assessment are discussed in sections 6 and 7 of this scoping report. Feedback from consultation with the Proponent and stakeholders also informs the analysis of the impacts. The following environmental and social aspects were considered in the impact assessment process:

### **SOCIO-ECONOMIC ENVIRONMENT**

- Procurement of goods and services within the local economy
- Employment from local communities
- Skills development within local communities to enable the provision of goods, services and employment.

### **BIOPHYSICAL ENVIRONMENT**

- Dust emissions
- Soil and geology
- Terrestrial ecology
- Terrestrial biodiversity (including fauna and flora)
- Surface and groundwater

## 2.5 BASELINE STUDIES

Baseline studies are undertaken as part of the scoping stage, which involves collecting all pertinent information from the status of the receiving environment. This provides a baseline against which changes that occur as a result of the proposed Project can be measured. For the proposed Project, baseline information was obtained through a desktop study, consultation, and engagement with stakeholders (Appendix B), focusing on environmental receptors that could be affected by the proposed Project, and verified through site-specific information. The baseline information is covered in Chapter 5.

## 2.6 PUBLIC CONSULTATION

Public participation and consultation are a requirement as stipulated in the Environmental Impact Assessment Regulations (Regulations 21 and 23) of the EMA, No.7 of 2007, for a project undertaking a listed activity that requires an environmental clearance certificate. Consultation is a compulsory and critical component of the ESIA process for achieving transparent decision-making and can provide many benefits. Consultation is ongoing during the ESIA process. The objectives of the public participation and consultation process are to:

- Provide information on the Project, introducing the overall project concept and planning in the form of a background information document (BID).
- Determine the relevant government, regional, and local regulating authorities.
- Listen to and understand community issues, record concerns and questions.
- Explain the process of the ESIA and the timeframes involved and establish a platform for ongoing consultation.

### 2.6.1 IDENTIFICATION OF KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES

A stakeholder mapping exercise was undertaken to identify individuals or groups of stakeholders and the method by which they will be engaged during the ESIA process.

Stakeholders were approached through direct communication (letters and phone calls), the national press, or directly by email. A summarized list of stakeholders for this project is given below:

- The Farm owners;
- The general public with an interest in the Project;
- Ministry of Environment, Forestry, and Tourism (MEFT);
- Ministry of Mines and Energy (MME);
- //Kharas Regional Council;
- Karasburg Town Council;
- Revolutionary Union and
- Orange River-Karoo Conservation Area (ORKCA).

The records of the public consultation process in the form of a summary report provide a list of interested and affected parties (I&APs), evidence of consultation, including minutes of public meetings, advertisements in national newspapers, and a summary of the comments or questions raised by the public.

The draft scoping report was submitted to the competent authority, and all interested and affected parties for their review on the 30th of May 2023. The public review period was open for a period of 7 days from 31<sup>st</sup> of July 2023 to 6<sup>th</sup> of August 2023. All comments received were recorded, analysed, and incorporated into the summary report as an addendum to the scoping report as presented in Appendix E – Addendum Report. The final scoping report will be submitted to the competent authority and MEFT for their review and record of decision.

## 2.6.2 NON-TECHNICAL SUMMARY

The BID presents a high-level description of the proposed Project, sets out the ESIA process, and outlines when and how consultation will be undertaken. It also provides contact details for further Project-specific inquiries to all registered I&APs. The BID was distributed to registered I&APs, and it can be found in Appendix B.

## 2.6.3 NEWSPAPERS AND ADVERTISEMENTS

Notices regarding the proposed Project and associated activities were circulated in three newspapers namely the 'Republikein, Sun, and Allgemeine Zeitung' on the 19<sup>th</sup> of April 2023 and the 26<sup>th</sup> of April 2023 (see Appendix B). The purpose of this was to commence the consultation process by informing the public about the Project and enabling I&APs to register any comments and interest raised for the Project.

## 2.6.4 SITE NOTICES

A site notice ensures neighbouring properties and stakeholders are made aware of the proposed Project. The notice was set up at the boundary of the EPL as illustrated in Appendix B.

## 2.6.5 FOCUS GROUP MEETING

In terms of Section 22 of the Environmental Management Act, No. 7 of 2007 and its regulations, to register I&APs. A public or focus group meeting is not a requirement during the public consultation process for all projects. However, the Proponent and the EAP arranged a focus group meeting with the farm owners over which the EPL overlaps was held on the 31st of May 2023 virtually on Zoom. The farm owners were allowed to have a face-to-face discussion with the Proponent and the EAP. During this session, the EIA process proposed exploration activities to take place on the EPL was explained. The farm owners and other I&APs were also allowed to raise questions or concerns they may have had and receive feedback from the Proponent and the EAP.

## 2.7 DRAFT SCOPING REPORT WITH IMPACT ASSESSMENT AND PRELIMINARY EMP

The draft scoping report with impact assessment and preliminary EMP will be submitted to the public for review before submission to the competent authority and DEA. This report documented the findings of the assessment process, provides stakeholders with the opportunity to comment and continue to engage in consultation and forms part of the environmental clearance application.

The preliminary EMP provides measures to manage the potential environmental and social impacts of the proposed Project and outlines specific roles and responsibilities to fulfil the plan. The draft documents will be updated with the additional comments that stem from the public review of the reports.

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## 2.8 FINAL SCOPING REPORT WITH IMPACT ASSESSMENT AND EMP

The final scoping report with impact assessment, and associated appendices will be available to all stakeholders on the ECC website <https://eccenvironmental.com/download/the-proposed-exploration-of-industrial-minerals-on-epl-7574-kharas-region-namibia/> and MEFT portal at <http://eia.met.gov.na/>. All I&APs will be informed of this via email.

These same final documents are formally submitted to the competent authority, namely, the Ministry of Mines & Energy (MME). A copy of the submission proof and the same set of the documents are submitted to the Office of the Environmental Commissioner, DEA department, as part of the application for an environmental clearance certificate.

## 2.9 AUTHORITY ASSESSMENT AND RECORD OF DECISION

The Environmental Commissioner in consultation with the MME and other relevant authorities will assess the findings of the final scoping with impact assessment. If deemed acceptable, the Environmental Commissioner will revert to the Proponent with a record of decision and any recommendations. If the clearance is not granted, then reasons are normally provided. For example, it may be required for the Proponent to undertake a detailed assessment. A detailed assessment would most likely entail the commissioning of specialist studies with impact assessments.

## 2.10 MONITORING AND AUDITING

In addition to the EMP being implemented by the Proponent, a monitoring strategy and audit procedure will be determined by the Proponent and competent authority (i.e., MME). This will ensure that key environmental receptors are monitored over time to establish any significant changes from the baseline environmental conditions caused by Project activities.

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### 3 REVIRE OF THE LEGAL ENVIRONMENT

As stated in Section 1, an environmental clearance certificate is required for any activity listed in the Government Notice No. 29 of 2012 of the EMA 2007. A thorough review of relevant legislation has been conducted for the proposed Project. Table 3 below identifies relevant legal requirements specific to the Project. Table 4 provides the national policies and plans. Table 5 specifies permits relevant to the Project. This chapter outlines the regulatory framework applicable to the proposed Project.

### 3.1 NATIONAL REGULATORY FRAMEWORK

**Table 3 - Details of the regulatory framework as it applies to the proposed Project.**

National Regulatory Regime	Summary	Applicability to the Project
Constitution of the Republic of Namibia (1990)	<p>The constitution defines the country’s position on sustainable development and environmental management.</p> <p>The constitution says that the State shall actively promote and maintain the welfare of the people by adopting policies aimed at the following:</p> <p>“Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and the utilisation of living, natural resources on a sustainable basis for the benefit of all Namibians, both present and future.”</p>	<p>The Proponent is committed to the sustainable use of the environment and has aligned its corporate mission, vision, and objectives with this ambit of the Constitution of the Republic of Namibia (1990).</p>
Minerals (Prospecting and Mining) Act No. 33 of 1992	<p>The Act provides for the granting of various licences related to mining and exploration.</p> <p>Section 50 (i) requires: “An environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out, and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations.”</p> <p>The holder of the mineral licence is required to comply with its terms and conditions. The Act also contains relevant provisions for pollution control related to mining activities and land access agreements and provides provisions that mineral licence holders are liable for any damage to land, water, plant, or animal life, caused by spilling or pollution,</p>	<p>Exclusive Prospecting Licence EPL 7574 was issued to the Proponent in November 2020 and is valid for a period of 3 years. The proposed prospecting activity on EPL 7574 requires an EIA to be carried out, as it triggers listed activities as defined in Government Notice 29 in the Environmental Management Act 2007.</p> <p>Prospecting activities in EPL 7574 shall not commence until an Environmental Clearance Certificate has been issued in accordance with the provisions of the Environmental Management Act 2007. The Proponent shall be compliant with Section 76 of the Minerals Act with regard to records, maps, plans and</p>



National Regulatory Regime	Summary	Applicability to the Project
	and must take all such steps as may be necessary to remedy such spilling, pollution, loss, or damage, at its own costs.	financial statements, information, reports and returns submitted.
Environmental Management Act, 2007 (Act No. 7 of 2007) and its regulations (2012), including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011)	<p>The Act aims to promote sustainable management of the environment and the use of natural resources. The Act requires certain activities to obtain an environmental clearance certificate before Project development.</p> <p>The Act states that an EIA should be undertaken and submitted as part of the environmental clearance certificate application process.</p> <p>The MEFT is responsible for the protection and management of Namibia’s natural environment. The Department of Environmental Affairs, under the MEFT, is responsible for the administration of the EIA process.</p>	<p>This scoping report with impact assessment documents the findings of the scoping phase and includes an environmental and social impact assessment sufficient for the project’s activities.</p> <p>The process has been undertaken in line with the requirements of the Environmental Management Act and its regulations.</p> <p>Prospecting activities on EPL 7574 will not commence until an Environmental Clearance Certificate has been issued in accordance with the provisions of the Environmental Management Act 2007.</p>
Hazardous Substances Ordinance, No. 14 of 1974	This Ordinance provides for the control of toxic substances and can be applied in conjunction with the Atmospheric Pollution Prevention Ordinance, No. 11 of 1976. This applies to the manufacture, sale, use, disposal, and dumping of hazardous substances, as well as their import and export.	The Proponent must handle and store hazardous substances such as fuels, reagents, and industrial chemicals safely and responsibly, thereby avoiding any harm to the environment.
Labour Act, No. 11 of 2007	The Labour Act, No. 11 of 2007 (Regulations relating to the Occupational Health & Safety provisions of Employees at Work, promulgated in terms of Section 101 of the Labour Act, No. 6 of 1992 - GN156, GG 1617 of 1 August 1997)	The Proponent must adhere to all labour provisions and guidelines, as enshrined in the Labour Act. The Project shall also develop and implement a comprehensive occupational health and safety plan to ensure adequate protection for its personnel throughout the Project lifecycle.

National Regulatory Regime	Summary	Applicability to the Project
Petroleum Products and Energy Amendment Act, No.3 of 2000	Provides provision for the Minister to regulate the cleaning up of petroleum product spills, leaks and related incidents. The Proponent is required to carry all costs associated with such incidents.	The Proponent must take into consideration the requirements that are stipulated in both the Act and its Regulations. Measures in the EMP sets out methods to comply with the Regulations, specifically waste disposal during exploration.

### 3.2 NATIONAL POLICIES AND PLANS

**Table 4 - National policies and plans applicable to the proposed Project.**

Policy or plan	Description	Relevance to the Project
Vision 2030	Vision 2030 sets out the nation’s development targets and strategies to achieve its national objectives. Vision 2030 states that the overall goal is to improve the quality of life of the Namibian people aligned with the developed world.	The Proponent is encouraged to meet the objectives of Vision 2030 and shall contribute to the overall development of the country through continued employment opportunities and ongoing contributions to the gross domestic product (GDP).
Fifth National Development Plan (NDP5)	The NDP5 is the fifth in a series of seven five-year national development plans that outline the objectives and aspirations of Namibia’s long-term vision. The NDP5 pillars are economic progression, social transformation, environmental sustainability, and good governance.	The Proponent is encouraged to support the Government’s objectives of the NDP5 through creating opportunities for continued employment.
The Harambee Prosperity Plan II (2021 – 2025)	Second Pillar: Economic advancement – ensuring increasing productivity of priority key sectors (including mining) and the development of additional	The Proponent will contribute to the continued advancement of the mining industry and create an additional employment generation engine within the regional and national landscape.

