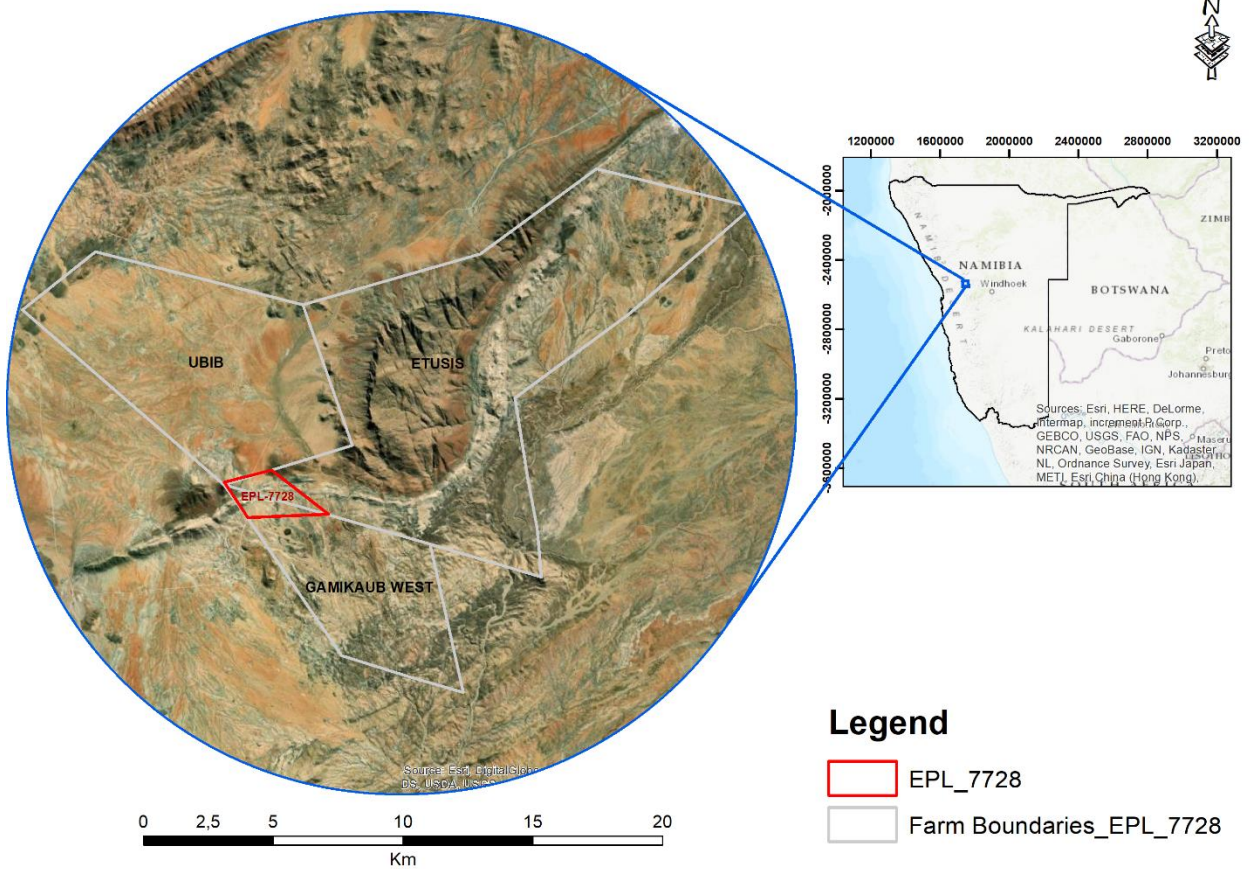




Application No: APP-002278

**Environmental Impact Assessment for the Proposed Exploration  
Activities of Dimension Stones On Exclusive Prospecting Licenses  
7728, in Karibib District, Erongo Region**

