



Excel Dynamic Solutions

**ENVIRONMENTAL SCOPING ASSESSMENT (ESA) REPORT
FOR EXCLUSIVE PROSPECTING LICENSES (EPLS) NO.
7989, 7990, 7991, 7992, 7993, 7994 AND 7995 LOCATED
NORTHEAST OF AUS SETTLEMENT IN THE //KARAS
REGION, NAMIBIA**

REPORT VERSION: FINAL

EDS Project Number: APP-002838

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EXECUTIVE SUMMARY

Africa Big Rhino Mining (Pty) Ltd (The Proponent) has been granted with Exclusive Prospecting Licenses (EPLs) 7989 - 7995 by the Ministry of Mines and Energy. The tenure for activity on these licenses is from 23 March 2021 to 22 March 2024. The EPLs cover an area collectively prospective to seven (7) commodity groups, which are Base and Rare Metals, Dimension Stones, Industrial Minerals, Nuclear Fuel Minerals, Precious Metals, Precious Stones, and Semi-Precious Stones. The tenements are situated near Aus Settlement in the //Karas Region and cover a combined surface area of 449,357.11 ha.

Project Description

The objective of the planned prospecting and exploration activities is to identify geological features and lithostratigraphic units within the area, and to delineate the mineral deposits, to determine whether the deposits are economically viable. The scoping process identifies sensitive environmental features that could be affected by the proposed prospecting and exploration activities. It is anticipated that both invasive and non-invasive exploration activities are to occur upon issuance of an ECC. The Proponent plans to conduct a staged exploration approach with three phases including the Pre-development Phase, Operation and Maintenance Phase, and the Decommissioning and Rehabilitation Phase.

The pre-development phase involves literature and map reviews, as well as fieldwork to determine targets for test drilling. The operational and maintenance phase is the phase during which the exploration program will be operational. The target areas within the EPLs' boundaries, identified during the pre-development phase will undergo exploration drilling. RC Drilling is the preferred technique for the planned exploration work, and diamond drilling may be considered depending on outcome of initial operations. A pit may be dug for sampling and the size of the samples may be adjusted depending on the nature of mineralization observed from drilling. No explosives will be used during the exploration phase. The decommissioning and rehabilitation phase is primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental and contingency aspects. Uncertain or unstable economic situations or unconvincing exploration results may force the Proponent to eventually cease with the exploration program. Therefore, it is of best practice for the Proponent to ensure that they have a rehabilitation plan for the sites in anticipation of closure of operations.

Logistical aspects of the exploration operations include:

Access: The EPLs are located about 35 km northeast of the Aus Settlement, and can be accessed directly from the C13 road, which runs through the EPLs.

Material and Equipment: Material and equipment requirements for the exploration program include; two 4X4 vehicles, drilling machines, truck, generators, water tanks and excavator. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site within the EPLs area.

Water & Power Supply: Water for the exploration operations will be obtained from the nearest existing boreholes and/or off-site municipal source or any other approved water sources, through water abstraction permits. Estimated monthly water consumptions are at 30 000 – 100 000 liters, which includes water for drinking, sanitation, cooking, dust control, washing equipment as well as drilling activity. Power required during the operation phase will be provided from diesel generators.

Waste Management: General mineral and non-mineral Waste will be sorted and collected on a regular basis, and taken to the nearest landfill site. Chemical toilets and/or sealed septic tanks will be used as ablution facilities and the sewage waste handled according to the instructions of the toilet model provided. Wastewater disposal will be strictly controlled.

Security: Temporary storage areas for project material, machines and equipment will be necessary at the camp. Therefore, security will be supplied on a 24-hour basis at the storage and/or camp site and exploration camp. A temporary support fence surrounding the storage/camp site will be constructed to ensure that the exploration team and domestic animals are not put at risk.

Human Resources and Accommodation: The exploration project will employ about 10 skilled and semi-skilled workers. Exploration staff will be accommodated in Aus or at the exploration sites. If the accommodation camp is to be set up on a farm, necessary arrangements will be made with the farm/land owner/s. Exploration activity will only take place during the day and the exploration team will be commuting to the work site from their place of accommodation.

Timeframe: The planned ground geophysical surveys will be done in stages on different parts of the properties. A 24 to 36 months exploration period is anticipated.

Impacts Assessment and Mitigations

The key potential impacts associated with prospecting, drilling and sampling and decommissioning phases of the project were identified and assessed. In order to avoid and minimise (where impacts cannot be avoided) the identified project impacts, mitigation measures were recommended. The significant identified impacts for the project phases are summarized below. These impacts can be reduced or minimised by implementing the mitigation measures given under the impact assessment chapter and also management actions plan provided in the Draft Environmental Management Plan.

Land Degradation and Biodiversity Loss: Exploration activity causes land degradation, which, depending on the severity, could have a highly negative impact on the biodiversity of the area, and lead to habitat loss for a diversity of flora and fauna. Disturbance to soils may leave the naturally exposed soils on the sites vulnerable to erosion, due to the relatively low vegetation cover nature of the EPLs.

Generation of Dust: Dust from transportation and exploration activity on site may compromise the air quality in the area. The hot and dry environment, loose and in some parts, sandy nature of the substrate and low vegetation cover may cause ambient fugitive dust levels.

Waste Generation: Generation of waste during the prospecting and exploration phase may cause surface water, groundwater, soil, as well as land pollution, if waste is not handled and disposed of in a responsible way. Precautions should be taken to prevent any spreading of refuse on site.

Visual Impact (Scars) on Landscape: Exploration activity may cause aesthetic damage to the landscape. Any scars on the landscape and presence of project structures and heavy vehicles and equipment in the area may contrast the surrounding landscape, potentially becoming a visual nuisance.

Occupational Health and Safety Risks: Inappropriate handling of material and equipment may cause health and safety risks such as injuries to workers. Covid-19 safety measures are to be always observed during operations on site.

Impact on Surrounding Soils and Groundwater: Exploration works may leave the already exposed site soils vulnerable to erosion if no mitigation measures are put in place. Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages.

Possible disturbance to heritage/archaeological resources: During exploration works, heritage and/or archaeological resources may be impacted through unintentional destruction or damage. There are no known archaeological or heritage sites on the EPLs. However, the absence of confirmable and significant archaeological or cultural heritage sites is not evidence that such sites do not exist on the EPL sites.

Noise and Vibrations: Noise and vibrations produced by drilling works may be a nuisance to neighbours. Excessive noise can also be a health risk to site workers. The exploration equipment planned for use on site is of medium size and the noise level is bound to be limited to the site only. Therefore, the impact likelihood is minimal.

Conclusions

The potential positive and negative impacts of the proposed prospecting and exploration activities on EPLs 7989, 7990, 7991, 7992, 7993, 7994 and 7995 and associated activities were identified, assessed and mitigation measures made thereof. The mitigation measures and recommendations provided in this ESA report and the management action plans provided in the draft Environmental Management Plan, can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks to acceptable levels. The Consultant is, therefore, confident that these measures are sufficient, and issuance of an Environmental Clearance Certificate (ECC) to the Proponent to enable exploration works on EPLs 7989 - 7995 would be appropriate under the suggested mitigation and monitoring measures. However, the ECC should be issued on a condition that the provided management measures and action plans are effectively implemented on site and monitored. Should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing the mineral exploration and related activities.

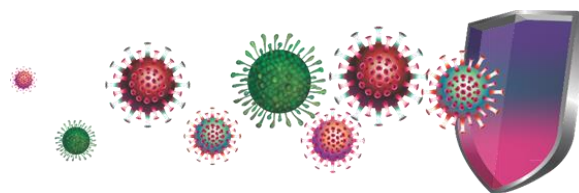
Limitations

EDS warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work and EMA, 2007. These methodologies are described as representing good customary practice for conducting an Environmental Impact Assessment of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these

methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information. EDS believes that the information obtained from the record review and during the public consultation process concerning the subject property is reliable. However, EDS cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, community meetings and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records and the personal recollections of those persons contacted.

COVID-19 Influences



Covid -19 has changed the way the world thinks, acts and does business. The pandemic has forced a comprehensive review of business practices, a higher level of engagement with technology to offset the constraints due to social distancing, restrictive travel, and a focus on social responsibility. The constraints had to change very little in the way we operate and provide public consultation services.

Although the Consultant operated with limited travel during the environmental assessment to comply with the measures and regulations put in place to curb the spread of Covid-19, various other platforms were used to communicate the project information. These platforms included emails, registered mails, site notices, newspaper adverts, and telephonic communication.

During the assessment, particularly public consultation meeting, the consulting team continuously practiced social distancing, wearing of facemasks and regular washing/sanitizing of hands.

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LIST OF ABBREVIATIONS

| Abbreviation | Meaning |
|--------------|---------------------------------------|
| AMSL | Above Mean Sea Level |
| BID | Background Information Document |
| CV | Curriculum Vitae |
| DEA | Department of Environmental Affairs |
| EA | Environmental Assessment |
| EAP | Environmental Assessment Practitioner |
| ECC | Environmental Clearance Certificate |
| EDS | Excel Dynamic Solutions |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act |

| Abbreviation | Meaning |
|--------------|---|
| EMP | Environmental Management Plan |
| EPL | Exclusive Prospecting License |
| ESA | Environmental Scoping Assessment |
| KRC | //Karas Regional Council |
| KRDP | Khomas Regional Development Profile |
| GG | Government Gazette |
| GN | Government Notice |
| I&APs | Interested and Affected Parties |
| MEFT | Ministry of Environment, Forestry and Tourism |
| Reg | Regulation |
| S | Section |
| TOR | Terms of Reference |

KEY TERMS AND DEFINITIONS

| | |
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| Alternative | A possible course of action, in place of another that would meet the same purpose and need of the proposal. |
| Baseline | Work done to collect and interpret information on the condition/trends of the existing environment. |
| Biophysical | That part of the environment that does not originate with human activities (e.g. biological, physical and chemical processes). |
| Cumulative Impacts/Effects Assessment | In relation to an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. |
| Decision-maker | The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal. |

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| Ecological Processes | Processes which play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution). |
| Environment | As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values. |
| Environmental Management Plan | As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled and monitored. |
| Interested and Affected Party (I&AP) | In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment. |
| Fauna | All of the animals found in a given area/region, habitat or geological period. |
| Flora | All of the plants found in a given area/region, habitat or geological period. |
| Mitigation | The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment. |

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| Monitoring | Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends). |
| Proponent | Organization (private or public sector) or individual intending to implement a development proposal. |
| Public Consultation/Involvement | A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities. |
| Scoping | An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA. |
| Terms of Reference (ToR) | Written requirements governing full EIA input and implementation, consultations to be held, data to be produced and form/contents of the EIA report. Often produced as an output from scoping. |

1 INTRODUCTION

1.1 Project Background

Africa Big Rhino Mining (Pty) Ltd (hereinafter referred to as The Proponent), a holder of the Exclusive Prospecting Licenses (EPLs) 7989, 7990, 7991, 7992, 7993 and 7995, granted by the Ministry of Mines and Energy (MME) and applicant for EPL 7994, intends to acquire an Environmental Clearance Certificate (ECC) to conduct prospecting and exploration activities on the EPLs. As a collective, the EPLs are prospective to Base and Rare Metals, Dimension Stone, Industrial Minerals, Nuclear Fuel Minerals, Precious Metals, Precious Stones and Semi-Precious Stones. The Proponent focuses primarily on the acquisition, exploration and development of Dimension Stone on the EPLs. The locality map of the proposed EPL sites is shown in **Figure 1**.

Section 27 (1) of the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) regulations, provides a list of activities that may not be carried out without an Environmental Impact Assessment (EIA) undertaken and an Environmental Clearance Certificate (ECC) obtained (*refer to Section 4.1 of this report*). Exploration activities are listed among the activities that may not occur without an ECC. Therefore, individuals or organizations may not carry out exploration activities among those listed, without an EIA undertaken and an ECC awarded. The Proponent has appointed thereupon, Excel Dynamic Solutions (Pty) Ltd (EDS, Consultant or Environmental Assessment Practitioner (EAP) hereinafter), an independent team of Environmental Consultants to conduct the required Environmental Assessment (EA) process and submit the ECC application to the Ministry of Environment, Forestry and Tourism (MEFT) and the Ministry of Mines and Energy (MME) on their behalf.

1.2 EPLs 7989 – 7995 Ownership

The EPLs on which the exploration activities are proposed to be undertaken are owned by Africa Big Rhino Mining (Pty) Ltd. The EPL applications for EPLs 7989, 7990, 7991, 7992, 7993 and 7995 are granted on 23 March 2021, and expire on 22 March 2024. The Proponent has submitted to the MME, an application for EPL 7994. The ownership status of the EPLs is shown on the Namibia Mining Cadastral Portal (upon searching) on this link <https://portals.landfolio.com/namibia/>.