Policy or plan	Description	Relevance to the Project
	engines of growth, such as new employment opportunities	
Namibia's Green Plan, 1992	Namibian has developed a 12-point plan for integrated sustainable environmental management to ensure a safe and healthy environment and to maintain a viable economy. Clause 2 (f) makes specific mention of guidelines related to Mining and Sustainable Development.	The Proponent is encouraged to adhere to best practise during operational activities.
Minerals Policy	<p>The Minerals Policy was adopted in 2002 and sets guiding principles and direction for the development of the Namibian mining sector while communicating the values of the Namibian people.</p> <p>The policy strives to create an enabling environment for local and foreign investments in the mining sector and seeks to maximise the benefits for the Namibian people from the mining sector while encouraging local participation.</p> <p>The objectives of the Minerals Policy are in line with the objectives of the Fifth National Development Plan that include the reduction of poverty, employment creation, and economic empowerment in Namibia.</p>	<p>The Proponent must conform to the Policy and where applicable support local spending and procurement.</p> <p>The Proponent must comply with the general guidelines of the Policy through the adoption of various legal mechanisms to manage all aspects of the environment effectively and sustainably from the start. The ESIA is one such mechanism to ensure environmental integrity throughout the planned Project's lifecycle.</p>

**Table 5 - Specific permit and licence requirements for the proposed Project**

Permit or licence	Act or Regulation	Related activities requiring a permit	Relevant Authority
Environmental clearance certificate	Environmental Management Act, No 7 of 2007	Required for all listed activities shown in Table 2. Requires issuance of Environmental Clearance Certificate by the Environmental Commissioner.	Ministry of Environment, Forestry and Tourism (MEFT)
Exclusive Prospecting Licence	Section 90 (2) (A) of the Minerals Act, No.33 of 1992	Written permission from the Mining Commissioner in the form of an Exclusive Prospecting Licence (EPL 7574) has been issued to date.	Ministry of Mines and Energy (MME)
Vegetation Clearing	Forestry Act No. 12 of 2001	A permit is required for the removal or clearing of any vegetation.	Ministry of Environment, Forestry and Tourism (MEFT)
Water abstraction permit	Water Act, 1996	This Act provides for “the control, conservation and use of water for domestic agricultural, urban and industrial purposes; to make provision for the control, in certain respects and for the control of certain activities on or in water in certain areas”. The Ministry of Agriculture, Water and Land Reform Department of Water Affairs is responsible for the administration of the Water Act. The Minister may issue a Permit in terms of regulations 5 and 9 of the government notice R1278 of 23 July 1971 as promulgated under section 30 (2) of the Water Act no. 54 of 1956, as amended. To abstract water from a controlled water source, a WA 002 should be filled and submitted to the MAWF.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Notice of Intention to drill	Water Resources Management Act, 2004	Despite any other law to the contrary, a person who proposes to drill a new borehole, or to improve any existing borehole, to search for or extract minerals or other substances, or for road construction or any other purposes other than exploring for	Ministry of Mines and Energy (MME)

Permit or licence	Act or Regulation	Related activities requiring a permit	Relevant Authority
		<p>groundwater must inform the Minister of such proposal; furnish the Minister with such data and information as the Minister may require in connection with such borehole drilling or improvement; and take such measures as may be required by the Minister for conserving and protecting groundwater. Any excess water collected as a result of any operation contemplated in subsection (1) must be disposed of as prescribed</p>	

## 4 PROJECT DESCRIPTION

### 4.1 NEED FOR THE PROJECT

The mining sector in Namibia contributes to the country's Gross Domestic Product (GDP), government tax receipts and export revenues. For this reason, exploration activities are encouraged in Namibia. The vision of the Minerals Policy is to “attract investment and enable the private sector to take the lead in exploration, mining, mineral beneficiation and marketing” supports mineral exploration and development.

The proposed Project is in line with this vision and has the potential to create employment in local communities in the //Kharas Region. If exploration activities are successful, and a resource can be defined as having commercially viable mineral concentrations, then socio-economic development can be realised in the region.

### 4.2 ALTERNATIVES CONSIDERED

In terms of the Environmental Management Act, No. 7 of 2007 and its regulations, alternatives considered should be analysed and presented in the EIA reports. This requirement ensures that during the design evolution and decision-making process, potential environmental impacts, costs, and technical feasibility have been considered, which leads to the best option(s) being identified.

Exploration activities range from extremely low-impact exploration such as remote sensing from satellites to more intensive methods such as closely spaced drilling. The methods that will be used are based on the exploration programme which is adjusted as more information and data is obtained. At this stage of the Project, the exploration programme is yet to be finalised and therefore a range of options still exist. All the options and methods have been identified to ensure all the potential impacts on the environment and society are minimal.

#### 4.2.1 NO-GO ALTERNATIVES

Should exploration activities within EPL 7574 not take place, the anticipated environmental impacts from exploration activities would not occur. However, the social and economic benefits associated with the Project would also not materialise. Additionally, there would not be an opportunity to define resources within the Project area, which would be a missed opportunity for geological mapping and data collection that typically adds to regional knowledge of Namibia's mineral wealth and, if found to be viable for mining, would benefit the Namibian economy.

### 4.3 EXPLORATION METHODOLOGY

The schedule of the activities is presented in Figure 6 below:

**Table 6 - Preliminary Exploration Schedule**

Phase	Time Period	Activity Description
1	Completed	Remote sensing spectral analysis has been completed. The objectives of the assessments were to delineate areas of focus.
	2-3 Months	Ground truthing to all defined target areas (pegmatite bodies), rock chips (grab) sampling, geological mapping, and soil sampling downhill of orebodies as the EPL 7574 has a rugged topography.  Channel sampling will be conducted perpendicular to the strike direction of the pegmatite bodies /outcrops and possible trenching/pitting may be considered. The activities will be conducted sequentially to minimise the impact footprint of exploration activities.
	2 – 3 Months	Geochemical analysis of samples collected from the EPL will be analysed by assay laboratories and if assay results are encouraging a more invasive stage 2 of exploration will commence
2	6-12< months	To determine if the target pegmatites have a potential economic size (tonnage) and grade (%) for lithium and rare earth element (REE) below the surface. To define the mineralization below the surface cover, either a Reverse Circulation (RC) technique or a diamond core (DD) drill survey will be used. During this stage, infill sampling will be an ongoing exercise.
3	To be determined	Mineral Resource Estimates - The aim would be to define the mineral resource potential of the orebodies and would culminate into the preliminary economic assessment of the deposit (PEA). Exploration techniques employed would include drilling campaigns for resources estimation, preliminary engineering and metallurgical test work

#### 4.3.1 PHASE 1 0 NON-FIELD EXPLORATION ACTIVITIES

##### **REMOTE SENSING**

The first phase of exploration activities commenced in 2022. The Proponent conducted various non-field exploration activities. These were remote sensing spectral analysis, which came to completion at the end of March 2023, and they compiled a Mineral Potential Evaluation Technical Report. This enables the proponent to identify potential mineralisation without having to undertake ground-based exploration activities. These assessments also allowed the Proponent to delineate areas of focus for more in-depth exploration work.



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#### 4.3.2 PHASE 2 – GROUND FIELD RECONNAISSANCE ACTIVITIES

##### **RECONNAISSANCE SURVEYS**

Subsequently, ground truthing of all defined target areas (potentially economic Pegmatite bodies), will be undertaken to collect basic information about the possible ore body present on the license. Additionally, the proponent will collect samples of rock chips and soil downhill and in the valleys of the license area and various geological mapping exercises will take place. A sample storage yard will be established in the closest permanent settlement, either on local farms or nearby towns.

Furthermore, the Proponent will undertake channel sampling that will be conducted perpendicular to the strike direction of the pegmatite bodies/outcrops and possible trenching/pitting may be considered.

##### **GEOCHEMICAL ANALYSIS**

Geochemical analysis of the samples collected from the licence area will then be sent to an overseas international laboratory to be assayed. Should the results of the assay deem promising an invasive mid-stage phase 2 will commence.

#### 4.3.3 PHASE 2 - EVALUATION STAGE

##### **DRILLING**

The drilling campaigns will aim to determine if the pegmatites have the potential size (tonnage) and grade (%) for lithium and Rare Earth Elements (REE) below the surface. To define the mineralization below the surface either a reverse circulation (RC) technique or a diamond core (DD) drilling campaign will be conducted. Infill drilling will also take place simultaneously with RC or DD drilling.

#### 4.3.4 PHASE 3 – ADVANCED EXPLORATION STAGE

This stage will be a continuation of the evaluation stage however there will be a specific focus on defining the mineral resources (Mineral Resource Estimates - MRE) of the ore body and would develop into a preliminary economic assessment (PEA). Further drilling campaigns would be required for the resource estimation and preliminary engineering and metallurgical test work activities would run in parallel.

### 4.4 EXPLORATION SCHEDULE

The exploration activities will be managed from the Proponent's offices in Windhoek, Stellenbosch and Johannesburg. Field exploration is likely to occur throughout the validity period of the license. The ground truthing and surveys will take approximately two to three months. The channel sampling will also take two to three months and will run concurrently with the surveys. The project may then progress to various drilling campaigns which could take anywhere from six to twelve months.

Drilling programs are variable and dynamic and usually depend on the information that is gained during drilling to finalise the scope of the drilling campaign. Renewal applications for the

environmental clearance certificate and other permits will be made should a renewal of the EPL be required.

#### 4.5 EQUIPMENT AND MATERIAL

During the exploration phase, two to three double and single-cab vehicles and all-terrain vehicles will be used to transport materials and equipment to the site. Geochemical sampling or soil sampling comprises the collection of small rock, soil or sediment samples in the field along a designed grid, and the analysis of the samples to identify geochemical anomalies. These surveys are typically conducted using shovels, picks, hammers, plastic bags, etc.

Drilling equipment, diesel fuel and consumables shall be brought to the exploration site to support drilling exploration activities when/if needed. For advanced exploration, a drill rig (track-, truck- or trailer-mounted) will be brought to the site for RC or diamond drilling, along with a water truck and supporting equipment (rods truck, water and fuel bowsers, and RC compressor) for use during drilling. For RC drilling, the rock is crushed down the hole using a percussive drill bit and the crushed rock is brought to the surface using compressed air. Whereas, with diamond drilling, a diamond-impregnated drill bit is used to cut a cylinder of the rock out, which allows for more detailed interpretation.

Existing tracks shall be used as far as reasonably practicable. If new tracks are required, they will be developed by hand or by use of a bulldozer, terrain dependent. Vegetation clearing will be limited to clearing for access tracks, drilling pads and site camps. Should additional areas be cleared for exploration activities the Forest Act, No. 12 of 2001 and its regulations will be complied with (the relevant forestry permits will be applied for if required).

#### 4.6 POWER SUPPLY

The individual contractors will be responsible to supply their own energy needs throughout the duration of their stay within the field camps one option may be to use small generators.

#### 4.7 WATER SUPPLY

Water for exploration activities will not be required during early-stage exploration. If the Project progresses to the advanced exploration stage, there are various options that the Proponent can look at. Some of these options may be to source water from the Orange River located roughly ten to twelve kilometres south of the licence or source water from privately owned boreholes on farms within the EPL if agreed upon with the farm owners. An alternative option would also be to truck water in from a nearby approved water source. The proponent envisions that the project would require roughly but not exceeding 10 000 L of water per day once drilling begins.

## 4.8 WORKERS AND ACCOMMODATION

A technical team consisting of Namibian and international geologists, geo-technicians and field technicians, sources from the nearest towns and settlements such as Karasburg and Warmbad will make up the exploration team. Initial teams will comprise not more than 10 people per drill rig. The workers may be accommodated on-site, erecting campsites at the various exploration stations with the EPL with the necessary approvals in place from farm owners. The contractor's camp infrastructure includes tents and portable toilets, or chemical toilets, which would be set up on-site temporarily, or if there is a village nearby, the Proponent will make arrangements to accommodate workers in Karasburg or surrounding areas.

