

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIA) EPL 8837

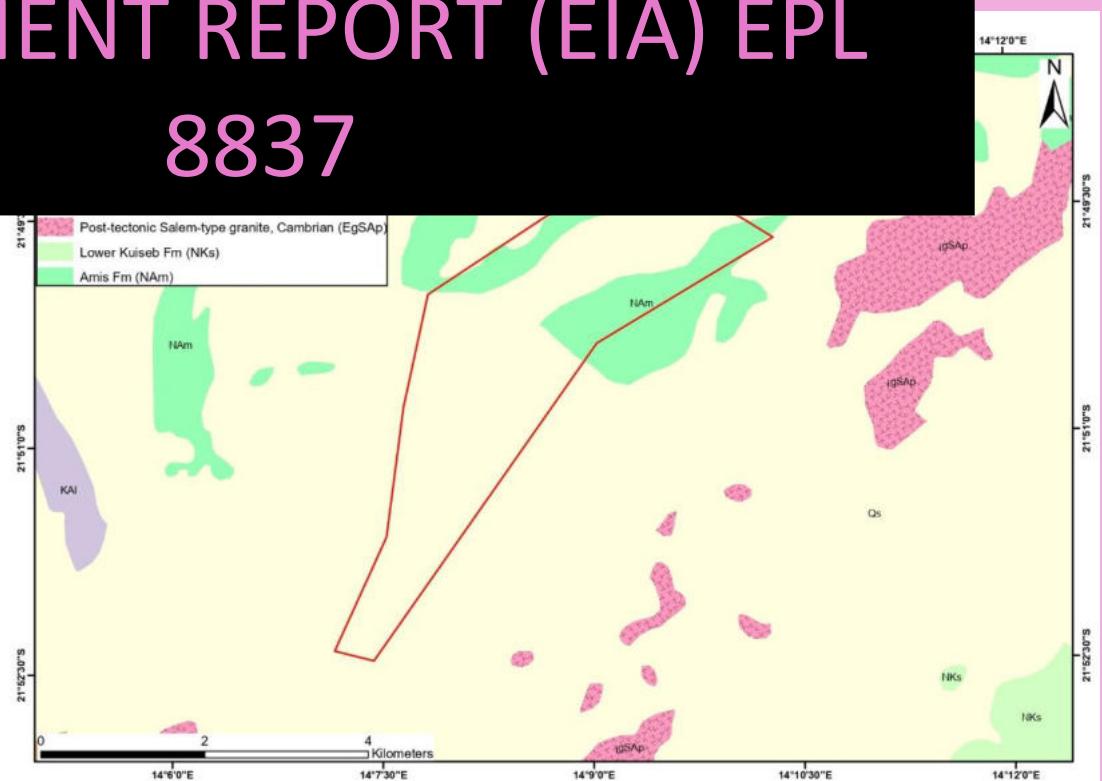


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GLOSSORY LIST

DEAF - Department of Environmental Affairs and Forestry

EAP - Environmental assessment practitioner

BID - Background Information Document

ECC - Environmental clearance certificate

ECO - (Environmental Control Officer

EIA - Environmental Impact Assessment

EMA - Environmental Management Act

EMP - Environmental Management Plan

EPL - Exclusive prospecting license

ESA - Environmental Scoping Assessment

MEFT - Ministry of Environment, Forestry & Tourism

MFO - Manager Field Operations

RC - Reverse circulation

1 EXECUTIVE SUMMARY

The Proponent proposes to undertake exploration activities on Exclusive Prospecting License (EPL) 8837 in the Erongo Region, with interest in industrial minerals. The EPL is located north of Henties Bay. It covers an area of 4920.2947 Ha within the Dorob National Park.

The proposed project triggers listed activities in terms of the Environmental Management Act No. 7 of 2007, therefore an Environmental Clearance Certificate is required. As part of the Environmental Clearance Certificate application, an Environmental Impact Assessment has been undertaken in compliance with the Environmental Management Act No. 7 of 2007 and its associated regulations. This Environmental Scoping Report and Environmental Management Plan shall be submitted to the competent authority as part of the application for the Environmental Clearance Certificate.

The proposed project will entail exploration methods on EPL 8837, which will include detailed geological mapping and sampling, geophysical surveys, trenching and pitting, drilling and core sampling. If required, some vegetation may be cleared to allow access tracks and working areas to be created and for the installation and development of exploration drill holes. The duration of exploration activities is anticipated to be conducted over the course of a 3-year period, which is also the duration of the EPL 8837 validity. The duration of each exploration programme shall be refined when detailed geological information are available. Once the exploration is successful and feasible, exploration operations can potentially transcend into mining and a separate detailed Environmental Impact Assessment will be conducted.

The EPL No. 8837 is located in the central western part of Namibia within the Dorob national park that stretches along the country's central coastline, running from the Ugab River in the south to the Swakop River in the north. The park covers an area of approximately 26,000 square kilometres (10,000 square miles). Dorob National Park is known for its diverse desert landscapes, including sand dunes, gravel plains, rocky outcrops, and ephemeral rivers.

This environmental and social impact assessment was undertaken using a methodology as per the Environmental Management Act and international best practices. The scoping process also includes a desktop review and field assessments during the site visit. Insignificant

sensitive receptors were identified during the scoping process – and the only potential environmental risks that may require further investigation were dust, noise, health and safety, visual, land use, waste, ecological, groundwater and surface water, heritage and socio-economic impacts.

After further investigation, it was determined that the potential effects from EPL 8837 were considered to be of minor significance, once mitigations are implemented as summarised in the EMP which includes, but are not limited to:

- Local community shall be provided at least two weeks' notice of drilling operations and avoid drilling within 1km of their property.
- Regular communication with local community in order to identify any concerns or issues, and appropriate mitigation and management measures shall be further agreed.

The potential effects are therefore deemed not significant, localised if mitigation measures are complied with, thus the assessment is considered comprehensive and sufficient – hence, no further assessment is required. Therefore, it is of the opinion of the environmental assessment practitioner (EAP) that an environmental clearance certificate (ECC) should be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.

2 Introduction

Newcrest Investment (The Proponent) proposes to undertake exploration activities on Exclusive Prospecting License (EPL) 8837 in the Erongo Region, with interest in industrial minerals. The EPL is located north of Henties Bay. It covers an area of 4920.2947 Ha within the Dorob National Park as seen in figure 1 below.

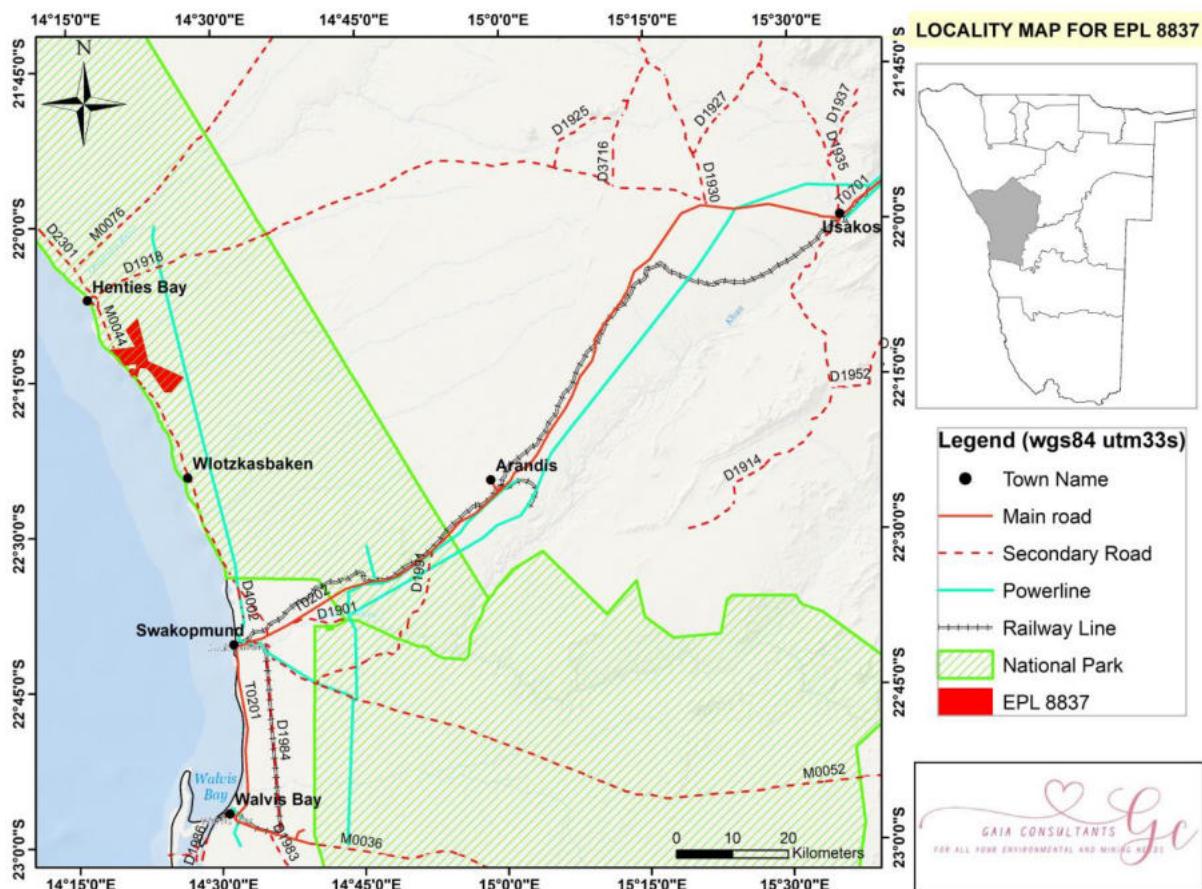


Figure 1 Location map

Exploration and all mining-related activities are among the listed activities that may not be undertaken without an ECC under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The relevant listed activities as per EIA regulations are:

- 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 forms of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).