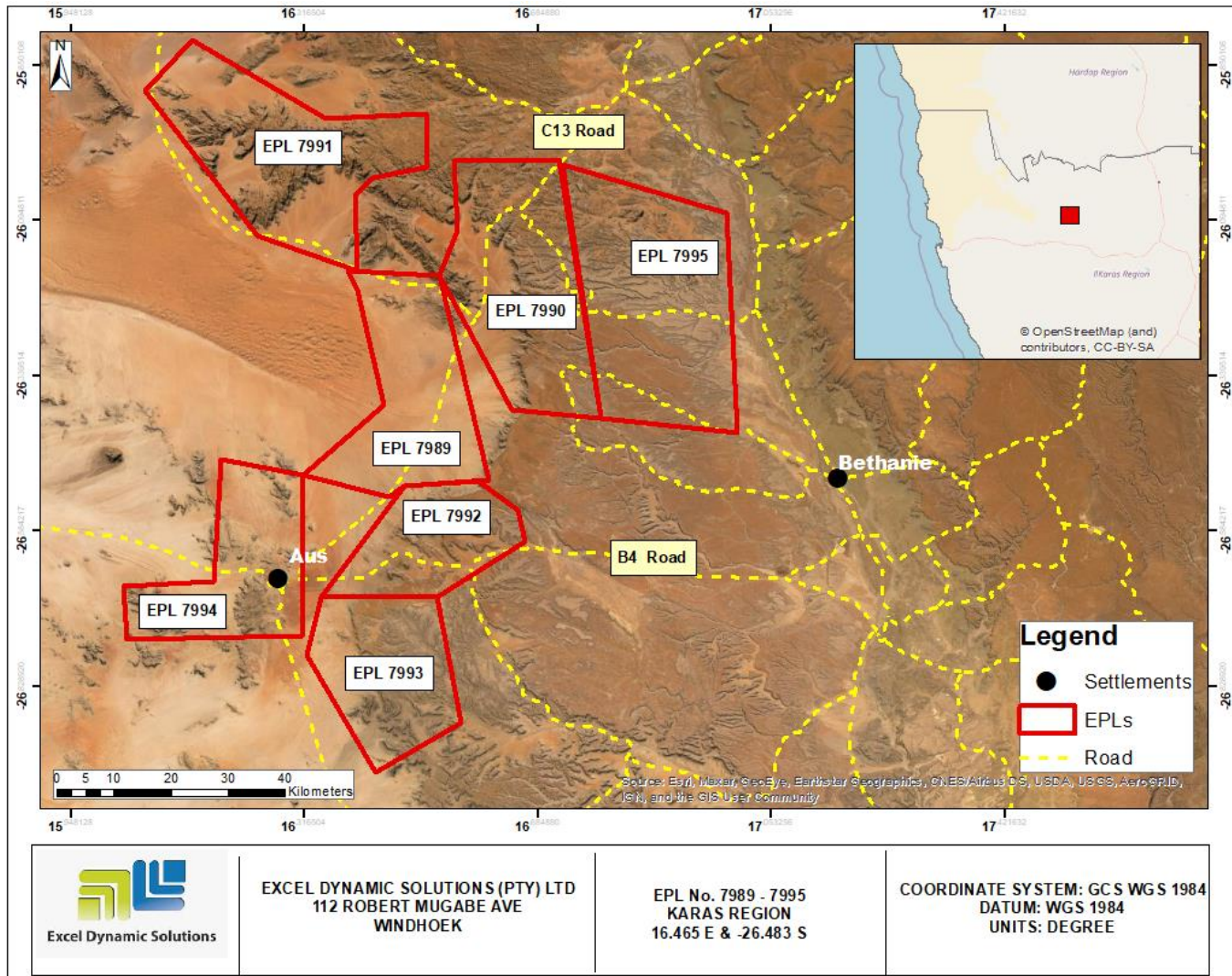


Figure 1: Location of the EPLs 7989 - 7995 near Aus in the Karas Region

1.3 Appointed Environmental Assessment Practitioner

In order to satisfy the requirements of the EMA and its 2012 EIA Regulations, the Proponent has appointed Excel Dynamic Solutions (Pty) Ltd (EDS, Consultant or Environmental Assessment Practitioner (EAP)), to conduct the required Environmental Assessment (EA) process on their (Proponent's) behalf. The findings of the EIA process are incorporated into this report and a draft EMP - (**Appendix B**). These documents will be submitted as part of an application for an ECC to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), MEFT. The ESA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The CV for Mr. Tjelos is presented in **Appendix C**.

1.4 Terms of Reference and Scope of Works

EDS has been appointed by the Proponent to undertake an environmental assessment, and thereafter, apply for an ECC for exploration work on the EPLs. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its Environmental Impact Assessment (EIA) Regulations (GN. No. 30 of 2012) to conduct the study.

It should be noted that this document has been solely prepared for the environmental scoping assessment (ESA) of prospecting and exploration phase activities on EPLs 7989 - 7995 as described under Chapter 2. This EA is not for subsequent potential phases such as mine development and mining (if exploration yields favourable results for the Proponent, i.e., a verified economic feasibility on certain site areas of the EPL). Should selected site areas of the EPLs provide results of economic value and the EPL converted into a mining license by MME, a separate and detailed environmental assessment (full EIA) will need to be undertaken for this phase and a separate ECC applied for and obtained from the DEAF.

1.5 Motivation for the Proposed Project

The MME is responsible for regulating extractive industries such as mining and ensuring that the Safety, Health and Environmental standards of the associated activities within the industry align with national and international legislation, regulations and policies. The Ministry also seeks out services to stimulate investment for sustainable economic development and benefit to all Namibians (Ministry of Mines and Energy, 2021). The proposed programme seeks to carry out prospecting and exploration activity for Base and Rare Metals, Dimension Stones, Industrial Minerals, Nuclear Fuel Minerals, Precious Metals, Precious Stones and Semi-Precious Stones on the EPLs, according to the prospective commodities of each EPL, with the primary priority of prospecting for Dimension Stone.

The Proponent's exploration programme represents a valuable opportunity to contribute to mineral acquisition for infrastructure development, which is fundamental to the country's development to meet the infrastructural needs and activate economic development. Exploration activities provide employment, dividends, and taxes that fund social infrastructure. The Minerals sector yields foreign exchange and accounts for a significant portion of gross domestic product (GDP). In addition, the industry produces a trained workforce and small businesses that can service communities and may initiate related businesses.

Several economic activities associated with prospecting and exploration, such as manufacturing of exploration and mining equipment, and provision of engineering and environment services, occur and expand because of exploration and mining activity; contributing towards the socio-economic development of the ||Karas Region. Successful exploration work could, therefore, lead to mining activities on the EPLs, which would feed into the national development plans such as the National Development Plan (NDP5) Economic Progression Pillar on Structural Transformation through Value-added Industrialization, which comprises the aspect of mining activity; as well as the Harambee Prosperity Plan (HPP2) Economic Advancement Pillar, which includes the Goal of Optimizing the Stewardship of Natural Resources and Public Assets.

The exploration project is expected to generate full time medium to long term direct employment for at least ten (10) workers. Most workers to be employed on the proposed exploration project are expected to be skilled and/or semi-skilled (general labourers and operators). A site manager and geologist(s) are also to be employed for the exploration programme.

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

Prospecting and exploration of minerals is the first component of any potential mining project (development and eventual mining). The planned exploration activities are aimed at delineating the mineral deposits and determine whether the deposits are economically feasible mining resources. Successful exploration results could lead to development of a mine for extraction of the target mineral in market rate quantities, and to the eventual closure of mining. The exploration project activities only commence after issuance of the ECC. The proposed prospecting and exploration phase on EPLs 7989 - 7995 is expected to last for about three years. The primary target commodity for this exploration is Dimension Stone.

Due to the iterative, results-driven, and phased nature of mineral exploration programmes, it is not possible at an early stage of exploration to earmark the exact areas for future drilling or an exact duration of the exploration activities. According to Resilient Environmental Solutions (2019), soil sampling programmes may last from between one week to one month at a time over specific areas until an area has been fully explored. Drilling programmes may initially range from two weeks to a month at a time, depending on the planned programme or based on the results of the programme. In general terms, mineral exploration activities can take up to a maximum of seven years, with different projects at various stages of the exploration phase.

The Proponent will commit to work with all relevant stakeholders to keep them informed of exploration progress to facilitate site visits and access to ongoing field exploration programmes.

The project is developed in stages (**Figure 2**), which can be summarized as three main phases: the Pre-Development Phase, the Exploration Phase, and the Decommissioning and Rehabilitation Phase.

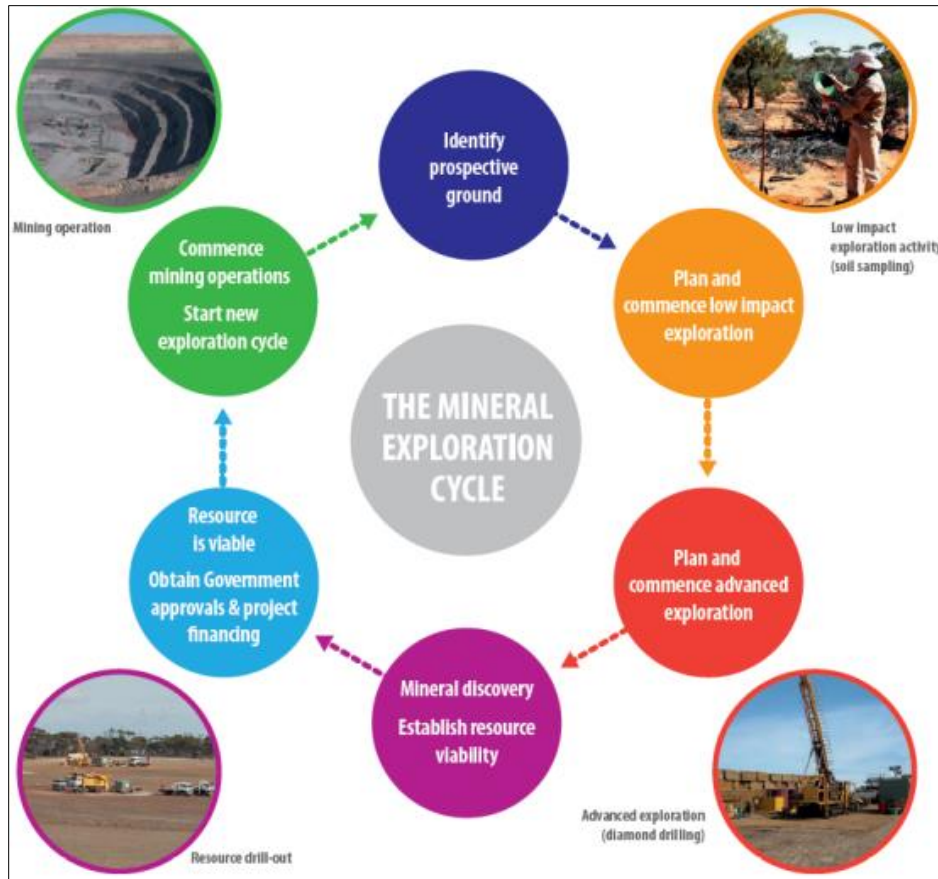


Figure 2: The mineral exploration cycle (Source: Dept. Energy & Mining – Government of South Australia, 2021)

2.1 Pre-Development (Prospecting) Phase

Before carrying out activities that require the Proponent or their employees and or contractors to be onsite, the following need to be undertaken: *Consultation, Land access permission, and a Health and Safety Induction for workers.*

2.1.1 Consultation (Liaison) with Landowners and/or Authority for Permitting

Consultations with all the landowners, users and community and government stakeholders will commence to introduce the Proponent, to explain the purpose and stage of the proposed exploration, determine any current operating procedures and nature conservation regulations of the area, and to develop land access and operational agreements with the governing authorities and land users.

2.1.2 The Minerals Act: Land Use and Permitting

The Proponent is required to secure a signed agreement from the affected landowners or occupiers of land to gain access to the areas of interest for prospecting and exploration investigations as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. *Section 52 (1) The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –*

(a) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

Section 2.2.3 of the Draft Minerals Policy of Namibia states that the License Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for exploration or mining purposes

2.1.3 Induction on Health and Safety

Before any work is carried out all workers (including fully employed, contracted, and casual) will be inducted on the Proponent's Environmental, Health and Safety policy and procedures and processes to follow while conducting the work.

2.1.4 Prospecting Works

The project will include a variety of prospecting and exploration techniques. The early phase, regional exploration, normally comprises a mixture of non-invasive techniques such as soil sampling and ground geophysics and invasive drilling techniques. From the early stage of the exploration phase, all the Proponent's employees and contractors will employ industry standard best practice techniques and will incorporate photographic evidence of progress. This photographic record will be included in annual environmental monitoring reports to show the impact and environmental best practice that is adopted by the Proponent and all sub-contractors, as well as provide a record for the Department of Environmental Affairs and Forestry (DEAF).

The systematic prospecting approaches to be adopted by the Proponent are, exploration using:

- **Non-invasive techniques:** Geological mapping, remote sensing (satellite imagery), reviewing of existing geological maps and historical drilling data, Field evaluation and sampling – and
- **Invasive techniques:** Soil and rock sampling, pitting and detailed exploration by Reverse Circulation (RC) and infill drilling).

2.1.4.1 Prospecting Work: Non-Invasive

During the prospecting and exploration phase, reviewing of existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages will be vital. In addition to literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. Up to this point no physical disturbance is required. Prospecting during the advanced exploration phase will require the Proponent to assess the license area through detailed geological mapping, geophysical and geochemical surveys, supported where necessary by geophysical surveys, with a view to define targets for test drilling. Upon issuing of the ECC, the exploration program will commence with ground geophysical surveys

2.2 Exploration (Invasive): Drilling, Sampling and Analysis Phase

This is the operational phase of the exploration program. The Proponent has highlighted that both invasive and non-invasive exploration activities are expected to take place upon issuance of an ECC. The preferred drilling technique for this exploration programme is Diamond (Core) drilling, and less likely Pitting, Reverse Circulation (RC) drilling or In-fill drilling, as the primary commodity of interest is Dimension Stone.

Diamond (Core Drilling): There are two main types of core drilling: soft and hard coring. This refers to the type of lithology each method is suited for. Soft coring is used when taking a core sample of unconsolidated material and can reach depths of 152.5 m (or more—but this is what is typical for environmental industry projects). Soft coring uses a punch core system. This involves using two containers, one nested inside the other. The inner container is pushed out in front to capture the core sample, then the outer container is extended to provide casing, so the hole does not collapse (Cascade, 2021). This method protects the integrity of the sample from the air or fluid

used when progressing the outer container. Hard coring is used when the subsurface consists of materials as hard or harder than sandstone. Much greater depths can be reached with this type of coring; depths up to 1524 m reached. Hard coring also uses two nested containers, but the outer container is extended before the inner container. This means the sample is washed with the drilling fluid or air, but because the core sample is of competent rock, there is no danger in it being disturbed or contaminated. Hard coring is sometimes referred to as Diamond Coring, as drill bits with small diamonds embedded are used in difficult lithology to cut through rock (Cascade, 2021).