## 4.9 WASTE MANAGEMENT

The varying waste categories expected to be produced by the project are general household waste, plastics, chemical containers and hazardous waste, e.g. hydrocarbons. All household or non-hazardous waste will be disposed of at the local landfill site in either Karasburg or Warmbad. While hazardous waste will be transported to appropriate sites for safe disposal at Windhoek or the closest licensed disposal or recycling facility.

## 4.10 WASTEWATER EFFLUENT

Early-stage exploration does not produce wastewater. If a significant discovery is made, diamond drilling will be involved, which does generate wastewater. This water is circulated down each hole while adding environmentally friendly drill mud. Once drilling is completed the mud and drill cuttings are separated from the water and the water circulated down the hole, while the drilling muds will be disposed of at Karasburg landfill or other suitable and permitted site.

## 4.11 REHABILITATION

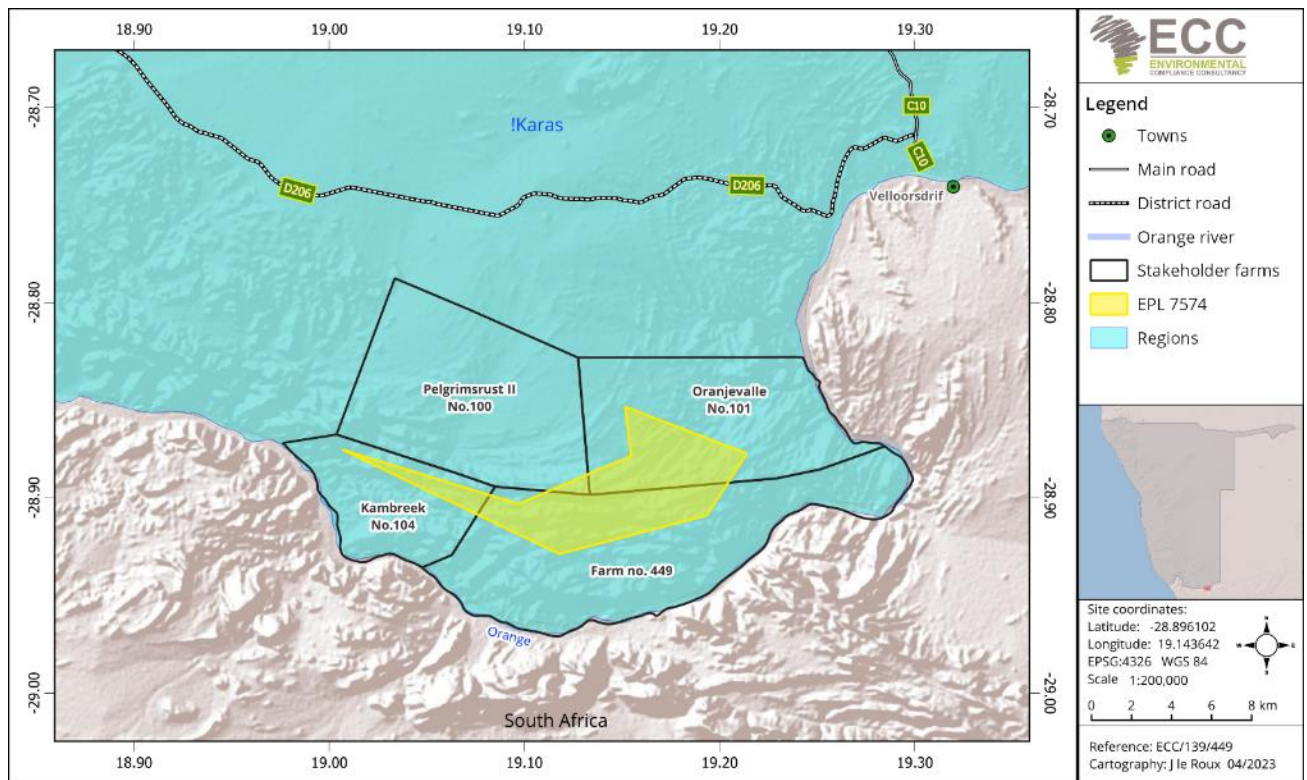
Once exploration activities are completed the areas shall be rehabilitated to a condition as close to the original state as far as possible. Drill pads, drill holes and roads or tracks may remain in their current state should they be part of the future production area footprint, however, pits and trenches should be made safe and stable if they cannot be fully rehabilitated. Rehabilitation shall be determined during the exploration programme and shall be agreed upon with the landowners and authorities as per legislation (discussed in Section 3). Before and after photographs will be used to monitor rehabilitation success.

## 5 ENVIRONMENTAL AND SOCIAL BASELINE

A detailed environmental and socio-economic baseline is provided in this section. A description of the existing biophysical environment is given. This section has been compiled from a desktop study.

### 5.1 LAND USE

EPL 7574 is situated south of Karasburg and southeast of Velloorsdrif, approximately 12 km north of the Orange River and South Africa. The region has mixed agriculture (Livestock and game farms) and exploration activities. The location of the EPL about the nearest settlement, the Orange River and South Africa and the farms over which the license overlaps is shown in Figure 4. Parts of the EPL also fall within a privately owned conservation area, the Orange River Karoo Conservation Area (ORKCA).



**Figure 4 - Stakeholder map**

### 5.2 CLIMATE

Climate and weather data from meteoblue (2023) along with desktop QGIS data for the site has been used to give the most accurate data for the license area. The climatic condition characterizing the EPL area are warm summers and cool winters with mean temperatures between 20°C and 21°C, mean maximum temperatures ranging between 34°C and 36°C and mean minimum temperatures ranging between 4°C and 8°C. The hottest months of the year are between October and March and the coolest months of the year are between May and September.

The months with the highest humidity, have a humidity of approximately 60% relative humidity (RH) and the driest months have a humidity of approximately 10% RH. The average rainfall in this area during the year is between 50 and 100mm. Potential evaporation is between 1900 and 2000mm per year as shown in Figure 5. The site area receives wind speeds up to 38Km/h, of which the months of July and November, with the most predominant wind directions being West (W), West-Southwest (WSW), Southwest (SW) and East-Northeast (ENE) and this is shown in Figure 6 below.

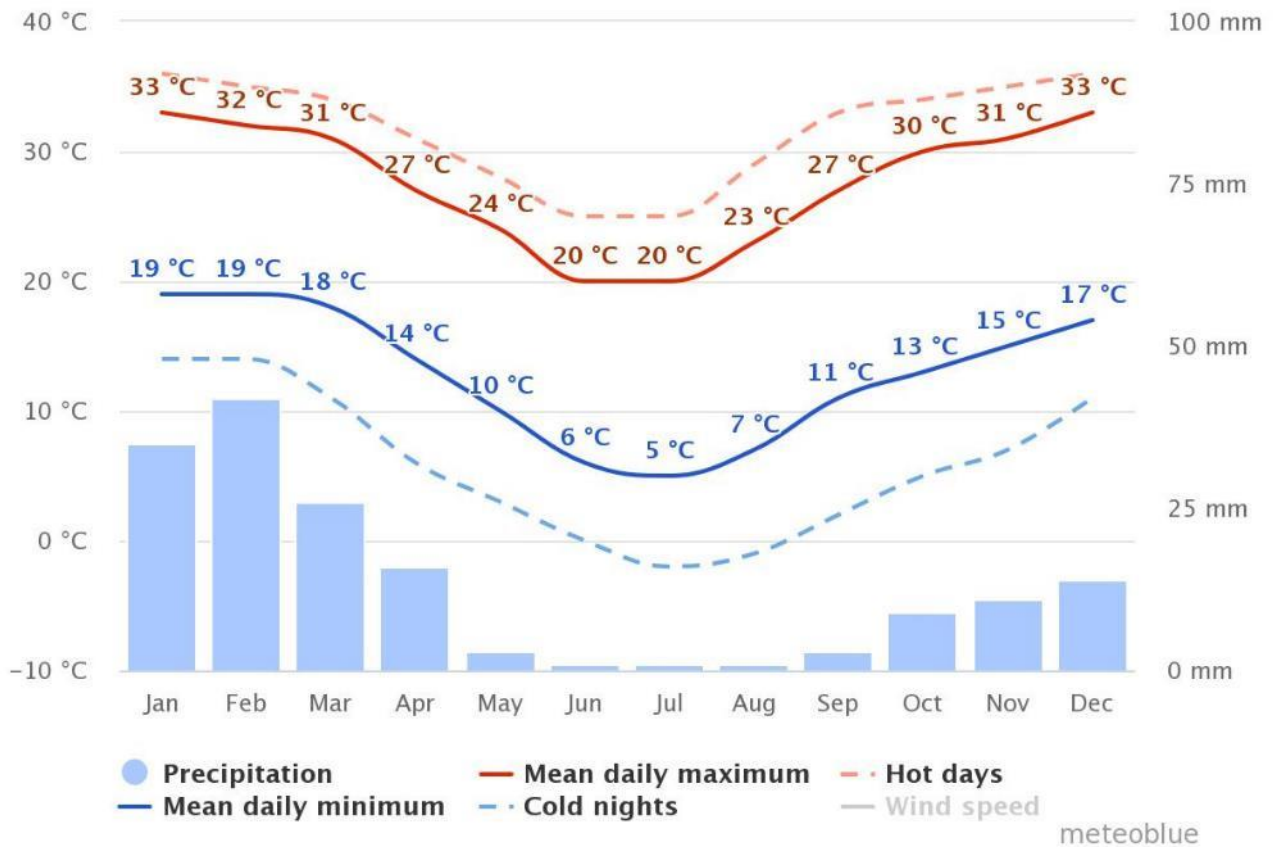
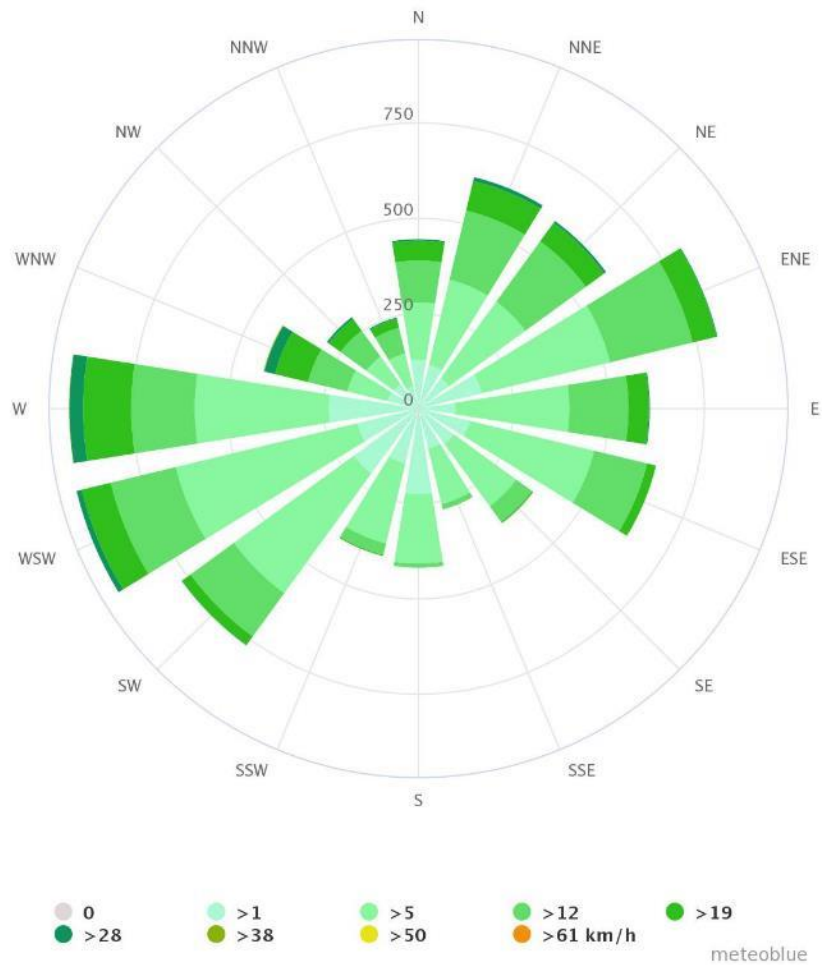


Figure 5 - Yearly expected weather conditions (meteoblue, 2023).