- Other forms of mining or extraction of any natural resources whether regulated by law or not.
- Resource extraction, manipulation, conservation, and related activities.

3 ADMINISTRATIVE AND LEGAL FRAMEWORK

The EIA is based on the requirements of the Namibian Environmental Management Act (Act. No. 7 of 2007), as well as supporting policies and guidelines, which include the environmental regulations of February 2012. An Environmental Clearance Certificate for mineral exploration activities is required and thus an EIA and Environmental Management Plan (EMP) needs to be submitted to the Ministry of Environment and Tourism (MET) of Namibia for approval. In agreement with the national legal framework, the following laws are relevant to the exploration program for base and rare metals, dimension stones, industrial minerals, nuclear fuel minerals and precious metals groups of minerals on EPL 8837.

The table below shows the applicable and Relevant Namibian and relevant international legislation, policies and guidelines conducted during the EIA process.

YEAR	LAW/ORDINANCE	APPLICABILITY
1990	The constitution of Namibia (1990) Article 95 (1)	<p>✓ <i>Preservation of Namibia's Ecosystems, essential ecological process, and biological diversity</i></p> <p>✓ <i>Sustainable use of Natural Resources</i></p>
2007	Labor Act No. 11 of 2007 & Rules and Regulations promulgated under the Act.	✓ <i>Safety and health requirements</i>
1998	Affirmative Action (Employment) Act No. 29 of 1998	✓ <i>Fair employment practice</i>

1995	Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation of 1995	✓ Prescribes Environmental Impact Assessments for any developments with potential negative impacts on the Environment
2013	Water Resources Management Act 11 of 2013	✓ Effluent discharge permit required under section 70. ✓ Water related pollution and abstraction
2012	Environmental Management Act 7 of 2007 with Regulations of 2012	✓ Establishes Principles for EA ✓ Ensures that significant effects of activities are considered timorously and carefully. ✓ Allows for opportunities for participation by I & APs throughout the assessment process
1975	Nature Conservation Ordinance 4 of 1975 with amendments and special regulations	✓ Protection of various species
1996	Nature Conservation Amendment Act 5 of 1996	✓ To provide for an economically based system of sustainable management and utilization of game in communal areas

1969	Soil Conservation Act No. 76 of 1969	✓ <i>To consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement, and manner of use of the soil and vegetation and the protection of the water sources</i>
1974	Hazardous Substance Ordinance 14 of 1974, and amendments	✓ <i>Pollution prevention</i>
1999	Draft Pollution and Waste Management Bill (1999)	✓ <i>Protection for species, resources, or components of the environment</i>
2004	National Heritage Act 27 of 2004	✓ <i>Disturbance of archaeological or cultural sites</i>
1992	Minerals (Prospecting and Mining) Act 33 of 1992 and special regulations	✓ <i>Exploration and exploitation of mineral resources</i>

Table 1 Environmental Regulations

4 DESCRIPTION OF THE PROJECT

4.1 Proposed exploration activities

The proponent wishes to conduct an exploration program on EPL 8837 with interest in industrial minerals. The exploration will be carried out in the following phases:

- Geological mapping and desktop study work
- Geophysical surveys
- Geochemical sampling

- Trenching and pitting
- Drilling and core sampling

4.1.1 Geological mapping

This involves the review of available geological map data for the area and on-site visual assessment of outcropping rocks. A modern-day integrated data approach will be employed and a geospatial data that includes all available geological, geophysical, remote sensing (Sentinel; ESRI Earth) and topographic data sets will be developed. Geological mapping will focus on identifying and mapping lithological units, structures, describing mineralization and alteration zones and developing cross-sections. Detailed geological maps and accompanying geological reports will be produced.

4.1.2 Geophysical Survey

Geophysical surveys are carried out for various reasons including prospecting for mineral resources (metallic and non-metallic), petroleum and gas, water resources (surface and ground water), geohazard assessment (volcanic, seismic), engineering foundation designs and environmental issues. This survey will focus on measuring physical characteristics (e.g., magnetism, density, conductivity) of rocks at or near the earth surface and will use surface methods to measure these properties to designate potential deposits of the area.

4.1.3 Geochemical Sampling

Geochemical sampling surveys involve the collecting of various earth materials such as rocks, soils, and sediments. The collected samples are sent to analytical labs for whole rock major, trace and REE analysis to determine if sufficient quantities, of base (Cu, Pb, Zn) and rare (Nb, Ta) or precious (Au, Ag) metals or industrial minerals (Li, Be) are present. Small pits of about 25 cm by 25 cm by 35cm are normally dug and 1kg samples extracted and sieved to obtain about 50 g of material. The pits are filled back upon completion of sampling.

4.1.4 Trenching and Pitting

Trenching and pitting are usually conducted by excavating or digging of an area to obtain a representative bulk sample of the mineralization as well as sampling and is dependent on the commodity of interest. The pit may be dug/ excavated to a depth of about 5 meters. The

length and depth of the trenches or pits, as well as the method on how to dig them, e.g., manual or excavator, needs to be discussed and agreed upon with the landowners or community members. To minimise the risks associated with excavations, all excavations will either be opened and closed on the same day or fenced off until the project is completed, to ensure that no life stock or wildlife could be harmed.

4.1.5 Drilling and core sampling

Drilling on the property will only be carried out if results from geochemical sampling and geophysical surveys are satisfactory. Exploration drilling is a process of penetrating through the ground and extracting rocks from various depths beneath the surface to confirm the geology beneath and/ or providing samples for further chemical analysis. This process is usually carried out by contractors with experienced operators and, is conducted in areas where previous geological mapping and geophysical surveys demonstrated that there is mineralization potential. There are different types of drilling methods, and the proponent will employ either reverse circulation (RC) drilling or diamond drilling. The RC drilling mechanism uses a pneumatic hammer, which drives a rotating tungsten-steel bit. This technique produces dry rock chips. Diamond core drilling uses an annular diamond-impregnated drill bit attached to the end of hollow drill rods that cuts a cylindrical core of solid rock. Water is usually used during the drilling process and all drill-water will be collected in drill sumps, which will be managed to prevent overflows. The drilling sumps, if necessary, shall be constructed 100 feet away from rivers, perennial or intermittent streams, ponds, seeps, or springs, unless approved by a forest hydrologist. An exploration team of 35 persons (4 drilling teams plus geologists and technicians) could potentially be required depending on the outcomes of the prospecting phase and the intensity of drilling requirements to meet the demands of market and investors.

5 INFRASTRUCTURE AND SERVICES

5.1 Human Personnel and Machinery

The proponent plans to employ several people for the exploration phases. Initially, the exploration team doing fieldwork would consist of a handful of geological personnel. During

the drilling phase, the exploration team will increase in numbers. For one RC rig, the team consists of 4 members plus a driver. Each drill rig will have one supervisor and one geologist and geohydrologist assigned to it. The camp will have one chef and a camp manager. Therefore, for a very intensive drilling programme, three RC drill rigs will be required. The total personnel number would be no more than 35 for this configuration. At this stage, it is not clear how many rigs will be mobilised. During exploration, only temporary accommodation will be established within the respective EPL area.

Exploration will take place during the day and staff will commute to site from Uis settlement or either from an established and approved drilling campsite within the EPL. Campsites will be established in consultation with the local farm owners or community members and will be run according to strict conditions for control of litter, and other disturbances.

Temporary storage areas for drilling materials, machines etc. will be necessary at the camp. Security will be supplied on a 24-hour basis at the exploration camp. A fence surrounding the camp will be constructed to ensure people and domestic animals are not put at risk. Clearing of vegetation at the planned drill sites may be necessary and larger trees will be retained so that the bush can restore itself. Permits from the forestry directorate will be required for this purpose. Where necessary, stockpiling of topsoil for rehabilitation at a later stage will be undertaken. Necessary landscaping of exploration areas will be undertaken upon completion of each phase of exploration.

5.2 Sanitation, Refuse and Waste Removal

Ablution facilities will use chemical toilets and or sealed septic tanks and the sewerage taken to the Henties Bay sewerage plant periodically. Due to health and safety reasons, personnel may not relieve themselves in the surrounding bush. Solid waste will be removed off site and taken to the Henties Bay sewerage plant.

5.3 Water supply

Water consumption will mostly be used for general consumption, cleaning and for diamond drilling and dust suppression. Water will be supplied through existing boreholes or new boreholes will be created by the proponent, specifically for exploration activities and this

would depend on the agreement reached with the custodians of the Dorob National park. Water utilization from existing boreholes will depend on the agreement reached with Dorob National park. All necessary permits and requirements for water drilling will be obtained from ministry of Agriculture Water and Forestry. Furthermore, water used for drilling will be recycled.

5.4 Power Supply

At this stage, electricity requirements for the project are minimal and no power supply infrastructure to the site is planned. Diesel power generation will be used and stored in small to medium sized mobile fuel bowsers. Power will mostly be required for powering small machinery during the exploration process and for temporary office block or container if necessary. The drill rigs will either be refuelled with Jerry cans or directly from the bowser.

5.5 Access Roads and Tracks

The EPL is easily accessible via the D1918 Henties road. Several smaller track roads are present on the EPL, and motorised access will be limited to existing tracks during geological mapping, sampling, and geophysical surveys. New access routes to the drill sites will be identified and demarcated prior to the commencement of drilling and will be assessed for any environmental sensitivity. The final alignment of new access tracks will be discussed and agreed upon with the landowner's/ community members prior to the commencement of exploration activities.