Pitting: Pitting is usually employed to test shallow, extensive, flat-lying bodies of mineralization such as a buried heavy mineral placer. The main advantage of pitting over a pattern-drill programme on the same deposit is that pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of variable grade distribution, which are a characteristic feature of such deposits (Marjoribanks, 1997). In areas where the ground is wet, or labour is expensive, pits are best dug with a mechanical excavator. Pits dug to depths of 3–4 m are common and with large equipment excavation to 6 m can be achieved. In wet, soft ground any pit deeper than 1 m is dangerous. Diggers excavate rapidly and pits 3–4 m deep can be dug, logged, sampled, and re-filled within an hour. In cooler and moister weather conditions, thick lateritic soil forms ideal conditions for pitting (Geology Hub, 2021).

Reverse circulation (RC) drilling is achieved by blowing compressed air down the annulus of a drill rod; the differential pressure creates air lift pushing water and cuttings up the inner tube that is inside each rod. The drill cuttings travel up the inside of the drill rod and are collected in a sample bag on the surface. Samples are collected every metre and the number of samples is therefore dictated by the depth of the hole. Generally, a RC drilling program will see multiple holes drilled at 60-90° inclination and can range from 60 to 500m in depth. RC drilling does not require a significant amount of water, as compared to diamond core drilling. For RC drilling, water is often required and used down the hole to cool the drill bit and reduce dust, and assist with the transportation of sample bits to the surface.

In-fill drilling: The results of in-fill drilling are intended to support an update to a higher classification of the Mineral Resource estimate. The metallurgical test-work results will improve understanding of blending designs in the exploration schedules for the product offtake specifications (Canyon Resources, 2021).

The selection of the potential mineralization model and exploration targets will be based on the local geology, trenching, drilling and assay results of the samples collected.

Other aspects and resource requirements of the exploration operations include:

2.2.1 Accessibility to Sites

. The seven EPLs are located within the vicinity of Aus Settlement reaching to about 34.8km north-eastwards to the centre point of the cluster of EPLs. The EPLs are accessible via the C13 Road, which passes through the EPLs north-eastwards from Aus Settlement. Access to exploration site(s) will be organised along the existing roads/routes as far as possible. Any tracks for new access routes that may be required during the exploration stage are to be assessed for any environmental sensitivity.

2.2.2 Material and Equipment

The input required for the exploration program in terms of vehicles and equipment includes (4X4) vehicles, trucks, earthmoving equipment, compressor, truck mounted drill rig and diesel-powered generator for drilling and pitting (for gravel sampling). Other material and equipment include field storage container, rock analysis equipment (X-ray fluorescence (XRF) analyser), drill rigs and drilling support equipment, and water tanks. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site established within the EPLs.

2.2.3 Human Resources

The Project will employ about 10 (semi-skilled and skilled) workers, including a site manager, geologist(s), driver, drilling personnel, and sampling workers.

2.2.4 Accommodation

Exploration staff will be accommodated in or within the vicinity of Aus. A temporary campsite may be set up for the exploration crew. If the accommodation camp is to be set up on a farm, necessary arrangements will be made with the farm/land owner/s. The temporary site camps will only be set up upon reaching signed agreement with and signed by the landowners/local authority and or occupiers of land. Therefore, agreements will need to be reached between the two parties

(Proponent and affected landowners/occupiers of land or authorities) prior to the setting up of accommodation structures. Exploration activity will take place during daytime only and the exploration team will be commuting to the work site from their place of accommodation.

2.2.5 Services and Infrastructure

Water: No water will be abstracted from site water resources. The required water will be bought from the nearest source such as the Aus Village Council source, or from any other approved water sources (upon reaching a supply agreement with the Proponent). Water supply for exploration works such as drilling and associated activities are best augmented with carted water from elsewhere outside the project area to ensure that less pressure is put on local supplies. The required water from the suppliers will be stored on site in trailer-mounted industry standard water reservoirs. The estimated monthly water consumption amounts for exploration and associated activities are at ±100, 000 litres.

Electricity: Power required during the operation phase will be provided from diesel-generators.

Fuel (diesel for generators and other equipment): The fuel (diesel) required for exploration equipment will be stored in a tank mounted on a mobile trailer, and drip trays will be readily available on this trailer and monitored to ensure that accidental fuel spills are cleaned up as soon as they have been detected/observed. Fuel may also be stored in jerry cans placed on plastic sheeting to avoid contamination of the ground.

2.2.6 Waste Management

The site will be equipped with secured waste bins for each waste type i.e. domestic, hazardous and recyclable). Depending on the amount generated, waste will be sorted and collected as necessary for disposal at the nearest waste disposal/landfill site. In the case of production of any hazardous waste, an agreement would need to be reached for authorization to dispose of such waste at the designated waste management facility.

Sanitation and human waste: The working site will be equipped with ablution facilities that will include portable/mobile chemical toilets fitted with sealed septic tanks. The sewage will be handled on site and periodically be taken to the nearest treatment facility either by the Proponent themselves or an independent appointed wastewater removal service provider.

Hazardous waste: Drip trays and spill control kits will be available on site to ensure that oil/fuel spills and leaks from vehicles and equipment are captured on time and contained correctly before polluting the site. Any hazardous waste handled and produced on site will be transported for disposal to the nearest appropriate and authorized hazardous waste management facilities.

The waste produced on-site can also be categorized as mineral or non-mineral waste:

Mineral Waste: Consists of solid products of exploration and mineral concentration to acquire the targeted minerals. Mineral waste will potentially be produced throughout the project exploration phase. This waste will be stripped and dumped in allocated areas as stipulated in the EMP.

Non-mineral Waste: Consists primarily of auxiliary materials that will support the exploration phase. This includes but is not limited to items such as empty containers, plastic and other domestic waste. This waste will be collected, sorted and taken to the dumpsite regularly, depending on the amount of waste generated.

2.2.7 Safety and Security

Storage Site: Temporary storage areas for exploration material, equipment and machinery will be set up at working/exploration sites on the EPLs. Security will be supplied on a 24-hour basis at the delegated sites for storage if there is a need for certain equipment to be left at site overnight on some days.

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

Health and Safety: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at site. A minimum of two first aid kits will be readily available on site to attend to potential minor injuries.

2.2.8 Timeframe

The planned ground geophysical surveys may last several weeks and will be done in stages on different parts of the EPLs. The planned exploration works are estimated to last for a total of about three (3) years.

2.3 Decommissioning and Rehabilitation Phase

Once the exploration activities on EPLs 7989 - 7995 come to an end, the Proponent will need to put site rehabilitation measures in place. Concluding of exploration activity on the EPLs occurs once the planned exploration activities are completed, or may be discontinued before planned closure due to unfavourable economic situations or unconvincing exploration results. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, consisting of safety, health, environmental and contingency aspects. It is, therefore, of best practice for the Proponent to ensure that the project is finalized in an environmentally friendly manner, and the sites are rehabilitated

3 PROJECT ALTERNATIVES

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

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

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

3.1 Types of Alternatives Considered

3.1.1 The "No-go" Alternative

The “No-Go” alternative is the option of not proceeding with the activity, on the entirety of the project area, which typically implies a continuation of the status quo. The No-Go alternative may also be considered as the option of not proceeding with the activity or on selected parts of the project area, which may be deemed environmentally unsuitable for the proposed activity. Should the proposed works of the prospecting and exploration plan not be implemented, none of the potential impacts (positive and negative) identified (*as outlined in Section 7.1 of this report*) would occur, and the current land use for the proposed site remain unchanged. In overall consideration, the proposed project area has been identified by the Directorate of Mines for mineral exploration because of the potential it carries to contribute to the economic development of the area and its vicinity, and the region at large.

3.1.2 Exploration Location

The prospecting/exploration location is dependent on the (regional and local) geological setting, the economic geology, and the exploration and mining history of the EPLs area. Therefore, finding an alternative location for the planned exploration activities is not possible. This means that the mineralization of the commodities targeted for the project is area specific, therefore, the exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (ore forming mechanism). The tenements have sufficient surface area for future related facilities should an economic mineral deposit be defined.

Given the fact that the EPLs or their future exploration targets cannot be relocated, it will be of utmost importance to reduce the project footprints within the actual active sites of the EPL by ensuring that exploration works and related activities on the EPL are limited to specific sites only.

3.1.3 Exploration Methods

Both invasive and non-invasive exploration activities are expected to take place. The combination of prospecting methods (non-invasive techniques) has no alternatives therefore, these will be implemented as presented. This section rather focuses on the invasive technique (drilling). Drilling provides most of the information for the final evaluation of a prospect and will ultimately determine if the prospect is mineable.

Commonly in mineral exploration drilling, two methods are utilized. These are reverse circulation (RC) drilling and Diamond (Core) drilling, depending on the type of mineral sought after.

Table 1 below presents the differences between the two commonly used drilling methods in mineral exploration.

Table 1: Drilling Methods in Mineral Exploration

| Invasive exploration Method (Alternatives Considered) | Short Description | Justification for selected option |
|---|--|---|
| Reverse Circulation (RC) | <p>-Crushed rock is collected in the form of cuttings samples called back within stems contrast to conventional drilling that puts the air inside the stems and cuttings outside. Here the air passes downwards through the annular space between the inner shaft and the outer tube.</p> <p>-Water is often used down the hole to cool the drill bit and reduce dust as well as assisting with the transportation of sample bits to the surface.</p> <p>-RC drilling is designed for drilling through and crushing hard rock.</p> <p>-RC is fundamentally different from diamond core drilling, both in terms of equipment and sampling. One major difference is that RVC drilling creates small rock chips instead of solid core.</p> <p>Furthermore, according to Technidril (2020), the RC method:</p> <ul style="list-style-type: none"> -Allows full recovery of samples continuously -Quick installation -There is no contact between the walls and cuttings taken at the bottom. -The penetration rate is fast (Techndril, 2020) | <p>- Diamond (Core) drilling methods provide more reliable data collection and analysis. Core Drilling can penetrate deeper than RC Drilling, and is required in dimension stone drilling, in order to give a full picture of colour variation and textural variations as well as micro-discontinuities and weathering.</p> |
| Diamond (Core) drilling | <p>-Diamond core drilling uses a diamond bit, which rotates at the end of drill rod (or pipe). The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface.</p> <p>-The diamond bit is rotated slowly with gentle pressure while being lubricated with water to prevent overheating. As a result, this drilling method is known to use a huge amount of water compared to RC, thus may put pressure on water supply sources.</p> <p>-While the drill cuttings obtained with RC drilling can be analysed to provide a limited amount of information, the scope of these tests is limited, and their locations are less precise. Core samples, on the other hand, will identify actual veins of materials and give</p> | |

| Invasive exploration Method (Alternatives Considered) | Short Description | Justification for selected option |
|---|---|-----------------------------------|
| | <p>you their precise location (BG Drilling, 2016). Therefore, for accuracy's sake, diamond drilling would provide better result. In other words, RC results are reliable but may not be accurate.</p> <ul style="list-style-type: none"> - As diamond is one of the hardest/strongest materials in the world, it has no trouble drilling through most surfaces. Therefore, it works well across a wider range of ground types and conditions. -Time-consuming and more effort is required to obtain the drill core. -Low initial investment, but generally more expensive to meters drilled because of the limitation of the speed. | |

The final drilling technique would be determined by the mineralization type. However, based on the information presented in the Table above regarding the detailed exploration methods (drilling), it was pre-determined that Diamond (Core) drilling would be preferable given that it is the most appropriate drilling method for exploration of Dimension Stone as the primary target commodity. Reverse Circulation drilling method is to be considered in the cases of specific sites on the EPLs where the Proponent considers to explore for other target commodities (besides Dimension Stone), due to its efficiency in terms of costs, operating speed and comparative environmental friendliness (water demand).

Although RC drilling is known to have its shortcomings, particularly lack of solid drill recovery and inaccuracy, it is usually combined with Diamond drilling for the exploration of some minerals, if the borehole(s) needs to be deeper than what RC Drilling can reach.

3.1.4 Accommodation

Alternatives for accommodation include tented campsite, and accommodation on the already existing established facilities (lodges). Both alternatives are viable depending on season and/or duration of exploration, considering the health and safety of the exploration crew. Therefore, if possible, the workers could alternate between tented campsite and existing accommodation facilities.

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

Prospecting and exploration activities have legal implications associated to certain applicable legal standards. A summary of applicable and relevant International policies and Namibian legislation, policies and guidelines to the proposed development are given in this section. This summary serves to inform the project Proponent, Interested and Affected Parties and the decision makers at the DEAF, of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed prospecting and exploration activities.

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

This ESA is carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30). The EMA has stipulated requirements to complete the required documentation in order to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities. The activities relevant to the proposed exploration project are listed under the following Regulations:

3.1 The construction of facilities for any process or activities which requires a license, right of other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).

3.2 other forms of mining or extraction of any natural resources whether regulated by law or not.

3.3 Resource extraction, manipulation, conservation and related activities.

- The Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).
- Part 2 of the Act sets out 12 principles of environmental management, summarized as follows
 - *Community involvement in natural resources management, must be promoted and facilitated.*
 - *The participation of all I&APs must be promoted and decisions must consider the interest, needs and values of I&APs.*
 - *Equitable access to environmental resources must be promoted and the functional integrity of ecological systems must be considered to ensure sustainable systems.*
 - *Assessments must be undertaken for activities which may have significant effects on the environment or the use of natural resources.*
 - *Sustainable development must be promoted in all aspects relating to the environment.*
 - *Namibia's cultural and natural heritage including, its biological diversity, must be protected and respected.*
 - *The option that provides the most benefit or causes the least damage to the environment, at a cost acceptable to society must be adopted to reduce the generation of waste and polluting substances at source.*
 - *The reduction, re-use and recycling of waste must be promoted.*
 - *A person who causes damage to the environment must pay the costs associated with rehabilitation of damage to the environment and to human health caused by the pollution.*
 - *Damage to the environment must be prevented and activities which cause such damage must be reduced, limited, or controlled.*

Other legal obligations that are relevant to the proposed activities of EPLs 7989 - 7995 and related activities are presented in **Table 2**.

Table 2: Applicable local, regional and national legislation, policies and guidelines governing the proposed exploration works and related activities.