**Figure 6 - Average wind speed and direction in this area.**

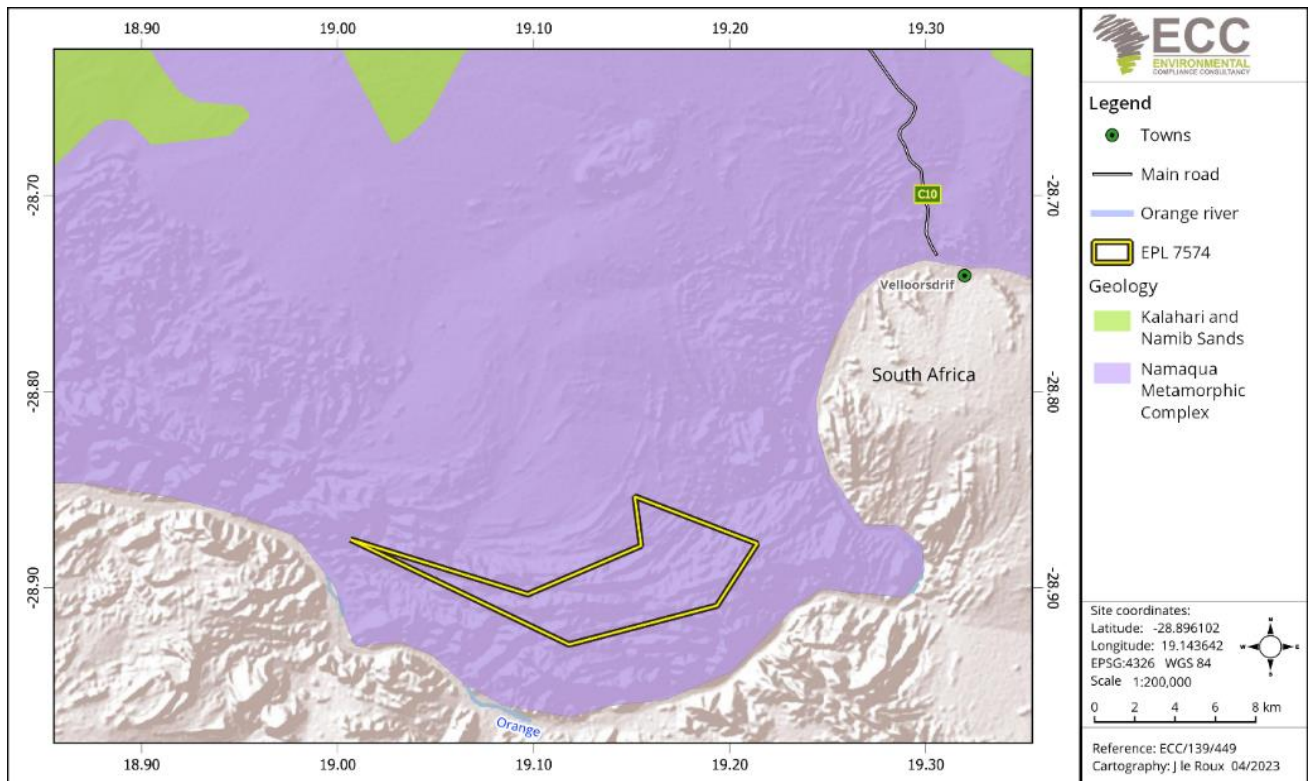
### 5.3 SOILS, GEOLOGY AND TOPOGRAPHY

The regional geology of this area consists mainly of the Namaqua Metamorphic Complex Group. The Namaqua Metamorphic Complex Group is a Mesoproterozoic low-pressure, granulite facies belt situated on the south-western margin of the Kaapval Craton and consists of various types of granitoids intercalated with metapelites and calc-silicate rocks (Bial et al., 2015) shown in Figure 7 below.

The main rock types for this area are gneiss and graphite. Gneiss is a foliated metamorphic rock identified by its bands and lenses of varying mineral composition. Some of these bands contain granular minerals that are bound together in an interlocking texture. While graphite is a mineral composed of stacked sheets of carbon atoms with a hexagonal crystal structure, it is typically soft and is relatively non-reactive with high electrical and thermal conductivity.

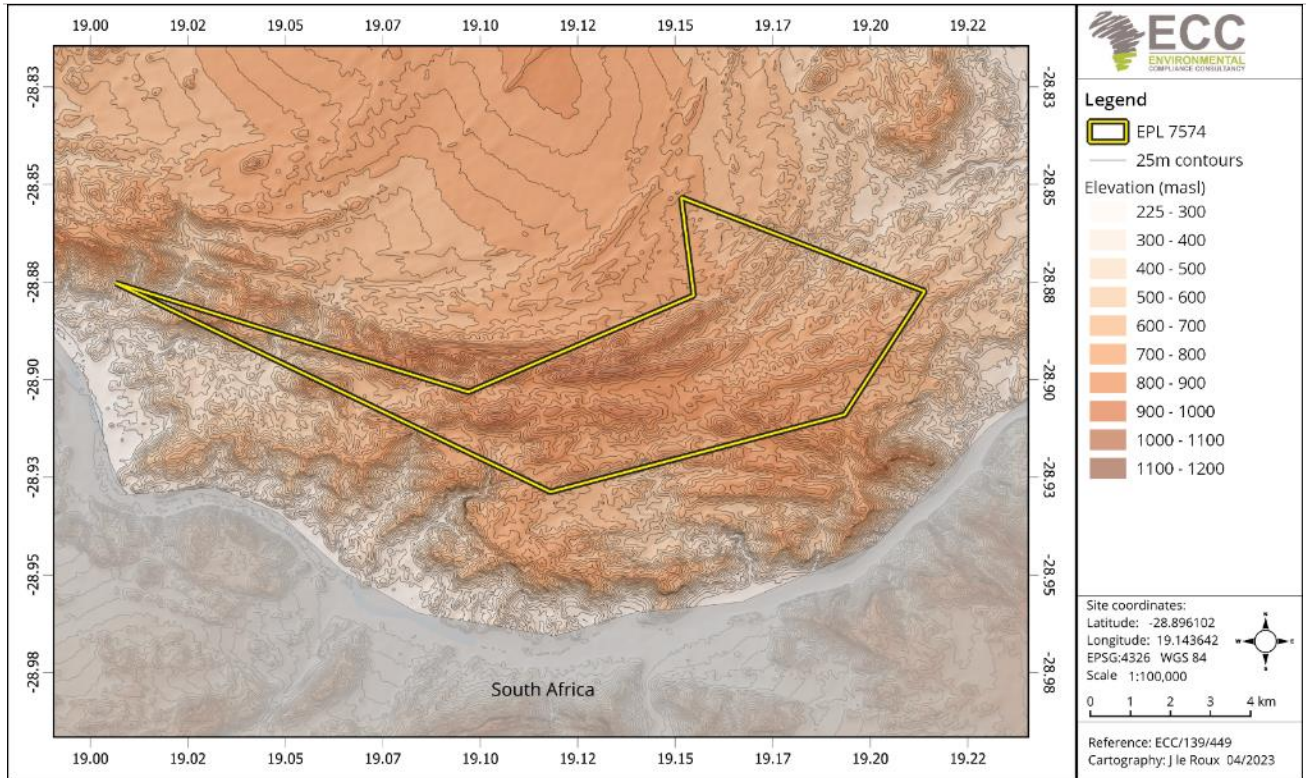


The soil type in this area is dominated and characterised by Eutric leptosols. The first part of the soil name denotes soil properties. Eutric soils are characterised as being fertile soils with high base saturation. The second part of the name reflects the conditions and process which have led to the formation of the soils. The geology of the area is shown are typically formed in areas that are actively eroding, especially in hilly or undulating areas which cover a large part of the southern and north-western parts of Namibia. This type of soil is coarse-textured and offers limited depth due to the presence of hard-rock, highly calcareous or cemented layer within 30cm of the surface. Leptosols are the shallowest soils in Namibia and often contain gravel. It has a low water-holding capacity and so water run-off and water erosion can be very high in these areas if heavy rainfall occurs (Atlas of Namibia Team, 2022).



**Figure 7 - Geology of the area.**

The topography of the Project site is relatively mountainous and hilly. The elevation decreases from the western side of the EPL towards the eastern side and the overall EPL of the varies between 225m and 1200m. but elevation across the EPL varies due to various elevated areas (i.e., hills) shown in Figure 8.



**Figure 8 - Elevation of this area**

## 5.4 HYDROLOGY

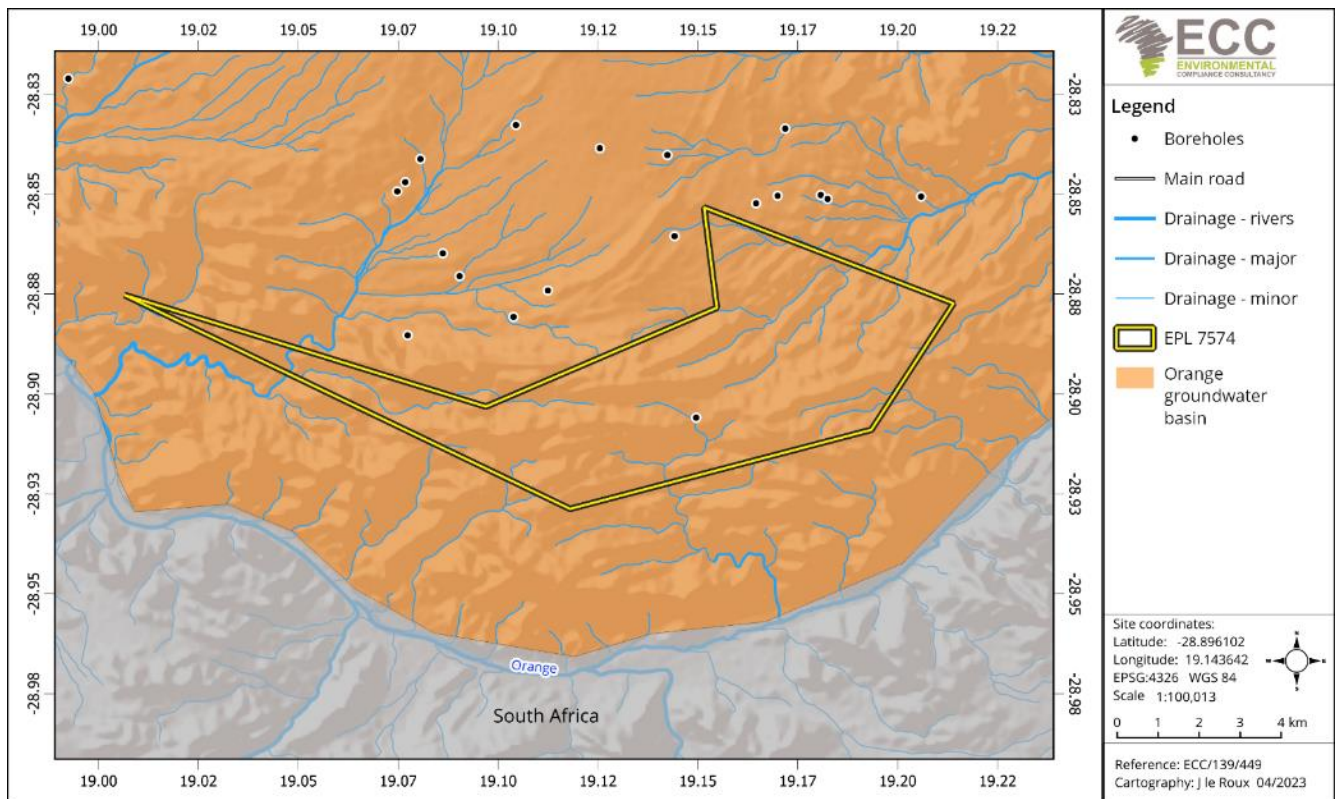
According to the Namibian Monitoring Information System & Hydrological Map of Namibia (<https://na-mis.com/>), the site falls over rock bodies with moderate to very low groundwater potential. The groundwater vulnerability in this area is considered to be low to very low and groundwater recharge within this area is also considered to be low (0 to <0.5 % of the total average rainfall). Groundwater quality in this area is generally poor and not suitable for human consumption (Group D and C) with some good to excellent quality pockets (Group A and B), found around the site (northeast).

