

**SCOPING REPORT ENVIRONMENTAL AND MANAGEMENT & MONITORING PLAN (EMP)
FOR APPLICATIONS AND EXPLORATION ON MINING CLAIMS NUMBERS 69857-69859
AND 70005-70009 KAOKOLAND, KUNENE REGION**

Prepared and Submitted By



NAMLAND CONSULTANTS

P.O. Box 55160, Rocky Crest, Windhoek
Cell: 0812805501; 0811474742
Fax 2 mail: 0886519068
Email: consultancy@namland.com.na

Proponent: Phoenix Mineral Resources

Document Status

PROPONENT	Phoenix Mineral Resources
PROJECT TITLE	Environmental Impact Assessment Process for Application and Exploration on Mining claims numbers 69857-69859, 70005-70009 Kaokoland, Kunene
PROJECT TYPE	Environmental & Social Impact Assessment Study
PROJECT LOCATION	Mining claim, 69857-69859, 70005-70009 Kaokoland, Kunene
COMPETENT AUTHORITY	Environmental Commission (Ministry of Environment and Tourism)
PROJECT EAP / REVIEWER	Contact person: Mr David Shikoyeni NAMLAND CONSULTANTS P.O. Box 55160, Rocky Crest, Windhoek Cell: 0811474742/0812795499 Email: dshikoyeni@namland.com.na
CONTRIBUTORS / FIELD STAFF	<i>David Shikoyeni, Ben Shigwedha, Titus Shuuya and Amakutuwa Paulus N</i>

ABBREVIATION OF TERMS USED

– BID	Background Information Document
– CV	Curriculum Vitae
– DEA	Department of Environmental Affairs
– EA	Environmental Assessment
– ECC	Environmental Clearance Certificate
– EIA	Environmental Impact Assessment
– EMP /S	Environmental Management Plan / Statement
– GG	Government Gazette
– GN	Government Notice
– ha	Hectare
– HIV	Human Immunodeficiency Virus
– NMT	Non-Motorised Transport
– SMEs	Small and Medium Scale Enterprises
– ASM	Artisanal and Small-Scale Mining

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1. EXECUTIVE SUMMARY

Phoenix Mineral Resources has commissioned Namland Consultants to undertake the Environmental Impact Assessment (EIA) process and to compile an Environmental Scoping Report and Environmental Management Plan (EMP) for the amendment of Mining claims number 69857-69859 (semi-precious stones), 70005-70009 (applied for semi-precious stones) for exploration and mining of rare and base metals, industrial minerals and other groups of minerals, in Kaokoland, Kunene region (**Error! Reference source not found.&2**).

The area is located in the northern Kunene Region in North-Western Namibia, immediately south of Kunene River. The claims were taken for semi-precious stones but, during the exploration, the other minerals, containing base, rare and possibly precious metals, as well as industrial minerals, have been found. The tenements consist of three (3) granted mining claims with a total area of 900x1800 m, covering the main orebody, and (five) 5 adjusted to them mining claims, covering the area 1500x3000 m which are ready for approval (environmental clearance for semi-precious stones has been issued). The application for adjusted claims with a total area of 90 hectares, was submitted on the 15th of September, 2016, and currently has pending status. Total area of all eight claims is 144 hectares.

Therefore, three granted for semi-precious stones claims (69857-69859) and five applied for semi-precious stones claims (70005-70009) are necessary to be amended for other groups of commodities, such as base and rare metals, precious metals, industrial minerals. The mining of the ore can be started immediately within the mining claims after obtaining the clearance certificate. The ore deposit located within the claims, will greatly increase the value of resources base in the region.

This project has the potential to contribute to Namibia’s economy and **Error! Reference source not found.** lists the direct and indirect benefits that will arise should the exploration activities be given environmental clearance and commence shortly thereafter.

Table 1. Direct and indirect benefits arising from the exploration project:

Project Phase	Direct Benefits	Indirect Benefits
<ul style="list-style-type: none"> • Exploration Project 	<ul style="list-style-type: none"> • Continued employment opportunities • Direct capital investment to determine and define mineral resources in Namibia • Stimulation of economic development (e.g., ongoing supply of materials and services to the exploration and drilling industry) • Continuing skills development 	<ul style="list-style-type: none"> • Expansion of exploration and drilling industry in the region and country • Inducement of additional investments • Maintenance of new long-term employment opportunities in sectors relying on project activities

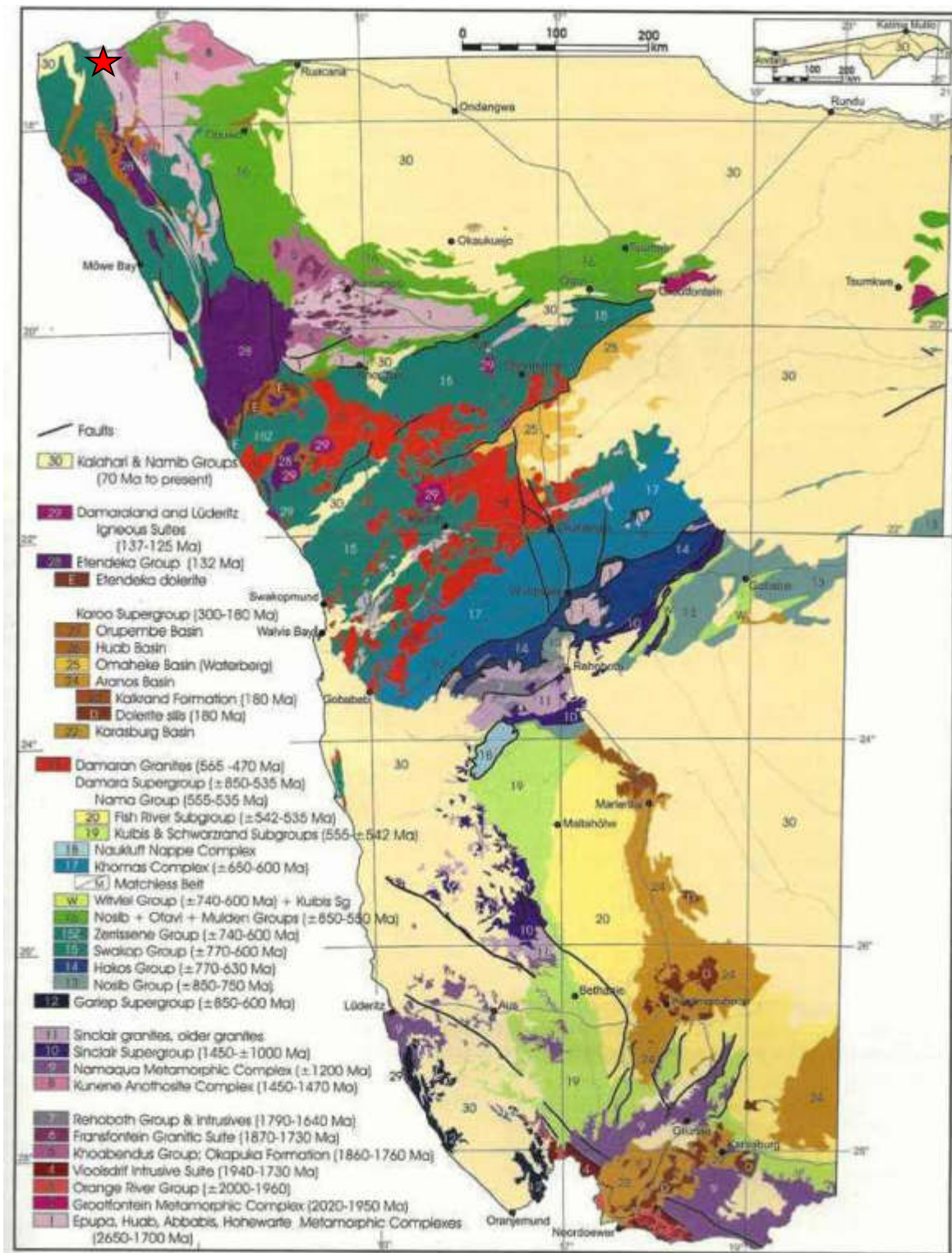


Figure 1. Location of the mining claims on geological map of Namibia (shown by the red star).

2. INTRODUCTION

2.1. Background

The Namibian mining sector is characterized by the large, medium and small-scale mining sector. However, this study is based on small-scale mining. Namibia is rich in mineral deposits including diamonds, uranium, gold, base metals, industrial minerals and different types of precious stones and dimension stones. It is against this background that mining has been the backbone of the Namibian economy. Small-scale mining plays a major role in alleviating poverty and supplements the income of those involved. The Minerals (Prospecting and Mining) Act of 1992 and the Minerals Policy (2003) make provision for the registration of different types of mineral licence and mining claims. Thus, this study was undertaken within the context of the legislative framework, the Minerals Policy in particular, as it also provides the basis for the registration of mining claims.

2.2. Legal Requirements

In terms of Section 58 of this Act, the Environmental Management Act came into force on the 6th of February 2012, as determined by the Minister of Environment and Tourism (Government Notice No. 28 of 2012).

Under Section 56 of the Environmental Management Act, 2007 (Act No.7 of 2007), the Minister has made the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012). These regulations require that all projects, plans, programmes and policies that have a detrimental effect on the environment must be accompanied by an EIA. Under Section 27 of the Environmental Management Act, 2007 (Act No. 7 of 2007), and after following the consultative process referred to in section 44 of that Act, the Minister lists in the Annexure to the above-mentioned Schedule, activities that may not be undertaken without an Environmental Clearance Certificate (Government Notice No. 29 of 2012).

The most important provisions in terms of guiding this Environmental Assessment process are those contained in the Town Planning, Road and Townships and Division of Land Ordinances, the Water and the Forestry Acts, The Minerals (Prospecting and Mining) Act of 1992 and the Minerals Policy.

The proposed developments will likely have minimal impact on sensitive aspects of the receiving environment, both biophysical and socio-economic, as it is remotely concentrated.

2.3. Public Consultations

Public participation was carried out in accordance with the EIA Regulations. Various I&APs at the local level were identified and their input was solicited. Electronic and print media were fully utilized in communicating with the communities and stakeholders. The consultant engaged in an extensive and exhaustive Field Survey as a way of engaging, informing and educating Interested and Affected Parties.

2.4. Impact Assessment

The issues identified and those identified during the Public Consultation Process are assessed using a range of assessment criteria. The application of these criteria involves a balanced consideration of duration, extent, and intensity/magnitude, modified by probability, cumulative effects, and confidence to determine significance. Mitigation measures are outlined for each identified impact.

2.5. Consultancy Terms of Reference

The Terms of Reference (TORs) for the proposed project is technically and legally based on the requirements set out by the Namibian Environmental Management Act (2007) and the accompanying EIA Regulations (2012). The process covered the following steps:

- a) A description of all tasks to be undertaken as part of the assessment process, including any specialist studies to be included if needed;
- b) An indication of the stages at which the Environmental Commissioner is to be consulted;
- c) A description of the proposed method of assessing the environmental issues and alternatives
- d) An identification of all legislation and guidelines that have been considered in the preparation of the scoping study;
- e) Description of the environment that may be affected by the activity and how the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity
- f) A description of environmental issues and potential impacts, including cumulative impacts that have been identified
- g) A draft Environmental Management Plan that complies with EMA and its Regulations;
- h) The nature and extent of the Public Consultation process to be conducted during the assessment process.

It should be noted that the ToR and scope of services required the Scoping Assessment and production of EMP for the proposed development, and this included an extensive and exhaustive public consultation process.

2.6. The Environmental Assessment Practitioner

Namland Consultants is a consortium of highly skilled and experienced Associates of researchers, scientists, town and regional planners, mapping and environmental specialists, engineers, geologists, hydrogeologists, chemists who work with clients to develop and implement site-specific solutions.

Namland Consultants as the EAP designate:

- Have knowledge of and experience in conducting assessments, including knowledge of the Environmental Management Act, Mineral Act, the Environmental Impact Assessment Regulations and guidelines that have relevance to this proposed activity, Stakeholder Engagement;
- Have performed the work relating to the application objectively, even if this results in view and findings that are not favorable to the applicant;
- Have complied with the Environmental Management Act, the Environmental Impact Assessment Regulations, guidelines and other applicable laws, and
- Have disclosed to the proponent, competent authority / the Environmental Commissioner all material and information in its possession that reasonably has or may have the potential of influencing –
- Any decision to be taken concerning the application in terms of the Environmental Management Act, the Environmental Impact Assessment Regulations; or

- The objectivity of any report, plan or document prepared by the EAP in terms of the Act and its regulations.