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|---|---|--|
| <p>The Constitution of the Republic of Namibia, 1990 as amended</p> <p>- addresses matters relating to environmental protection and sustainable development.</p> | <p>Article 91(c) defines the functions of the Ombudsman to include:</p> <p><i>"...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia..."</i></p> <p>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p><i>"...Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."</i></p> | <p>By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.</p> <p>Ecological sustainability will be the main priority for the proposed development.</p> |
| <p>Minerals (Prospecting and Mining Act) No. 33 of 1992</p> | <p><i>Section 52(1)</i> A mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilised for cultivation, within 100m of any water resource (dam, spring, drinking trough etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance.</p> <p><i>The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –</i></p> <p><i>(b) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.</i></p> | <p>The Proponent should enter into a written agreement with landowners/affected parties before carrying out exploration as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Draft Minerals Policy of Namibia:</p> |

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|--|--|--|
| | <p><i>Section 2.2.3 of the Draft Minerals Policy of Namibia states that the Licence Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for exploration or mining purposes.</i></p> <p>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect</p> <p>Section 91 requires that rehabilitation measures should be included in an application for a mineral license</p> | |
| Nature Conservation Amendment Act, No. 3 of 2017 | provides for a proper administrative, legal and procedural framework for tourism concessions in protected areas and other State land; to control the import and export of live game or animal, and to increase the penalties; and to provide for incidental matters. | Though the Act does not specifically refer to exploration/mining activity within a protected area (PA) or recreational area (RA), it does restrict access to PAs and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted. |
| The Parks and Wildlife Management Bill of 2008 | Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and in order to contribute to national development. | The Proponent is required to sustain the conservation of biodiversity and the maintenance of ecological integrity of Protected Areas and other State land, and ensure rehabilitation of species and ecosystems affected or threatened by exploration works. |

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|--|--|--|
| The Regional Councils Act (No. 22 of 1992) | The main objective of this Act is to initiate, supervise, manage and evaluate regional development. This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. Their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment." | The relevant Regional Councils are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Karas Regional Council, therefore they should be consulted. |
| Local Authorities Act No. 23 of 1992 | To provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters. | The Aus Settlement Council and Constituency is the responsible Local Authority of the area therefore they should be consulted in local public consultation matters regarding this project. |
| Water Act 54 of 1956 | <p>The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No. 54 of 1956 is still in force:</p> <ul style="list-style-type: none"> • Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii))). <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).</p> | The protection (both quality and quantity/abstraction) of water resources should be a priority. |
| Water Resources Management Act (No 11 of 2013) | The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: | |

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|---|--|---|
| | Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68). | |
| Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001) | Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area” | The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site. |
| National Heritage Act No. 27 of 2004 | To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters. | The Proponent should ensure compliance with this Acts’ requirement. The necessary management measures and related permitting requirements must be taken. This done by consulting with the National Heritage Council of Namibia. |
| The National Monuments Act (No. 28 of 1969) | The Act enables the proclamation of national monuments and protects archaeological sites. | |
| Soil Conservation Act (Act 76 of 1969) | The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister. | Duty of care must be applied to soil conservation and management measures must be included in the EMP. |
| Forest Act (Act 12 of 2001) | The Act provides for the management and use of forests and forest products. | The proponent will apply for the relevant permit under this Act if it becomes necessary.. |

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|---|---|--|
| | Section 22. (1) provides: "Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse." | |
| Public Health Act (No. 36 of 1919) | Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health." | The Proponent and all its employees should ensure compliance with the provisions of these legal instruments. |
| Health and Safety Regulations GN 156/1997 (GG 1617) | Details various requirements regarding health and safety of labourers. | |
| Mine Health & Safety Regulations, 10th Draft | Makes provision for the health and safety of persons employed or otherwise present in mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance | The Proponent should comply with all these regulations with respect to their employees. |
| Atmospheric Pollution Prevention Ordinance (1976) | This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance. | The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on site. |

| Legislation/Policy/ Guideline | Relevant Provisions | Implications for this project |
|--|--|---|
| Hazardous Substance Ordinance, No. 14 of 1974 | The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling. | The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment |
| Road Traffic and Transport Act, No. 22 of 1999 | The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required. | Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided. The relevant permits must therefore be applied for. |
| Labour Act (No. 6 of 1992) | Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992. | The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers. |

4.2 International Policies, Principles, Standards, Treaties and Conventions

The international policies, principles, standards, treaties, and conventions relevant/applicable to the project are as summarized in **Table 3** below.

Table 3: International policies and standards

| STATUTE | PROVISIONS | PROJECT IMPLICATIONS |
|--------------------|---|--|
| Equator Principles | A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the | These principles are an attempt to: '...encourage the development of socially responsible projects, which subscribe to appropriately |

| STATUTE | PROVISIONS | PROJECT IMPLICATIONS |
|--|---|--|
| | <p>International Finance Corporation (IFC), to establish an International Standard with which companies must comply with to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The principles apply to all new project financings globally across all sectors.</p> <p>Principle 1: Review and Categorization</p> <p>Principle 2: Environmental and Social Assessment</p> <p>Principle 3: Applicable Environmental and Social Standards</p> <p>Principle 4: Environmental and Social Management System and Equator Principles Action Plan</p> <p>Principle 5: Stakeholder Engagement</p> <p>Principle 6: Grievance Mechanism</p> <p>Principle 7: Independent Review</p> <p>Principle 8: Covenants</p> <p>Principle 9: Independent Monitoring and Reporting</p> <p>Principle 10: Reporting and Transparency</p> | <p>responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.'</p> |
| <p>The International Finance Corporation (IFC) Performance Standards</p> | <p>The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social</p> | <p>The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement</p> |

| STATUTE | PROVISIONS | PROJECT IMPLICATIONS |
|---------|--|--|
| | <p>Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability.</p> <p>As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below.</p> <p>Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts</p> <p>Performance Standard 2: Labour and Working Conditions</p> <p>Performance Standard 3: Resource Efficient and Pollution Prevention and Management</p> <p>Performance Standard 4: Community Health and Safety</p> <p>Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement</p> <p>Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p> <p>Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p> <p>Performance Standard 8: Cultural Heritage</p> <p>Performance Standard 9: Financial Intermediaries (FIs)</p> | <p>and disclosure obligations of the Client (Borrower) in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.</p> |

| STATUTE | PROVISIONS | PROJECT IMPLICATIONS |
|--|--|--|
| | <p>Performance Standard 10: Stakeholder Engagement and Information</p> <p>A full description of the IFC Standards can be obtained from</p> <p>http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1</p> | |
| The United Nations Convention to Combat Desertification (UNCCD) 1992 | <p>Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.</p> <p>The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nation Convention</p> | The project activities should not be such that they contribute to desertification. |
| Convention on Biological Diversity 1992 | <p>Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.</p> <p>Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings</p> | Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised |
| Stockholm Declaration on the Human Environment, Stockholm (1972) | It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the | Protection of natural resources and prevention of any form of pollution. |

| STATUTE | PROVISIONS | PROJECT IMPLICATIONS |
|---------|--|----------------------|
| | preservation and enhancement of the human environment. | |

Other relevant international Treaties and Protocols ratified by the Namibian Government

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.
- Convention on Biological Diversity, 1992.
- World Heritage Convention, 1972.

5 ENVIRONMENTAL BASELINE (BIOPHYSICAL & SOCIAL)

The proposed exploration programme will be undertaken in specific environmental and social conditions. Understanding the pre-project conditions of the environment will aid in providing background "information" of the status quo and future projections of environmental conditions after proposed works on the EPLs. This also helps the EAP in identifying the sensitive environmental features that may need to be protected through the recommendations and effective implementation of mitigation measures provided.

The baseline information summary presented below has been sourced from a variety of sources including reports of studies conducted in the //Karas Region, as well those done in the Aus area. Further information of the EPLs is obtained by the Environmental Consultant, during site visit conducted in September 2021, and input from two independent specialists (Ecology and Archaeology Studies).

5.1 Climate

Climate has a major influence on the exploration activities on the EPLs. Climatic conditions determine the appropriate and/or inappropriate times to conduct exploration activity. The climate of the project area is generally known as cold desert climate. The Aus area, receives relatively low, highly variable, and unreliable rainfall throughout the year. The Aus area experiences rainfall mainly during the summer months of December to April experienced as short-lived sporadic thunderstorms. All the streams within the area are ephemeral, but can flow very strongly after summer rainfall (Domptail et al, 2010). However, about 29% of rainfall in the Aus area occurs between May and August. The average monthly rainfall for Aus is 57mm, and average annual rainfall is 86mm (SASSCAL, 2021).

At Aus, the mean daily maximum temperature is 30°C in summer and a low 4°C in winter. The lowest average monthly temperatures of 2020 were recorded in the Aus area August at 14.8 °C, while highest average monthly temperatures were recorded in January at 28.6 °C. According to 2020 data from SASSCAL, the strongest wind speeds in the Aus area are experienced in July, at an average wind speed of 2.8 km/h. The weakest wind speeds in the project area are experienced in March, at an average wind speed of 0.8 km/h. The most humid month of the year at the project area is usually February, with an average relative humidity of 38.3 % due to the rains, while the least humid month is usually October, with an average relative humidity of 17%.

5.2 Topography and Drainage

5.2.1 Topography

The EPLs fall within the region of mainly the Namib Plains, and a Flat-lying Plateau. The Namib Plain is characterized by sand-drifts and prominent inselbergs largely of mid palaeozoic age, in the northernmost and southernmost parts of the project area. The Flat Lying Plateau is characterized by a low-gradient foot-slope descending from the inselbergs of the Namib Plain.

The EPLs are found at elevation levels ranging from 1,100 to approximately 1,700 m, with the higher elevation levels found on EPLs located north of the site. **Figure 3** below shows the landscape types covered by the EPLs, and **Figure 4**, the elevation profile (elevation map and cross section graph).