The EPL area overlays the Orange Groundwater Basin as shown in Figure 9. This rock body has very limited groundwater potential and yields less than 0.5m<sup>3</sup> of water per hour. There is also a lack of recharge and poor groundwater quality in most areas above the basin. The groundwater quality for this area is ranked as Group D. Water in Group D is characterized as having exceedingly high levels of total dissolved solids (TDS), sulphates and fluoride, which makes it not suitable for human consumption (Atlas of Namibia Team, 2022).

The EPL is approximately five kilometers from the Orange River which flows to the Atlantic Ocean in a generally westerly direction for some 2092.15km. The average monthly flow of the Orange River shows a less distinct seasonal pattern than expected due to the high demands on the river and the

upstream damming has reduced the quantity of water reaching downstream and has altered its pattern of flow.

The closest bulk water supply source is at Dreihuk, a storage dam capacity of between 5-20 million cubic meters of water to Karasburg which is about 100km from the EPL (Atlas of Namibia Team, 2022).



**Figure 9 - Hydrology of the area**

## 5.5 BIODIVERSITY BASELINE

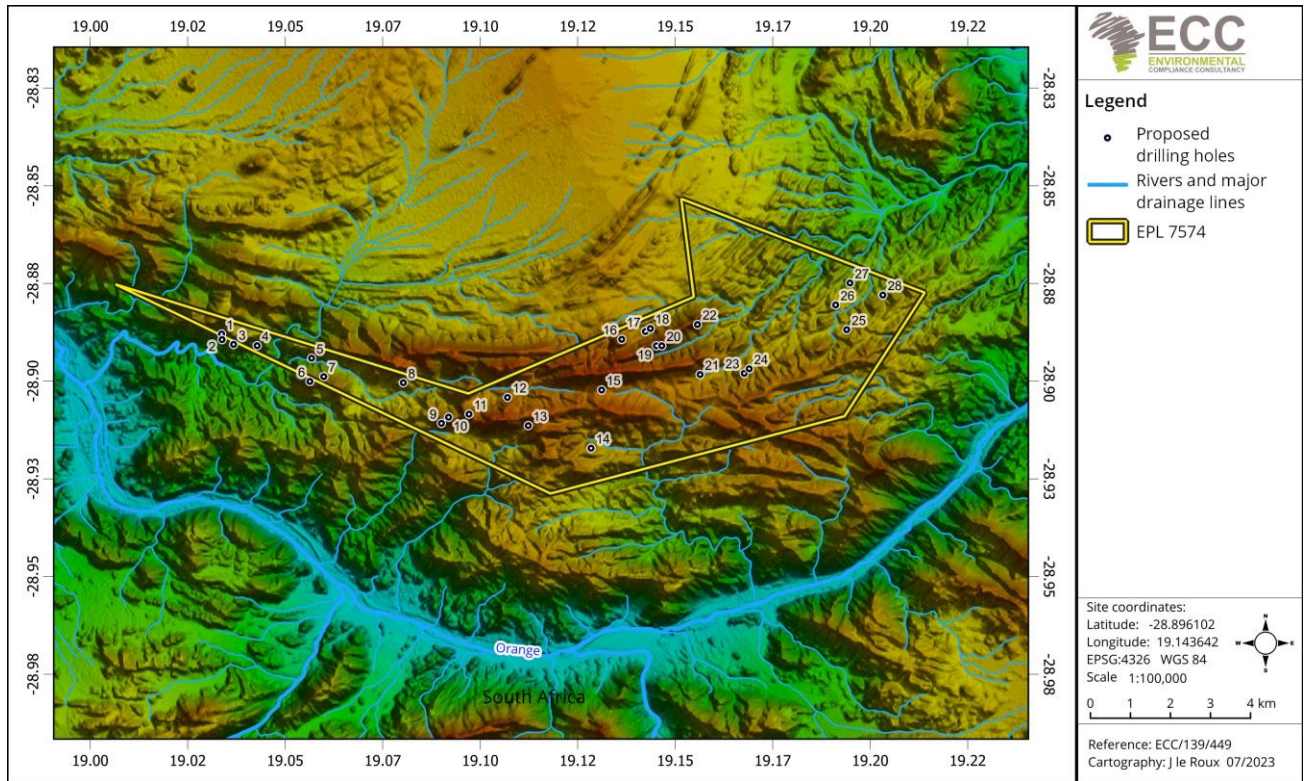
### 5.5.1 FLORA

The EPL is situated within the Karas dwarf shrubland in the Nama-Karoo. The dominant type is grasslands and low shrubs. The plant diversity (<50 to up to 150 species) for this area is low with low plant endemism (2-10 species). This area has a localised plant endemism of between 1 to 3 species. Appendix D lists the CITES protected or endangered species and endemic flora species found in the area. Most of Namibia’s 4 000 plant species can be classified into nine floristic groups. The EPL area falls within the *Gordonia* floristic group (Atlas of Namibia Team, 2022).

Most of the endemic, protected, endangered and critically endangered flora species are found on rocky slopes, outcrops and lower reaches on the westward-flowing ephemeral rivers. Therefore driving in and drilling in these areas that should be managed carefully by the exploration team when



preparing their exploration plans as shown in Figure 10. Due to the low plant density and arid nature of the receiving environment the fire intensity of this area has been categorized as less than 50kW/m<sup>2</sup>. However, caution should still be taken to prevent veld fires as the area is still a grassland (Atlas of Namibia Team, 2022).



**Figure 10 - Proposed stream sampling points**

### 5.5.2 FAUNA

The overall fauna diversity for this area is relatively low compared to other parts of the country. The area within the EPL has a low bird diversity of less than 51 species, a low diversity of reptiles of between 31-40 species, a low diversity of amphibians of between 5 to 8 species and a medium diversity of mammals of between 60-70 species. The area has a low endemism of birds, reptiles and scorpions and a high endemism of invertebrate and mammals.

Due to the founding of ORKCA, various wildlife such as oryx, springbok, eland, Hartmann’s Mountain zebra, greater kudu and red hartebeest have been reintroduced into the area and their populations are increasing. While various predators like the leopard, brown hyena, caracal, African wildcat, aardwolf, black-backed jackal, bat-eared fox and cape fox can also be observed in the area, although not in large numbers (Orange River-Karoo Conservation Area, 2023). Of these animals mentioned the leopard, brown hyena and mountain zebra are on the IUCN red list.

## 5.6 SOCIAL AND SOCIO-ECONOMIC

The //Kharas Region is the southernmost and least densely populated of the 14 regions of Namibia. The region has a well-developed energy and water network and an advanced postage and telecommunications system that links villages and towns with the rest of the country and the world at large. Water is obtained from the Orange River and a few boreholes on the farms. Whereas in the nearest major town electricity is supplied by NamPower. Excess water for irrigation is often obtained from the Orange River.

### 5.6.1 EMPLOYMENT

In 2011, as a region 75.4% of the population of the Karas Region that were eligible to work were part of the Karas Region Labour Force. Wages and salaries represented the main income source of 71.6 % of households in the Karas Region. Overall, the rate of unemployment is estimated at 32.2 % for people residing in the Karas Region, using the broad definition of unemployment (NSA, 2011).

### 5.6.2 ECONOMIC ENVIRONMENT

Mining plays a pivotal role in the economy of Namibia. Since independence, it has consistently been the biggest contributor to Namibia's economy in terms of revenue and accounts for 11% of the country's income (National Planning Commission, 2021). Mining is one of the main contributors to GDP, and one of the largest economic sectors of Namibia.

In 2022 Namibia recorded a growth of 4.6% which was mainly driven by mining (especially due to the growth of the diamond production) due to the fact that this industry saw a growth of 45.1% in 2022. Primary industries saw a growth of 12.9% mainly attributed to mining and quarrying falling under this industry (Namibia Statistics Agency, 2022).

Secondary industries saw a recovery from 2021 of 3.3% (Namibia Statistics Agency, 2022). However, agricultural industries have been negatively impacted due to drought and the war in Ukraine. With ever increasing fuel prices, inflation has increased to a high of 6.1%, an all-time high since 2017 thus affecting the most vulnerable (The World Bank, 2023).

## 5.7 CULTURAL HERITAGE

From the assessment undertaken by Dr Eliot Mowa, two potential archaeological or heritage resources were identified. The sites identified by the assessment are hunting blinds as shown in the figures below and were potentially used by hunter-gathers to shield themselves from prey when embarking on elaborate hunting missions (Mowa, 2023).

Further heritage evaluation of the site can be found in the heritage assessment in Appendix D. Nevertheless, there is still the potential to uncover previously undiscovered heritage remains. A chance finds plan must be incorporated into the EMP.

## 1. Five Natural Caves and Rock Shelters

Description: Five caves and rock shelters are currently inhabited by animals such as Rock Dassie along a steep gradient. The formations are located at the confluence of three rivers (Figure 11).

Coordinate: -28,894977 S 19,048215 E



Figure 11 - Caves and one rock shelter along the river passing through EPL 7574.



## 2. Hunting Blinds

Description: Suspected hunting blinds overlooking a plain to the north and south. Rugged vertical faced ridges extending lineally north easterly and south westerly direction (Figure 12).

Coordinate: 28°51'29"S 19°09'20"E



**Figure 12 - Suspected Hunting Blinds within part of EPL 7574**

Figure 13 below map the identified heritage sites against the Proponents soil sampling sites to show the proximity of the Proponents drill sites to potentially identified heritage sites, to assist in assessing the impact of the Proponent’s soil samplings sites on the EPL’s heritage sites.

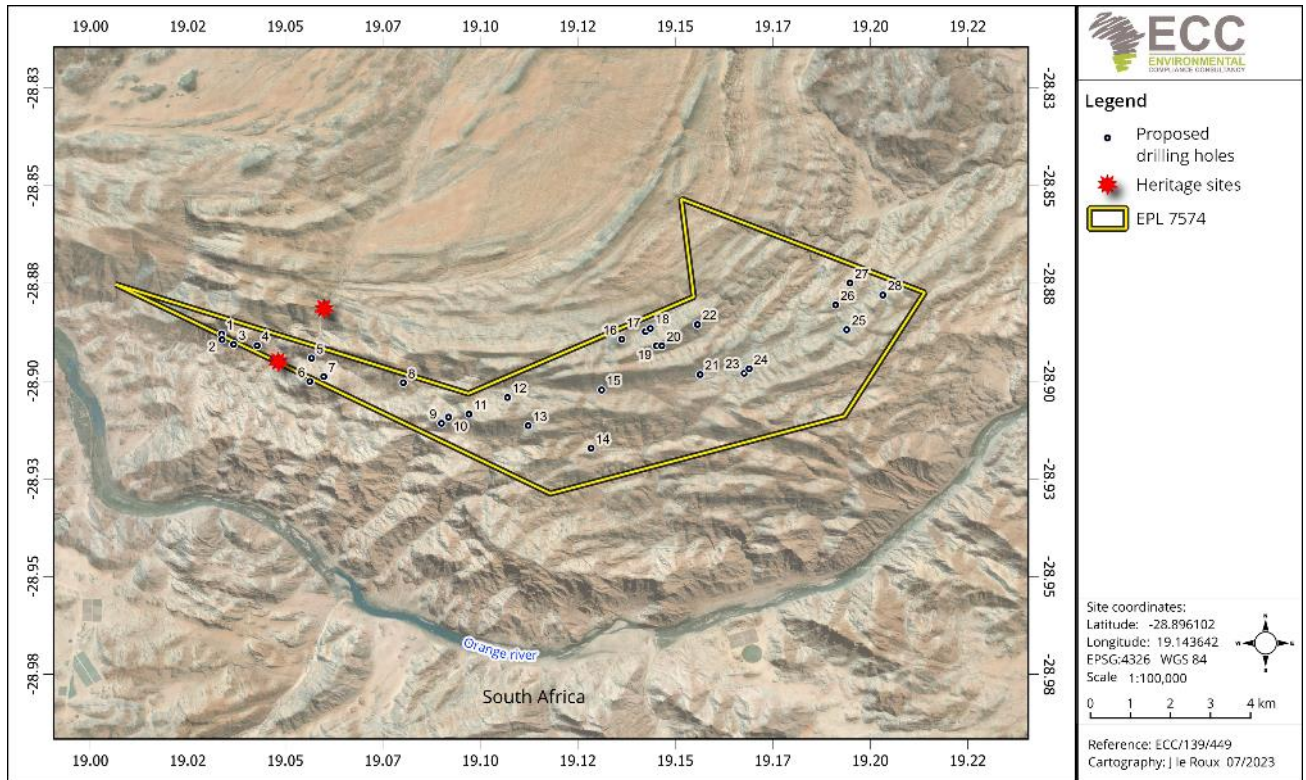


Figure 13 - Heritage sites identified on EPL 7574 mapped against the Proponent's soil samplings sites.