3. DESCRIPTION OF THE PROJECT

3.1. Property Description and Location

The area is located in the northern Kunene Region in North-Western Namibia, immediately south of Kunene River. The tenements consist of 3 granted mining claims with a total area 900x1800 m, covering the main orebody, and 5 adjusted to them mining claims, covering the area of 1500x3000 m which are ready for approval (environmental clearance has been issued).



Figure 2. Location map of Mining claims number 69857-69859, 70005-70009 Kaokoland, Kunene region (Source: Namibia Mining Cadastre Portal, Ministry of Mines and Energy).

3.2. Project Background

The new deposit of base and rare metals and industrial minerals was discovered by “Phoenix Mineral Resources” Geosciences Consulting and Exploration Company. It is located in the North-Western part of Namibia. The pegmatite body of up to 3 m of thickness is exposed on the surface and has continuation on the depth. The laboratory analyses showed high concentrations of Ta, Ni, Ti, REE.



Figure 3. General view of the deposits.

In August 2016, Mr. Johannes Phillipus had received three mining claims (69857, 69858 and 69859) for semi-precious stones. Mr. Johannes Phillipus entered into an Exclusive Operational Agreement with Ms Elena Repina, director of “Phoenix Mineral Resources” and requested her to evaluate the mining claims and surrounding area for their potential. As an Operational Agent, Elena Repina nominated “Phoenix Mineral Resources” as a principal subcontractor of geological works, and, together with Dry Sergey Paraketsov and a field team, they undertook the exploration of claims No 69857, 69858 and 69859 in August-September 2016. Local people – the members of Marienfluss Conservancy - have been hired during the field trip, for technical work, scouting and various assistance.

Furthermore, “Phoenix Mineral Resources” as representative of Mr. Johannes Phillipus entered into a verbal and written agreement regarding conditions of further development of the deposit with traditional authority, headmen and members of Marienfluss Conservancy, with intend to benefit the local community.



Figure 4. Meeting of the staff of “Phoenix Mineral Resources” with the traditional authority representatives, elders and members of Owahimba community – e.g. headmen Kapyiarukoro Tjambiru, Kaunda Tjambiru.

4. INFRASTRUCTURE AND LAYOUT

4.1. Access

Access for visitors to Marienfluss is provided by four wheel drive tracks via Orupembe and Red Drum. The overall time of driving either from Windhoek via Opuwo – Kaoko Otavi – Orupembe, or Walvis Bay/Swakompund via Sesfontein – Orupembe is two days, as the last 150-200 km can take up to 6 hours. The route from Opuwo to Marienfluss via van Zyl’s Pass is for extreme tourists and cannot be recommended for exploration activities. The closest sea port is in Walvis Bay, while the closest railway is in Kamanjab. In a good rainy season the Marienfluss valley can become inaccessible for a period up to two-three weeks.

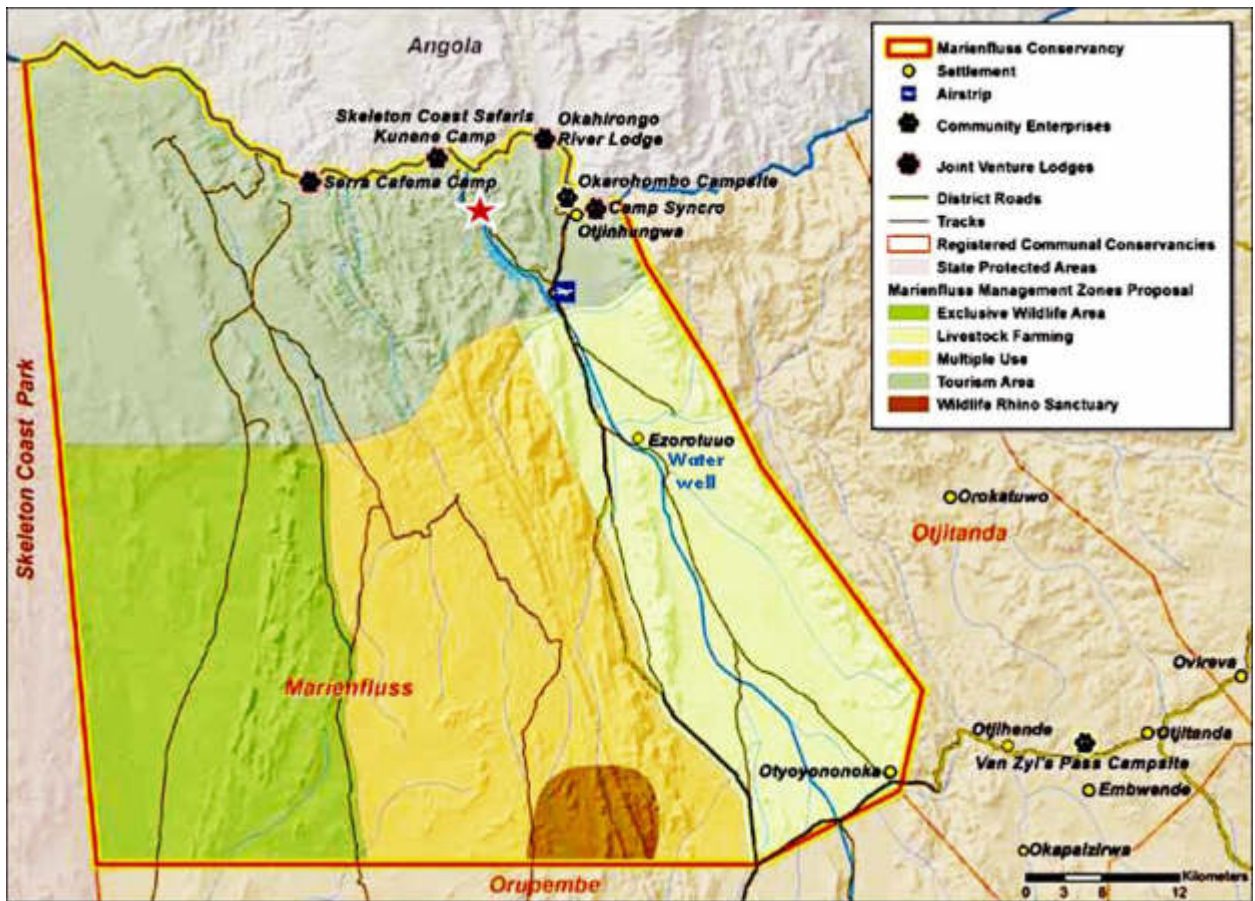


Figure 5. Infrastructure.

4.1.1. Exploration Camp

Principal workers will be residing on the Marienfluss Community Campsite located in the vicinity of the claims. Temporary campsite with tents will be set on site during sampling operations and trenching, possible drilling depending on the results of exploration.

4.1.2. Water Supply

Water supply is abundantly available from the Kunene River. Drilling of water borehole on site may be considered on the later stage of exploration / mining operation.

4.1.3. Sewerage Disposal

Open pit for toilet and used water reservoir will be created onsite, where only natural waste will be allowed. They will be rehabilitated on regular basis.

4.1.4. Solid Waste Management

All solid waste will be evacuated from the site for the disposal at designated municipal site.

4.1.5. Current Land Use

The land occupied by the claims is currently not in use by local community.

5. NATURAL ENVIRONMENT

5.1. Physical Environment

5.1.1. Regional Setting

The eight mining claims, with the total area 144 hectares are located in the north-western part of Kunene region within Marienfluss Conservancy. Marienfluss Conservancy occupies the area of 3,034 square kilometers. It borders Skeleton Coast Park on the west, Kunene River and Angola on the north, Orupembe Conservancy on the south, and Otjitanda conservancy on the east. Despite of large area, Marienfluss Conservancy has small population - approximately 400 people, mainly speaking Otjihimba/Otjiherero language. Being marginal for settlement because of its arid environment, the Marienfluss however has supported small groups of semi-nomadic Himba for generations (along Kunene River, in general, for 500 years). Marienfluss valley vast plains lay between the Otjihipa and Hartmann Mountains, descending northwards to Kunene River. The Otjihipa Mountains rise to almost 2000 m above sea level while Marienfluss valley is below 500 m.

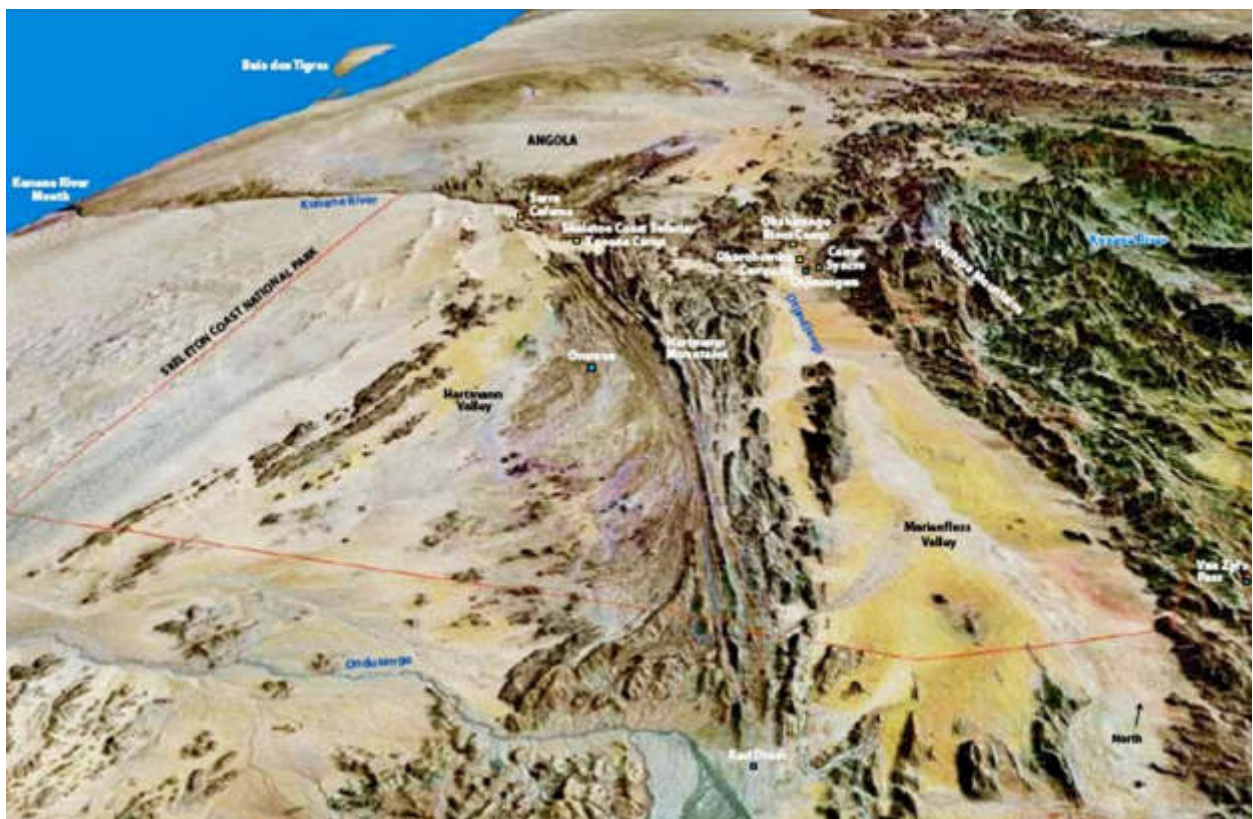


Figure 6. Kunene region, previously known as Kaokoland/Kaokoveld, occupies the north-western corner of Namibia.

5.1.2. Climate

The climate of this part of Kunene Region is classified as semi-arid (tropical steppe). As the area is located within the domain of Namib Desert, its average annual rainfall is between 100 and 150 mm and is highly variable from year to year. Lying along the eastern edge of Namib Fog Belt, the area has 20+ days of fog each year. Annual average temperatures are 21 to 22°C, temperatures in excess of 40°C are common during the summer months. The average annual rates of evaporation range from <2,600 mm (at the coast) to 2,800 mm (inland) (ERM. 2009).