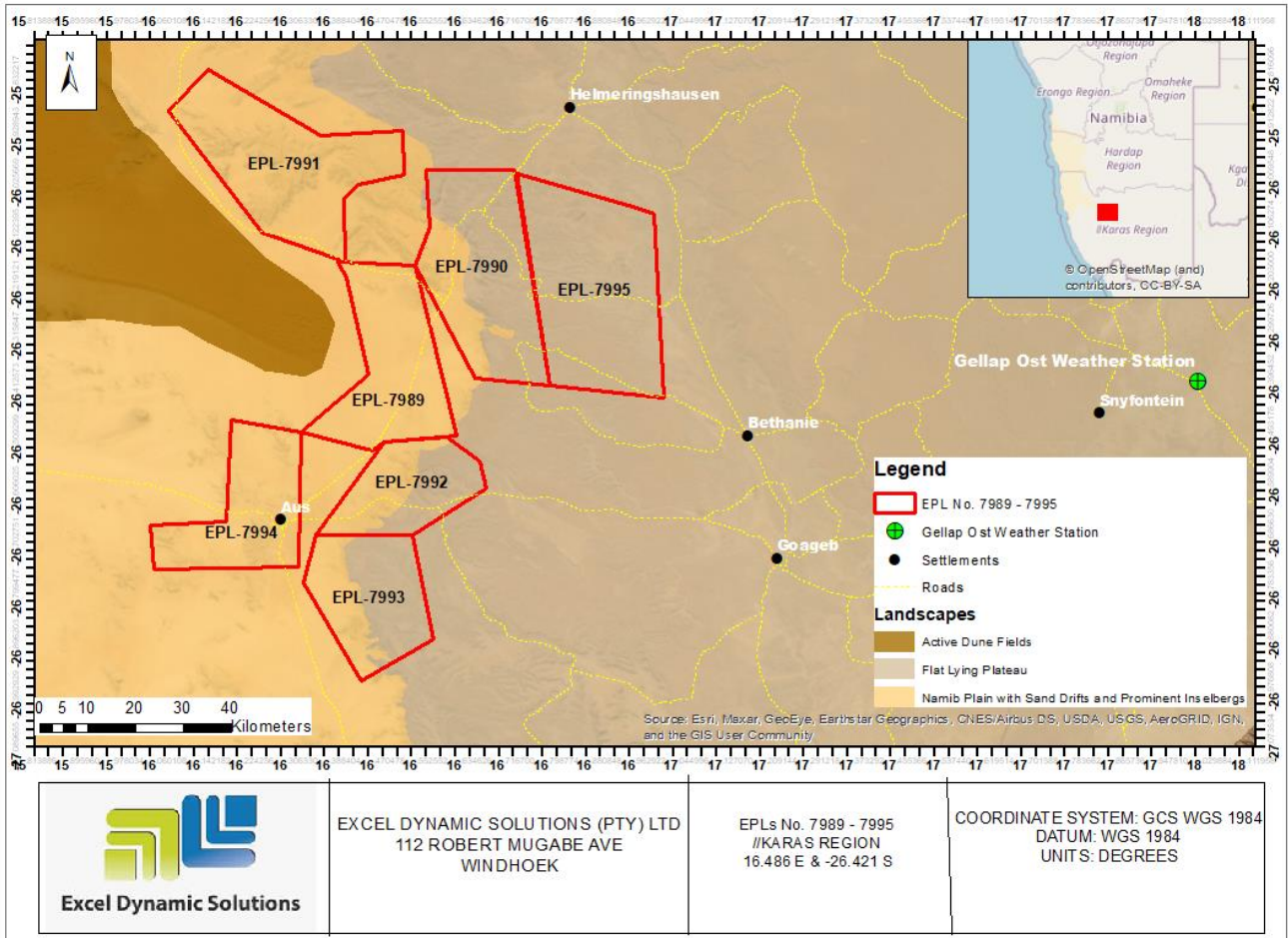


Figure 3: The landscape covered by the EPLs

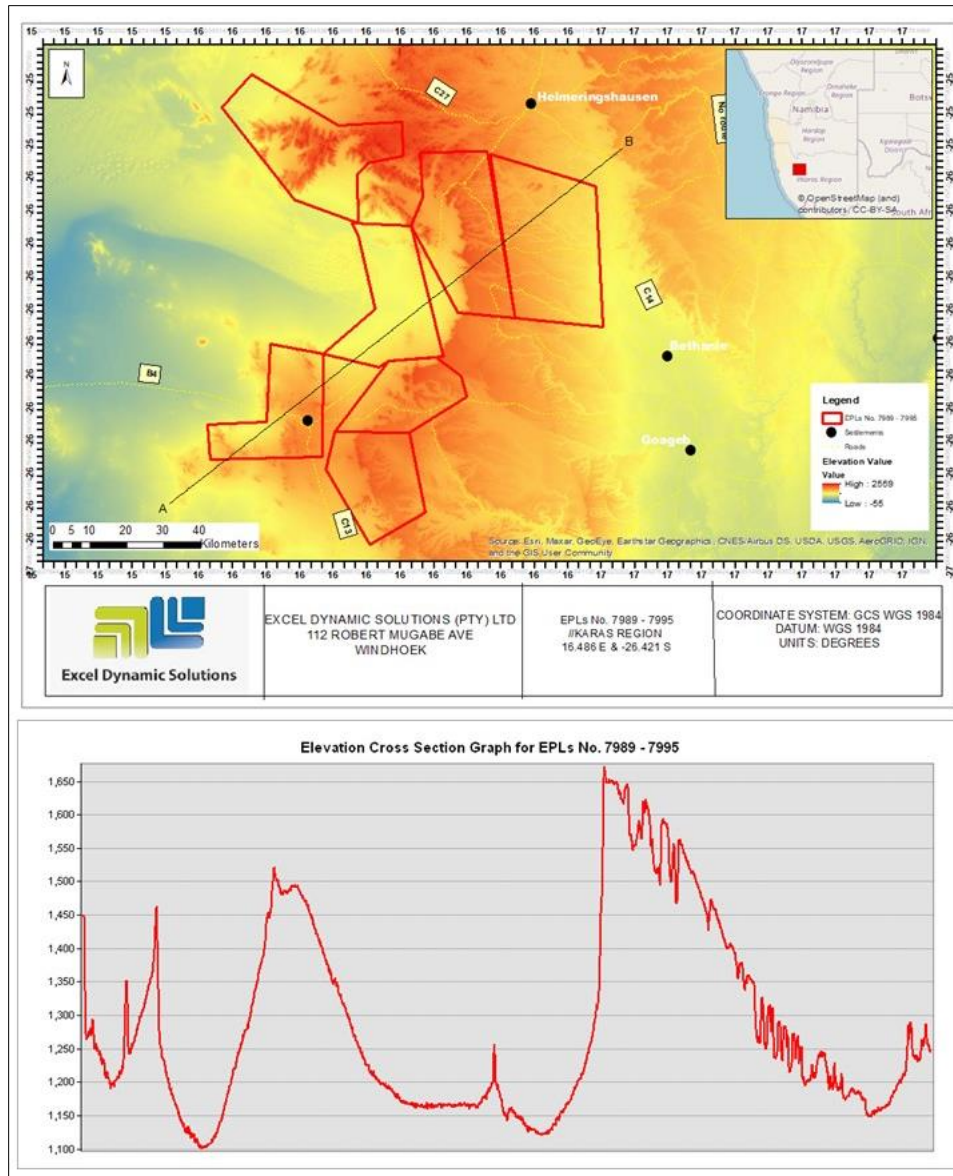


Figure 4: Elevation profile of EPLs 7989 – 7995

5.2.2 Water Resources: Hydrology and Hydrogeology

Hydrologically, the EPLs fall within an area of very low and limited groundwater potential, which is spatially flanked by an area of potential porous aquifer of moderate productivity to the far east, and high potential porous aquifer productivity to the immediate west, reaching into some parts of EPL 7989 (Figure 5). Additionally, there are several ephemeral rivers running across and through the EPLs, and numerous existing boreholes within and surrounding the EPLs. Groundwater resources in this part of Namibia are very limited, that extraction would easily exceed recharge in

the event of exploitation of the available groundwater resources, considering that the low average annual rainfall provides little groundwater recharge (Christelis et al, 2011). The scarce water resources in the area have generally limited the development and expansion of the Aus Settlement too.

Exploration activity has the potential to affect the quantity and quality of surface and groundwater. Therefore, any potential contamination and alteration of surface and groundwater, during the project phase, would require close monitoring, in accordance with the presence of surface and groundwater within the EPLs. This could involve the setting up of monitoring stations at an early stage to designate possible sources of contamination and possible flow charges of the rivers. Potential water pollution on rivers and other waterbodies needs to be prevented, through identifying incidental sources of pollution such as accidental spillage, chemicals or hydrocarbons (ECC, 2019).

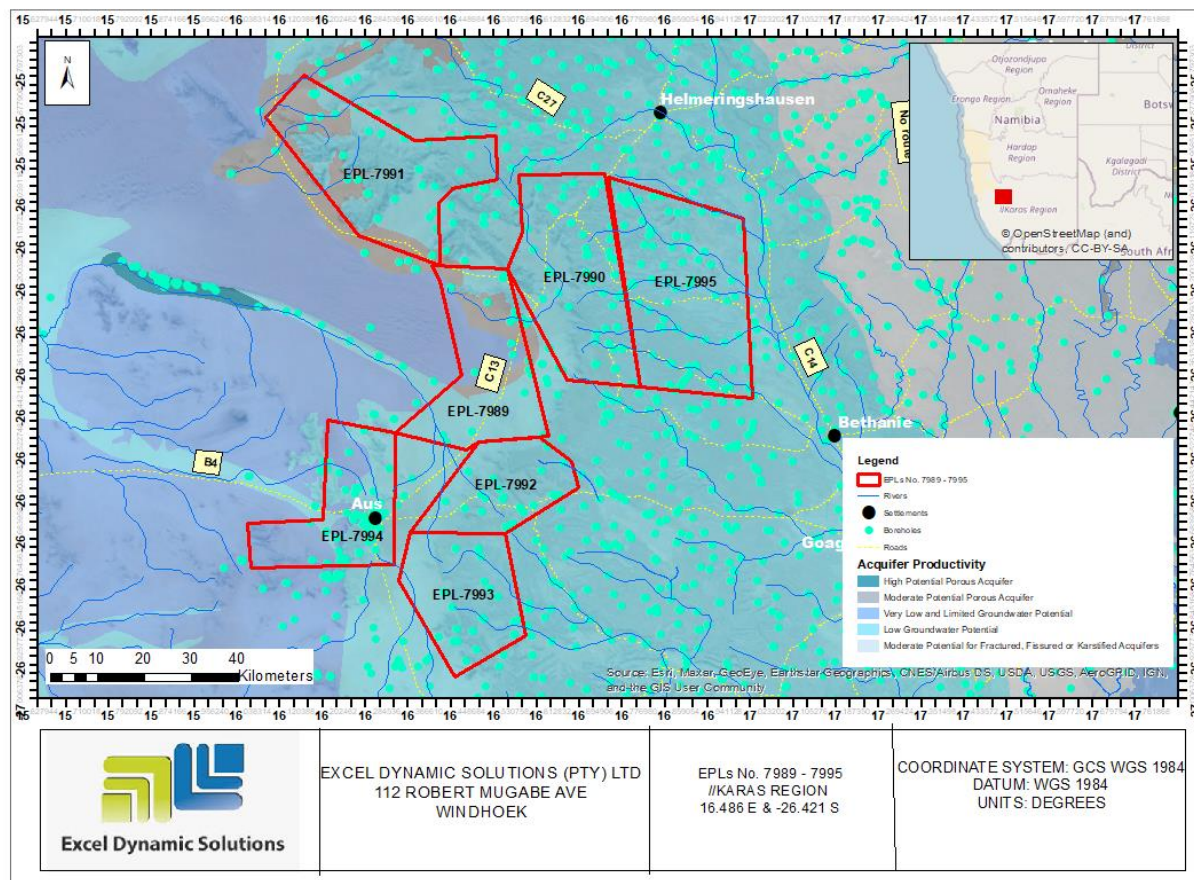


Figure 5: Hydrology of the EPLs

5.3 Geology and Soils

The EPLs are dominantly representing the lower part of the Kuibis Group, an early foreland basin succession comprising of shallow-water fine siliciclastics and carbonates. The Kuibis Group is characterized by two subgroups, the Kuibis 1 (K1) Sequence and the Kuibis 2 (K2) Sequence. Sequence K1 mainly comprises the lower part of Dabis Formation, which non-conformably overlies crystalline basement. K1 consists of a basal unit of course, tabular-bedded sandstones (Kanies Member) overlain by fine-grained, irregularly laminated dolostone and limestone. Sequence K1 is extremely thin around the EPLs area, but thicker to the southern part of the EPLs. K2 consists of transgressive gray-green shale and siltstone with sporadic interbeds of very fine to fine-grained centimetre-scale sandstone event beds that are laterally discontinuous over decameter scales. Sandstone event beds are erosionally based (Rich, 2016). The geology of the project area is presented in **Figure 6**.

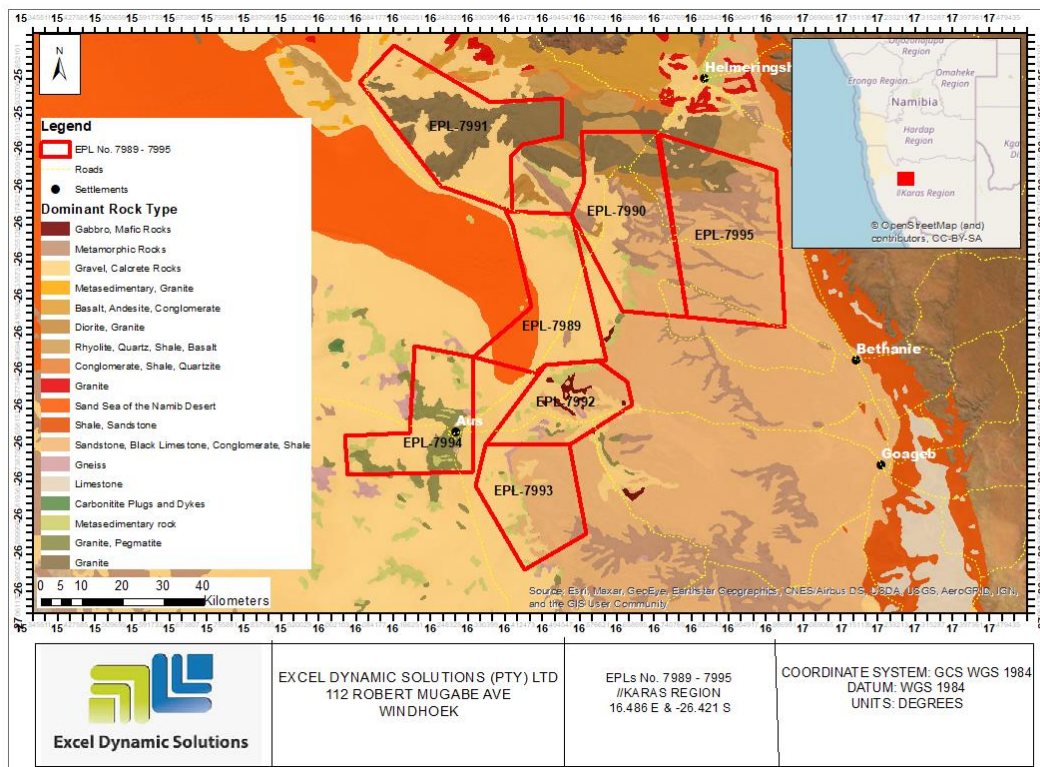


Figure 6: Geology of the EPLs area

The EPLs are dominated by the Eutric Regosol soil type, with some parts of the EPLs cover by Lithic Leptosols and Petric Calcisols. The Eutric Regosols are characterized by medium- or fine-textured soils of actively eroding landscapes, the thin layers lying directly above the rock surfaces from which they formed. These soils never reach depths of more than 50 cm. Lithic Leptosols typically form in actively eroding landscapes, such as the hilly or undulating parts of the EPLs. These coarse-textured leptosol soils are characterized by their limited depth caused by the presence of a continuous hard rock, with a highly calcareous or cemented layer within 30 cm of the surface. Petric Calcisols are found in depressions or low-lying areas of the landscape, and typically contain accumulations of calcium carbonate, often in a cemented form called Calcrete. Large white blocks of Calcrete are often visible on the surface. Calcrete is generally formed beneath the surface and is also often present in a soft powdery form (Mendelsohn et al, 2003).

Figure 7 below shows the soil types in the project area.