## 6 IMPACT IDENTIFICATION AND EVALUATION

### METHODOLOGY

#### 6.1 INTRODUCTION

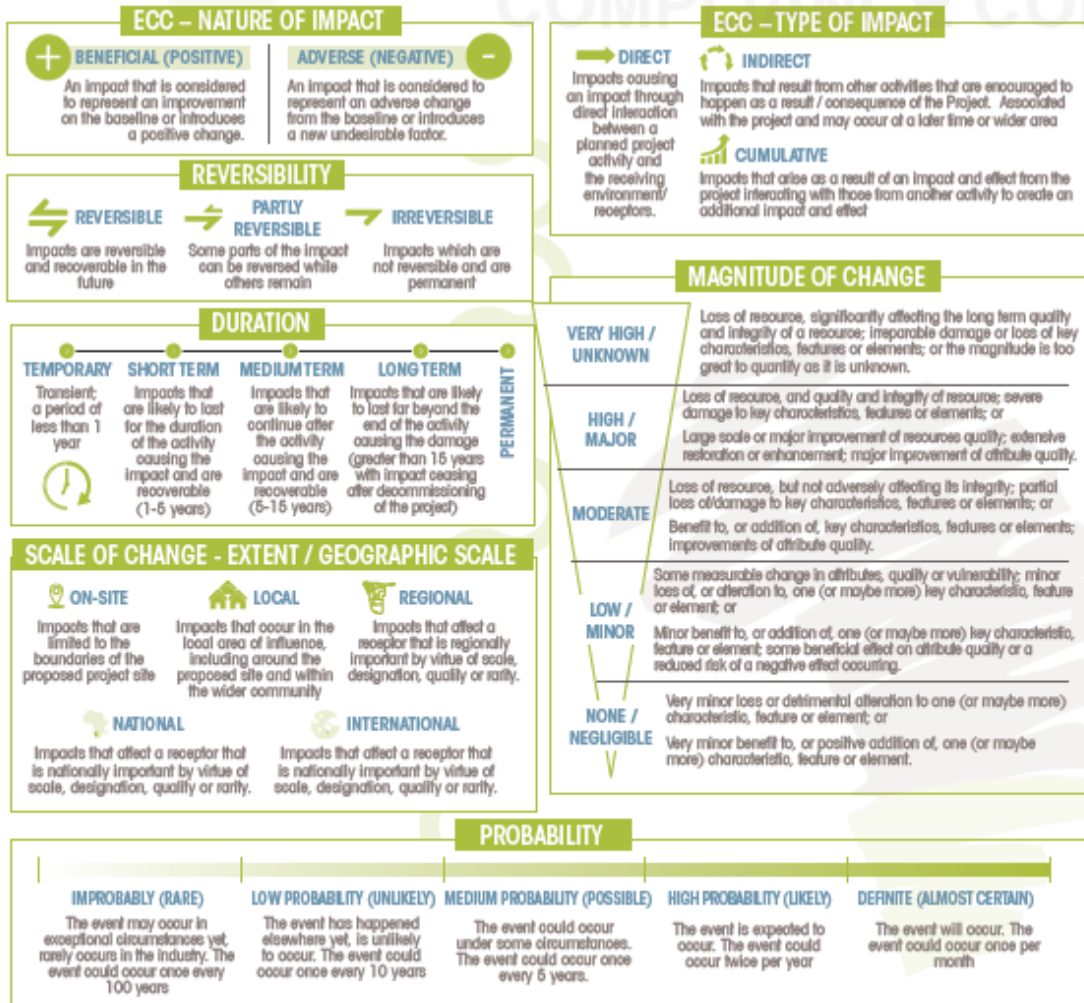
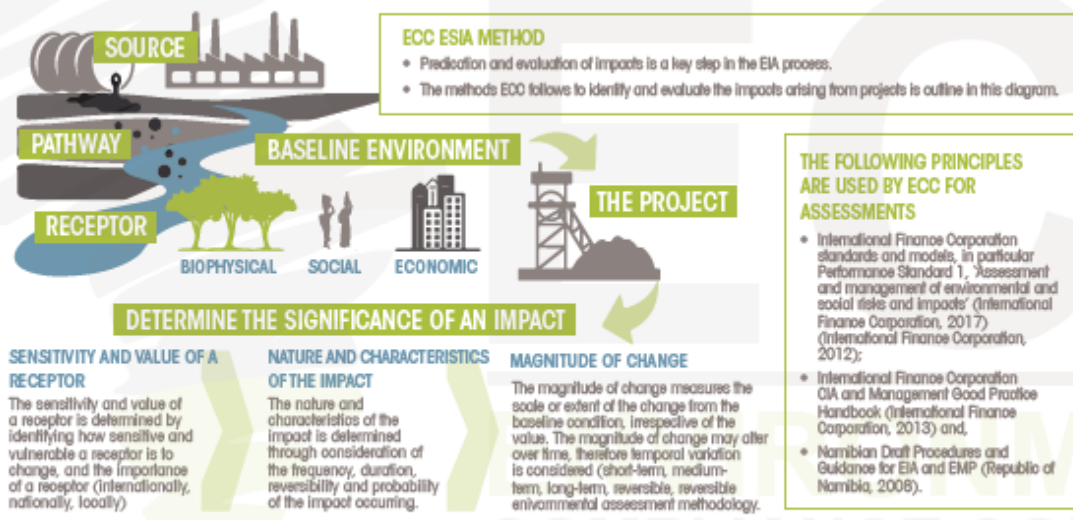
The impact assessment method described in this chapter by ECC is designed to systematically identify and evaluate potential environmental and social impacts that may arise from a proposed project. The method takes into consideration the baseline characteristics of the project area and assesses the significance of impacts based on various factors, including the sensitivity and value of environmental and social receptors, the nature and characteristics of the potential impact, and the magnitude of potential change.

The method shown in Figure 14 provides assessment guidance that is used to evaluate impacts, and it also acknowledges any limitations, uncertainties, and assumptions associated with the assessment methodology. It outlines how impacts are identified and evaluated, and how the level of significance is derived. The method also addresses the application of mitigation measures in the assessment, and how additional mitigations are identified.

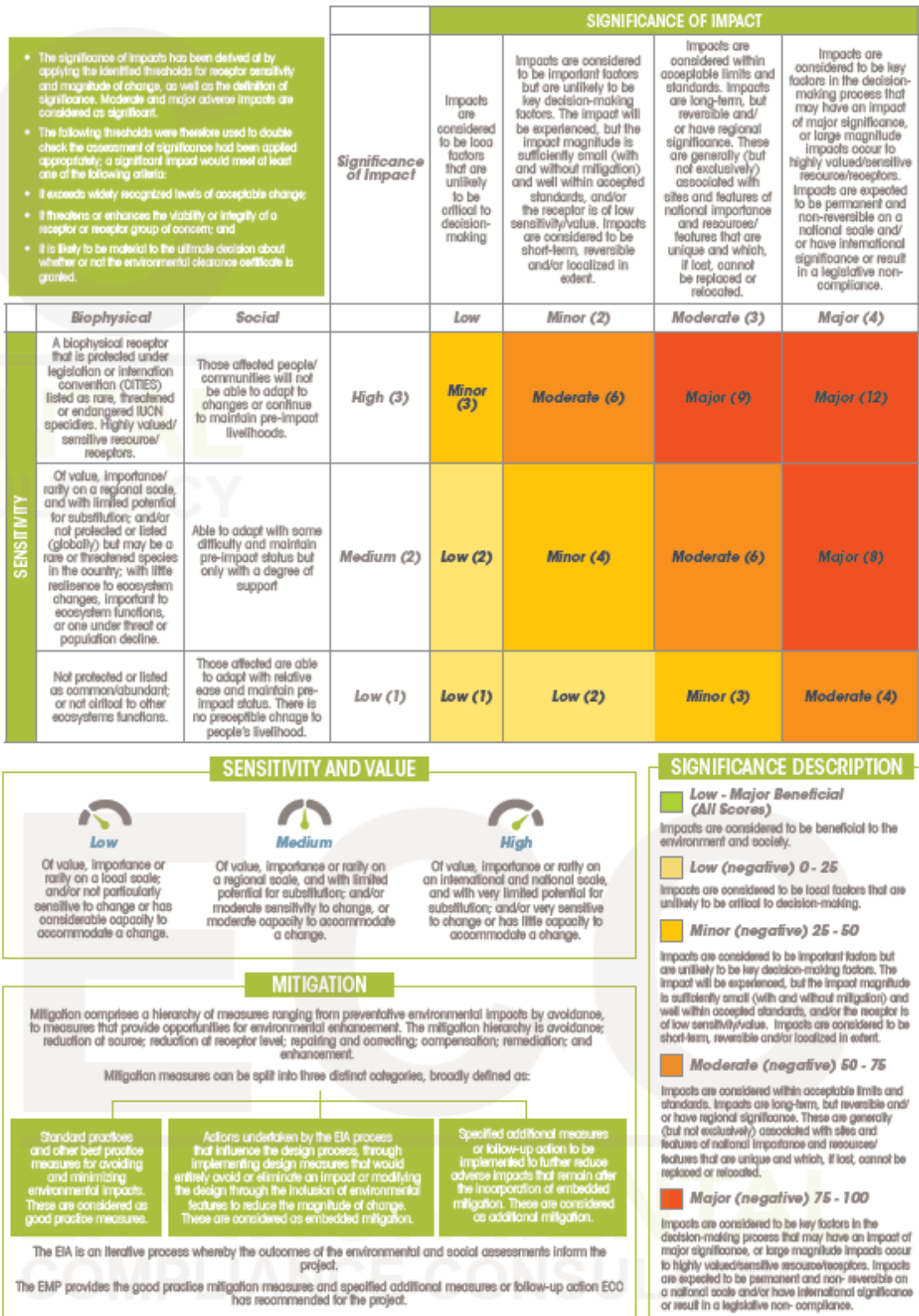
This chapter provides a structured approach for evaluating the potential impacts of a proposed project on the environment and social aspects. It considers various factors to determine the significance of impacts and provides guidance on how to identify and evaluate potential impacts. It also recognises the limitations and uncertainties associated with impact assessment methodologies, which adds transparency and credibility to the assessment process.

Overall, this chapter provides a comprehensive and systematic approach for conducting impact assessments, which can help ensure that potential environmental and social impacts are thoroughly evaluated and addressed in the decision-making process for the proposed project. However, it is important to note that the effectiveness of this method would ultimately depend on its implementation and the accuracy of the baseline data and assumptions used in the assessment. Therefore, regular reviews and updates of the methodology based on new information and feedback from stakeholders would be recommended to improve its accuracy and relevance.

## ECC IMPACT PREDICATION AND EVALUATION METHODOLOGY







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Figure 14 - ECC ESIA methodology based on IFC standards.

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## 6.2 ASSESSMENT GUIDANCE

The principal documents used to inform the assessment method are:

- International Finance Corporation standards and models, in particular Performance Standard 1, ‘Assessment and management of environmental and social risks and impacts’ (International Finance Corporation, 2017) (International Finance Corporation, 2012);
- International Finance Corporation CIA and Management Good Practice Handbook (International Finance Corporation, 2013); and,
- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

## 6.3 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

The limitations and uncertainties associated with the assessment methodology in Namibia were observed to include the absence of topic-specific assessment guidance, with a generic methodology being applied based on IFC guidance and professional judgement. This implies that there may be limitations in terms of tailoring the assessment to specific topics or issues relevant to Namibia, and that the methodology may not fully capture the unique characteristics and nuances of the local context.