5.1.3. Archaeology

There were reported artifacts some 10-20 km from the tenements - in the vicinity of Serra-Cafema and in Marienfluss Valley (Lima Maartens, 2012) with characteristic style known as Levallois-Mousterian points. However, the small size of the tenements and their location entirely within the rocky outcrops exclude the possibility of archaeological finds onsite.

5.1.4. Ground and Surface Water

The area of Marienfluss conservancy lies within Kunene river basin, while adjacent Orupembe Conservancy ephemeral rivers flow into Atlantic Ocean. The catchment's area of the Kunene basin is 107,000 square km. Average volume of water transported by the river is 5,100 million cubic meters annually.

The Kunene River and few natural springs have been the only water sources for generations, until recently. However, very few boreholes have been drilled within the Marienfluss Conservancy area, with only two or three being active nowadays with their pumps working. Little data is available about groundwater in the area, though, according to the official sources, the area lies within a zone with moderately productive aquifer of fractured type. From the personal observations over drilled boreholes, as well as from the personal communication, the groundwater level in ephemeral rivers – tributaries of Kunene river (such as Otjindjangi (Marienfluss) river and other less prominent rivers), is shallow – below 50 m, with the yield from 1 to 5 cubic meters per hour.

5.1.5. Biophysical Environment

A summary of the type of landscape, the biome, the vegetation type, key wildlife species, and terrestrial diversity and endemism is provided in Table 2.

Table 2. Facts related to the biophysical environment at Marienfluss Conservancy (Source: NACSO, 2012).

	Marienfluss
Landscape	Namib dunes and Kunene hills
Biome	Desert and Nama-Karoo
Vegetation Type	Northern desert and North-western escarpment and Inselbergs
Key wildlife species	Giraffe, oryx, kudu, springbok, leopard, cheetah, mountain zebra, ostrich and crocodile
Terrestrial diversity	Very low
Terrestrial endemism	Moderate to very high

5.1.6. Fauna

Common wildlife species are springbok, gemsbok and ostrich, with less frequently seeing mammals as giraffe, mountain zebra, kudu, kingspringer, duiker, steenbok, dik-dik, and cheetah, leopard, spotted and brown hyena and jackal are their predators of the area. The Kunene supports a large crocodile population, Cape clawless otter, and 65 species of fish. A high degree of endemism has developed in the area, and the conservancy provides habitat to numerous endemic scorpions and reptiles.

Black rhinos were recently reintroduced in the south of Marienfluss Conservancy and in the north of the bordering Orupembe Conservancy. Desert-adapted elephants, which were frequently spotted in Orupembe Conservancy, - if appear in any future in Marienfluss Conservancy, will receive a warm welcome from the members (pers. comm.).

5.1.7. Avifauna

Well over 100 bird species have been recorded in the conservancy, including near-endemic Benguela long-billed lark, Gray s lark, Carp s tit, rosy-faced lovebird, Ruppell s korhaan, Monteiro s hornbill, white-tailed shrike, Herero chat and rockrunner. The riverine habitat of Kunene attracts a variety of birds including goliath heron, darter, African fish eagle and osprey.

5.1.8. Flora

Trees and shrubs typical of the Kunene River and its environs are the makalani palm *Hyphaene petersiana*, mustard bush *Salvadora persica*, potato-bush *Phyllanthus reticulatus*, ana tree *Faidherbia albida*, Baobab *Adansonia digitata*, sycamore fig *Ficus sycomorus*, sandpaper fig *F. capreifolia*.

Away from the river on the mountain slopes mopane *Colophospermum mopane* and various species of *Commiphora* occur, such as *Commiphora virgata*, Kunene corkwood *C. kuneneana*, purple-stem corkwood *C. multijuga*, satin-bark corkwood *C. tenuipetiolata* as well as *Kaoko ceraria* *Ceraria longipedunculata*, and spike-flowered black-thorn *Acacia mellifera* subsp.

Various shrubs are also found here, for instance *Euphorbia subsalsa*, *candelabra euphorbia virosa*, Bushman poison *Adenium boehmianum*, *Kaoko rhigozum virgatum*. Eastern part of the conservancy is occupied by ephemeral grassland on the sandy open desert plain...

Floral species of interest in the rocky hills in the Hartman's valley include several species of *Commiphora*, *Sarcocaulon*, and possibly even *Lithops* (Karen Nott, Indigenous Natural Products Activity, pers.comm.). Note that *Lithops* are protected under the Nature Conservation Ordinance 4 of 1975.

5.1.9. Socio-Economic Environment

Marienfluss Conservancy is registered in Kunene region in January, 2001. It is governed by a committee which includes the traditional authority representatives, ensuring traditional leadership and good communication with the members of community.



Figure 7. Traditional authorities meeting under the tree.

5.1.10. Population Characteristics

The population density of Kunene region in whole (0.6 persons per square km) is much lower than the national average (2.6 persons per square km). The annual growth rate was calculated at 1.9 percent (vs the national average of 2.6 percent). Around 48 percent are potentially economically active persons (15 to 59 years old), while junior population is 41 percent (younger than 15), and senior (over 60) are 7 percent.

Approximate population of Marienfluss Conservancy is 400 people, their main language is Otjihimba/Otjiherero.

5.1.11. *Economic Profile*

Overall in Kunene Region, 50.4 percent of the workforce was unemployed (Duddy, 2010). There are no data for Marienfluss Conservancy but most probably the percentage of unemployed is even higher.

The livelihoods of conservancy residents are based on livestock, supplemented by small scale gardening (maize, pumpkins, sweet peppers and tobacco). Small-scale mining for semi-precious stones (spessartine, aquamarine) is carried out at few sites but does not provide much employment. Trophy-hunting brings some cash income as well as meat for the conservancy members but as there are few valuable game species on the conservancy quota, this has been limited. Harvesting Commiphora resin for the international perfume industry, which began in 2006, provides a source of income for Himba women, as well as crafts – making souvenirs and baskets for visitors and tourists. Several joint-venture lodges (Serra Cafema Camp, Skeleton Coast Kunene Camp, Okahirongo River Camp, Camp Sincro generate significant conservancy income and provide employment – around half of the staff at the lodges are from the conservancy. Okarohombo Community Campsite provides direct income and employment - when open – as it is a subject of annual floods.

The structure of conservancy and household income before the pandemic is shown on the diagram below:

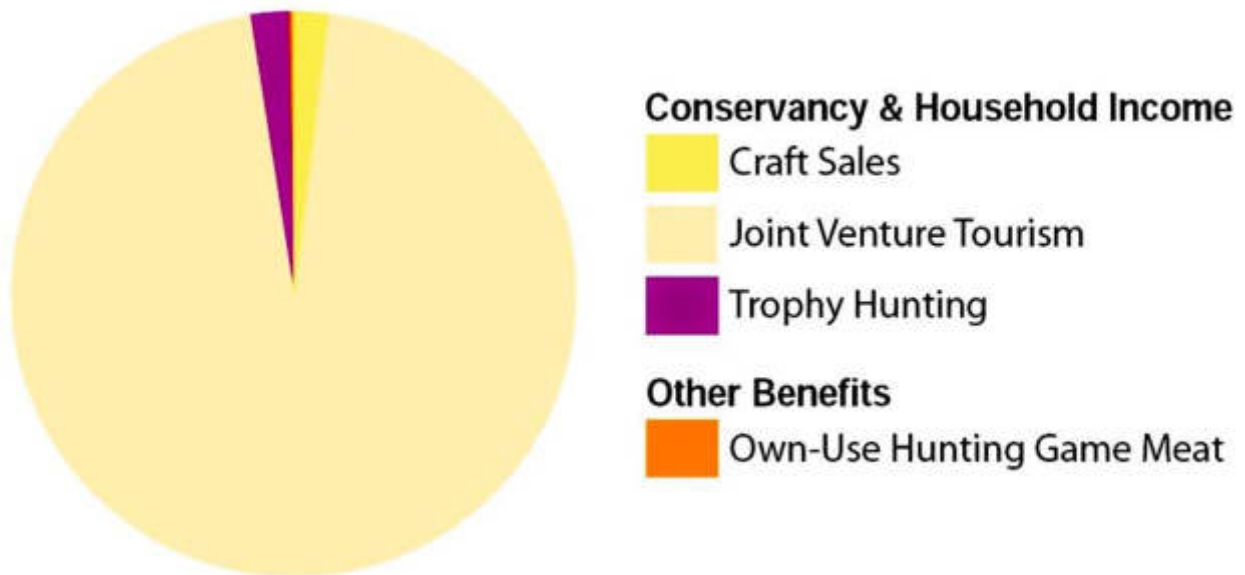


Figure 8. Structure household income.

5.1.12. *Poverty Level*

Accordingly, the Kunene Region has the lowest (NS3, 551.00) income per capita in Namibia. Households in the Kunene Region spend most of their money on food/beverages (50%). 52 percent of households in the Kunene Region were rated as poor (41 percent where 60 percent of more of the household's total consumption is spent on food, and 11 percent extremely poor where respectively 80 percent are spent) (NPS, 2007).

5.1.13. Housing

In Kunene Region overall, 38.5 percent of households live in modern housing (detached or semi-detached houses, or flats). However, in Marienfluss Conservancy, almost all households are living in traditional dwellings comprising domed clay-and-dung huts encircling stock enclosures. Only a few households, whose members have a formal employment mainly in tourism business, are living in mobile houses or brick houses.

5.1.14. Access to Services

Two small primary schools are in the conservancy. There is no school hostel. Many youngsters choose to leave school and remain in the conservancy to begin farming with inherited livestock. Literacy rate is very low, with only a few members being able to read. Nearly 300 km away, the regional capital Opuwo is the closest town, providing a variety of facilities and services. There is a hospital in Opuwo, while a clinic in Onjuva settlement can offer basic health care, 130 km or three hours' drive away.

5.1.15. Development Challenges

1. Lack of water in a harsh environment was always and continues to be the biggest constraint to agriculture and settlement in the conservancy.
2. The remote location and difficult access limits development in the conservancy. The conservancy strives to mitigate human-wildlife conflict. Since the start of the conservancy almost 20 people have been killed by crocodiles; cattle and goat are often lost to crocodiles, while leopard, cheetah, hyena and jackal also prey on livestock.
3. The very new challenge is to mitigate the consequences of COVID-19 Pandemic which negatively affected the tourism sector in Marienfluss conservancy, whose income, employment and livelihood heavily depended on it.

Training and education plays an important role in developing the conservancy's potential, with English, financial skills, hospitality and guiding high on the agenda. Sustainable and ecologically responsible mining can become a new pillar of the economy of the area and the whole region, especially in the times of tourism decline.

6. SCOPING METHODOLOGY

6.1. Information Collection

Various sources to identify the environmental issues associated with the exploration activities were used. The main sources of information for the preparation of this Scoping Report include:

- Project information and exploration activities were provided by "Phoenix Mineral Resources" Pty Ltd
- Site visit by Namland Consultants
- Consultation with Interested and Affected Parties (IAPs)
- Literature Review

6.2. Scoping Report

The main purpose of this Scoping Report is to state which environmental aspects relating to the Exploration activities might have an impact on the environment, to assess them and to set out management and mitigation measures to avoid or reduce these impacts. The EIA processes are summarized in **Error! Reference source not found.**, as per the Environmental Management Act, No.7 of 2007.