5.6 Rehabilitation

Damage arising from any exploration activities after the exploration program is concluded and any other impacts will be rehabilitated in accordance with the requirements of the Environmental Management Plan (EMP).

6 DESCRIPTION OF THE RECEIVING ENVIRONMENT

6.1 Biophysical environment

6.1.1 Geography, Climate, and Vegetation

EPL 8837 is located in Henties Bay, which is located on the western coast of Namibia, in the Erongo Region.

6.1.1.1 Geography:

Henties Bay is situated along the Atlantic Ocean, offering stunning coastal scenery. It is surrounded by diverse landscapes, including gravel plains, sandy dunes, and rocky outcrops. The town is located in proximity to the Namib Desert, one of the world's oldest and driest deserts.

6.1.1.2 Climate:

Henties Bay experiences a cool desert climate influenced by the nearby cold Benguela Current, which flows northward along the Namibian coast. The climate is characterized by foggy mornings and low cloud cover. Here are some key features of the climate in Henties Bay:

- Temperatures: The town experiences relatively mild temperatures throughout the year. Average daily temperatures range from 15°C (59°F) to 25°C (77°F) in the summer months (December to February) and 10°C (50°F) to 20°C (68°F) in the winter months (June to August).
- Precipitation: Henties Bay receives minimal rainfall, with an annual average of around 20-30 millimetres. The majority of the rainfall occurs between October and March, although it is still relatively low.
- Fog: Coastal fog is a common occurrence in Henties Bay, especially during the summer months. The cool Benguela Current causes moist air to condense, leading to foggy mornings and sometimes lingering throughout the day.

6.1.1.3 Vegetation:

The vegetation in and around EPL 8837 is adapted to the arid coastal environment and can vary depending on the specific location. Here are some characteristic vegetation types:

- Coastal Dunes: Along the coastline, you will find vegetation adapted to the shifting sands of the dunes. Species such as the Nara Melon (*Acanthosicyos horridus*) and various succulents, including species of *Mesembryanthemum* and *Lithops*, can be found.
- Gravel Plains: Inland from the dunes, gravel plains dominate the landscape. The vegetation in these areas is typically sparse and consists of hardy, drought-tolerant plants such as succulents (e.g., *Aloe* species) and resilient shrubs like *Zygophyllum* and *Trianthema*.
- Desert Adapted: As Henties Bay is in proximity to the Namib Desert, some desert-adapted plant species may be found in the surrounding areas. These plants have evolved to withstand the arid conditions and include species like *Welwitschia mirabilis*, *Hoodia gordonii*, and various grasses and lichens.

It is important to note that the specific vegetation composition may vary depending on factors such as soil types, microclimates, and proximity to water sources.

For more detailed and accurate information about the specific vegetation in Henties Bay, it is advisable to consult local botanical references, field guides, or contact experts familiar with the flora of the region.

6.1.2 Regional Geology

The project area is within Omaruru map sheet lies along the junction of the intracontinental and coastal arms of the Pan-African Damara Orogen, which, based on stratigraphy, structure and metamorphic grade, has been subdivided into a number of distinct zones (Miller, 1983; Hoffmann, 1987). Two roughly north-east striking linear features transect the area and separate the southern from the northern Central Zone (Omaruru Lineament), and the northern Central Zone from the southern Kaoko Zone.

Several basement domes and antiforms comprising highly metamorphosed and deformed sedimentary, volcanic and intrusive rocks of the Mokoblian Abbabis Metamorphic Complex are exposed between Usakos and Karibib and west of Omatjette (Fig. 1). They

are surrounded by the metasedimentary rocks of the Late Proterozoic Damara Supergroup, which dominate the map sheet area.

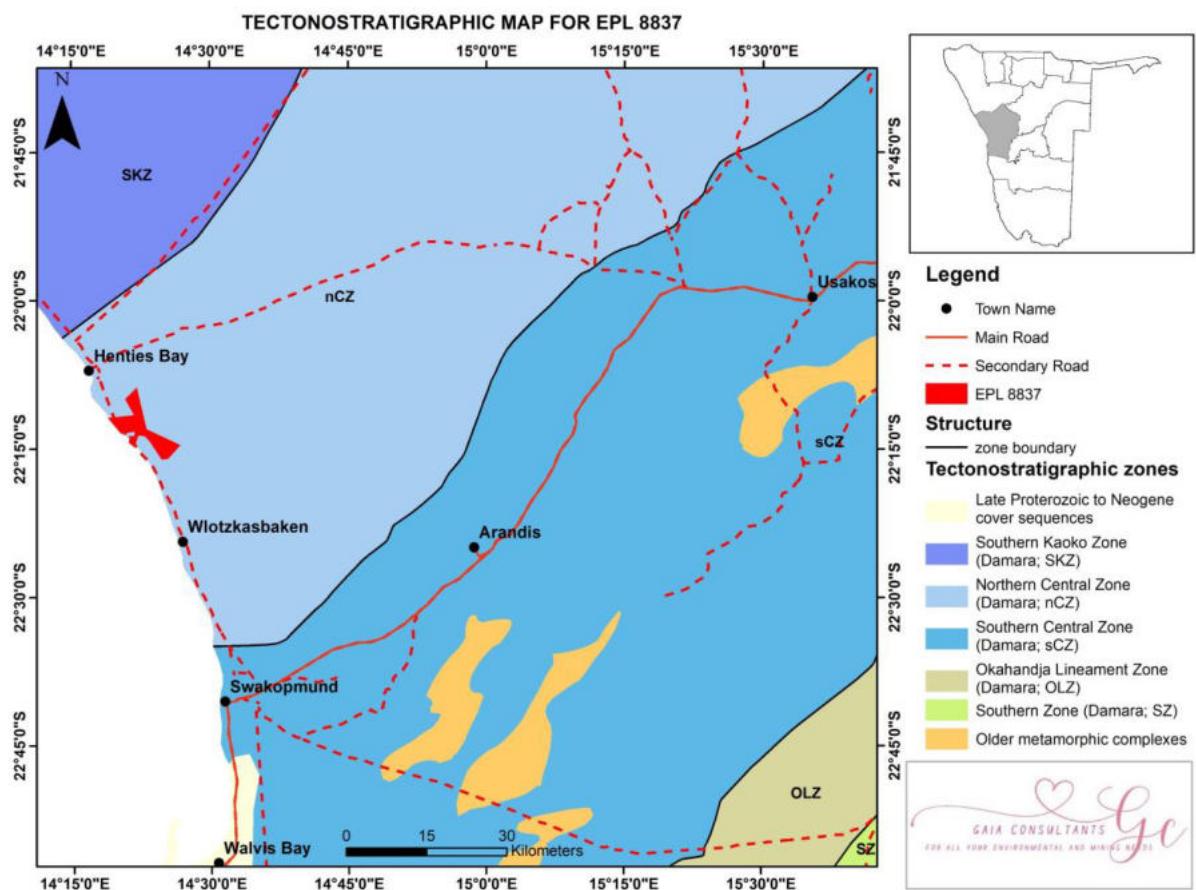


Figure 2 Tectonostratigraphic overview of the area

In the Central Zone the basal Nosib Group of the Damara Supergroup comprises mainly arenitic and calc-silicate rocks, which are exposed in the vicinity of Karibib and in the "Tsaun Terrain" northeast of Henties Bay. The overlying widely distributed Swakop Group is characterized by a basal succession of alternating marbles and mica schists, overlain by thick mica schist with subordinate diamictite and amphibolite. In the southern Kaoko Zone the Nosib Group is represented by highly recrystallized ignimbrites, minor porphyritic lava and meta-rhyolites of the volcanic Naauwpoort Formation, whose southernmost outcrops occur east of the Brandberg. It is succeeded by the alternating low-metamorphic turbiditic-hemipelagic meta-greywackes, phyllites and marbles of the Zerrissene Group.

A variety of granitic bodies were emplaced during or after the defor-mational and metamorphic events throughout the Orogen. The diorites, quartz diorites, gran-odiorites, granites and pegmatites locally cover large areas and range in age from late Namibian to Ordovician.

Sedimentary rocks of the Carboniferous to Triassic Karoo Supergroup occur in the Goboboseb Mountains, as well as surround the Erongo and Brandberg Massifs. They consist of basal tillite (Dwyka Group) succeeded by finer-grained siliciclastics and minor limestones; Triassic breccia, sandstone, and shale (Krantzberg Formation) occur in the Erongo Massif. In turn these lithologies are overlain by volcanic rocks of the Cretaceous Etendeka Group, which range from rhyolites (Erongo) to quartz latites and basalts (Goboboseb Mountains).

Throughout the area a number of Cretaceous intrusive complexes form significant massifs, the most impressive of these being the Erongo and Brandberg. Less extensive but also imposing landmarks are the Klein and Gross Spitzkoppe (northwest of Usakos), Cape Cross (on the coast) and Messum Complexes (Goboboseb Mountains). The composition of these intrusive complexes is mostly granitic, with varying contributions of gabbro, syenite, nepheline syenite, quartz-monzonite and anorthosite. Also, of Creta-ceous age are isolated gabbroic intrusions, as well as the numerous dolerite and less common felsite dykes, which cut through the country rocks in predomi-nantly north-northeasterly direction. The Quaternary deposits of the Namib Desert Plains, consisting of sand, gravel, scree, calcrete and gypcrete, cover extensive areas along the coast and the Omaruru River.