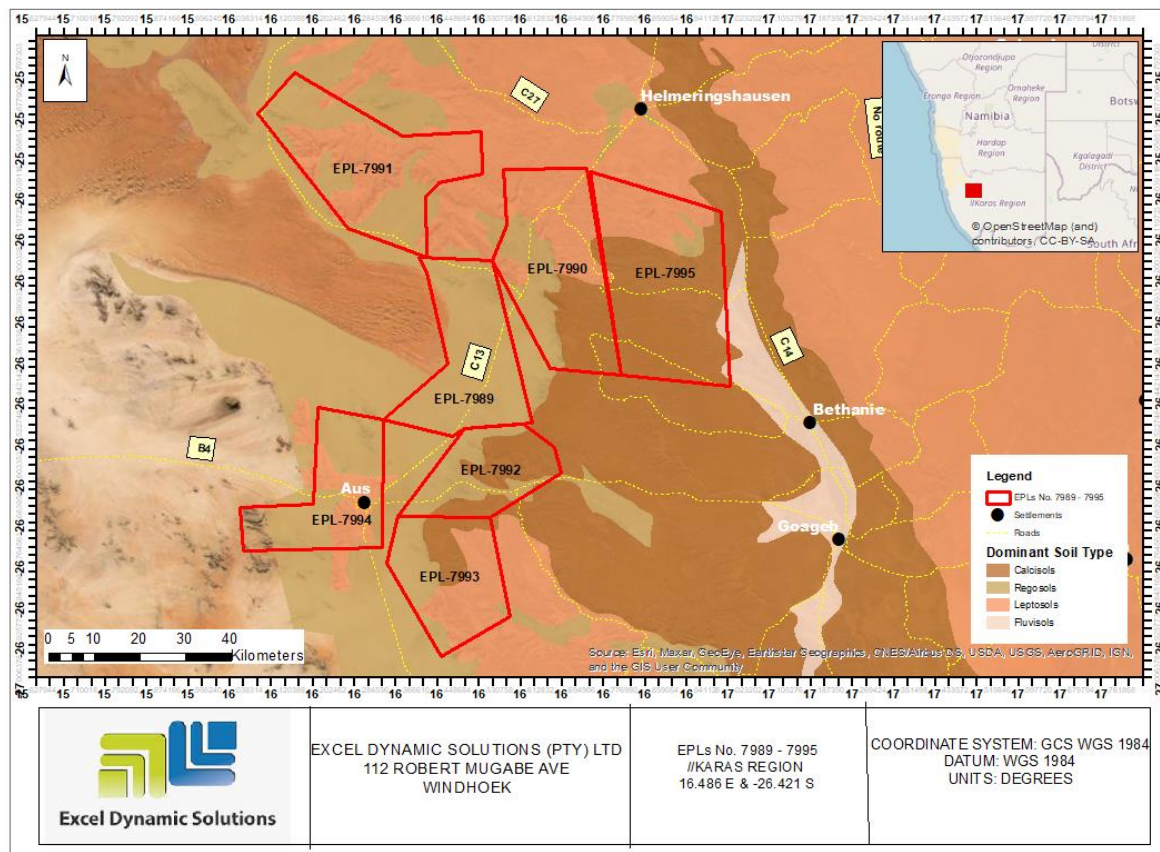


Figure 7: Project Soils Map

5.4 Ecology and Biodiversity: Flora and Fauna

Flora

The vegetation in the area is mostly grassland in wide valleys and on hill slopes, with dwarf shrubs growing more commonly on the hills (Enviro Dynamics, 2004). The project area has a diverse vegetation cover, which consists mainly of a variety of desert/dwarf shrubs of the Nama-Karoo (Sand Plain Dwarf Shrubland and Dwarf Shrub Savanna), and vegetation of the Southern Escarpment of the Desert Biome (**Figure 8**) with heights ranging from 2-5 m. The Plain Dwarf Shrubland and Dwarf Shrub Savanna vegetation types are characterized mainly by grassland and low shrubs, while the vegetation of the Southern Escarpment consists of sparse grassland and dwarf shrubland. Succulent plants such as *Sarcocaulon*, *Brownanthus arenosus* and small *Euphorbia* species occur infrequently across the landscape (Enviro Dynamics, 2004).

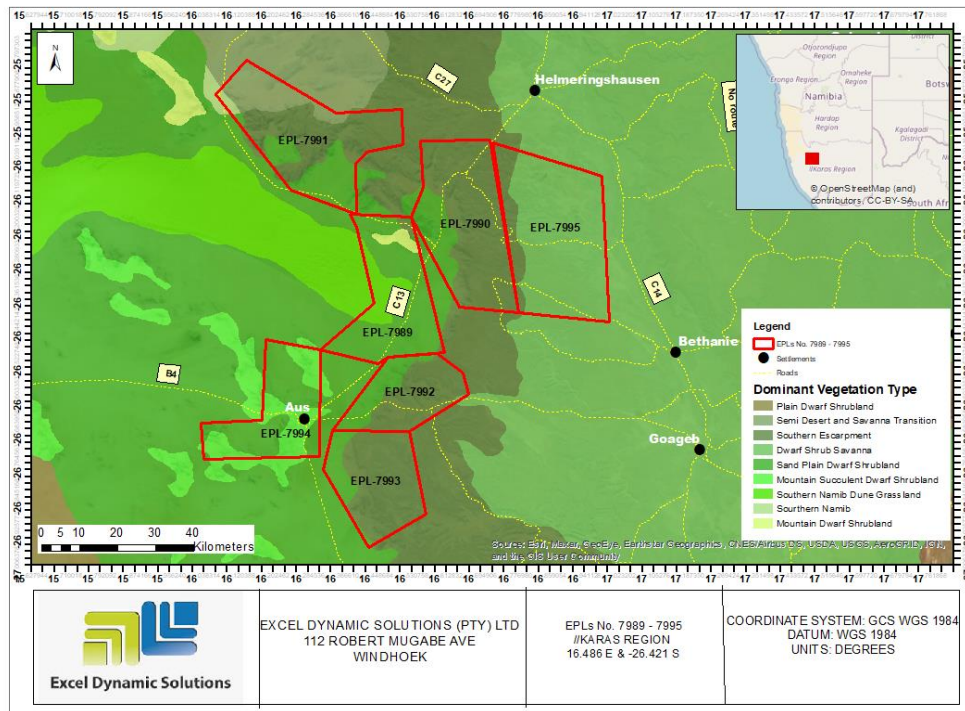


Figure 8: Project Vegetation Map

The general area is considered to have a “low to medium” plant diversity of between 50-149 species although “hotspots” – e.g. around Aus (>500 species) and the Naukluft Mountains (400-499 species) – have a higher diversity. Endemism in the area is viewed as “medium” throughout, with between 2-15 species for most of the area although the “hotspot” areas have >35 species which include local endemics (Mendelsohn et al. 2002). The greatest variants affecting the diversity of plants are habitat and climate with the highest plant diversity generally associated with high rainfall areas. It is estimated that at least 70 species of larger trees and shrubs and up to 39 species of grasses are known to or expected to occur in the general area of which 5.7% of the trees/shrubs and 2.5% of the grasses are viewed as endemic (Cunningham, 2021).

Fauna

Animals found in and around the project area include animals like rodents, hares, dassies, tortoises, and seed-eating birds, as well as larger animals such as kudu, ostrich, springbok, sheep, goats and wild horses. (Aus Namibia Living edge, 2020). The kudu occurs rarely in the area, usually associated with the river beds where there is more vegetation. Biodiversity of snakes is also existent in the project area, with approximately 26 species occurring here, of which 8 are endemic to Namibia (Enviro Dynamics, 2004).

The general Aus-Helmeringhausen area is regarded as “low” in overall (all terrestrial species) diversity while the overall terrestrial endemism – all species – in the area on the other hand is “high”. The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “low to average” with springbok, oryx and kudu dominant especially in areas bordering the Namib Naukluft Park while the overall diversity and density of large carnivorous mammals (large predators) is determined as “average to high” with 4 species expected – e.g. leopard, brown hyena, spotted hyena and cheetah; leopard and cheetah having medium densities (Mendelsohn *et al.* 2002). It is estimated that at least 67 species of reptile, 3 amphibian, 73 mammal and 143 bird species (breeding residents) are known to or expected to occur in the general south western region of which an average proportion are endemics (e.g. 49.3% for reptiles) (Cunningham, 2021).

Further information regarding the fauna and flora of the project site is contained in a specialist study conducted by a specialist (ecologist) in **Appendix J (Cunningham, 2021)**, where a comprehensive and intensive study regarding the flora and vertebrate fauna in the area was conducted for this project.

5.5 Archaeology and Heritage

The //Karas Region archaeological record is reported to have evidence of human occupation dating to the Pleistocene and Holocene periods, roughly in the last 800 000 years to 2000 BP (Kinahan, 2012). Such evidence is reflected in materials records such as surface scatters of stone artefacts, rock shelters with evidence of occupation, including rock art, graves, stone features such as hunting blinds and huts. Among the rock art finds in //Karas region is the well-established rock art site in the Hun Mountains along the Nuob River; the Apollo 11 Cave. The site hosts some rare typologies of rock painting and the only examples of African figurative art securely dated to the late Pleistocene Period (Riaan et al., 2015).

The area surrounding the project sites is archaeologically identified as nomadic pastoral land. Some sites of archaeological significance have been identified (**Figure 9**) in an archaeological assessment (**Mowa, 2021**) conducted as part of this environmental assessment project (**Appendix K**). The study has mainly identified three sites: The Prisoners of War Camp, the Prisoners of War Graves, and the Old Sports Complex.

The Prisoners of War Camp is a site near Aus, where German prisoners were encamped from 1915 to 1919 when the treaty of Versailles in Europe was signed. The prisoners of war enjoyed freedom and established makeshift shelters made from locally available rock material (Bruwer 2003). In 1918 the Spanish flu ravaged through the world and killed about 69 prisoners of war. The prisoners are the ones buried at the Prisoner of War Graves located some two kilometer northwest of the Prisoners of War Camp. These sites demonstrate evidence of significant human exploration, contact and links to global events, therefore, the National Heritage Council declared the camp site and the graves as sites of national heritage. In Aus an old sports complex north of the town of Aus is still visible though neglected it is still a heritage of note (Mowa, 2021)

All three sites are located on EPL 7994, within the Aus vicinity. In the case where an archaeological discovery is made on site during exploration works, the procedures outlined in the National Heritage Act, No. 27 of 2004 are to be followed.

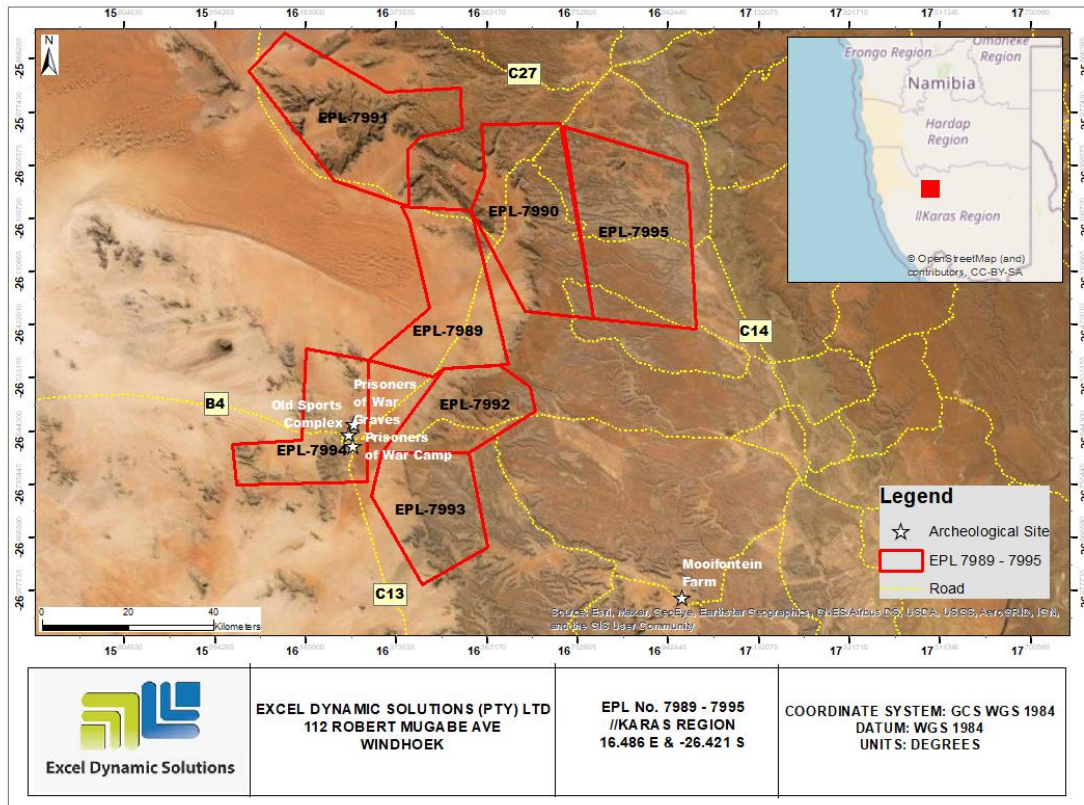


Figure 9: Project Archaeology Map

5.6 Surrounding Land Uses

The EPLs falls within 100% of farmland (**Figure 10**). The Proponent is required to secure a signed agreement from the affected landowners and farmers to gain access to the areas of interest for prospecting and exploration investigations as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

2. *Section 52 (1) The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –*

(c) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

3. Section 2.2.3 of the Draft Minerals Policy of Namibia states that the Licence Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for or mining purposes.

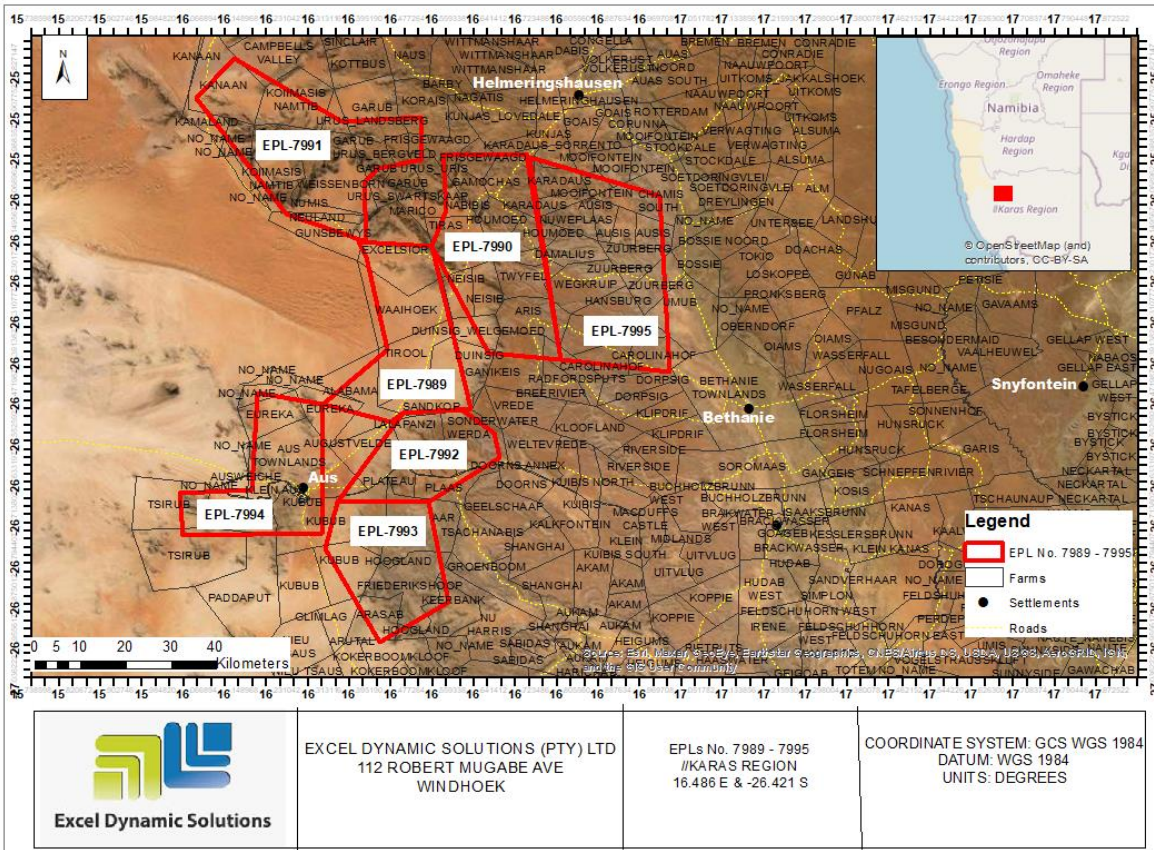


Figure 10: Project Land Use (Farms) Map

5.7 Economic Activities

5.7.1 Farming

Stock farming at subsistence and commercial levels in the region and the Aus area occurs as farming mainly of small stock i.e. sheep and goats. The region is predominantly suitable for small stock. (Mendelsohn et al, 2003) However, in recent years, the region has experienced a growth in commercial ostrich and game farming. (NEPRU, 1998).