27 Jan. 21



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## DOCUMENT INFORMATION

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<b>APPLICATION NO:</b>	<b>APP-002278</b>
<b>PROJECT TITLE</b>	Environmental Impact Assessment for the Proposed Exploration Activities of Dimension Stones On Exclusive Prospecting Licenses 7728, in Karibib District, Erongo Region
<b>CLIENT</b>	Tipton Investment Pty Ltd
<b>PROJECT CONSULTANT</b>	Mr. Ipeinge Mundjulu
<b>LOCATION</b>	About 40km south of Karibib town

## Table of Contents

Executive Summary .....	ii
1. Introduction.....	3
1.1. Regulatory Requirements .....	3
1.2. The Need and Desirability of the Project .....	4
1.3. Terms of Reference .....	4
1.4. Scope of the EIA.....	5
2. Project Description .....	6
2.1. Location.....	6
2.2. Project Activities.....	7
2.2.1. Phase 1. Non-Invasive Exploration .....	7
2.2.2. Phase 2. Evasive Exploration .....	7
2.3. Equipment.....	9
2.3.1. Vehicles.....	9
2.3.2. Drilling .....	10
3. Description of the Affected Environment.....	11
3.1. Physical Environment .....	11
3.1.1. Climate .....	11
3.1.2. Geology .....	11
3.1.3. Topography and Drainage.....	12
3.1.4. Ecology .....	13
3.1.5. Ecological Impact Assessment .....	16
3.1.6. Socio-Economic Environment.....	17
3.1.7. Land Use .....	17
3.1.8. Heritage and Archaeology Material.....	17
3.1.9. Population Demography.....	18
4. Project Alternatives .....	19
5. Policy and Legal Framework .....	21
6. Public Consultation .....	24
6.1. Newspaper Adverts .....	24
6.2. Site Notices.....	24
6.3. Public Meeting.....	25

6.3.1.	Introduction .....	25
6.3.2.	Environmental Impact Assessment (EIA) process .....	26
6.3.3.	Comment / Question and Response .....	28
7.	Impact Identification and Risk Assessment .....	29
7.1.	Impact Identification .....	29
7.2.	Impact Risk Assessment Procedure .....	31
7.3.	Identified Impacts .....	31
7.3.1.	Potential Negative Impacts.....	31
7.3.2.	Potential Positive Impact of the project .....	32
8.	Risks Assessment .....	32
8.1.	Planning Phase .....	32
8.2.	Operational Phase .....	33
8.2.1.	Socio-Economic Impacts.....	33
8.2.2.	Bio-Physical Impacts .....	37
9.	Decommissioning and Rehabilitation.....	41
10.	Conclusions and Recommendations .....	41
10.1.	Conclusions .....	41
10.2.	Recommendations .....	41
11.	Reference .....	42

## List of Figures

<b>Figure 1</b> The EIA Process in Namibia.....	6
<b>Figure 2.</b> Tipton Investment EPL 7728 (Blue Shape).....	6
<b>Figure 3.</b> Exploration vehicles (For illustration purposes).....	9
<b>Figure 4.</b> A truck mounted RC drill rig and a skid mounted drill rig (For illustration purposes).....	10
<b>Figure 5.</b> Landscape of some areas of EPL 7728.....	13
<b>Figure 6.</b> Dominant Species observed at the study area.....	16
<b>Figure 7</b> Notice of proposed project and invitation to the Public Meeting .....	25
<b>Figure 8.</b> Public meeting Karibib Town Council Usab Hall .....	25
<b>Figure 9.</b> Matrix used for the impact assessment.....	31

## List of Tables

<b>Table 1.</b> Identified listed activities concerning the proposed project.....	3
<b>Table 2.</b> GPS Coordinates for EPL 7728.....	6
<b>Table 3.</b> Project alternatives.....	19
<b>Table 4.</b> Policy and Legal framework .....	21
<b>Table 5.</b> Newspaper Adverts.....	24
<b>Table 6.</b> Comment, Concerns and Response Table.....	28
<b>Table 7.</b> Criteria for impact assessment.....	29