Major Unit	Lithologic Group	PERIOD	INTRUSIVE UNIT
POST-KAROO INTRUSIVES	Damaraland Intrusive Suite	Cretaceous	Cape Cross (KgCC) Erongo (KgEG) Spitzkoppe (KgSK) Brandberg (KgBB) Messelum (KbMS)
	Dykes	Cretaceous	Dolerite (Kdo) Gabbro (Kbb) Rhyolite (Krp) Felsite (Kf)
DAMARA INTRUSIVE ROCKS	Pegmatite	Ordovician to Namibian	Pegmatite (pe)
	Other granitic rocks	Ordovician	Diorite (Odd)
		Cambrrian	Tsotitsaub Granite Suite (OgTS) (post-tectonic) Post-tectonic grey granite (" gpp)
	Leuco-granites	Ordovician	Late- to post-tectonic leucogranite (Og) Mie 110 Leucogranite (" gM)
		Cambrrian	Post-tectonic leucogranite (" gb) Syntectonic leucogranite (" gls)
	Red granites	Ordovician	Sorris-Soris Granite (OgSs)
		Cambrrian	Ozondanda Granite (" gOz) Undifferentiated red granite (" gr)
ABBABIS MC	Salem-type granites	Ordovician	Late-tectonic Salem-type granite (OgSAs)
		Cambrrian	Syntectonic Salemgranite (" gSAs)
		Namibian	Syntectonic Salem-type granite (NgSAs) Syntectonic Salem-type diorite (NdSAs) Post-tectonic Salem-type granite (NgSAp)
		Kheisian	Augengneiss (MgAbag)

Figure 3 Intrusive rock units within the area

6.1.3 Local Geology

The area of interest is entirely covered by the rocks of Damara Orogeny i.e. the Karibib formation and Kuiseb formation of both Swakop Group (Fig 2). The karibib formation comprises of rocks of the Onguati member that forms a transition zone between the pure Arises River marbles and the overlying Kuiseb schists, with its lower and upper boundaries defined by the first schist layer above the Arises River marble and the uppermost thick marble horizon, respectively. According to Kandjope (1994), this member within Usakos area is approximately 100m to 150 m thick.

The Onguati member consists of thinly interbedded calc-silicate rock, marble and biotite schist, that are indicating intermittent influx of siliciclastic material into the carbonate-depositing environment (Badenhorst, 1992). Contacts between the marble and schist layers are usually sharp, while an upward decrease of marble and concomitant increase of schist bears out the transitional nature of this unit. Sedimentary structures such as planar and trough cross-bedding, locally defined by calcsilicate laminae, are present in the marbles, but are more commonly found towards the top of the unit (Badenhorst, 1992).

The Kuiseb Formation, whose lower boundary is defined as the base of the first schist layer above the Arises River marble, where the Onguati Member is absent, is the youngest stratigraphic unit of the Damara Supergroup in the area. The Kuiseb Formation is further subdivided into a lower schistose and an upper more quartzitic/phyllitic unit (absent in the study area). The lower Kuiseb Formation has a high metamorphic grade, consists of quartz-mica-feldspar schists contain local migmatite and subordinate calc-silicate rock. Due to low weathering resistance, the Kuiseb Formation is poorly exposed, and primary sedimentary structures mostly have been obliterated by intense deformation and partial melting in the vicinity of large granite plutons.

The Damara Orogeny rocks were intrude the Ordovician post-tectonic leucogranite. The leucogranites intruded during and after the second and third phase of deformation; a Rb/Sr age of 517 ± 11 Ma. The granites are fine- to medium-grained, white to light-grey, generally form thin sheet-like plutons, which appear to have intruded to slightly higher stratigraphic levels than the older Salem-type granites (Klein, 1980a). They consist mainly of quartz, perthite, K-feldspar, plagioclase and muscovite, with subordinate biotite, hornblende, sphene, Fe-oxide and tourmaline, as well as accessory apatite, zircon and monazite (Miller, 1983).

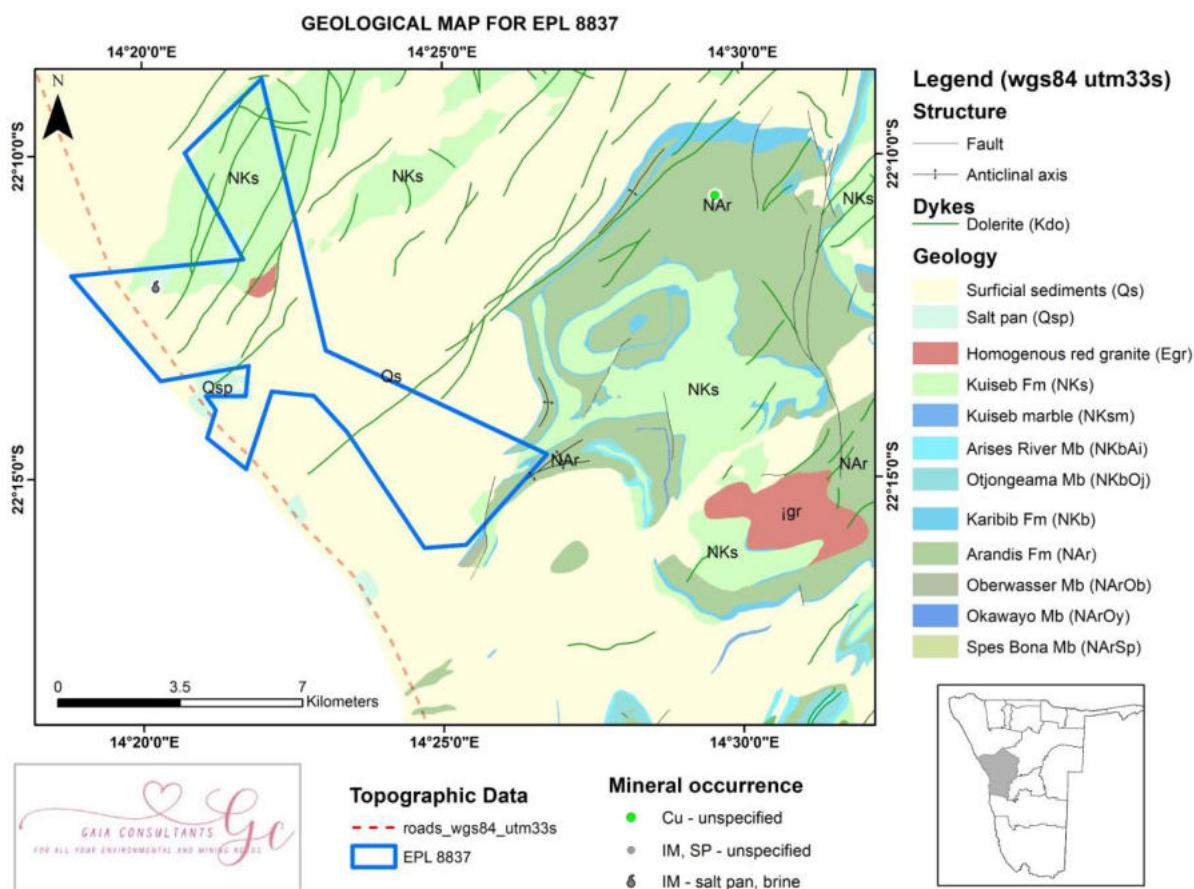


Figure 4 Local Geology

6.1.4 Socio Economic Environment

The proposed exploration project is located in Henties Bay within the Dorob National park. Dorob National Park is a protected area located along the Namibian coast, covering a diverse range of ecosystems and landscapes. As a national park, its socio-economic environment is shaped by conservation goals, tourism activities, and the involvement of local communities.

Here is an overview of the socio-economic environment in Dorob National Park:

Conservation and Environmental Protection:

Dorob National Park is primarily dedicated to conserving the unique ecosystems and biodiversity found in the area. The park plays a crucial role in preserving the fragile coastal habitats, including dunes, desert plains, and coastal wetlands. Conservation efforts aim to

maintain ecological balance, protect endangered species, and sustain natural resources for future generations.

Tourism:

Dorob National Park attracts tourists from around the world who come to explore its stunning landscapes and experience its rich biodiversity. Tourism activities in the park include guided tours, wildlife viewing, birdwatching, hiking, and scenic drives. The presence of tourists contributes to the local economy through the demand for accommodation, food services, transportation, and other tourism-related businesses.

Community Involvement:

Local communities living in the vicinity of Dorob National Park may have traditional or ancestral connections to the land. Efforts are made to involve these communities in park management and decision-making processes, recognizing their traditional knowledge and promoting sustainable practices. Community-based tourism initiatives, cultural exchanges, and income-generating projects can provide economic opportunities for local residents and foster a sense of ownership and stewardship of the park.

Employment and Skills Development:

The tourism industry associated with Dorob National Park offers employment opportunities for local residents. Jobs may include park rangers, tour guides, hospitality staff, and support services. Training and capacity-building programs can help enhance the skills and expertise of individuals working in the tourism sector, leading to improved job prospects and economic empowerment within the local communities.

Research and Education:

Dorob National Park serves as a site for scientific research and environmental education. Researchers and academic institutions conduct studies on various aspects of the park's ecosystems, contributing to scientific knowledge and conservation efforts. Educational programs and interpretive centres within the park provide opportunities for visitors and local communities to learn about the unique natural and cultural heritage of the area.

Sustainable Development and Partnerships:

Dorob National Park aims to balance conservation objectives with sustainable development. Collaboration between park authorities, non-governmental organizations (NGOs), government agencies, and local communities is crucial for achieving this balance. Partnerships can support initiatives such as ecotourism, community-led conservation projects, and sustainable livelihood programs that promote economic growth while safeguarding the park's ecological integrity.