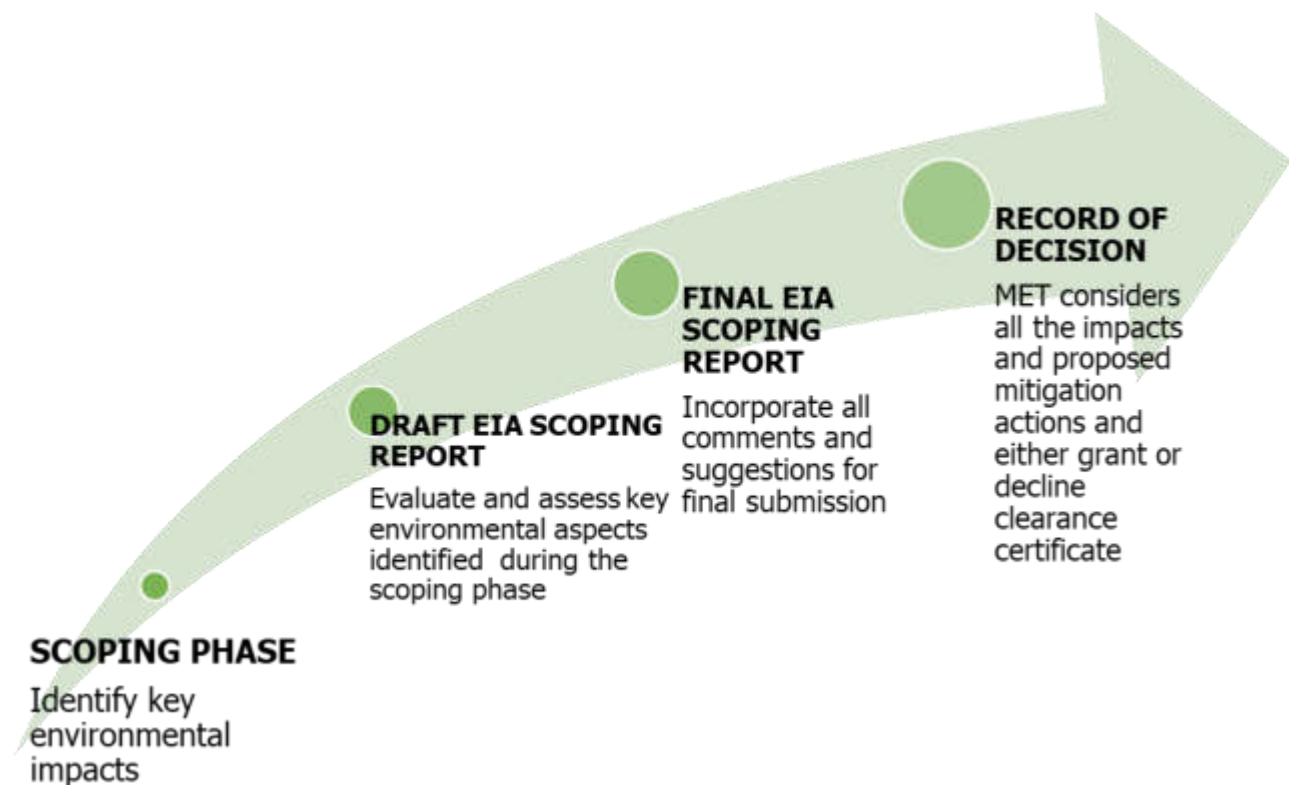


Figure 9. The EIA process as per Environmental Management Act, 2007 (Government of the Republic of Namibia).

7. PUBLIC PARTICIPATION PROCESS

The public participation process for the activities aimed to ensure that all Interested and Affected Parties (IAPs) and/or organizations that might be affected by the proposed exploration activities were informed of the project and could register their views and concerns. By consulting with IAPs the range of environmental issues to be considered in the Scoping Report (including the assessment of impacts) has been given specific context and focus.

Included below is a summary of the people consulted, the process that was followed, and the issues that were identified.

7.1. Steps in The Consultation Process

The EAP followed the following steps in the consultation process that were conducted during the EIA Scoping process:

7.2. Summary of Issues Raised

Error! Reference source not found.3, summarizes the comments received (through e-mail) and the responses. As only a few comments were received no separate Issue and Response document has been compiled.

Table 3. Some of the key environmental and social impacts identified are as follows.

IMPACT	DESCRIPTION
– Noise and Dust Pollution	Mining will increase ambient noise and slightly decrease air quality through the dust. Noise and dust will lead to increased irritation especially in the directly affected communities especially pedestrians who had been temporarily using this area for some time now, which may cause social distress, a reaction against the project.
– Access “Restrictions” to Services and Developments	The identified area is providing a variety of services such as access to socio-economic services and facilities The Environmental (and Social) Management Plan (EMP) has included explicit details for mitigating the impacts caused by this formally restricted access.
– Population Influx	The creation of employment opportunities may also result in a population influx into the area in search of possible opportunities, contributing to existing ongoing population expansion in the project areas. Mining teams that are constituted from people not from the project area have the potential to create social tensions and cause disruption though at a very low level.
– Conflict Potential	The project was assessed not to create any conflict as it was welcomed enthusiastically by all Interested and Affected Parties. Care was taken to ensure that the Grievance Redress Mechanism is well understood by all citizens, especially those directly affected by the implementation of the project.
– Increase in Traffic and Safety Hazards	The development will positively lead to a significant increase in human traffic along designated roads and access roads. Concentrated and guided increased human traffic will lead to the deterioration of these access routes and the creation of dust. Details for management of impacts of increased traffic during the operational phase of the subprojects are articulated within the ESMP
– Social-Environmental Linkages	During the implementation of the project, no anticipated resultant environmental degradation is likely to hit hardest any population segment.

Other direct negative impacts will include Wind erosion especially by Westerly Winds; Scouring of the landscape due to mining activities; Dust emissions; noise and vibrations during mining.

8. CONTROLLING NAMIBIAN LEGISLATION

8.1. Procedural Overview

The acts and policies listed below outline a fairly simple process through which a prospective developer may obtain a mining license. Legally, the decision as to whether an applicant receives a mining license rests in the sole discretion of the Minister of Mines and Energy. The prospective developer must include in his application a summary of the current environmental situation of the proposed site, an estimation of the impact that mining would have on that site, and proposed methods for mitigating the adverse effects of the mining operation. This scope of the information required, however, does not legally have to reach that of an Environmental Assessment. The difference in scope between the summary that is legally required in the application process and that of an Environmental Assessment is significant. For example, the Minerals Act of 1992 does not require the identification of alternatives or the notification of affected and interested parties, as would an Environmental Assessment.

Additionally, if the mining is to take place in a protected area, written permission from the Minister of Mines and Energy is needed in addition to a license. Presumably, if the proposed area was fully enclosed within an existing protected area, permission to mine in that area would be granted simultaneously with the mining license. If the protected area in question is located within a game reserve or nature reserve, the prospector would also need to obtain permission from the Directorate of Parks and Wildlife Management, which is the modern-day equivalent of the Executive Committee referred to in the Nature Conservation Ordinance of 1975 listed above.

8.2. The Role of the Different Ministries in EA Process

The general framework of the process for allowing mining in a protected area is well delineated. The Minister must both grant a mining license and written permission for the prospector to use that license in the protected area. Depending on the nature of the protected area, the law also requires the signature of the Directorate of Parks and Wildlife, for any mining to occur. In most cases, a full Environmental Assessment is required of the applicant.

The pursuit of sustainability, concerning any development, is guided by a sound legislative and policy framework. This section provides a review of applicable and relevant Namibian legislation, policies and guidelines. This review serves to inform the proponent of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled before the proposed project may commence. The findings of the abovementioned review are summarized in 4.

Table 4. Namibian Legislation Relevant To the Proposed Project.

LEGISLATION/ GUIDELINE	RELEVANT PROVISIONS	IMPLICATIONS FOR THIS PROJECT
– Namibian Constitution First Amendment Act 34 of 1998	<i>“The State shall actively promote... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for</i>	Ecological sustainability should inform and guide this EA and the proposed development.

LEGISLATION/ GUIDELINE	RELEVANT PROVISIONS	IMPLICATIONS FOR THIS PROJECT
	<i>the benefit of all Namibians, both present and future” (Article 95(l)).</i>	
1) The Minerals (Prospecting and Mining) Act of 1992, Section 91(f)	any application for a mining license shall include (i) the condition of, and any existing damage to, the environment in the area to which the application relates; (ii) an estimate of the effect which the proposed prospecting operations and mining operations may have on the environment and the proposed steps to be taken to minimize or prevent such effect; and (iii) how it is intended to prevent pollution, to deal with any waste, to safeguard the mineral resources, to reclaim and rehabilitate land disturbed by way of the prospecting operations and mining operations and to minimize the effect of such operations on land adjoining the mining area.	Ecological sustainability should inform and guide this EA and the proposed development.
2) Proposed Legislation: The Parks and Wildlife Management Bill	Would require attainment of, and accordance with, written authorization from the Minister of Environment and Tourism. Such authorization would not be permitted unless (a) a detailed environmental assessment, allowing for sufficient public participation, was performed; (b) the Minister is satisfied that allowing the activity would not significantly prejudice the attainment of the management objectives of the protected area, and (c) the permit was subject to enforceable terms and conditions to safeguard against the risk of adverse effects and consequences relating to the proposed activity.	Ecological sustainability should inform and guide this EA and the proposed development.
3) The Environmental Assessment Policy	States that “mining, mineral extraction and mineral beneficiation” are activities requiring an Environmental Assessment. The Policy for Prospecting and Mining in Protected Areas and National Monuments (passed a full 5 years after the Environmental Assessment Policy) states that a full Environmental Assessment will usually be required for mining in a Protected Area and/or National Monument. Interestingly, the requirements set out in the later policy concern lands that are of a much greater national interest, and yet the language requiring an Environmental Assessment is softened.	Ecological sustainability should inform and guide this EA and the proposed development
4) The Nature Conservation Ordinance (No. 4 of 1975), Section 18(1(d)	The Nature Conservation Ordinance (No. 4 of 1975), Section 18(1(d)) states that “(N) no person shall without the written permission of the Executive Committee, will fully or negligently cause any damage to any object of geological, ethnological, archaeological, historical or other scientific interest within a game park or a nature reserve.”	The EMA and its regulations should inform and guide this EA process.
5) The Policy for Prospecting and Mining in Protected Areas and National Monuments (1999)	says the following about granting mining licenses in such areas: <ul style="list-style-type: none"> Granting of [Exclusive Prospecting Licenses and Mining Licenses]: Is generally permitted in Protected Areas and National Monuments . . . 	

LEGISLATION/ GUIDELINE	RELEVANT PROVISIONS	IMPLICATIONS FOR THIS PROJECT
	<p>except areas within parks and monuments, which are particularly sensitive or are of special ecological or touristic importance. Each application would be considered on a case-by-case basis.</p> <ul style="list-style-type: none"> • A full EA will usually be required for any prospecting or mining in a Protected Area and/or National Monument. The EA shall be conducted according to the procedures as stated in the Environmental Management Act. Should the [Minerals (Prospecting and Mining Rights) Committee] agree to recommend approval (after reviewing the EA) an Environmental Management Plan and an Environmental Contract shall be concluded before prospecting or mining may commence. 	
<ul style="list-style-type: none"> – Forestry Act 12 of 2001 – Nature Conservation Ordinance 4 of 1975 	<ul style="list-style-type: none"> – Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22 (1)). – Prohibits the removal of and transport of various protected plant species. 	Even though the Directorate of Forestry has no jurisdiction within townlands, these provisions will be used as a guideline for the conservation of vegetation.
<ul style="list-style-type: none"> – Labour Act 11 of 2007 	Details requirements regarding minimum wage and working conditions (S39-47).	The proponent should ensure that all contractors involved during the mining, operation and maintenance of the proposed project comply with the provisions of these legal instruments.
<ul style="list-style-type: none"> – Health and Safety Regulations GN 156/1997 (GG 1617) 	Details various requirements regarding the health and safety of labourers.	
Public Health Act 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.”	

9. IMPACT ASSESSMENT

9.1. Approach and Methodology Employed For Assessment

9.1.1. The EIA Process

Environmental Impact Assessment (EIA) is a systematic process that identifies and evaluates the potential impacts (positive and negative) that a Project may have on the biophysical and socio-economic environment and identifies mitigation measures that need to be implemented to avoid, minimize or reduce the negative impacts and also identifies measures to enhance positive impacts. The EIA is not fully a linear process, but one where several stages are carried out in parallel and where the assumptions and conclusions are revisited and modified as the project progresses. The following sections provide additional detail regarding the key stages in this EIA process. These stages are:

- 1) Scoping Phase;

- 2) Specialist Study Phase; and
- 3) Integration and Assessment Phase.