5.7.2 Tourism

The Aus Settlement provides an intersection of routes leading to Keetmanshoop, Rosh Pinah, Oranjemund and South Africa, and to the coastal town of Lüderitz. The sand dunes, grasslands

and rolling hills render the Southern Namibian landscape an attraction on its own. The //Karas Region is home to some of Namibia's popular tourist attractions, such as the Fish River Canyon, the Tsau IlKhaeb National Park, Kolmanskop and Diaz Point in Lüderitz, to mention but a few. Aus Settlement is popular for pit-stops for tourists traveling southwest of Namibia. The most unique feature of Aus and surrounding areas is the resident wild horses that tourists often marvel at. A hide (Garub Desert Horses) has been erected at Garub Pan, where the tourists are able to view the wild horses at the water hole (Aus Namibia Living edge, 2020).

5.8 Infrastructure and Services

The project area is located within and in the near vicinity of the Aus settlement, which has access to power supply and water networks, as well as post and telecommunications systems that link villages/settlements and towns with the rest of the country. (Aus Namibia Living edge, 2020). The project area has a good transportation network of roads that makes the EPLs easily accessible, and provides connection between towns and villages/settlements, and to mining operations within the region, as well as routes linking Namibia to other countries like South Africa and Botswana (NEPRU, 1998). Some of the popular tourist accommodation located within the EPLs are the Banhoff Hotel Aus, Klein Aus Vista, Tirol Guest Farm and Tiras Guest Farm. Aus also has services such as a healthcare facility and a police station for its residents (**Figure 11**).

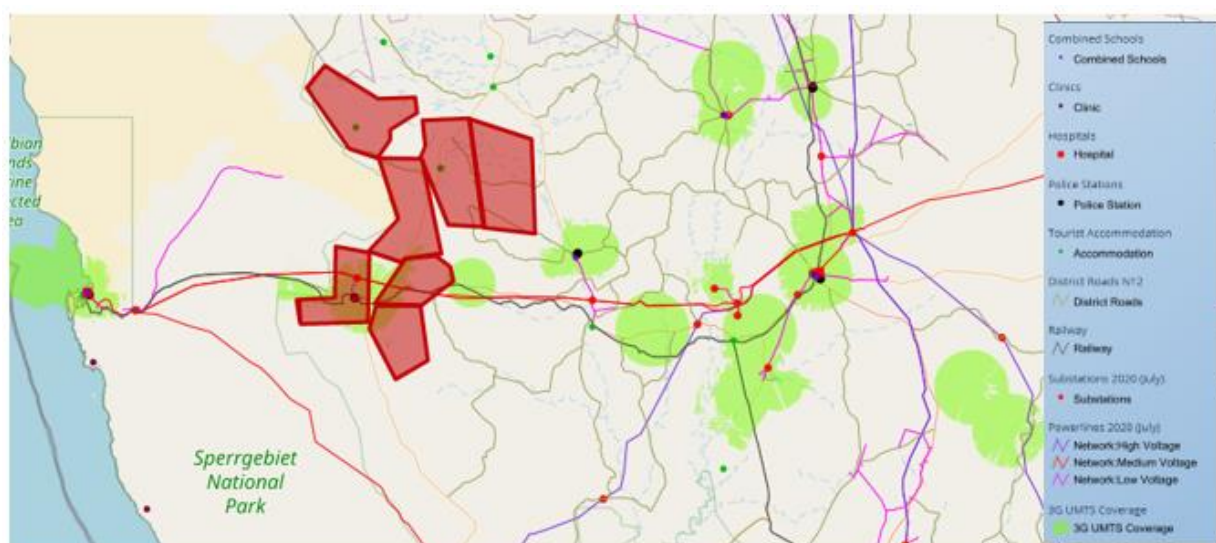


Figure 11: Project existing infrastructure and services Map

Mining

A significant amount of mining activity occurs in the //Karas Region, rendering the region an important mining area in Namibia. The development of the //Karas Region is economically tied to its rich mineral deposits that provide mining opportunities and development. Minerals mined in the //Karas Region include diamonds, zinc, copper, tin, lead, silver, marble and gemstones. (NEPRU, 1998). Some of the existing mining activity in the region include the Rosh Pinah Zinc Mine and the Skorpion Zinc Mine in Rosh Pinah, the NamDeb Diamond mine in Oranjemund, as well as De Beers Marine offshore diamond mining off the coast of Lüderitz.

6 PUBLIC CONSULTATION

Public consultation forms an important component of an Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process, thus assisting the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and to what extent further investigations would be necessary. Additionally, public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this scoping study has been conducted in accordance with the EMA and its EIA Regulations.

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

Relevant and applicable national, regional and local authorities, local leaders and other interested members of the public were identified as stakeholders. The pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices were placed in newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed exploration activities were placed in two widely-read national newspapers in the region (*The Namibian* and *New Era* newspapers). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs, submit their comments or concerns and/or attend the public consultation meeting as notified through the advertisements. The list of pre-identified and registered I&APs is listed in **Table 4** below and the complete list including registered I&APs is provided in **Appendix E**.

Table 4: Summary of Interested and Affected Parties (I&APs)

| National (Ministries and State Owned Enterprises) |
|--|
| Ministry of Environment and Tourism |
| Ministry of Urban and Rural Development |
| Ministry of Labour, Industrial Relations and Employment Creation |
| Ministry of Health and Social Services |
| Ministry of Agriculture, Water and Forestry |
| Ministry of Mines and Energy |
| Roads Authority |

| Regional & Local |
|---|
| Karas Regional Council |
| Berseba Constituency |
| General Public |
| Interested members of the public and Farm/Land owners |

6.2 Communication with I&APs

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

- A Background Information Document (BID) containing brief information about the proposed facility was compiled (**Appendix D**) and sent out to all pre-identified affected parties and upon request to all new registered Interested and Affected parties (I&APs);
- Project Environmental Assessment notices were placed in *The Namibian and New Era* newspapers (**Appendix F**) dated **13 July 2021** and **20 July 2021**, briefly explaining the activity and its locality, and inviting interested members of the public to register as I&APs and submit comments and/or concerns;
- Public notices were placed at Marmer Primary School, Aus Information centre, and Aus Puma Service Station (**Figure 12**) to inform members of the public of the Environmental Assessment process and to register as I&APs as well as submit comments; and
- A public meeting was scheduled and held on **14 September 2021 at Marmer Primary School** in Aus (**Figure 13**).



Figure 12: Public Notices for Public Consultation Meeting



Figure 13: Public Meeting in Aus

Issues raised during the ESA process and all communication from I&APs has been recorded; all responses provide are fully presented in the meeting minutes in **Appendix H** and incorporated in the environmental report and EMP. The summarized issues raised in the meeting are presented in **Table 5** below. The issues raised and responses (by EDS) are attached in **Appendix I**.

Table 5: Summary of main issues and comments received during the first public site engagement

| Issue | Concern |
|-------------------------|--|
| Rehabilitation | Rehabilitation measures set up by the Proponent |
| Private Property Access | Farm Access Arrangements |
| Tourism | The effect of Exploration activity on Tourist Accommodation Facilities |
| Communication modes | Some newspapers do not reach the Aus area |

6.2.1 First Round Public Feedback

The newspaper notices for the project were published on 13 and 20 July, 2021, for a public meeting to be held on 24 July, 2021. However, due to a low number responses to the notices at the time, the meeting was postponed to 14 September, 2021, after more requests for project registration (as an affected and interested party) were received in the form of emails, from some of the stakeholders. The Consultant held a public consultation meeting in Aus on 14 September, 2021 at Marmer Primary School. The issues, concerns, and inputs from stakeholders during the meeting were recorded and meeting minutes included as part of this report in **Appendix H**.

6.2.2 Second Round: Follow-up Comments

The Draft Scoping Report, Draft EMP and public meeting minutes were circulated to all I&APs for review for a period of not less than 7 days. Upon sharing of the drafts, further comments were received, mainly via email. The significant (key) comments, concerns and responses provided thereto by EDS are presented in **Appendix I**, and incorporated into the Final Report, which will be submitted to the Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration for an ECC.

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

Proposed developments/activities are usually associated with various potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the identified negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control, while maximizing the positive impacts of the development. The potential positive and negative impacts that have been identified for the exploration activities on EPLs 7989 - 7995 are listed as follows:

Positive impacts:

- Creation of jobs to the locals (primary, secondary and tertiary employment),
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,
- Boosting the local economic growth and regional economic development
- Improved geological understanding of the area, and
- Boosting other investment opportunities and infrastructure-related development benefits

Negative impacts:

- Land degradation and Biodiversity Loss
- Impact on Water Resources
- Generation of dust,
- Generation of waste,
- Visual impacts (scars) on landscape,
- Potential occupational health and safety risks,
- Potential Impact on Surrounding Soils
- Possible disturbance to heritage/archaeological resources,
- Vibrations and noise from exploration works, and
- Vehicular traffic safety
- Impacts associate with closure and decommissioning of exploration works.

7.2 Impact Assessment Methodology

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

The identified impacts were assessed in terms of probability (likelihood of occurring), scale/extent (spatial scale), magnitude (severity) and duration (temporal scale) as presented in **Table 6, Table 7, Table 8** and **Table 9**.

In order to enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and allows potential impacts to be addressed in a standard manner so that a wide range of impacts is comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risks associated with such an impact. The following process will be applied to each potential impact:

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

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria are applied in this impact assessment:

7.2.1 Extent (spatial scale)

Extent is an indication of the physical and spatial scale of the impact. **Table 6** shows rating of impact in terms of extent of spatial scale.

Table 6: Extent or spatial impact rating

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

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project. **Table 7** shows the rating of impact in terms of duration.

Table 7: Duration impact rating

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

7.2.3 Intensity, Magnitude/Severity

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

Table 8: Intensity, magnitude or severity impact rating

| Type of criteria | Negative | | | | |
|------------------|---|--|-------------------------------------|--------------------------------------|----------------------------------|
| | H- (10) | M/H- (8) | M- (6) | M/L- (4) | L- (2) |
| Qualitative | Very high deterioration, high quantity of | Substantial deterioration, death, illness or | Moderate deterioration, discomfort, | Low deterioration, slight noticeable | Minor deterioration, nuisance or |

| Type of criteria | Negative | | | | |
|------------------|---|--|---|--|---|
| | H- (10) | M/H- (8) | M- (6) | M/L- (4) | L- (2) |
| | deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species | injury, loss of habitat / diversity or resource, severe alteration or disturbance of important processes | partial loss of habitat / biodiversity or resource, moderate alteration | alteration in habitat and biodiversity. Little loss in species numbers | irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration. |

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts actually occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 9** shows impact rating in terms of probability of occurrence.

Table 9: Probability of occurrence impact rating

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

7.2.5 Significance

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

Once the above factors (**Table 6**, **Table 7**, **Table 8** and **Table 9**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SIGNIFICANCE POINTS (SP)} = (\text{MAGNITUDE} + \text{DURATION} + \text{SCALE}) \times \text{PROBABILITY}$$

The maximum value per potential impact is 100 significance points (SP). Potential impacts are rated as high, moderate or low significance, based on the following significance rating scale (Table 10).

Table 10: Significance rating scale

| Significance | Environmental Significance Points | Colour Code |
|---------------------|--|--------------------|
| High (positive) | >60 | H |
| Medium (positive) | 30 to 60 | M |
| Low (positive) | <30 | L |
| Neutral | 0 | N |
| Low (negative) | >-30 | L |
| Medium (negative) | -30 to -60 | M |
| High (negative) | >-60 | H |

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse Impact

Neutral – Impacts are neither beneficial nor adverse.

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a period of time to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the exploration phases is done for both pre-mitigation and post-mitigation.

The risk/impact assessment is driven by three factors:

- **Source:** *The cause or source of the contamination.*
- **Pathway:** *The route taken by the source to reach a given receptor*
- **Receptor:** *A person, animal, plant, eco-system, property or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.*

A pollutant linkage occurs when a source, pathway and receptor exist together. Mitigation measures aim firstly, avoid risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

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

7.3 Assessment of Potential Negative Impacts: Surveys, Drilling, Sampling Phases

The main potential negative impacts associated with the operation and maintenance phase are identified and assessed below:

7.3.1 Loss of Biodiversity and Land Degradation

Drilling activities and earthworks done to expose the mineral bearing rock units could result in land degradation, leading to the destruction of habitat for the local diversity of fauna and flora, ranging from micro-organisms that may be encountered under the site soils and rocks, to large animals, shrubs, and trees. To enable the exploration operations, some site vegetation within the footprint of the exploration area would be removed. This might lead to the destruction of any protected plant species on the site, resulting in the loss of such species and eventual loss of biodiversity in the area. Endemic species would be most severely affected since even the slightest disruption in their habitat can result in extinction or put them at high risk of being wiped out. The Consultant advises the Proponent to avoid unnecessary removal of vegetation, to promote a balance between biodiversity and their operations. Under the status, the impact is of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will significantly be reduced to low. The impact is assessed in **Table 11** below.