It is important to note that the socio-economic environment in Dorob National Park may also face challenges, including the need for sustainable tourism management, maintaining a delicate balance between conservation and development, and addressing the socio-economic needs of local communities. Effective governance, stakeholder engagement, and ongoing monitoring and evaluation are key to addressing these challenges and ensuring the long-term sustainability of both the park and the surrounding communities. Overall, the socio-economic environment in Dorob National Park revolves around conservation objectives, tourism activities, community involvement, employment opportunities, research and education, and sustainable development initiatives. The interplay of these factors contributes to the social, economic, and environmental well-being of the park and its surrounding areas.



Figure 5 EPL 8837 within the Dorob National Park

7 BIOLOGICAL ENVIRONMENT

Dorob National Park was proclaimed in 2010 and covers the central Namib Desert. This area is known as an angler's paradise, with kabeljou, galjoen and steenbras being the most prized species. However, it also contains a few surprises. Extensive lichen fields are found north of Wlotzkasbaken and Cape Cross, while the Messum Crater in the north contains San rock paintings and archaeological sites from Damara nomads.

The Ugab River and the Skeleton Coast Park border it to the north. The Omaruru River bisects it, while the Swakop River is situated just south of its boundary. The towns of Henties Bay and Swakopmund are found within its boundaries, along with the hamlet of Wlotzkasbaken. The Cape Cross Seal Reserve is a separate reserve in the northern section of the area.



Figure 6 Site picture of EPL 8837

7.1 Flora and fauna

Henties Bay falls within the Namib Desert Biome and Central Desert vegetation type. The soils in the area are Petric gypsisols and petric calcisols. Sparse shrubs and grasses occur in the area. The subject site is sparsely vegetated. It should however be ensured that should any protected plant species occur on site that they are accommodated within the proposed layout.

Dorob National Park, located in Namibia, is a diverse and unique ecosystem characterized by a variety of vegetation types. The park encompasses a range of landscapes, including coastal plains, sand dunes, gravel plains, and rocky outcrops, which contribute to the rich plant diversity found within its boundaries.

One of the prominent vegetation types in Dorob National Park is the desert-adapted succulent vegetation. This includes species such as the *welwitschia mirabilis*, a fascinating

plant with large, strap-like leaves that can live for hundreds of years. Other succulents like the lit hops, commonly known as "living stones," are also found in this region, blending seamlessly with their surroundings to evade detection.

Along the coast, the park is characterized by unique vegetation known as the "fog-belt" vegetation. This specialized plant community has adapted to thrive in the mist and fog that rolls in from the Atlantic Ocean. Species such as the coastal dwarf dune sage, coastal lichens, and numerous salt-tolerant shrubs are well suited to this harsh coastal environment.

Inland, the park showcases an array of arid savannah and grassland vegetation. Species like the camel thorn tree and the shepherd's tree are commonly found in these areas, providing shade and sustenance for various wildlife species. Grasses and shrubs such as the blue bush and the bitter melon creeper also contribute to the diverse vegetation mosaic.

Due to the arid conditions and limited water availability, the flora in Dorob National Park has adapted unique survival strategies. Many plants have developed deep root systems to access underground water sources, while others have reduced leaf surfaces or store water within their fleshy tissues.

The vegetation of Dorob National Park supports a wide array of wildlife, including desert-adapted elephants, gemsbok, springbok, and various bird species. The plants provide vital resources such as food, shelter, and nesting sites for the park's inhabitants, contributing to the overall ecological balance of the region.

Protecting and preserving the vegetation of Dorob National Park is crucial not only for the plants themselves but also for the diverse array of wildlife that depends on them. Through sustainable management and conservation efforts, Namibia aims to maintain the ecological integrity of this unique national park for future generations to enjoy and study.

Coastal and Desert Plants the Park is characterized by a variety of resilient plants adapted to survive in arid and desert environments. These include species like the welwitschia, a unique and ancient plant, various types of succulents, and desert-adapted shrubs.

Lichens and Mosses: Due to the coastal fog that rolls in from the Atlantic Ocean, lichens and mosses can be found in certain areas of the park, particularly on the western side.

Desert Wildlife: While wildlife in desert environments is generally sparse, Dorob National Park does support some species adapted to arid conditions. This may include small mammals like the bat-eared fox, Cape fox, and various rodents. Reptiles such as lizards, geckos, and snakes are also present.

8 STAKEHOLDER CONSULTATION

In terms of Section 7 of the Environmental Assessment Regulations (2012), this section provides details of the Public Participation Process (PPP) undertaken in the compilation of this EIA scoping report. Consultation with the public forms an integral component of an EIA investigation and enables Interested and affected parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed development and to identify additional issues, which they feel, should be addressed in the EIA.

The background information document (BID) (see Appendix) provided IAPs with the opportunity to register and engage in the public participation process. Through registering, they have the opportunity to: Provide the EIA coordinator with additional information, which should be taken into account in the assessment of impacts and during decision-making;

- Attend meetings and obtain information about the proposed project;
- Share any comments, issues or concerns related to the proposed exploration activities;

- Review and comment on the draft report and EMP and findings from the EIA process.

8.1 AIM FOR PUBLIC PARTICIPATION PROCESS (PPP)

The aim for the Public Participation Process is not limited to:

- Informing Interested and Affected Parties (I&APs) of the proposed project;
- Identifying issues, comments and concerns as raised by I&APs;
- Promoting transparency and an understanding of the project and its consequences;
- Serving as a structure for links and communication with I&APs; and
- Providing local knowledge and input in identifying potential environmental (biophysical and social) impacts and “hotspots” associated with the proposed development.

The Ministry of Environment and Tourism defines the Environmental Assessment Regulations (2012) of the Environmental Management Act (2007), as a process in which potential interested and affected parties such as neighbouring landowners, local authorities, environmental groups, village councils and communities, to comment on the potential environmental impacts associated with the proposed project. Besides these legal requirements, the consultation of the public and other relevant stakeholders was undertaken to ensure that their voices are heard and taken into account during the decision-making process.

8.2 ADVERTISEMENTS

The public participation notices for the EIA were advertised over two consecutive weeks in The Namibian from the 17 and 28 April 2023 and the New Era Newspaper from the 14 and 21 April 2023 (see Appendix 2). Furthermore, EIA notices were placed the Erongo Regional Town Council office, and the Henties bay municipality offices. Newspaper adverts and notices are annexed at the end of this report.

8.3 PUBLIC MEETING HELD ON SITE

In compliance with the EIA Regulations (2012), public (I&AP) and all stakeholders were notified as a requirement for the EIA process. Therefore, to incorporate the varying needs of stakeholders and I&APs, as well as to ensure the relevant interactions between stakeholders and the EIA specialist team, the public was invited to the public meeting at the, Henties Bay community hall as per the itinerary below:

Venue	Date	Time
Henties Bay community hall	29 April 2023	10:00AM - 12:00PM

Table 2 Itinerary of public meeting

Despite advertising the public meeting in the newspaper and their local radio, the public interest on this project is minimal due to the location of the EPL and how far it is from the community. The environmental practitioner only managed to meet up with the people from MEFT Mr. Riaan Solomon who gave the permit for entry into the park.

9 IMPACT ASSESSMENT

The purpose of this section is to assess and identify the most pertinent environmental impacts by describing certain quantifiable aspects of these impacts and to provide possible mitigation measures to minimize the magnitude of the impacts that would be expected from the various activities that constitute the proposed minerals exploration on EPL 8837.

The following potential impacts on the environment during exploration activities have been identified:

- Dust
- Noise
- Health & Safety
- Visual

- Land Use
- Waste
- Ecological
- Groundwater and surface water
- Heritage
- Socio-Economic

These identified potential impacts have been evaluated. Mitigation measures are proposed for each aspect of the different potential impacts identified. Comments and concerns raised during the public consultation process have been considered and included.

10 ASSESSMENT METHODOLOGY FOR EVALUATING POTENTIAL IMPACTS

Risk Event	Description of the risk that may lead to an impact.
Status (+ or -)	<p>Positive - environment overall will benefit from the impact</p> <p>Negative - environment overall will be adversely affected by the impact</p> <p>Neutral - environment overall will not be affected</p>
Extent	<p>Site Specific Local (limited to within 15 km of the area)</p> <p>Regional (limited to ~100 km radius)</p> <p>National (limited to within the borders of Namibia)</p> <p>International (extending beyond Namibia's borders)</p>

Duration	Very Short (days, <3 days) Short (days, 3 days - 1 year) Medium (months, 1 - 5 year) Long (years, 5 - 20 years) Permanent (>20 years)
Intensity	No Lasting effect (No environmental functions and processes are affected) Minor effects (The environment functions, but in a modified manner) Moderate effects (Environmental functions and processes are altered to such extent that they temporarily cease) Serious effects (where environmental functions and processes are altered such that they permanently cease and/or exceed legal standards/requirements)
Probability	Refers to the probability that a specific impact will happen following a risk event. Improbable (low likelihood) Probable (distinct possibility) Highly probable (most likely)

	Definite (impact will occur regardless of prevention measures)
Prevention	Measures to reduce the probability of an impact occurring.
Significance (no mitigation)	None (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.)
Mitigation	Description of possible mitigation measures
Significance (with mitigation)	<p>None (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.)</p> <p>Low (Any magnitude, impacts will be localized and temporary. Accordingly, the impact is not expected to require amendment to the project design.)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation.)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable.)</p>
Confidence Level	<p>The degree of confidence in the predictions, based on the availability of information and specialist knowledge.</p> <p>Low (based on the availability of specialist knowledge and other information)</p>