9.1.2. Scoping Phase

The first phase of the EIA process is a Scoping Study, with an emphasis on public involvement. The various tasks and consultation activities are undertaken by the Consultant thus far are described and summarized below.

9.1.3. . Initial Site Visit and Project Initiation

As part of the project initiation, Namland carried out an initial site reconnaissance visit in June / July 2019. The purpose of the site visit was to familiarize the project team with the project proposal and affected project area and to begin the environmental and social screening and scoping process as summarized in Table 5. Three more site visits were carried out by Namland.

Table 5. Public Participation Tasks.

ACTIVITY	DESCRIPTION AND PURPOSE
– Preparation of a preliminary stakeholder database	A preliminary database has been compiled of authorities (local and provincial), Non-Governmental Organisations and other key stakeholders. This database of registered I&APs was expanded during the ongoing EIA process.
– Erection of site notices	Site notices were placed on and along with the mining site
– Distribution of BIDs	Background Information Documents (BIDs) were distributed to all I&APs.
– Release of Draft Scoping Report for Public Comment	The Draft Scoping Report was released for public comment. All comments received have been included in this Final Scoping Report.
– Newspaper Advertisement	The release of the Draft Scoping Report was advertised through the Facebook Pages, and bulk emailing
– Compilation of Comments and Responses Report	Through the public participation process a Comments and Responses Report has been compiled
– Notification of submission Final Report	Notification of the submission of the final Scoping Report to the MET was sent to register I&APs.
– Notification of issuance of Environmental Clearance Certificate	The I& APs will be notified through the normal channels on the issuance of the Environmental Clearance Certificate. Newspaper adverts will also be utilised.

9.2. Specialist Studies Phase

During the Specialist Study phase, the Consultant gathered data relevant to identifying and assessing environmental impacts that might occur as a result of the Project. They assisted the project team in assessing potential impacts according to a predefined assessment methodology included in the Scoping Report. The Consultant also suggested ways in which negative impacts could be mitigated and benefits could be enhanced.

9.3. Integration and Assessment Phase

The final phase of the EIA is the Integration and Assessment Phase. The assessment of impacts proceeds through an iterative process considering three key elements:

- 1) **Prediction of the significance** of impacts that are the consequence of the Project on the natural and social environment.
- 2) **Development of mitigation measures** to avoid, reduce or manage the impacts.
- 3) **Assessment of residual significant impacts** after the application of mitigation measures.

A synthesis of the studies, which addresses the key issues identified during the Scoping Phase, is documented in this Environment Socio-Impact Assessment (ESIA).

The ESIA was made available to me&APs for a public comment period and registered and identified I&APs were notified of the release of the Draft EIA and where the report can be reviewed.

Comments received on the Draft EIA have been assimilated and the EIA project team provided appropriate responses to all comments. All registered me&APs will be notified when an Environmental authorization has been issued by MET.

9.4. Impact Assessment Methodology

9.4.1. Impact Assessment Process

The following diagram describes the impact identification and assessment process through scoping, screening and detailed impact assessment. The methodology for detailed impact assessment is outlined in below (Figure 10).

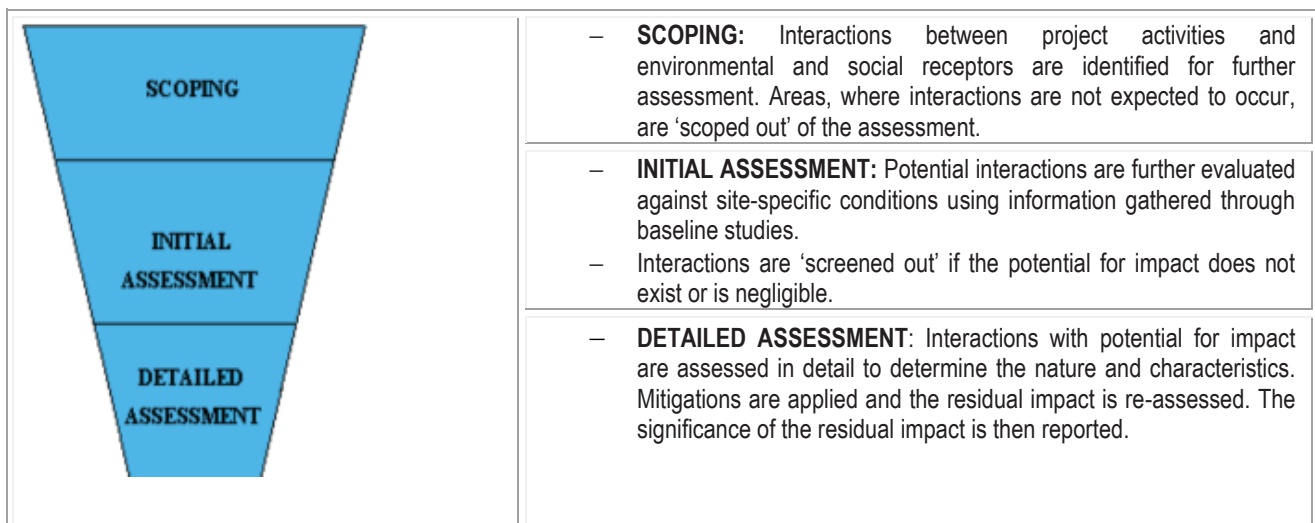


Figure 10. Impact Identification and Assessment Process

9.4.2. Impact Assessment Methodology

The purpose of impact assessment and mitigation is to identify and evaluate the significance of potential impacts on identified receptors and resources according to defined assessment criteria and to develop and describe measures that will be taken to avoid or minimize any potential adverse effects and to enhance potential benefits.

9.5. Definition of Key Terminology

- **Project** - The features and activities that are a necessary part of the Project Proponent's development, including all associated facilities without which the Project cannot proceed. The Project is also the collection of features and activities for which authorization is being sought.
- **Project Site** - The (future) primary operational area for the Project activities. Private transport corridors (i.e., those dedicated for use solely by Project operational activities) are included as part of the Project Site.
- **Project Footprint** - The area that may reasonably be expected to be physically touched by Project activities, across all phases. The Project Footprint includes land used temporarily such as construction laydown areas or construction haul roads, as well as disturbed areas in transport corridors, both public and private.

Table 6. Impact Types and Definitions.

Nature or Type	Definition
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct impact	Impacts that result from a direct interaction between planned project activity and the receiving environment/receptors (e.g., between the occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g., in-migration for employment placing a demand on resources).
Cumulative impact	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) affect the same resources and/or receptors as the Project.

An impact is any change to a resource or receptor brought about by the presence of a project component or by the execution of a project related activity. The evaluation of baseline data provides crucial information for the process of evaluating and describing how the project could affect the biophysical and socio-economic environment. Impacts are described according to their nature or type, as summarised in **Error! Reference source not found.**

Table 7. Significance Criteria

IMPACT MAGNITUDE	
Extent	<p>On-site – impacts that are limited to the boundaries of the development site.</p> <p>Local – impacts that affect an area in a radius of 25km around the development site.</p> <p>Regional – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.</p> <p>National – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.</p>
Duration	<p>Temporary – impacts are predicted to be of short duration and intermittent/occasional.</p> <p>Short-term – impacts that are predicted to last only for the duration of the construction period.</p> <p>Long-term – impacts that will continue for the life of the Project but cease when the project stops operating.</p> <p>Permanent – impacts that cause a permanent change in the affected receptor or resource (e.g., removal or destruction of ecological habitat) that endures substantially beyond the project lifetime.</p>
Intensity	<p>BIOPHYSICAL ENVIRONMENT: <i>Intensity can be considered in terms of the sensitivity of the biodiversity receptor (i.e., habitats, species or communities).</i></p> <p>Negligible – the impact on the environment is not detectable.</p> <p>Low – the impact affects the environment in such a way that natural functions and processes are not affected.</p> <p>Medium – where the affected environment is altered but natural functions and processes continue, albeit in a modified way.</p> <p>High – where natural functions or processes are altered to the extent that they will temporarily or permanently cease.</p> <p>Where appropriate, national and/or international standards are to be used as a measure of the impact.</p> <p><i>Specialist studies should attempt to quantify the magnitude of impacts and outline the rationale used.</i></p> <p>SOCIO-ECONOMIC ENVIRONMENT: <i>Intensity can be considered in terms of the ability of people/communities affected by the Project to adapt to changes brought about by the Project.</i></p> <p>Negligible – there is no perceptible change to people’s livelihood.</p> <p>Low - people/communities can adapt with relative ease and maintain pre-impact livelihoods.</p> <p>Medium – people/communities can adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.</p> <p>High – affected people/communities will not be able to adapt to changes or continue to maintain-pre impact livelihoods.</p>
Likelihood - the likelihood that an impact will occur	
Unlikely	The impact is unlikely to occur.
Likely	The impact is likely to occur under most conditions.
Definite	The impact will occur.

Once a rating is determined for magnitude and likelihood, the following matrix can be used to determine the impact significance.

Table 8. Significance Rating Matrix

SIGNIFICANCE				
MAGNITUDE	LIKELIHOOD			
		Unlikely	Likely	Definite
	Negligible	Negligible	Negligible	Minor
	Low	Negligible	Minor	Minor
	Medium	Minor	Moderate	Moderate
High	Moderate	Major	Major	

Table 9. Significance Colour Scale.

Negative ratings	Positive ratings
• Negligible	Negligible
• Minor	Minor
• Moderate	Moderate
• Major	Major

Table 10. Significance Definitions

SIGNIFICANCE DEFINITIONS	
Negligible significance	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
Minor significance	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate significance	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.
Major significance	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects, there may be major residual impacts after all practicable mitigation options have been exhausted (i.e., ALARP has been applied). An example might be the visual impact of a development. It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors such as employment, in deciding on the Project.

Once the significance of the impact has been determined, it is important to qualify the degree of confidence in the assessment. Confidence in the prediction is associated with any uncertainties, for example, where information is insufficient to assess the impact. The degree of confidence can be expressed as low, medium or high.

9.6. Mitigation Measures and Residual Impacts

For activities with significant impacts, the EIA process is required to identify suitable and practical mitigation measures that can be implemented. The implementation of the mitigations is ensured through compliance with the regulatory Frameworks. After first assigning significance in the absence of mitigation, each impact is re-evaluated assuming the appropriate mitigation measure(s) is/are effectively applied, and this results in a significance rating for the residual impact.

9.7. Identification of Mitigation Measures

For the identified significant impacts, the project team, with the input of the client, has identified suitable and practical mitigation measures that are implementable. Mitigation that can be incorporated into the project design, to avoid or reduce the negative impacts or enhance the positive impacts, have been defined and require final agreement with the client as these are likely to form the basis for any conditions of approval by MET.

9.8. Specialist Study Methodology

9.8.1. Botany, Terrestrial Ecology and Avifauna

Botany, terrestrial ecological and avifaunal specialist study was undertaken. As part of this study, a desktop study was carried out of publicly available scientific publications to investigate the ecology and biodiversity of the affected project area. A site visit was undertaken where the different biodiversity features, habitat, vegetation and landscape units present at the site were identified and mapped in the field. This included generating a fine-scale vegetation map for the site which identified and mapped the different plant communities present. Walk-through surveys were conducted across the sites (corridors) and all plant and animal species observed were recorded. Searches for listed and protected plant species at the site were conducted and the location of all listed plant species observed was recorded. The impact assessment phase involved the determination of the nature of likely impacts of the development and recommendations on mitigation.

9.8.2. 7.8.2. Landscape and Visual

A landscape and visual impact assessment study was undertaken. Site visits were undertaken where visual features and the landscape setting of the site were recorded. An assessment was also made as to what degree people who make use of these locations would be sensitive to change(s) in their views, brought about by the Project. These receptors were then identified, as well as Key Observation Points (KOPs) (those sensitive receptors who had views of the Project) particularly those relating to intersections of major roads, arterial and scenic routes, as well as urban areas, settlements and farmsteads.

The landscape character was then surveyed in terms of scenic quality (landscape significance) and receptor sensitivity to landscape change (of the site) to define the visual objective for the project site. Photomontages using panoramic photographs were used to determine the degree of visibility of the Project and change in views of the surrounding landscape. The impact assessment phase involved the determination of the nature of likely impacts of the development and recommendations on mitigation.