The impact assessment process also acknowledged the presence of uncertainties, and assumptions were made based on realistic worst-case scenarios to ensure that potential environmental impacts were identified and assessed comprehensively. These assumptions and uncertainties were identified and documented during the assessment process shown in Table 7 in line with best practice.

A cautious approach was applied where uncertainties existed, allowing for the identification and assessment of potential impacts based on worst-case scenarios. The limitations and uncertainties were acknowledged and described in the baseline section of the assessment, indicating transparency and awareness of potential limitations in the methodology.

It is important to note that the limitations and uncertainties identified in the assessment methodology may introduce potential biases or inaccuracies in the assessment results. Therefore, it is recommended to regularly review and update the methodology to address these limitations and uncertainties, and to ensure that it remains robust and relevant for the specific context of Namibia. Additionally, incorporating stakeholder feedback and local knowledge can also contribute to improving the accuracy and comprehensiveness of the assessment process.



**Table 7 - Limitations, uncertainties and assumptions**

Limitation/uncertainty	Assumption
Number of access roads and temporary exploration campsites	The making of new tracks or access roads will be avoided as far as possible, and existing tracks and routes will be used as far as possible. While every effort will be made to minimise environmental damage, in some cases it will be necessary to clear some vegetation. Temporary campsites near the drill sites may be required.
The program of exploration works is not confirmed	It is assumed that exploration work shall be undertaken in campaigns over the course of the current licence or renewal period. Activities involve drilling; aerial or remote sensing; and mineral sampling. The incremental methodology for exploration is aimed at using minimally invasive techniques early on to eliminate potential sub-economic targets to reduce footprint impact.
Number of workers, the area from where they will come and accommodation	It is planned that approximately ten people will be contracted for the proposed exploration stage of the project per drill rig. Contractors will camp close to the exploration sites as possible to minimise travel impacts.
Structures	No permanent infrastructure will be developed during any phase of project exploration activities.

## 7 IMPACT ASSESSMENT FINDINGS AND PROPOSED MITIGATION MEASURES

### 7.1 INTRODUCTION

This chapter presents the findings of the impact assessment for the proposed project, with a focus on significant potential impacts. The design of the proposed project and best practice measures were considered during the assessment to identify likely significant impacts and recommend mitigation measures. A summary list of potential impacts was provided, including water (surface and groundwater), soil, landscape (visual impacts, sense of place), socioeconomics (employment, demographics, and land use), noise, ecology (fauna and flora), air quality (emissions, pollutants, and dust), and heritage (including culture, history, archaeology, and palaeontology).

Table 8 outlines the impact assessment findings, identifying the activities that could be the source of impacts, the receptors that could be affected, and the pathways between them. Where activities or receptors have not been identified and analysed, potential impacts are deemed unlikely, and no assessment or justification is provided. Justification for further assessment may or may not be required where the activity, receptor, and pathway have been identified and analysed.

The nature and localised scale of the exploration activities and the environmental context of the EPL is expected to limit the potential environmental and social effects, should they occur. However, uncertainties related to the potential increase in movements and presence of people, which may lead to illegal and covert activities such as poaching, stock theft, and collection of organisms, were identified. Accidental veld fires may also increase with the presence of contractor personnel, potentially affecting terrestrial ecology and biodiversity in Namibia, as well as local landowners and their neighbours. Mitigation measures are recommended and provided in Table 8 to address these potential impacts.

Cumulative impacts resulting from physical disturbance, noise, dust, and loss of sense of place may be experienced by farm owners, neighbours, visitors, and tourists. Mitigation measures are recommended and provided in Table 8 to address these impacts. Precautions must also be taken to prevent damage to heritage sites, and a chance find procedure will be implemented if paleontological remains are discovered during exploration activities. With the necessary mitigation measures in place, the significance of the impact reduces from moderate to minor, as outlined in the report.

It is important to ensure that the recommended mitigation measures are effectively implemented and monitored during project implementation to minimise potential impacts and ensure compliance with environmental regulations and best practices. Regular monitoring and review of the impacts and effectiveness of mitigation measures should also be conducted throughout the project lifecycle

to address any emerging issues and make necessary adjustments to the mitigation measures as needed.

All necessary precautions should be taken to prevent damage to heritage sites in case paleontological remains are discovered during exploration activities. The chance find procedure, as outlined in the report, should be implemented in such cases. With the recommended mitigation measures in place (as provided in Table 8), the significance of the impact is expected to reduce from moderate to minor.

It is important to ensure that the chance find procedure is followed diligently to prevent any harm to the discovered heritage sites. This may include halting or modifying the exploration activities in the vicinity of the site, conducting further assessments to determine the extent and significance of the paleontological remains, and implementing appropriate mitigation measures to protect and preserve the heritage site.

Regular monitoring and review of the chance find procedure and effectiveness of the mitigation measures should be conducted throughout the project implementation to address any emerging issues and ensure compliance with relevant regulations and best practices. Any updates or changes to the chance-find procedure or mitigation measures should be documented and communicated to relevant stakeholders as needed.

Furthermore, it is important to involve relevant experts, such as palaeontologists or archaeologists, in the implementation of the chance find procedure and in assessing the significance of the paleontological remains. Their expertise can help ensure that appropriate measures are taken to protect and preserve the heritage sites and their findings.

Overall, the report should provide clear and comprehensive information on the chance find procedure, mitigation measures, and the expected reduction of impact significance from moderate to minor, based on the implementation of these measures. It should also highlight the importance of diligent adherence to the chance find procedure and regular monitoring and review of the mitigation measures to minimise potential impacts on heritage sites during the exploration activities.

**Table 8 - Impact assessment findings and proposed mitigation measures.**

Description	Details	
<b>Aspect</b>	Water	
<b>Description of activity</b>	Site operations such as maintenance activities could lead to compromised containment of hazardous materials, e.g., accidental fuel / hydraulic fluid leaks and spills, or similar sources	
<b>Description of impact</b>	Hydrocarbon leaks and spills could enter the Orange Groundwater Basin (aquifer) causing contamination	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Groundwater quality</b>

Description	Details	
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible Moderate long term Regional Low probability
	<b>Value of sensitivity</b>	Medium
	<b>Magnitude of change</b>	Moderate
	<b>Significance of impact prior to mitigation</b>	<b>Minor (4)</b>
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>– Good housekeeping and training through toolbox talks and induction</li> <li>– All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil</li> <li>– Spill kits and absorption material must be available during fuel delivery, storage or use</li> <li>– Accidental spills and leaks (including absorption material) must be cleaned as soon as possible</li> <li>– Major spills (significant release of chemicals or materials that pose a major health and safety risk to persons or damage to the environment that requires outside assistance to clean up) to be reported, also to the authorities</li> <li>– Maintenance and service schedules on equipment is in place</li> <li>– Store bulk fuel (200L or more) in adequate containment areas (non-porous surface, banded) and discard damaged containers</li> <li>– Refuelling must be done in areas with adequate preventative measures in place</li> <li>– Servicing of equipment must not be done in the field</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Minor (3)</b>	

Aspect	Water	
Description of activity	Potential spillages of drill fluid, lubrication, etc. or drilling that penetrates the water table	
Description of impact	Hydrocarbon leaks and spills could enter the aquifer causing contamination	
Assessment of impact	<b>Receptor</b>	<b>Groundwater quality</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible Moderate long term Regional Low probability
	<b>Value of sensitivity</b>	Medium
	<b>Magnitude of change</b>	Moderate
	<b>Significance of impact prior to mitigation</b>	Minor (4)
Impact management/control measures	Ensure spill kits and preventative measures (e.g., drill pads) are in place at exploration sites	
Residual impact after mitigation	<b>Low (1)</b>	

Description	Details	
Aspect	Water – surface and groundwater	
Description of activity	Discharge and infiltration of non-contained wastewater	
Description of impact	Wastewater can contaminate surface and groundwater	
Assessment of impact	<b>Receptor</b>	<b>Surface and groundwater</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible High/Major long term Regional Low probability
	<b>Value of sensitivity</b>	High
	<b>Magnitude of change</b>	High/Major

Description	Details	
	<b>Significance of impact prior to mitigation</b>	Moderate (6)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- All wastewater discharges must be contained, and if possible recycled in the drilling process</li> <li>- Unrecyclable wastewater must be removed from site and taken to site where discharge of wastewater is permitted.</li> <li>- Workers will be made aware of the importance of wastewater management</li> <li>- Good housekeeping</li> <li>- Ensure prompt clean-up of spills</li> <li>- Contaminated soils should be remediated on-site</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Minor (3)</b>	



Description	Details	
<b>Aspect</b>	Water – Surface and groundwater	
<b>Description of activity</b>	Inadequate management of solid waste	
<b>Description of impact</b>	Waste items and litter can pollute drainage channels	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Surface and ground water</b>
	<b>Effect/description of magnitude</b>	Adverse Cumulative Reversible Minor Temporary On-site Unlikely
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Low
	<b>Significance of impact prior to mitigation</b>	Low (1)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Good housekeeping</li> <li>- Training and awareness through toolbox talks and induction</li> <li>- Implement a Standard Operational Procedure (SOP) on waste management, for all kinds of waste possible on-site (e.g., domestic, mineral, hydrocarbons, hazardous)</li> <li>- No hazardous waste should be stored on-site</li> <li>- Implement a culture of correct waste collection, waste segregation and waste disposal</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Low (1)</b>	

Description	Details	
<b>Aspect</b>	Soil – Impacts	
<b>Description of activity</b>	Inadequate management of hazardous and hydrocarbon waste	
<b>Description of impact</b>	Pollution of soil	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Soil</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Reversible Minor Short term On-site Possible

Description	Details	
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	Low (2)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Good housekeeping</li> <li>- Training and awareness through toolbox talks and induction</li> <li>- Implement a Standard Operational Procedure (SOP) on waste management, for all kinds of waste possible on-site (e.g., domestic, mineral, hydrocarbons, hazardous)</li> <li>- Avoid hazardous waste on site</li> <li>- Implement a culture of correct waste collection, waste segregation, recycling and waste disposal</li> <li>- Contaminated soil should be remediated off-site, either by the Proponent at their own bioremediation site or taken to the Walvis Bay or Windhoek hazardous waste site</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Low (1)</b>	

Description	Details	
<b>Aspect</b>	Terrestrial ecology and biodiversity	
<b>Description of activity</b>	Vegetation clearing for access routes, drill pads and temporary contractor's camp	
<b>Description of impact</b>	Loss / alteration of terrestrial habitats and loss of species	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Terrestrial ecology and biodiversity</b>
	<b>Effect/description of magnitude</b>	Adverse Direct Reversible Minor Short term On-site Possible
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	Low (2)

Description	Details
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Use existing roads for access to avoid new tracks and cut lines.</li> <li>- Minimise clearance areas through proper planning of the exploration activities.</li> <li>- Where necessary, rescue and relocate plants of significance under the supervision.</li> <li>- Promote revegetation of cleared areas where possible upon completion of exploration activities.</li> <li>- Apply for vegetation clearing permits before removing any vegetation.</li> </ul>
<b>Residual impact after mitigation</b>	<b>Low (1)</b>

Description	Details	
<b>Aspect</b>	Terrestrial ecology and biodiversity	
<b>Description of activity</b>	Ambient noise and vibration caused by moving or stationary machinery and equipment (e.g., drill rigs, generators, vehicles, aeroplanes)	
<b>Description of impact</b>	Resident, slow-moving and nesting organisms may be disturbed by excessive noise or vibration	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Terrestrial ecology and biodiversity</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Reversible Minor Short term On-site Likely
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	<b>Low (2)</b>
	<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Restrict excessive noise to areas of activities only</li> <li>- No activities between dusk and dawn if close to sensitive receptors</li> <li>- Drill equipment shall be suitably positioned to ensure that noisy equipment is away from receptors</li> <li>- Maintain and carry out routine equipment checks</li> <li>- All equipment to be shut down or throttled back between periods of use.</li> </ul>