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	Medium (based on the availability of specialist knowledge and other information)
	High (based on the availability of specialist knowledge and other information)
	<p>Low (Any magnitude, impacts will be localized and temporary. Accordingly, the impact is not expected to require amendment to the project design.)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation.)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable)</p>
Risk Event	Description of the risk that may lead to an Impact.
Status (+ or -)	<p>Positive - environment overall will benefit from the impact</p> <p>Negative - environment overall will be adversely affected by the impact</p> <p>Neutral - environment overall will not be affected</p>

Extent	<p>Site Specific</p> <p>Local (limited to within 15 km of the area)</p> <p>Regional (limited to ~100 km radius)</p> <p>National (limited to within the borders of Namibia)</p> <p>a ‘no go’ implication for the project unless mitigation or re-design is practically achievable) Description of possible mitigation measures</p>
Significance (with mitigation)	<p>None (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.)</p> <p>Low (Any magnitude, impacts will be localized and temporary. Accordingly, the impact is not expected to require amendment to the project design.)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation.)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have a ‘no go’ implication for the project unless mitigation or re-design is practically achievable.)</p>
Confidence Level	<p>The degree of confidence in the predictions, based on the availability of information and specialist knowledge.</p> <p>Low (based on the availability of specialist knowledge and other information)</p>

	Medium (based on the availability of specialist knowledge and other information) High (based on the availability of specialist knowledge and other information)
Duration	<p>Very Short (days, 3 days)</p> <p>Short (days, 3 days -1 year)</p> <p>Medium (months, 1 - 5 year)</p> <p>Long (years, 5 - 20 years)</p> <p>Permanent (>20 years)</p> <p>Minor effects (The environment functions, but in a modified manner)</p> <p>Moderate effects (Environmental functions and processes are altered to such extent that they temporarily cease)</p> <p>Serious effects (where environmental functions and processes are altered such that they permanently cease and/or exceed legal standards/requirements)</p>
Probability	<p>Refers to the probability that a specific impact will happen following a risk event.</p> <p>Improbable (low likelihood) Probable (distinct possibility) Highly probable (most likely)</p> <p>Definite (impact will occur regardless of prevention measures)</p>

Prevention	Measures to reduce the probability of an impact occurring.
Mitigation	<p>Low (Any magnitude, impacts will be localized and temporary. Accordingly, the impact is not expected to require amendment to the project design.)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation.)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have</p>
Intensity	No lasting effect (No environmental functions and processes are affected)

Table 3 Potential impacts

10.1 9.Dust Impact

Risk Event	Disturbances to soil and rock resulting in excessive dust in the atmosphere

Nature of Impact	Prospecting work is likely to create minimal dust. Drilling using reverse circulation or impact drilling is very likely to create dust due to the nature of the technique. The generated dust impacts on personnel working in close proximity to the drilling rig. Impacts on the photo-transpiration efficiency of the surrounding plants can be hampered. The dusty plants are less palatable to grazing or browsing animals. Conditions that often prevail. Cars travelling on the access roads can create dust plumes trailing behind them. Exploration activities entail driving or walking to particular sites to collect samples. The impact is not persistent for the long term.
Mitigation	Dust suppression techniques should be employed if the specific exploration activity is likely to create dusty atmospheric conditions in excess of the periodic extremes. <ul style="list-style-type: none"> 1. Avoid activities that create excessive dust on extremely windy days. 2. Personnel are required to wear personal protection equipment if excessive dust is created for prolonged working periods.
Significance (with mitigation)	Low
Confidence Level	High

Status	Negative
Extent	Site Specific and possibly local depending on mobility of particles and prevailing weather conditions. Only on very windy days would visually impacting dust travel further than 15km. The source does not move unlike with trucks on dirt roads, so the impact is along a single vector.
Duration	Project duration specific
Intensity	Moderate effect in a radius of 150m. No known hazardous status of the substrate is expected
Probability	Probable
Significance (no mitigation)	Medium to Low. Natural weather conditions can create very dusty atmospheric conditions. The small scale and site-specific exploration activities contribute very little to the widespread ambient

Table 4 Dust Impacts

10.2 Noise Impacts

Risk Event	Disturbance of sense of place and the effect on tranquil ambient noise levels
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Nature of Impact	Potential noise sources during the exploration within EPL 8837 could originate from vehicles, blasting (when taking bulk samples), hammers, powered hand tools, excavators and drill rigs. The nuisance factor of these noise sources will depend on the proximity of the exploration activities to the national road, homesteads and sensitive animal habitats. Other vehicles travelling on the road contribute to the ambient noise levels. The guidelines and PPE mitigations are discussed under the health and safety section. Arrangements to drill over the weekends or at other times need to be made with landowners so that there is no conflict with tourist, hunting or domestic activities. It is recommended that any complaints regarding noise be recorded in the bi-annual reports.
Significance (with mitigation)	Low
Confidence Level	High
Status (+ or -)	Negative
Extent	Site specific and Localized (up to 1km depending on the weather conditions)
Duration	Short

Intensity	Minor Effects (i.e. cumulative when near the national road) & Moderate Effects in quieter locations of farms, lodges and hunting establishments.
Probability	Definite
Prevention	Noise creation cannot be prevented completely, will occur, and should be mitigated as best as possible.
Significance (no mitigation)	Medium
Mitigation	<p>For rural districts, the daytime ambient noise level requirement outlined in SANS 10103 (2008) between 6am 10pm is 45dBA. This is in line with the guidelines published by the World Health Organization (WHO).</p> <p>There are industry standards to which the noise sources (i.e. machinery) must comply. Regular maintenance of machinery should maintain the acceptable noise levels for operators working with the machines. The activities are to take place during daylight hours only. Periods of silence during the day may be necessary.</p> <p>The guidelines and PPE mitigations are discussed under the health and safety section.</p> <p>Arrangements to drill over the weekends or at other times need to be made with landowners</p>

	<p>so that there is no conflict with tourist, hunting or domestic activities.</p> <p>It is recommended that any complaints regarding noise be recorded in the bi-annual reports.</p>
Significance (with mitigation)	Low
Confidence Level	High

Table 5 Noise impacts

10.3 Health and Safety Impacts

Risk Event	Injury risks due to normal working conditions
Nature of Impact	<p>The potential impacts on human health and safety resulting from exploration activities could include occupational accidents and injuries, vehicle accidents, exposure to weather extremes, trips and fall on uneven terrain, adverse health effects from dust generation and emissions, and contact with hazardous materials. The potential for these impacts to occur would be low because of the limited range of activities and number of workers required during exploration.</p> <p>Operational procedures during tanker ship offloading pose numerous risks to operational personnel. These risks are assessed in terms of</p>

	<p>the predicted impact if realized. Typical examples are:</p> <ul style="list-style-type: none"> • Carcinogenic effects of some • petroleum products • Breathing in excessive fumes • Product contact with eyes and skin • Slipping on wet surfaces • Working at heights • Muscular injury from incorrect lifting techniques
Status (+ or -)	Negative
Extent	Site Specific
Duration	Permanent
Intensity	Minor to Serious Effects
Probability	Highly probable
Prevention	The operations of the exploration can cause serious health and safety risks to workers on site. Occupational exposures are normally related to dermal contact with fuels and inhalation of fuel vapors during handling of such products. For this reason, adequate measures must be brought in place to ensure safety of staff on site.

	<p>An integrated health and safety management system acts as a monitoring tool and mitigating tool. The monitoring tools are elaborated upon in the EMP.</p> <p>Typical mitigating measures within the health and safety management systems are:</p> <ul style="list-style-type: none"> • Operational and procedural manuals • Health and safety training • Housekeeping rules • Color coding areas, pipes, equipment and substances • Signage for personal protective equipment (e.g. protective clothing like safety boots and hard hats) • Safe working procedures and permits to work • Emergency response plans • Material Safety Data Sheets (MSDS) • First aid treatment and training • Medical procedures and emergency services • Daily safety reminders and/or drills • Regulations for handling fuel <p>The MSDS gives health related medical responses for personnel assisting staff who are exposed to the fuels.</p>
Significance (no mitigation)	Medium

Mitigation	Procedures for dealing with injuries or accidents must be in place and all contact details for emergency personnel available. The company safety manual is used as developed by the guidelines and statutory requirements under the Labor Act.
Significance (with mitigation)	Low
Confidence Level	High

Table 6 Health & Safety

10.4 Visual Impacts

Risk Event	Changes to the aesthetic appeal of the area due to presence of people, vehicles and machinery. Visible changes to habitats due to human activities.
Nature of Impact	The experience of enjoying the vista unobstructed by human activities is considered highly desirable. Impact to visual resources would be considered adverse if the landscape were substantially degraded or modified. Exploration activities will only have temporary and minor visual effects, resulting from the presence of workers, vehicles and other equipment. Exploration activities would possibly contribute to this to some degree through drill pad and road construction. Prospecting phase activities would have negligible effect on this aspect.