9.8.3. Agriculture

An agriculture impact assessment study was also considered, although in this whole project it was not of much impact or relevance considering the nature of the whole project, and setting as Kaokoland is a semi-desert, barren environment with not many agricultural activities taking place.

9.8.4. 7.8.4. Socio-economic

The socio-economic study was undertaken. The study began with the compilation of a baseline description. The baseline description was derived from a range of secondary data (including but not limited to census data, existing reports, development plans and other strategic planning documents) and primary data collection. The primary data used for the baseline is based on information provided by the Client / Proponent and issues raised through the public consultation process.

The impact assessment phase incorporated the identification and assessment of socio-economic impacts (direct, indirect and cumulative) that may result from the closure of various corridors (construction and operation phases) of the project. Mitigation measures that address the local context and needs were recommended as the final phase of the study.

9.9. Assumptions and Limitations

Environmental Impact Assessment is a process that aims to identify and anticipate possible impacts based on past and present baseline information. There is, inevitably, always some uncertainty about what will happen in reality. Impact predictions have been made based on field surveys and with the best data, methods and scientific knowledge available at this time. However, some uncertainties could not be entirely resolved. Where significant uncertainty remains in the impact assessment, this is acknowledged, and the level of uncertainty is provided.

In line with best practice, this ESIA has adopted a precautionary approach to the identification and assessment of impacts. Where it has not been possible to make direct predictions of the likely level of impact, limits on the maximum likely impact have been reported and the design and implementation of the project (including the use of appropriate mitigation measures) will ensure that these are not exceeded. Where the magnitude of impacts cannot be predicted with certainty, the team of specialists have used professional experience and available scientific research from solar facilities worldwide to judge whether a significant impact is likely to occur or not. Throughout the assessment, this conservative approach has been adopted to the allocation of significance.

9.9.1. Gaps and Uncertainties

Inevitably knowledge gaps remain. For instance, there is an incomplete understanding of cumulative impacts as it is not known how the project will get consolidated onto the main town plan.

9.9.2. Gaps in Project Description

- Regarding the location of the site, the assessment is based on a refined layout/rezoning derived from revisions of earlier layouts, to accommodate environmental sensitivities. Although the final layout has been confirmed,
- At this stage, it is unknown, although unlikely, whether a borrow pit for rock or soil material will be required for the closing off of corridors.

9.9.3. 7.9.3. Gaps in Baseline Information

- Ecological limitations; a limitation associated with the sampling approach was the narrow temporal window of sampling. Ideally, a site should be visited several times during all the different annual seasons to ensure that the full complement of plant and animal species present are captured, as well as the temporary usage of the corridor by some school children who frequently use these corridors were on holidays, including beer hall patrons who had gone for holidays

However, this is rarely possible due to time and cost constraints and therefore, the data captured is representative of the species at the site. The vegetation at the time of the site was in a reasonable condition for sampling. This represents a sufficiently conservative and cautious approach that takes account of the study limitations.

9.9.4. Gaps in Understanding of Impacts

- It should be noted that the closure of various corridors all at once are new to Namibia and in this case, the impacts associated with them have not been scientifically researched in the context of their occurrence in this country, and therefore the specialists have used the precautionary principle where necessary in undertaking their respective impact assessments.

All impacts included in the table below fall within the scope of this project and the responsibility of the client or proponent. Each of the potential impacts is screened and subjected to the criteria stipulated above. The significance of each potential impact is determined based on the criteria below.

Detailed descriptions of mitigation measures for impacts that require mitigation are contained in the EMP (**Chapter 10**).

Impacts for which insufficient information is available are discussed at the end of this section.

Table 11. Screening and assessment of impacts.

POTENTIAL IMPACT	DESCRIPTION	EXTENT	DURATION	INTENSITY	PROBABILITY	CONFIDENCE/ SUFFICIENT INFORMATION AVAILABLE?	SIGNIFICANCE	SIGNIFICANT MITIGATION DEEMED POSSIBLE?	NEXT STEP
Aesthetic issues	The change in the existing landscape may be an eye sour due to blockage of open views.	Immediate area	Temporary	Low	Improbable	Yes	Low	Yes	EMP
Employment creation	The mining activities associated with the project is due to create local employment opportunities.	Local	Temporary	Medium	Definite	Yes	Low	Yes	EMP
Noise (construction phase)	Mining activities can create noise for local nearby residents.	Local	Temporary	Low	Highly probable	Yes	Low	Yes	EMP
Dust (construction phase)	The ingress and egress of mining/construction vehicles can create dust.	Local	Temporary	Low	Improbable	Yes	Low	Yes	EMP

10. ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMP)

10.1. Background

This Environmental Management Plan (EMP) identifies the principles, approach, procedures and methods that will be used to control and minimize the environmental and social impacts of all mining and operational activities associated with project. It is intended to complement the project Environmental and Social Impact Assessment (ESIA) and ensure that commitments made by the project Proponent, and other sub-contractors to minimize project related environmental and social impacts are upheld throughout all project phases.

The EMP is also a companion document to the prevailing Namibian legal regulations which aims to mitigate environmental impacts and avoid or minimize social impacts arising from the project.

As part of their ongoing commitment to excellence in environmental and social performance for the small scale mining, the client will ensure the following:

- ✓ Fulfil all environmental and social conditions associated with project approvals;
- ✓ Develop, promote and foster a shared sense of responsibility for environmental and social performance of the project;
- ✓ Promote environmental awareness and understanding among employees and contractors through training, identification of roles and responsibilities towards environmental and social management and linking project performance to overall environmental performance;
- ✓ Encourage an understanding of social and cultural sensitivities in local communities and the importance of minimizing project impacts on local lifestyles and culture;
- ✓ Monitor environmental and social performance throughout the project and implement an adaptive management approach to continuous improvement;
- ✓ Work with local communities and project affected stakeholders to ensure that they benefit as a result of project development; and
- ✓ Maintain an ongoing commitment to informing, engaging and involving local stakeholders throughout all phases of the project.

10.2. EMP Structure and Organization

This EMP is designed as an overriding document in a hierarchy of control plans and sets out the overarching framework of environmental management principles that will be applied to the project. The EMP contains guiding environmental principles and procedures for communication, reporting, training, monitoring and plan review to which all construction staff, contractors and subcontractors are required to comply with throughout the preconstruction, construction and operation phases.

The EMP should be also be considered as an overall framework document that establishes the terms of reference for all project environmental and social sub-plans that will be completed.

10.3. Responsibilities

The responsibility for the implementation of the EMP ultimately lies with the Miner / Proponent, who is also responsible for the eventual operation of these developments. The implementation of this EMP requires the involvement of several key individuals, each fulfilling a different but vital role to ensure sound environmental management during each phase of these developments.

The Miner should appoint an Employer's Representative (ER) to oversee all aspects of these developments for all development phases (including all contracts for work outsourced). The ER will in turn appoint an Environmental Control Officer (ECO) to oversee the implementation of the whole EMP during the Construction / Mining and Operation and Maintenance Phases.

The following positions and their respective responsibilities are outlined below:

- ✓ Employer's Representative;
- ✓ Environmental Control Officer; and
- ✓ Contractor (Construction and Operations and Maintenance).

10.3.1. Employer's Representative

The ER is appointed by the Developer to manage all contracts for work/services that are outsourced during all development phases. Any official communication regarding work agreements is delivered through this person. The ER should with the commencement of the project, appoint a competent ECO who will represent the Miner / Proponent on-site.

During the Planning and Design and Construction/Mining Tender Preparation Phase, the ER will have the following responsibilities regarding the implementation of this EMP:

Ensuring that the necessary legal authorisations have been obtained (see Table 12);
Developing, managing implementation of and maintaining all Development Guidelines
Ensure that the management requirements included in Table 13 inform the planning and design of the relevant infrastructure developments (i.e. that these requirements are considered during the Planning and Design Phase not as an afterthought); and
Ensure that the management requirements included in Table 14 inform the preparation of tender documents for the construction of the relevant infrastructure developments.

During the Construction/Mining, Operation and Maintenance Phases the ER shall assist the ECO where necessary and will have the following responsibilities regarding the implementation of this EMP:

- ✓ Ensuring that the necessary legal authorisations and permits (see Table 12) have been obtained by the Contractor;
- ✓ Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary;
- ✓ Ordering the removal of individuals and/or equipment not complying with the EMP;
- ✓ Issuing fines for transgression of site rules and penalties for contravention of the EMP; and
- ✓ Providing input into the ECO's ongoing internal review of the EMP. This review report should be submitted on a monthly basis to the Developer.

10.3.2. Environmental Control Officer (ECO)

The ECO should be a competent person appointed by the ER. The ECO is the Miner's on-site representative primarily responsible for the monitoring and review of on-site environmental management and implementation of the EMP by the Contractor. If no ECO is appointed the duties of the ECO fall upon the ER. During the Construction Phase and Operation and Maintenance Phase the ECO's duties include the following:

- ✓ Assisting the ER in ensuring that the necessary legal authorisations have been obtained;
- ✓ Maintaining open and direct lines of communication between the ER, Developer, the Construction and/or Operations and Maintenance Contractor, and Interested and Affected Parties (I&APs) with regard to this EMP and matters incidental thereto;
- ✓ Monthly site inspection of all construction and/or infrastructure maintenance areas with regard to compliance with this EMP;
- ✓ Monitor and verify adherence to the EMP (audit the implementation of the EMP) and verify that environmental impacts are kept to a minimum;
- ✓ Taking appropriate action if the specifications of the EMP are not adhered to;
- ✓ Assisting the Contractor in finding environmentally responsible solutions to problems;
- ✓ Advising on the removal of person(s) and/or equipment not complying with the specifications of the EMP in consultation with the ER;
- ✓ Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP; and
- ✓ Undertaking an annual review of the EMP and recommending additions and/or changes to the document.

10.3.3. Contractor

The Contractor/Miner is responsible for the implementation of the EMP, on-site monitoring and evaluation of the EMP. It is envisaged that various contractors might be appointed at various periods for various tasks throughout the life cycle (construction through to decommissioning phase) of this project. These can be broadly grouped into Construction / Mine Contractors and Operations and Maintenance Contractors. In order to ensure sound environmental management, the relevant sections of this EMP should be included in all contracts of work outsourced thus legally binding all appointed contractors and sub-contractors. All contractors (miners) shall ensure that adequate environmental awareness training (see Section E) of senior site personnel takes place and that all construction workers and newcomers receive an induction presentation on the importance and implications of the EMP. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

The Contractor / Miner should keep records of all environmental training sessions, including names, dates and the information presented.

10.4. 1. Management Requirements

This EMP has been structured so as to provide its various intended recipients (ER, consulting geologists and engineers and contractors) with mitigation measures immediately applicable to their respective scopes of work. The management requirements for the various recipients carrying out work for this project are divided according to the main project phases:

- ✓ Permit and relevant legal requirements (Table 12);
- ✓ Development Guidelines (Table 13);
- ✓ Planning and Design Phase requirements (Table 14);
- ✓ Construction/ Blasting (if applicable – to be decided) / Mining Tender Preparation Phase requirements (Table 14);
- ✓ Construction / Blasting Phase (if applicable – to be decided) mitigation requirements (Table 15); and
- ✓ Operation and Maintenance Phase mitigation requirements (Table 16).

Table 12. Relevant Namibian Guidelines and Legislated Permit Requirements.