<b>Residual impact after mitigation</b>	<b>Low (1)</b>
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Description	Details	
<b>Aspect</b>	Terrestrial ecology and biodiversity	
<b>Description of activity</b>	Increased movement of vehicles, machinery, and equipment	
<b>Description of impact</b>	Resident and nesting organisms such as reptiles can be disturbed, injured or killed	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Terrestrial ecology and biodiversity</b>
	<b>Effect/description of magnitude</b>	Adverse Direct Partly reversible Moderate Short term On-site Possible
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	<b>Low (2)</b>
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Restrict movements to areas of activities only</li> <li>- Use existing tracks and routes only</li> <li>- Identify rare, endangered, threatened and protected species in advance</li> <li>- Route new tracks around protected species and sensitive areas</li> <li>- Restrict movements to daytime hours or with adequate nighttime driving lights</li> <li>- No driving off designated access routes (into the bush) / off-road driving</li> <li>- No animals or birds may be collected, caught, consumed, or removed from site</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Low (1)</b>	

Description	Details
<b>Aspect</b>	Terrestrial ecology and biodiversity
<b>Description of activity</b>	Increased disturbance of areas with natural vegetation
<b>Description of impact</b>	Alien species and weeds can be introduced to the area

Description	Details	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Terrestrial ecology and biodiversity</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible High/Major Permanent Local Possible
	<b>Value of sensitivity</b>	Medium
	<b>Magnitude of change</b>	High/Major
	<b>Significance of impact prior to mitigation</b>	Minor (4)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- All project equipment arriving on site from an area outside of the project or coming from an area of known weed infestations (not present on the project site) should have a weed and seed inspection completed prior to equipment being used</li> <li>- Monitor areas for weed and alien species where exploration was active</li> <li>- Eradicate weeds and alien species as soon as they appear</li> <li>- Make workers aware of alien species and weeds</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Low (2)</b>	

Description	Details	
<b>Aspect</b>	Terrestrial ecology and biodiversity	
<b>Description of activity</b>	Accidental and uncontrolled fire	
<b>Description of impact</b>	Loss of grazing and organisms dying from a veld fire	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Terrestrial ecology and biodiversity</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Partly Reversible Low Short Term Local Unlikely
	<b>Value of sensitivity</b>	low
	<b>Magnitude of change</b>	Negligible
	<b>Significance of impact prior to mitigation</b>	Low (2)



Description	Details
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Restrict movements of people to areas of activities only</li> <li>- Ensure proper cooking facilities at the contractor’s campsite</li> <li>- No cigarette butts should be discarded but contained and disposed of at an appropriate facility</li> <li>- Proper fire hazard identification signage to be placed in areas that store flammable material (i.e., hydrocarbons and gas bottles)</li> <li>- Control and reduce the potential risk of fire by segregating and storing materials safely</li> <li>- Avoid potential sources of ignition by prohibiting smoking in and around certain facilities</li> <li>- Firefighting equipment should always be at designated areas and should be maintained and checked regularly</li> </ul>
<b>Residual impact after mitigation</b>	<b>Low (1)</b>

Description	Details	
<b>Aspect</b>	Soil	
<b>Description of activity</b>	Drilling and the use of drilling equipment	
<b>Description of impact</b>	Loss of soil quality due to mixing of earth matter, trampling and compaction	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Soil</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Reversible Moderate Short term On-site Possible
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
<b>Significance of impact prior to mitigation</b>	<b>Low (2)</b>	
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Ensure erosion control and prevention measures are in place when vegetation clearance is required</li> <li>- Where necessary, plan access routes, drill pads and camps outside of existing drainage lines</li> <li>- Where necessary, install diversions to curb possible erosion</li> <li>- Restore drainage lines when disturbed</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Low (1)</b>	

Description	Details	
Aspect	Community	
Description of activity	Airborne surveying over the EPL, possible low flying	
Description of impact	The perceived impact from surveying activities on wild animals, livestock and humans	
Assessment of impact	<b>Receptor</b>	<b>Community and livestock</b>
	<b>Effect/description of the magnitude</b>	Adverse indirect Reversible Minor Temporary Local Unlikely
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	Low (2)
Impact management/control measures	<ul style="list-style-type: none"> <li>- 2 weeks prior to conducting aerial surveying, affected parties should be informed.</li> <li>- The following information is to be included in the written communication sent affected parties:               <ul style="list-style-type: none"> <li>➤ Company name,</li> <li>➤ Survey dates, time and duration,</li> <li>➤ Purpose of the survey,</li> <li>➤ Flight altitude,</li> <li>➤ Survey location, Map of survey area and flight lines, and</li> <li>➤ Contact details for enquiries.</li> </ul> </li> <li>- Comply with all applicable laws and agreements</li> <li>- Maintain continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon</li> <li>- Ensure appropriate supervision of all activities</li> </ul>	
Residual impact after mitigation	<b>Low (1)</b>	

Description	Details
Aspect	Heritage
Description of activity	Drilling activities, movement of machinery and vehicles
Description of impact	Potential damage to cultural heritage sites and artifacts

<b>Assessment of impact</b>	<b>Receptor</b>	<b>Heritage</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible High Permanent On-site Possible
	<b>Value of sensitivity</b>	High
	<b>Magnitude of change</b>	Minor
	<b>Significance of impact prior to mitigation</b>	Moderate (6)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Implement a Chance Find Procedure</li> <li>- Raise awareness about possible heritage finds</li> <li>- Report all finds that could be of heritage importance</li> <li>- In case archaeological remains to be uncovered, cease activities and the site manager must assess and demarcate the area</li> <li>- Project manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform ECC with GPS position</li> <li>- If needed, further investigation must be requested for a professional assessment and the necessary protocols of the Chance Find Procedure have to be followed,</li> <li>- Archaeologist will evaluate the significance of the remains and identify appropriate action, (record and remove; relocate or leave premises, depending on the nature and value of the remains),</li> <li>- Inform the police if the remains are human,</li> <li>- Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as directed.</li> <li>- Activities on the same site may resume once the green light is given by the relevant competent authority.</li> </ul>	
<b>Residual impact after mitigation</b>	<b>Minor (4)</b>	

Description	Details	
Aspect	Air quality	
Description of activity	<ul style="list-style-type: none"> <li>– Drilling activities, resulting in dust emissions</li> <li>– Windblown dust from exposed/cleared land during exploration activities</li> </ul>	
Description of impact	Air quality, visual disturbance and loss of sense of place from dust plumes	
Assessment of impact	<b>Receptor</b>	<b>Community</b>
	<b>Effect/description of magnitude</b>	Adverse Direct Reversible Moderate Temporary Local Likely
	<b>Value of sensitivity</b>	low
	<b>Magnitude of change</b>	low
	<b>Significance of impact prior to mitigation</b>	Low (1)
Impact management/control measures	<ul style="list-style-type: none"> <li>– Apply dust suppression where possible</li> <li>– Restrict speed of vehicles (&lt;30km/h)</li> <li>– Specific activities that may generate dust and impact nearby farmers or tourists.</li> <li>– Dust generating activities should be avoided during strong wind events</li> <li>– All vehicles and machinery / equipment to be shut down or throttled back between periods of use</li> <li>– Barriers or fences shall be used if drilling occurs in locations that may affect farmers, farmer’s livestock or tourists passing by along the dirt roads.</li> <li>– Maintain good housekeeping</li> </ul>	
Residual impact after mitigation	Low (1)	

Description	Details	
Aspect	Community	
Description of activity	Movement of vehicles, exploration activities	
Description of impact	Presence of exploration team could be blamed for stock theft and poaching	
Assessment of impact	<b>Receptor</b>	<b>Community</b>
	<b>Effect/description of magnitude</b>	Adverse

Description	Details	
		Cumulative Reversible Minor Temporary Local Unlikely
	<b>Value of sensitivity</b>	Low
	<b>Magnitude of change</b>	Low
	<b>Significance of impact prior to mitigation</b>	Low (1)
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>– Develop and implement an environmental management plan or procedures for working on farmlands</li> <li>– Implement monitoring programmes and keep register of vehicle movement.</li> <li>– Maintain continuous engagement with authorities to identify any concerns or issues, and employ appropriate mitigation and management measures where applicable</li> <li>– Ensure appropriate supervision of all activities is maintained</li> <li>– Raise awareness and sensitise employees about contentious issues such as stock theft and poaching</li> <li>– Accidents and incidents need to be reported to the project manager and recorded in the incident register</li> </ul>	
<b>Residual impact after mitigation</b>	Low (1)	

Description	Details	
<b>Aspect</b>	Visual	
<b>Description of activity</b>	Creation of roads and tracks	
<b>Description of impact</b>	The creation of access roads and tracks up mountains will tarnish the scenic environment	
<b>Assessment of impact</b>	<b>Receptor</b>	<b>Community</b>
	<b>Effect/description of the magnitude</b>	Adverse Direct Irreversible High/Major Permanent On-site Likely
	<b>Value of sensitivity</b>	Medium
	<b>Magnitude of change</b>	High/Major
	<b>Significance of impact prior to mitigation</b>	Moderate (6)

Description	Details
<b>Impact management/control measures</b>	<ul style="list-style-type: none"> <li>- Make use of existing roads</li> <li>- design new roads to maximise post-exploration land use potential</li> <li>- Keep road footprint to a minimum</li> <li>- Consult stakeholders during the design and location of roads.</li> </ul>
<b>Residual impact after mitigation</b>	<b>Minor (4)</b>



## 8 CONCLUSION

ECC's ESIA methodology was used to undertake the environmental assessment for the proposed exploration activities on EPL 7574, to identify if there is potential for significant effects to occur as a result of the proposed Project.

Through the scoping process, the only risk to the environment is related to the cumulative impacts as a result of physical disturbance, nuisance of noise and dust and the loss of sense of place, thereby impacting human receptors in the area. Impacts with respect to airborne dust are expected to be limited to vehicular traffic and drilling activities. There will be some release of exhaust fumes from machinery that will impact the immediate vicinity but will be of short duration. Additionally, there will be associated drilling and machinery noise, which could be a disturbance to immediate neighbours, but this will be of short duration as well. Through further analysis and identification of mitigation and management methods, the assessment concludes that the likely significance of effects on humans from the cumulative impacts of physical disturbance, noise, dust and emissions will be a temporary qualitative reduction in the sense of place and expected to be low. Prior awareness and communication about the project shall be encouraged.

Due to the increased movements and presence of people, there is a potential that illegal and covert activities such as poaching, stock theft and the collection of organisms can be introduced to the area. Similarly, the potential of accidental veld fires may increase. In both cases the terrestrial ecology and biodiversity of Namibia is the receptor, although local landowners and their neighbours may experience these adversities first-hand. Through this investigation the significance of both impacts is indicated as low. In both cases numerous mitigation measures, with proven national success, exist and were also applied to reduce the significance to low.

Heritage sites may exist around and within the EPL. All precautions must be taken to prevent damage to heritage sites, as a result of the exploration activities. The chance find procedure will be implemented in such a case. With the necessary mitigation in place, the significance reduces from moderate to minor.

All other social and environmental receptors were scoped out as significant effects were unlikely and therefore no further assessment was deemed necessary. Various best practice and mitigation measures have been identified to avoid and reduce effects as far as reasonably practical, as well as ensure the environment is protected and unforeseen effect and environmental disturbances are avoided

## **BIBLIOGRAPHY**

- Atlas of Namibia Team. (2022). *Atlas of Namibia: its land, water and life*. Namibia Nature Foundation.
- Bial, J., Buttner, S., & Frei, D. (2015). Formation and emplacement of two contrasting late-Mesoproterozoic magma types in the central Namqua Metamorphic Complex (South Africa, Namibia): Evidence from geochemistry and geochronology. *Lithos*, 224–225. <https://www.sciencedirect.com/science/article/abs/pii/S0024493715000808>
- Mowa, E. (2023). *Heritage Impact Assessment (HIA) for the exploration of Lithium Resources on EPL 7574 near Karasburg and Orange River in //Karas Region*.
- Orange River-Karoo Conservation Area. (2023). *About ORKCA*. <https://orkca.org/about/>

## **APPENDIX A – ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

## **APPENDIX B – PUBLIC CONSULTATION RECORDS**

## APPENDIX C – HERITAGE ASSESSMENT

## APPENDIX D – NBRI SPECIES LIST



## APPENDIX E – ADDENDUM REPORT

## **APPENDIX F – EAP CVS**