Status	Negative
Extent	Localized
Duration	Short: (presence of vehicles, personnel and machinery) Long: (un-rehabilitated prospecting holes or pits)
Prevention	For exploration to take place, personnel, vehicles and machinery will be deployed into the area for the short term periodically. Exploration is not possible without disturbing small sections of the various habitats.
Significance (no mitigation)	High obvious signs of human presence. Remove all waste daily and dispose of it in the appropriate manner. Removal of machinery from the exploration sites if periods of inactivity are protracted. Drilling and subsequent phases should take place during the least busy tourism period as a measure to circumvent the negative publicity
Significance (with mitigation)	Medium
Confidence Level	Medium. Often, both plants and animals will in time recolonize the sites that are disturbed and rehabilitated at least from an aesthetic

	<p>perspective. The aim is to minimize the footprint to achieve the least impact due to anthropogenic influences.</p> <p>There is no way to predict that changing the drilling period to less busy tourist times, that tourists, even if fewer in number, will not publish negative publicity.</p>
Mitigation	<p>Best practice methodologies for exploration will be employed. They may include the following: (Some of these also apply to mitigations for ecological impacts as well) As far as is possible existing roads and tracks are used to access target sites for sampling and drilling.</p> <p>Walking to target sites being careful not to disturb plants and faunal habitats.</p> <p>Personnel to be trained regarding the observable signs of faunal and floral biodiversity and the avoidance of habitat disturbance.</p> <p>Minimize the footprint of personnel, vehicles and machinery. As far as is possible no vegetation is to be removed. Where new roads are constructed the methods should be low intensive and possibly use manpower and not machines. New roads if planned well could</p>

	assist with the future objectives of the farm, lodge or hunting establishment.
Intensity	Moderate Effects
Probability	Definite

Table 7 Visual impacts

10.5 Land use Impact

Risk Event	Users and owners of the land could potentially experience restrictions to their constitutionally entitled liberties.
Nature of Impact	EPL 8837 lies within state owned land within the Dorob national park sometimes mineral exploration within a national park area is believed to be in opposition to the commercial, societal and biodiversity objectives of natural environments. A Potential win-win scenario could be sustainable for the park and mining providing for future generations. The value that mineral exploration and later still possible mining could bring to the district needs to be discussed between the company and the landowners/ community members.
Status	Negative
Extent	Regional

Duration	Short (non-tourism/nature reserve farms within the EPL) Long (tourism-based farms within the EPL)
Intensity	Minor Effects (non-tourism/nature reserve-based farms) Serious Effects (for tourism-based farms)
Probability	Definite
Prevention	Exploration implies the presence of an exploration team. The exploration activities would take place within sensitive nature reserve or tourist-based areas. Thus, it would not be possible to avoid the conflict of land use completely.
Significance (no mitigation)	Low Through the issuing of an environmental clearance certificate for this listed activity. The EIA process facilitates a transparent process by which concerns can be raised. Common decency will direct the proponent to inform all stakeholders of the starting date for the activities once the government has issued a positive record of decision. The proponent (company) is subservient to the conditions laid down by the clearance certificate and the law that upholds it. The implementation of the exploration program will be in accordance with

	the approved Environmental Management Plan (EMP). The draft EMP can be found in Appendix 1.
Significance (with mitigation)	Medium to Low (the EMP must be strictly implemented and all efforts are made to reduce the impacts on the biodiversity, commercial and social aspects of the farmers/community members.)
Confidence Level	Medium The Ministry of Environment & Tourism may need to clarify and justify any grounds for which the exploration company will not be able to undertake exploration activities within the EPL area.
Mitigation	Law requires that permission be provided

Table 8 Land use impacts

10.6 Waste Impact

Risk Event	Waste Production
Nature of Impact	The ability of a substance to be waste, which must be cleaned up and or removed. Most of the waste produced will result from maintenance work performed on the machinery. Spilled product is also regarded as waste. Packaging from food products is included.

Status (+ or -)	Negative
Extent	Site Specific
Duration	Short
Intensity	Minor Effects
Probability	Definite
Prevention	Spillage prevention is possible through employing trained personnel and implementing general maintenance and upkeep of equipment.
Significance (no mitigation)	Medium
Mitigation	<p>Spills and leaks must be reported and cleaned up immediately.</p> <p>Workers will be made aware of their isolated living conditions; any goods for private use or for the business need to be brought a long way to the site and any waste generated also must be taken a long distance to the next dumping site.</p> <p>Therefore, avoidance of waste generation and recycling of all applicable materials are to be actioned daily.</p> <p>Sewerage waste is to be removed from site. The department of water affairs have provided guidelines for the establishment of septic tanks</p>

Significance (with mitigation)	Low
Confidence Level	High

Table 9 Waste impact

10.7 Ecological Impacts

Risk Event	Exploration activities may affect Biodiversity of fauna and flora directly or through habitat alteration.
Nature of Impact	Through the exploration for mineral resources there is potential for affecting the diversity of species within the various habitats by reducing population numbers of a particular species within the EPL. Pressures on the population numbers can potentially pressurize the populations within an area to an extent that causes the species to no longer exist within that area. Should a species be endemic to that same area then the risk of extinction is high. Altering the habitat can potentially result in the same outcome. For the most part the endemic species found within the area under assessment are also found elsewhere in the country. However, there may be exceptions and a precautionary approach must be taken. The species that are classified as Near Threatened, Vulnerable and Critically Endangered are those that although found

	elsewhere in Namibia should be taken cognizance of. Their specific habitat and feeding, breeding, nesting and migratory habits must not be impacted upon in the least degree.
Status	Negative
Extent	Localized
Duration	Short to Medium term
Intensity	Serious effect if an individual are disturbed or destroyed/killed
Probability	Probable
Prevention	Though the habitats will remain relatively undisturbed due to the very low percentage footprint of activities planned, without prior knowledge of the whereabouts of the vulnerable, threatened and critically endangered species and their preferred habitat, it may not be possible to prevent an impact, regardless of how small it might be.
Significance (no mitigation)	High Though the intensity of the exploration is very low, as already explained, the significance of the impact is considered high based on the sensitivity of the species that occur here
Mitigation	Those areas targeted for exploration will be accessed along existing roads and tracks as far as possible. Many of the sites will initially be

	<p>visited on foot. The latter two exploration phases may need to produce new tracks to access targeted sites. Dry watercourses provide the next option for gaining access to remote sites for vehicles where no tracks formerly exist. These habitats are occasionally disturbed by flash floods and must re-establish communities of fauna and flora thereafter.</p> <p>Exploration teams need to be trained and provided orientation on how to best access sites for exploration with least impact on the observable and hidden signs of fauna and flora and their habitats.</p> <p>Rehabilitation of sites that have been explored must restore the sites, as far as is possible to their prior state to mitigate the visual impact and to allow for the best possible re-colonization of the site, by plants and animals.</p> <p>Tree surveys prior to clearing roads and drill pads are mandatory and forestry permits are required by law. NO PROTECTED TREES SHOULD BE FELLED.</p>
Significance (with mitigation)	Low
Confidence Level	Medium. Knowledge of the whereabouts of some species and their habitats may not be readily available and this makes it difficult to predict whether the low significance can be

	practically achieved. Surveys of the areas to be cleared will be required by the Forestry Directorate and bush-clearing permits are to be issued by the same.

Table 10 Ecology impacts

10.8 Groundwater and surface water Impacts

Risk Event	Exploration activities may affect the availability of water and the quality there of
Nature of Impact	Through the exploration for mineral resources there is potential for impacting: <ul style="list-style-type: none"> • Water availability for deep rooted trees in riverbeds (groundwater) • Water availability and quality for people (groundwater) • Risk of surface and groundwater pollution • Risk of groundwater drawdown due to abstraction
Status	Negative
Extent	Localized
Duration	Short to Long term
Intensity	Serious effect, permanent change to the availability of water would be devastating for the sustainable farming that occurs here.

Probability	Probable if boreholes puncture the Karst Formation, water abstraction is not controlled, or water pollution is not prevented
Prevention	It is possible to prevent over abstraction and pollution of water resources. It is also possible to prevent the puncturing of the Karst Formations (if any) through careful planning, knowledge and liaison with the Department of Water Affairs.
Significance (no mitigation)	High: Should the prevention measures not be in place then the significance of the impact will be high. The population carrying capacity is already low due to limited water resources.
Significance (with mitigation)	Low
Confidence Level	High, only if the mitigations are carried out strictly. Guarantees must be given by the exploration company that they do not in any way damage the susceptible water resource.

Table 11 Groundwater and surface water impacts

10.9 Socio-Economic Impact

Risk Event	Positive aspect of sustaining employment in the sector.

Nature of Impact	The project to be carried out at EPL 8837 site will employ a limited number of people involved with exploration on an intermittent basis. From 10 to 30 staff would be on site during the drilling phase depending on the intensity of the drilling program. On the negative side, the social and economic basis of the farms/ community may be adversely affected by the presence and activities of the exploration team and equipment. Potential lowering of the security currently enjoyed could be potentially interrupted.
Status	Positive & Negative
Extent	Regional (radius of up to 100 km)
Duration	Short up to one year of drilling spread over a broad area.
Intensity	Moderate effect (for the positive) Moderate effect (for the negative)
Probability	Probable (both the negative and positive aspects)
Prevention	If the environmental clearance certificate is not forthcoming, then the positive impact is halted.
Significance (no mitigation)	Low (positive) The project will employ very few personnel, so it is not significant in the greater scheme of things.

	Medium (negative) The security of the farms/communal land could potentially be lowered through negligence and or intentional misuse of the privileged access to the farms.
Mitigation	<p>Where possible, local persons (i.e. from the adjacent towns and farms) should be employed. This depends on the level of skills the local persons have. Sustainable employment will result should the project be allowed to go ahead.</p> <p>The drilling program could take place during less busy tourism times and if necessary, increase the number of drill rigs during that time to shorten the period of activity.</p> <p>Company supervisory staff must manage the access to and from the farms very strictly ensuring the staff stay within predetermined areas and ensuring all inter leading gates etc. are closed and or locked as per the request of the farm owners.</p>
Significance (with mitigation)	<p>Low (positive)</p> <p>Low (negative)</p>
Confidence Level	High

Table 12 Socio- Economic Impacts

11 CONCLUSION

In conclusion, this project in EPL 8837 will explore industrial minerals, through exploring for these commodities, contributions to the Namibia's economy will be made and continued employment to the existing staff is made possible.