THEME	LEGISLATION INSTRUMENT	MANAGEMENT REQUIREMENTS	CONTACT PERSON
Environmental	<ul style="list-style-type: none"> – Environmental Management Act (EMA) 7 of 2007 – EIA Regulations (EIAR) (GN) No. 28/2007 (GG No. 4878) 	The amendment, transfer or renewal of the Environmental Clearance Certificate (ECC) (EMA S39-42; EIAR S19 & 20). Amendments to this EMP will require an amendment of the ECC for these developments.	Ms Saima Angula Tel: 061 284 2751
	“List of activities that may not be undertaken without ECC” GG No. 4878 GN No. 29	Any activities listed in this listing notice require an ECC and hence an Environmental Assessment.	
Explosives and Blasting	Mine Health and Safety Regulations, Regulations made under the Section 138A of the Minerals (Prospecting & Mining) Act, 33 of 1992 as amended	Adhere to the Act requirements: <ul style="list-style-type: none"> – Accidents, dangerous occurrences and diseases – Mine workings – Outlets, travelling ways and ladder ways – Ventilation. Gases and dust – Explosives and blasting – Lighting – Winding – Machinery – Pressure vessels, compressors and refrigeration plants – Electricity – Protective equipment, clothing and devices – Mine fires – First Aid – Miscellaneous 	Regional Mines Inspector
Labour	Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	Labour Law Advice: Tel: 061 309 957
Roads	Roads Ordinance 17	– Width of proclaimed roads	Mr. E. de Paauw

		<p>and road reserve boundaries (S3.1)</p> <ul style="list-style-type: none"> – Control of traffic on urban trunk and main roads (S27.1) – Rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads (S36.1) – Infringements and obstructions on and interference with proclaimed roads. (S37.1) – Distance from proclaimed roads at which fences are erected (S38). 	Tel: (061) 284 7027
Water	Water Act 54 of 1956	Section 21 details provisions relating to effluent discharge permits.	Mr. Witbooi (MWAFF): Tel: (061) 208 7226
	Water Quality Guidelines for Drinking Water and Wastewater Treatment	Details specific quantities in terms of water quality determinants, which wastewater, should be treated to before being discharged into the environment	
Mining	The Minerals (Prospecting and Mining) Act of 1992 and the Minerals Policy (2003)	Make provision for the registration of different types of mineral license and mining claims. The Minerals Policy in particular, as it also provides the basis for the registration of mining claims	Ministry of Mines and Energy, Windhoek

10.5. Planning and Design Phase

The management requirements detailed in the table below need to be carried out before any tender documents are drafted for the construction of services infrastructure while necessary preliminary legislative and administrative arrangements are made in preparation for the sale of mining material.

Table 13. Management Requirements for the Planning and Design Phase.

ASPECT	MANAGEMENT REQUIREMENT
Solid Waste Management	<p>A suitable solid waste disposal site should be identified, and a separate EA should be conducted for that site. This EA should consider as a minimum the following:</p> <ul style="list-style-type: none"> – The Minimum Requirements for Waste Disposal by Landfill should be adhered to – Mine closure should not pose a threat to groundwater resources (as well as water and sewerage reticulation systems). – The new solid waste facilities should incorporate recycling into their waste management system.

	<ul style="list-style-type: none"> - In the event that the mine is closed before a suitable location for a new solid waste disposal site is found, a health inspector from the Ministry of Health and Social Services (or private health assessment professional) should determine a minimum safe residential distance from the waste site. The existing solid waste disposal sites should be rehabilitated according to the Minimum Requirements for Waste Disposal by Landfill.
Blasting / Explosives Management (if applicable – to be decided)	<p>A Blasting / Explosive Management Plan should be developed for all planned developments. The mine will employ explosives as the primary means of breaking rocks, and the Plan should outline management practices to be employed at the Mine that are aimed at minimizing the safety and environmental risks of handling nitrates, which are present in blasting agents. Specifically, methods used to minimize nitrate losses to the environment will be explained. In addition, the following design and loading practices should be put in place to minimize ammonia / nitrate losses to the environment:</p> <ul style="list-style-type: none"> - Design considerations: blasts are designed to maximize efficiency of blasting agents. - Blast hole liners: liners are used even when minimal amounts of water are present. If there is excessive water, blasters will use emulsion instead. - Minimize sleep time: holes are not loaded with blasting agents until necessary in order to reduce the time elapsed between loading and detonation. <ul style="list-style-type: none"> • - Waste disposal: Disposal of blasting reagent packaging and related waste is done so in accordance with the Disposal Guidance document
Sewage Reticulation	<ul style="list-style-type: none"> - The construction / mining activities will have to adhere to and comply with Namibia Standards Act (Act 18 of 2005) for sewer pipe designs.
Stormwater Infrastructure	<p>A Stormwater Management Plan should be developed for all planned developments and should address as a minimum the following:</p> <ul style="list-style-type: none"> - Cumulative stormwater issues: Existing stormwater drainage bottlenecks - Previously established residential areas with no formalized stormwater drainage - Ensure that the stormwater system is separate from the sewerage system. - Canalizing of run-off with concrete should be avoided as far as possible and natural run-off surfaces utilized or enhanced. - Storm water channels should be accommodated next to roads in the reserve. - Where practical/feasible consider soft/permeable road shoulder options – minimize paved or impermeable areas. - Run-off from areas where surface water might become contaminated should be captured, detained and treated to sewage effluent standards.
Borrow Pits	<p>Existing borrow pits should each have their own ECC. Currently this is not the case and as such an EA should be conducted for each of these borrow pits.</p>
Biodiversity and Aesthetics	<p>All trees (a “tree” is defined as an “<i>indigenous woody perennial plant with a trunk diameter ≥ 150 mm</i>”) that occur within the site and immediate environment, which have not been officially surveyed by a registered land surveyor, should be surveyed and incorporated into the Geographic Information System (GIS).</p>
Road Infrastructure	<p>The following should be adhered to with respect to any development near Roads Authority declared roads:</p> <ul style="list-style-type: none"> - There is a 45 meter building restriction applicable along Trunk Road 0701, measured

	<p>from the centerline of the road.</p> <ul style="list-style-type: none"> – The road reserve width is 60 meters (measured 30 meters to each side of the centerline of the trunk road). – The 15-metre-wide area between the road reserve line and the site boundaries restriction line needs to be declared as public open space.
Maintenance of Services Infrastructure	Ensure that a sufficient number of qualified staff are appointed to cater for increased demand for infrastructure maintenance (particularly stormwater, wastewater and potable water reticulation) upon completion of construction of such services.
EMP Implementation	The Contractor / Miner needs to appoint an Employer’s Representative (ER) that will act as the on-site implementing agent. This person should be responsible to ensure that the contractor’s responsibilities are executed in compliance with relevant legislation and this EMP.

10.6. Construction / Blasting / Mining Tender Preparation Phase

The management requirements described below should be consulted and carried out when the construction tender documents for the services infrastructure are prepared.

Table 14. Construction / Mining Tender Preparation Phase Management Requirements.

ASPECT	MANAGEMENT REQUIREMENTS
EMP implementation	<p>Relevant sections of this EMP should be included in the tender documents for all development so that tenderers can make provision for the implementation of the EMP:</p> <ul style="list-style-type: none"> – Construction of services infrastructure (Table 5) – Maintenance of services infrastructure (Table 6)
Financial provision	<ul style="list-style-type: none"> – Financial provision for the compilation of a Waste Management Plan should be included as a cost item within tenders concerning the construction / mining and/or maintenance of services infrastructure. – Financial provision for topsoil management and the rehabilitation of exhausted borrow pits should be included as a cost item within construction tender documents. – Financial provision for the co-opting of a health officer from the Ministry of Health and Social Services to facilitate HIV/AIDS and TB education programmes periodically on site during the construction phase should be included as a cost item within construction tender documents. – Financial provision for the facilitation of an induction programme for senior and temporary construction personnel as well as subcontractors and associated personnel should be included as a cost item within tenders concerning the construction and/or maintenance of services infrastructure.

	<ul style="list-style-type: none"> - Financial provision for the compilation of a Tree Management Plan should be included as a cost item within construction tender documents. - Financial provision for the drafting of a Communication Plan should be included as a cost item within construction tender documents.
Recruitment	<ul style="list-style-type: none"> - Provisions designed to maximize the use of local labour should be included within tender documents concerning the construction and/or maintenance of services infrastructure. - A provision stating that all unskilled labour should be sourced from local communities should be included within tenders concerning the construction and/or maintenance of services infrastructure. - Specific recruitment procedures ensuring qualified local companies enjoy preference during tender adjudication should be included within tenders concerning the construction and/or maintenance of services infrastructure. - Provisions promoting gender equality pertaining to recruitment should be included within tender documents concerning the construction and/or maintenance of services infrastructure. - Women should be given preference for certain unskilled jobs (e.g. flag bearers).

10.7. Construction / Blasting / Mining Mitigation Details

The following table provides a large-scale overview of all the major environmental management themes pertaining to both generic and site-specific construction mitigation details. This table serves to act as quick reference, for the detailed mitigation details that follow below, for the implementation of the construction / blasting / mining component of this EMP. This chapter may be used as a guide when developing EMPs for other construction activities within the development areas in question.

Table 15. Generic and Site-Specific Environmental Management Actions for the Construction / Blasting / Mining Phase.

MITIGATION ISSUE	OBJECTIVE TO BE ATTAINED	GENERIC MITIGATION DETAILS
- Waste Management	Avoid and where not possible minimise all pollution associated with construction / mining.	Section 1
- Borrow Pits (if any)	Ensure topsoil protection and post-blasting / construction / mining rehabilitation.	Section 2

MITIGATION ISSUE	OBJECTIVE TO BE ATTAINED	GENERIC MITIGATION DETAILS
– Health and Safety	Safeguard health and safety of labourers and general public.	Section 3
– Dust and Noise	Avoid and where not possible minimize dust and noise associated with blasting / construction / mining.	Section 4
– Environmental Awareness and Training	Awareness creation regarding the provisions of the EMP as well as importance of safeguarding environmental resources.	Section 5
– Employment Creation and Recruitment	Minimize negative conflict through legal and fair recruitment practices (affirmative Repositioning)	Section 6
– Stakeholder Communication	Provide a platform for stakeholders to raise grievances and receive feedback and hence minimize negative conflict	Section 7
– Socio-Economic and Miscellaneous	Ensure due consideration is given to matters regarding the cultural and general wellbeing of the affected community and matters incidental thereto.	Section 8
– Blasting / Explosives Management (if applicable – to be decided)	Minimizing the safety and environmental risks of handling nitrates, which are present in blasting agents. Specifically, methods used to minimize nitrate losses to the environment will monitored.	Section 9

10.7.1. Section 1: Waste Management

Table 16. Waste management.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Waste management plan	The Contractor / Miner should compile a Waste Management Plan which should address as a minimum the mitigation measures included below.
Hazardous waste	<ul style="list-style-type: none"> – All heavy construction / mining vehicles and equipment on site should be provided with a drip tray (though this is very unlikely considering the nature of the developments). – Drip trays are to be transported with vehicles wherever they go.

	<ul style="list-style-type: none"> - Drip trays should be cleaned daily and spillage handled, stored and disposed of as hazardous waste. - All heavy construction / mining vehicles should be maintained regularly to prevent oil leakages. - Maintenance and washing of construction / mining vehicles and equipment should be take place only at a designated workshop area. - The temporary workshop areas should be lined with concrete and sloped so as to collect and detain all run-off. - The workshops should have an oil-water separator for collected run-off from washing. - Spilled cement and/or concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. - All hazardous substances (e.g. fuel etc.) or chemicals should be stored in a specific location on an impermeable surface that is banded.
Sewage and Grey Water	<ul style="list-style-type: none"> - Sewage should not be discharged directly onto open soil. - All sewage must be removed regularly and disposed of at a recognized (municipal) sewage treatment facility. - The water collected from wash basins and showers (grey water), should not be left standing for long periods of time as this promotes parasite and bacterial proliferation. Grey water should be recycled: <ul style="list-style-type: none"> o Used for dust suppression; o Used to water a vegetable garden, or to support a small nursery; o Used to clean equipment. - Grey water that is not recycled should be removed along with sewage on a regular basis.
General Waste	<ul style="list-style-type: none"> - The construction / mining sites should be kept tidy at all times. All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. - No waste may be buried or burned. - Waste containers (bins) should be emptied regularly and removed from site to a recognized (municipal) waste disposal site. All recyclable waste needs to be taken to the nearest recycling depot. - A sufficient number of separate bins for hazardous and domestic/general waste must be provided on sites. These should be clearly marked as such. - Construction / mining labourers should be sensitized to dispose of waste in a responsible manner and not to litter.