Table 11: Assessment of the impacts of exploration on biodiversity

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | M: - 3 | M: - 3 | M/L: - 4 | M - 3 | M – 30 |
| Post mitigation | L/M - 2 | L/M - 2 | L/M - 4 | L/M - 2 | L - 16 |

Mitigations and recommendation to minimize land degradation and loss of biodiversity

- Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity on the site.
- Shrubs or trees found along drilling or sampling spots on sites should not be unnecessarily removed. Care should be taken when extracting mineral species without destroying the vegetation.
- Workers should refrain from killing or snaring animals' species (big or small) that may be found on the site.
- Environmental awareness on the importance of biodiversity preservation should be provided to the workers.

7.3.2 Impact on Water Resources

The state of limited water resources in the area implies that the use of local water resources for a water-demanding activity such as drilling during the proposed exploration activities would be unsustainable and would place too much strain on the water resources in the area. The Consultant advises the Proponent to consider alternative sources of water for activities requiring large amounts of water, rather than the use of locally sourced water, in order to achieve the necessary water requirements for the planned exploration activity. This impact is rated with a Medium Significance, and can be reduced to a Low Significance upon effective implementation of the mitigation measures. The assessment of this impact is presented in **Table 12** below.

Table 12: Impact on water resources

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

Mitigations and recommendation to minimize Impact on Water resources

- Due to water scarcity in the area, water supply for exploration works such as drilling and associated activities would be best augmented with carted water from elsewhere outside the project area to ensure that less pressure is put on local water resources.
- The required water from the suppliers should be stored on site in trailer-mounted industry standard water reservoirs.
- Water abstraction permits should be obtained from the Ministry of Agriculture, Water and Land Reform, in the event that the Proponent aspires to access local groundwater resources.
- An effective water quality monitoring program needs to be in place to attain surface and groundwater protection throughout the process

7.3.3 Generation of Dust (Air Quality)

Dust emanating from site access routes when transporting exploration equipment and supply (water) to and from site (time-to-time) may compromise the air quality in the area. Vehicular movements create dust even though it is not always so severe. The hot and dry environment, loose and in some places sandy nature of the substrate, and low vegetation cover causes ambient fugitive dust levels. The medium significance of this impact can be reduced by properly implementing mitigation measures to a lower significance rating. The impact is assessed in **Table 13** below.

Table 13: Assessment of the impacts of exploration on air quality

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | L/M - 2 | L/M - 2 | L/M- 4 | L/M - 2 | M – 16 |
| Post mitigation | L - 1 | L - 1 | L - 2 | L - 1 | L - 4 |

Mitigations and recommendation to minimize dust

- The Proponent should ensure that the exploration schedule is limited to the given number of days of the week. This will contribute to keeping the vehicle-related dust levels minimal in the area.

- The project site is in an area with limited vegetation cover and highly exposed soils, therefore, it is highly probable that dust will be generated from exploration drilling and excavation. It is, therefore, advised that on extremely windy days, a reasonable amount of water should be used to suppress the dust that may be emanating from certain exploration areas on the EPLs site.

7.3.4 Waste Generation

Prospecting and exploration activities are usually associated with generation of waste of all kinds (domestic and general) and if these are not disposed of in a responsible manner, it will result in the pollution of the site and the surrounding environment. Precautions should be taken to prevent any refuse from spreading on site. Without any mitigation measures, the impact has a medium significance. The impact will be reduced to low significance upon implementation of the mitigation measures. The assessment of this impact is given in **Table 14**.

Table 14: Assessment of waste generation impact

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

Mitigations and recommendation to waste management

- Workers should be sensitized to dispose of waste in a responsible manner and not to litter.
- After each daily works, the Proponent should ensure that there are no wastes left on the sites.
- All domestic and general operational waste produced daily should be contained until such that time it will be transported to designated waste sites.
- No waste may be buried or burned on site or anywhere else.
- The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste.

- Hazardous waste, including emptied chemical containers should be safely stored on site where they cannot be accessed and used by locals for personal use. These containers can then be transported to the nearby approved hazardous waste sites for safe disposal. No waste should be improperly disposed of on site or in the surroundings, i.e., on unapproved waste sites.
- Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility.
- Oil spills should be taken care of by removing and treating soils affected by the spill.
- A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.
- Careful storage and handling of hydrocarbons on site is essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.
- An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil and surface water) and during the transportation of the products(s) to the sites.
- All wastewater and hydrocarbon substances and other potential pollutants associated with the project activities should be contained in designated containers on site and later disposed of at nearby approved waste sites in accordance with MAWLR's Water Environment Division standards on wastewater discharge into the environment. This is to ensure that these hazardous substances do not infiltrate into the ground and affect the local groundwater quality.

7.3.5 Visual Impact (Scars) on Landscape

Visual impact due to exploration works is aesthetic damage to the landscape. Drilling and sampling activities leave scars on the local landscape. If the mining sites are located close to or along tourist routes, these scars in many cases contrasts the surrounding landscape and may potentially become a visual nuisance, especially for the tourism industry. Therefore, during the prospecting phase, certain measures will need to be taken into consideration regarding the visual aspect. Currently, the visual impact is rated as Medium, and can be reduced to low significance upon effective implementation of the mitigation measures. The assessment of this impact is presented in **Table 15**.

Table 15: Assessment of visual impact on landscape

| | Extent | Duration | Intensity | Probability | Significance |
|------------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | M - 3 | M - 3 | M - 6 | M - 3 | M – 36 |
| Post mitigation | L/M - 2 | L/M - 2 | L/M - 4 | L/M - 2 | L - 16 |

Mitigations and recommendation to minimize visual impact

- The Proponent should avoid the unnecessary creation of new routes, which lead to landscape scarring on site.
- The Proponent should consider the implementation of continuous rehabilitation programme on site, by using overburden waste rocks to visually maintain the landscape's natural setting.

7.3.6 Occupational Health and Safety Risks

Improper handling of exploration materials and equipment may cause health and safety risks such as injuries to workers. The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating can be reduced to low. This impact is assessed in **Table 16** below and mitigation measures provided.

Table 16: Assessment of the impacts of exploration on health and safety

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|------------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | M - 3 | L/M - 2 | M - 6 | M/H - 4 | M – 44 |
| Post mitigation | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L - 12 |

Mitigations and recommendation to minimize health and safety issues

- As part of their induction, the workers should be provided with a safety awareness training on the risks of mishandling equipment and materials on site.
- When working on site, employees should be properly equipped with personal protective equipment (PPE) such as overalls, gloves, safety boots, earplugs, safety glasses, and hard hats.
- Workers should practice safety checks before each task, to ensure they are safe and ready to carry out tasks before they begin.
- No employee should be allowed to consume alcohol or other intoxicants prior to, and during working hours, as this may lead to mishandling of equipment, which results in injuries and other health and safety risks.
- Employees should not be allowed on site if under the influence of alcohol or any intoxicants.

7.3.7 Land Pollution/Soil Contamination Impacts

Exploration works result in soil disturbance which will leave the already exposed site soils vulnerable to erosion. This impact is probable because the proposed site is vacant (bare) with limited vegetation cover. Contamination of soils from sewage and mineral processing, extraction and recovery processes can also affect large areas of land if they occur. The impact can be rated as medium if no mitigation measures are implemented. However, with the implementation of mitigation measures, the impact significance will reduce to low. The impact is assessed in **Table 17** below and mitigation measures are provided below.

Table 17: Assessment of the impacts of exploration on soils/land

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | L/M - 2 | L/M - 2 | M - 6 | M - 3 | M - 30 |
| Post mitigation | L - 1 | L/M - 2 | L - 2 | L/M - 2 | L - 10 |

Mitigations and recommendation to minimize impact on soil

- Overburden material (if any) should be handled more efficiently during exploration operations to avoid erosion when subjected erosional processes.

- Prevent the creation of huge piles of waste rocks by performing sequential backfilling.
- Careful storage and handling of hydrocarbons on site is essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.
- An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil and surface water) and during the transportation of the products(s) to the sites.
- An effective water quality monitoring program needs to be in place to attain surface and groundwater protection throughout the process.
- Potential water pollution needs to be prevented through identification of incidental sources of pollution such as accidental spillage, chemical or hydrocarbons

7.3.8 Archaeological Impact

During exploration works, historical resources may be impacted through inadvertent destruction or damage. This may include the excavation of subsurface graves or other archaeological objects. Some information about known heritage sites of cultural monuments within the sites or in the vicinity was found during this assessment. Therefore, any planned exploration activity should make no interaction with the identified sites of heritage significance. This impact can be rated as Medium to Low, if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance would be rated as low. The impact is assessed **Table 18** below.

Table 18: Assessment of the impacts of exploration on archaeological sites

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | M - 3 | M - 3 | M - 6 | M - 3 | M – 36 |
| Post mitigation | L/M - 2 | L/M- 2 | L/M - 4 | L/M -2 | L - 16 |

Mitigations and recommendation to minimize impact on archaeological sites

- Archaeologically significant sites identified should be avoided and treated as no-action zones during exploration activity.

- Contractors working on the site should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found during development should be reported to the National Heritage Council
- The Proponent should consider having a qualified and experienced archaeologist on standby/call during drilling and sampling phase and as required during the entire operational phase. This action will be to assist on the possible of uncovering of sub-surface graves or other cultural/heritage objects and advice the Proponent accordingly.
- Identified graves or any archaeological significant objects on the site should not be disturbed but are to be reported to the project Environmental officer or National Heritage Council offices.
- The Chance Finds Procedure as outlined in the EMP (**Appendix B**) must always be implemented.
- Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the exploration operations.

7.3.9 Noise and Vibrations

Prospecting and Exploration works (especially drilling) may be a nuisance to neighbours. Excessive noise can also be a health risk to site workers. However, the envisaged exploration equipment used for drilling and blasting on site is of medium size and the noise level is bound to be limited to the site only, and therefore, the impact likelihood is minimal. Without any mitigations, the impact is rated as of medium significance. To change the impact significance to a low rating, the recommended mitigation measures should be implemented. This impact is assessed in **Table 19** below.

Table 19: Assessment of the impacts of noise from exploration

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | L/M - 2 | L/M - 2 | M - 6 | M - 3 | M - 30 |
| Post mitigation | L - 1 | L/M - 2 | L - 2 | L/M - 2 | L - 10 |

Mitigations and recommendation to noise

- Noise from operations vehicles and equipment on site should be kept at acceptable levels. Any vehicles producing excessive noise should be taken for service/maintenance.

- The exploration operational times should be set such that, no mining activity is carried out during the night or very early in the mornings.
- Exploration hours should be restricted to between 08h00 and 17h00 to avoid noise generated by exploration equipment and the movement of vehicles before or after hours.
- When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure.

7.4 Assessment of Potential Negative Impacts: Decommissioning Phase

Impacts pertaining to the closure of the exploration program include loss of employment by workers at the exploration site, and missed opportunity for contribution to the national economy (revenue and royalties' payments). Another concern that stems from exploration program closure is the rehabilitation of the site.

7.4.1 Impacts associated with closure and decommissioning of exploration works

Rehabilitation of the site is a vital step in completing the process of exploration. If no rehabilitation is carried out after operations, the sites would experience detrimental effects. Any biodiversity loss and land degradation experienced on the sites may not be restored and the landscape will remain scarred. The impacts associated with rehabilitation are assessed in **Table 20**.

Table 20: Assessment of the impacts of closure and rehabilitation

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|-------------------|---------|----------|-----------|-------------|--------------|
| Pre mitigation | M - 3 | M/H - 4 | M- 6 | M/H - 4 | M – 52 |
| Post mitigation | L/M - 2 | L/M - 2 | L/M - 4 | L/M - 2 | L - 16 |

Mitigations and recommendation for rehabilitation

- Dismantling and removal of campsites and associated structures from the project site and area
- Carrying away of exploration equipment and vehicles
- Removal of drilling casting, and/ or concrete plinths

- Cleaning up of areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner).
- Backfilling of exploration pits and trenches and boreholes
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left close to their pre-exploration state as much as possible.

8 RECOMMENDATIONS AND CONCLUSIONS

8.1 Recommendations

The key potential impacts associated with the proposed exploration program and its associated activities on EPLs 7989 – 7995 were identified and assessed. It is found that most of the identified potential negative impacts are rated with a Medium Significance. Therefore, to reduce the general significance of the project from medium to low, it is recommended that the Proponent effectively implements the mitigation measures, and continuously monitors their implementation, in order to attain and maintain an overall low significance. The negative impacts identified in this study can be avoided and minimised (where impacts cannot be avoided) by implementing the mitigation measures given under section 7 of this ESA report, as well as those provided in the management action and monitoring plans provided in the Draft EMP.

8.2 Conclusion

The potential positive and negative impacts stemming from the proposed prospecting and exploration activities on the EPLs were identified, assessed and mitigation measures made thereof. The mitigation measures and recommendations provided in this Environmental Scoping Assessment report and management action plans provided in the draft EMP, can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks to acceptable levels.

The Consultant is, therefore, confident that these measures are sufficient, and issuance of an Environmental Clearance Certificate (ECC) to the Proponent to enable exploration works on EPLs 7989, 7990, 7991, 7992, 7993, 7994 and 7995 would be appropriate under the suggested mitigation and monitoring measures. However, the ECC should be issued on condition that the provided management measures and action plans are effectively implemented and monitored on site. Monitoring of the environmental components described in the impact assessment is to be conducted by the Proponent and/or applicable Competent Authority. This is to ensure that all potential impacts identified in this study and other impacts that might arise during the exploration program implementation are properly identified and addressed. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing mineral exploration and related activities.

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