For all aspects of operations and prospecting work strict adherence to the company's environment, Health and Safety policies must be ensured. Environmental training of the work force as well as monitoring of all aspects pertaining to Environment, Health and Safety must be carried out in accordance with the approved EMP.

The exploration within the EPL the company will follow a phased approach, which will be in line with the relevant Namibian legislation and regulations. The exploration program will be conducted in line with the EMP thus implementing the necessary mitigation measures, monitoring and stipulated rehabilitation. It is of utmost importance that good relations are upheld with the farming community, community members and any other affected parties.

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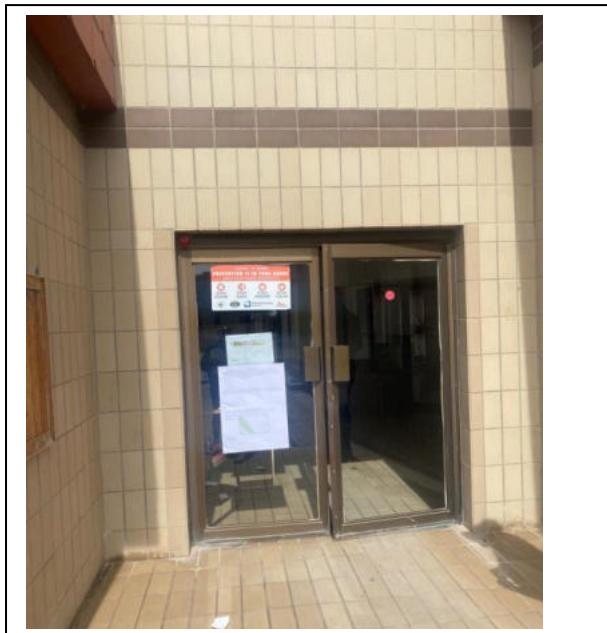
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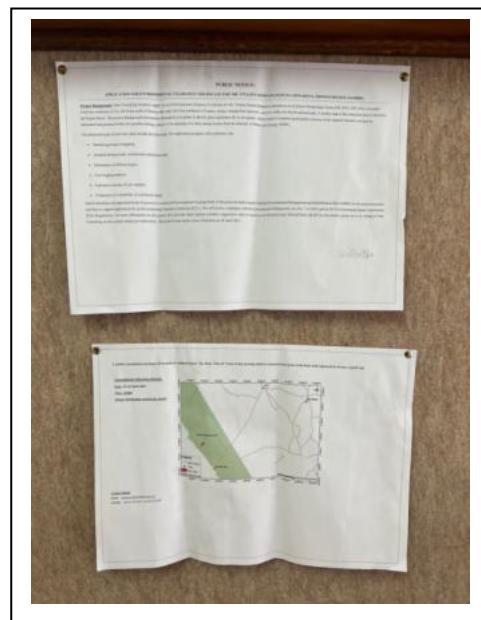
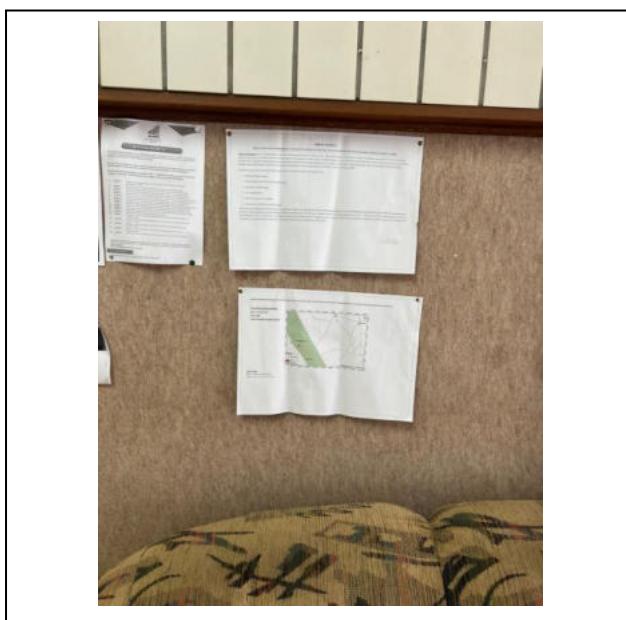


APPENDIX A: SITE NOTICE PLACEMENTS AND NEWSPAPER ADVERTISEMENTS

Hentiesbay Municipality



Erongo Regional Council



ADVERTS

Appendix B: BID

Appendix C Permit Letter

Appendix D Stakeholder List

1	Stakeholders List					
2						
3	Proponer Newcrest Investments CC					
4						
5	Organisation Contact person Department/Position/Affiliation Telephone Fax Email address					
6						
7	SEA/ EIA					
8	Gaia Consultants Hilya Amukwa Environmentalist 0817382934 gaiiconsultantscc@gmail.com					
9						
10	Organisation Contact person Department/Position Telephone Fax Email address					
11						
12	Central Government Ministry of Environment and Tourism Theo Nghithila Executive Director 061-284-2184/5 061-229-936 nghithila@dea.met.gov.na / tngithila@yahoo.com					
13	Timoteus Mufeti Environmental Commissioner 061-284 2701 061-240 339 timoteus.mufeti@met.gov.na					
14						
15	Caroline Garus-oas Deputy Environmental Commissioner 061-284 2717 061-240-339 caroline.garus-oas@met.gov.na / Caroline.Garus-oas@met.gov.na					
16	Ministry of Agriculture, Water & Land Ref Mr. Percy Misika Saima Angula Deputy Director: Environmental Assessment, Waste Management, Pollution Control and Inspections 061-284 2717 061-240-339 saima@webmail.co.za					
17	Siegfried Gawiseb Executive Director 061-2087649 061-221733 Siegfried.Gawiseb@met.gov.na					
18	Margaret Kalo Control Warden Erongo Region 061 208 7719 061-2848312/219 Perce.Misika@mawl.gov.na					
19						
20	Ministry of Mines & Energy Bryan Eiseb Senior Public Relations Officer 061-2848312/219 061-2848176 Bryan.Eiseb@mme.gov.na					
21	Isabella Chirchir Acting Executive Director 061-284 8251 061-284 8385 Isabella.Chirchir@mme.gov.na					
22	Mathews Amunghete Mining Commissioner 61-284 8254 61-284 8385 Mathews.Amunghete@mme.gov.na					
23	Ministry of Urban and Rural Development Nghidinua Daniel Executive Director 061-297-5180 061-528-131 akhamutende@murd.gov.na / ndaniel@murd.gov.na					
24	Niita Lipinge Dep. Director: Resettlement 061 296 5104 Niita.Lipinge@mnr.gov.na					
25						
26	Organisation Contact person Department/Position/Affiliation Telephone Fax Email address					
27						
28	Regional GRN Erongo Regional Council Neville Adre Govenor 064-417900 farita@erongoro.gov.na					
29	Ms Ludmilla H Doeses Chief Regional Officer 064-4105700 064-417906 oro@erongoro.gov.na					
30	Mr Meroro Deputy Director: Planning 081-1244966 pmeroro@erongoro.gov.na / meroro04@gmail.com					
31						
32	Riaan Solomon Ms Dimari Van Rensburg Town and Regional Planner 064-4105700 064-417906 Riaan.Solomon@met.gov.na / dimari@erongoro.gov.na					
33	Henties Bay Municipality Jeremias Khaiseb Environmental Officer 064-4105700 064-417906 Jeremias.Khaiseb@hbaymun.com.na					
34						
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36						
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Appendix E EMP

Appendix F Resume

+264 81 738 2934
hamukwa@gmail.com
gaiiconsultantscc@gmail.com
ERF 6067, Lazarus Street
Katutura

Driving licence: Code B

EDUCATION

ACADEMIA SECONDARY SCHOOL | 2008-2012

BACHELORS OF ARTS (HONOURS)
GEOGRAPHY AND ENVIRONMENTAL STUDIES AND LIBRARY AND INFORMATION STUDIES | UNIVERSITY OF NAMIBIA | 2017-2020

MASTER OF SCIENCE
INTEGRATED ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT | INTERNATIONAL UNIVERSITY MANAGEMENT | CURRENT

SKILLS

- Communication proficiency
- Microsoft office Packages
- Entrepreneurial
- Creative
- Proposal writing
- Project management

REFERENCES

Ms Martha Haludila
Gaia Consultants cc
Project Manager
Tell: +2648185925509
email: gaiiconsultantscc@gmail.com

Mr. Martin Hipangwa
Supervisor
BGR
Tell: +2642848200
Email: hipangwamartin@gmail.com

HILYA AMUKWA

Environmental Practitioner

ABOUT ME

A hardworking, reliable, dedicated, trustworthy individual. Being an Environmental and Information practitioner has equipped me with good goal setting and implementation, good public speaking, the ability to work independently , the ability to handle pressure and meet deadlines. I am also good at problem identification and solving and a great skill to work and communicate with different types of people. I have the ability to learn new things quickly I am very disciplined and respect others. I am very trustworthy and punctual and a great team player.

EXPERIENCE

Federal Institute for Geosciences and Natural Resources of Germany (BGR) Graduate consultant December 2020- Till present

- Field work
- Analysing environmental impacts of abandoned mines
- Working on Drill hole modules
- Assisting clients with historical exploration data
- Earth data Namibia

Gaia Consultants CC November - Current

- Drafting of EIA and EMP reports
- Project Management
- Oil and Gas Exploration
- Quarrying
- Prospecting
- Small Scale Mining
- Mining and Exploration and related Services
- Geotechnical and Environmental Assessments.