	– No waste may remain on site after the completion of the project
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10.7.2. Section 2: Borrow Pits (if any) & excavation / MINING / blasting

Table 17 Topsoil, Mining & Rehabilitation.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Topsoil	<ul style="list-style-type: none"> – When excavating, topsoil should be stockpiled in a demarcated area. – Stockpiled topsoil should be used to rehabilitate the nearest borrow area (existing borrow pits), if such an area is located less than 20 km from the stockpile.
Mining	<ul style="list-style-type: none"> – The Contractor should closely work with the mining contractor, who will do the mining on the Claims. – Well serviced / maintained Machinery (with Service History) to be used include: <ul style="list-style-type: none"> ○ MAN Tipper Truck ○ CAT Loader ○ Atlas Copco Air Compressors ○ Bakkies – Anfax and fuses will be used for the blasting (if any) purposes
Rehabilitation	<ul style="list-style-type: none"> – Upon completion of the construction / mining phase consultations should be held with the local community/property owner(s) regarding the post-mining use of exhausted pits. – In the event that no post- construction uses are requested, all exhausted borrow pits and excavated areas need to be rehabilitated as follows: <ul style="list-style-type: none"> ■ Borrow pits and excavated areas may only be backfilled with clean or inert fill. No material of hazardous nature (e.g. sand removed with an oil spill) may be dumped as backfill. ■ Rehabilitated borrow pits and excavated areas need to match the contours of the existing landscape. ■ The rehabilitated area should not be higher (or lower) than nearby drainage channels. This ensures the efficiency of re-vegetation and reduces the chances of potential erosion. ■ Topsoil is to be spread across borrow pit and excavated areas evenly. ■ Deep ripping is required, not just simple scarification, so as to enable rip lines to hold water after heavy rainfall. ■ Ripping should be done along slopes, not up and down a slope which could lead to enhanced erosion. ■ Rehabilitated borrow pits need to remain fenced-off after the decommissioning of the project to prevent livestock from denuding the newly established vegetation on the area.

Table 18. Health and Safety.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
HIV/AIDS and TB training	The Contractor/ Miner should approach the Ministry of Health and Social Services (Opuwo Health Centre) to co-opt a health officer to facilitate HIV/AIDS and TB education programmes periodically on site during the construction/mining phase.
Road Safety	<ul style="list-style-type: none"> – Demarcate roads clearly. – All vehicles that transport materials to and from the site must be roadworthy. – Drivers that transport materials should have a valid driver’s license and should adhere to all traffic rules. – Loads upon vehicles should be properly secured to avoid items falling off the vehicle.
Safety Around Excavated and Work Areas	<ul style="list-style-type: none"> – Excavations should be left open for shortest time possible. – Excavate short lengths of trenches and box areas for services or foundations in such a way that the trench will not be left unattended for more than 24 hours. – The following areas should be demarcated with danger tape: <ul style="list-style-type: none"> ○ All excavation works; ○ Soil and other building material stockpiles; and ○ Temporary waste stockpiles. – Provide additional warning signage in areas of movement and in “no personnel” areas where workers are not active. – Borrow pits are to be fenced-off with steel wire fencing. – Work areas must be set out and isolated with danger tape on a daily basis. – All building materials and equipment are to be stored only within set out and demarcated work areas. – Only construction/mining personnel will be allowed within these work areas. – 2 fire extinguishers should be available at fuel storage areas. – Comply with all mitigation measures laid out in Section 1 (Waste Management Mitigation details)
Ablution Facilities	<ul style="list-style-type: none"> – Separate toilets should be available for men and women and should clearly be indicated as such (if applicable). – Portable toilets (i.e. easily transportable) should be available at

	<p>every construction site:</p> <ul style="list-style-type: none"> ○ 1 toilet for every 25 females. ○ 1 toilet for every 50 males. <ul style="list-style-type: none"> – Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site. Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. – Workers responsible for cleaning the toilets should be provided with latex gloves and masks.
General Precautions	<ul style="list-style-type: none"> – Dust protection masks should be provided to workers at all the time despite worker’s resistance to use them. – Sufficient potable water reserves should be available to workers at all times. – No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable). – No workers should be allowed to drink alcohol during work hours. – No workers should be allowed on site if under the influence of alcohol.

10.7.4. Section 4: Dust and Noise

Table 19. Dust and Noise.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Dust	A watering truck should be used on gravel roads and the site especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought.
Noise	Work hours should be restricted to between 08h00 and 17h00 where construction / mining involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week’s written notice.

10.7.5. Section 5: Environmental Awareness and Training

Table 20.
Environmental Awareness.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Environmental Induction (Training)	<p>All construction / mining workers are to undergo environmental induction (training) which should include as a minimum the following:</p> <ul style="list-style-type: none"> – Explanation of the importance of complying with the EMP. – Discussion of the potential environmental impacts of construction / mining activities. – Employees’ roles and responsibilities, including emergency preparedness. – Explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities. – Explanation of the specific mitigation measures within this EMP especially unfamiliar provisions.

10.7.6. Section 6: Employment Creation and Recruitment

Table 21. Recruitment.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Legislation	Adhere to the legal provisions in the Labour Act (see Table 1) for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME’s, etc.) in the Contract.
Recruitment	<p>The Contractor / Miner should compile a formal recruitment process including the following provisions as a minimum:</p> <ul style="list-style-type: none"> – Recruitment should not take place at the mine – Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside the agreed upon process. – Contractors / Miners should give preference in terms of recruitment of sub-contractors and individual labourers to those who are qualified and from the project area and only then look to surrounding towns. – Clearly explain to all job-seekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary.

Table 22. Communication.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Communication plan	<p>The Contractor/Miner should draft a Communication Plan, which should outline as a minimum the following:</p> <ul style="list-style-type: none"> – How Interested and Affected Parties (I&APs), who require ongoing communication for the duration of the construction period, will be identified and recorded and who will manage and update these records; – How these I&APs will be consulted on an ongoing basis; – Make provision for grievance mechanisms – i.e. how concerns can be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event that feedback is deemed unsatisfactory.
General communication matters	<ul style="list-style-type: none"> – The ER must appoint an ECO to liaise between the Contractor / Miner, I&Aps and consultants. – The Miner shall at every monthly site meeting report on the status of the implementation of all provisions of the EMP. – The Miner should implement the environmental awareness training as stipulated in Section 5 (see above). – The Miner must list the I&APs of the project and their contact details with whom ongoing communication would be required for duration of the contract. This list, together with the Communication Plan must be agreed upon and given to the ER before construction commences. – The Communication Plan, once agreed upon by the Miner, shall be legally binding. – All communication with the I&APs must take place through the ECO. – A copy of the EMP must be available at the Mine Site Office and should be accessible to all I&APs – Key representatives from the above-mentioned list need to be invited to attend monthly site meetings to raise any concerns and issues regarding project progress. – The Contractor should liaise with the Developer regarding all issues related to community consultation and negotiation before construction commences. – A procedure should be put in place to ensure that concerns raised have been followed-up and addressed. – All people on the I&APs list should be informed about the availability of the complaints register and associated grievance mechanisms in writing by the ER prior to the commencement of construction activities.

Table 23. Archaeology.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
<p>Archaeology</p>	<ul style="list-style-type: none"> - Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a “chance find” procedure should be applied in the order they appear below: <ul style="list-style-type: none"> o If operating machinery or equipment stop work; o Demarcate the site with danger tape; o Determine GPS position if possible; o Report findings to the construction foreman; o Report findings, site location and actions taken to superintendent; o Cease any works in immediate vicinity; o Visit site and determine whether work can proceed without damage to findings; o Determine and demarcate exclusion boundary; o Site location and details to be added to the project’s Geographic Information System (GIS) for field confirmation by archaeologist; o Inspect site and confirm addition to project GIS; o Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and o Recovery, packaging and labeling of findings for transfer to National Museum. - Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> o Apply the chance find procedure as described above; o Schedule a field inspection with an archaeologist to confirm that remains are human; o Advise and liaise with the NHC and Police; and o Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.

Table 24. Blasting / Explosives management plan.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
<p>Blasting / Explosives management plan</p>	<p>The Contractor / Miner should compile a Blasting / Explosives Management Plan which should aim at minimizing the safety and environmental risks of handling nitrates, which are present in blasting agents. Specifically, methods used to minimize nitrate losses to the environment will be explained in the Plan.</p>
<p>Best Practice Management Practices</p>	<p>The Miner should work closely with both AEL Blasting Services who will be directly responsible for transporting of explosives as well as do the actual blasting</p> <ul style="list-style-type: none"> – Holes to be drilled by Air Jackhammers – The CAT Back holder to be used to clean – All holes to be cleaned with Air Compressors <p>This will help ensure that Blasting activities are conducted with minimal environmental and health/safety risk. Since both safety and environmental risks are related (risks are increased from deficient handling practices), standard operating procedures (SOPs) should be developed which address both issues jointly.</p> <ul style="list-style-type: none"> – The first means of addressing explosive reagent safety and best practices related to environmental management is awareness. – Blast crews and engineering staff should be aware that nitrates and ammonia are generally the compounds of greatest concern for water quality

10.8. Operation and Maintenance Phase

The following mitigation measures should be complied with and carried out during any maintenance works associated with the services infrastructure within the planned development areas.

Table 25. Operation and Maintenance Phase Mitigation Measures

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
EMP Implementation	<ul style="list-style-type: none"> – If any mining / blasting is to be conducted as part of maintenance works for the services infrastructure within the project area, please refer to the construction / mining mitigation measures of this EMP (Chapter 7).
Post-Construction / Mining Usage of Borrow Pits	<ul style="list-style-type: none"> – Borrow / pits to be rehabilitated during the post-construction / mining phase - adhere to the same topsoil and rehabilitation measures outlined within construction mitigation measures of this EMP (Chapter 7) above.
Post-Construction / Mining Environmental Training and Awareness	<ul style="list-style-type: none"> – All contractors appointed for maintenance work on the respective services infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.

10.9. Decommissioning

In the event that the mines are decommissioned the following mitigation measures should be adhered to.

Table 26. Decommissioning Phase Mitigation Measures.

ASPECT	MITIGATION MEASURE
Construction Related Activities	<ul style="list-style-type: none"> – Many of the mitigation measures prescribed for mining activity for these developments (Chapter 7 above) would be applicable to some of the decommissioning activities. These should be adhered to where applicable.
Rehabilitation	<ul style="list-style-type: none"> – In the event that decommissioning is deemed necessary, excavations need to be rehabilitated according to Section B of Chapter 7 (see above).

11. CONCLUSIONS AND RECOMMENDATIONS

Small-scale mining over the world over and in Africa, in particular, is plagued with many problems including inadequate legal and regulatory frameworks, low productivity, and the application of rudimentary and inappropriate technology. The industry is also faced with problems such as isolation from the mainstream of economic development, adverse environmental effects, health and occupational hazards (Haye 2008).

A variety of gem-quality semi-precious stones are currently mined in Namibia, a proportion of which are recovered intermittently by artisanal small-scale miners and prospectors. Moreover, trading of Namibian's semi-precious stones on the international market is not uncommon and these stones fetch higher prices in the market in comparison to what the small-scale miners in Namibia get when they sell them to tourists and dealers.

The vision of the Namibian government is to promote the small-scale mining while curbing illicit flows of raw materials and simultaneously securing the maximum benefit for the country through value addition.

The unexpected high growth of the Opuwo population in recent years has created several challenges for the Opuwo town council in terms of providing land for the increased population, servicing land with the provision of infrastructure and creating the conditions for economic growth and thereby employment opportunities for this growing population.

The discovery of mineral occurrences of rare metals and REE makes this project especially valuable. Further exploration and mining of this deposit will definitely bring major benefits for the Local Community in terms of economic growth and poverty elimination. It will create significant number of employment as well provide opportunities for training local people in various skills associated with exploration and mining industry. Consequently development of the project will add notable value to the economy of Namibia in general.

Potential impacts associated with the proposed project have been identified and their significance determined. None of the potential impacts identified had "high" impact significance. All identified impacts can be mitigated to reduce the significance of these impacts to an acceptable level. Mitigation measures are described in greater detail in the EMP. Hence, the project, as proposed in this report, can be implemented with no significant impacts if executed according to the EMP.

It is therefore recommended:

- ✓ **that the Exploration Activities on a Mining claims, 69857-69859, 70005-70009 Kaokoland, Kunene be granted Environmental Clearance Certificate, subject to the conditions as stipulated in the EMP and/or any other conditions from the MEFT.**

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