## **ACRONYMS**

<b>DEA</b>	Department of Environmental Affairs
<b>EA</b>	Environmental Assessment
<b>EAP</b>	Environmental Assessment Practitioner
<b>EC</b>	Environmental Commissioner
<b>ECC</b>	Environmental Clearance Certificate
<b>ECO</b>	Environmental Compliance Officer
<b>EIA</b>	Environmental Impact Assessment
<b>EMA</b>	Environmental Management Act (No. 7 of 2007)
<b>EMP</b>	Environmental Management Plan
<b>EPL</b>	Exclusive Prospecting License
<b>I&amp;APs</b>	Interested and Affected Parties
<b>MET</b>	Ministry of Environment and Tourism
<b>PPE</b>	Personal Protective Equipment
<b>RC</b>	Reverse Circulation
<b>RD</b>	Red-Dune Consulting CC
<b>TORs</b>	Terms of Reference

## **Executive Summary**

Mineral exploration existed for many centuries. With improving technology, mineral exploration has become environmental friendly, in a way that it is more non-evasive, with negligible impact on the bio-physical environment. The proponent, Tipton Investment (Pty) Ltd, own Exploration Prospecting Licenses 7728, about 40km south of Karibib town in Erongo Region as per the Mineral Resource Act 1992. The EPL is 424.2737 hectares and covers portion of farm Etusis No: 75 and Kubas No. 77. The company intent to carry out exploration activities of dimension stone on the EPL.

The proposed exploration activities shall comprise of non-invasive methods such as geological field mapping and geophysical ground mapping to generate target point where geochemical soil sampling will take place. Generated targets will be sampled using traditional methods of shallow pitting and trenching, while deeper targets would be sampled through Reverse Circulation drilling. All drilled holes shall be covered completely after sampling.

In conclusion, exploration activities are not known to cause harm to the environment. Line cutting will be made in a way that it avoids mature and protected trees. Should this exploration yield into a potential establishment of a mine, a comprehensive EIA must be undertaken which will include all necessary specialist studies. Henceforth, it is recommended to the approving authority that this project is approved and be issued with an Environmental Clearance Certificate.

## 1. Introduction

The proponent, Tipton Investment (Pty) Ltd, owns Exploration Prospecting Licenses 7728, about 40km south of Karibib town in Erongo Region as per the Mineral Resource Act 1992. The EPL is 424.2737 hectares and covers portion of farm Etusis No: 75 and Kubas No. 77.

### 1.1. Regulatory Requirements

The protection of the environment is provided for under Article 95 of the Namibia Constitution and the Environmental Management Act 2007 (Act No 7 of 2007) (EMA).

In accordance with the Environmental Impact Assessment Regulation Government Gazette of 6 February 2012 No. 4878, of the Environmental Management Act, 2007 (Act No 7 of 2007), the proposed exploration activity is a listed activity that may not be under taken without an Environmental Clearance Certificate (ECC) (Table 1).

**Table 1.** Identified listed activities concerning the proposed project.

Activity	Applicability
3.1 The construction of facilities for any process or activities which requires a license, right or other form of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act), 1992.	The projects shall include the prospecting of Mineral
3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not.	Mining activities shall involve, drilling and digging to extract natural resource.
3.3 Resource extraction, manipulation, conservation and related activities.	The project shall extract resource sample for manipulations / analysis.

It is against the above statutory requirement that Tipton Investment Pty Ltd has appointed Red-Dune Consulting CC (RDC) to undertake an environmental impact assessment for the proposed exploration activities



## **1.2. The Need and Desirability of the Project**

Developing countries, especially African states economies largely depends on mineral extraction industries. The extraction of these resources are mostly exploited by wealthy multinational companies. These extraction industries are important in contributing to countries' economies and provide much needed employment. Mining processes are preceded by exploration activities, which aims to map the mineralization of the minerals in order to establish a mining area. The discovery of economical deposit from exploration activities yield into mining activities which is the main driver for the Namibia Economy. Areas around Karibib are rich in minerals and mining is main source of income, livelihoods and employment for the locals. Hence this project is important to the socio-economic needs of the country.

## **1.3. Terms of Reference**

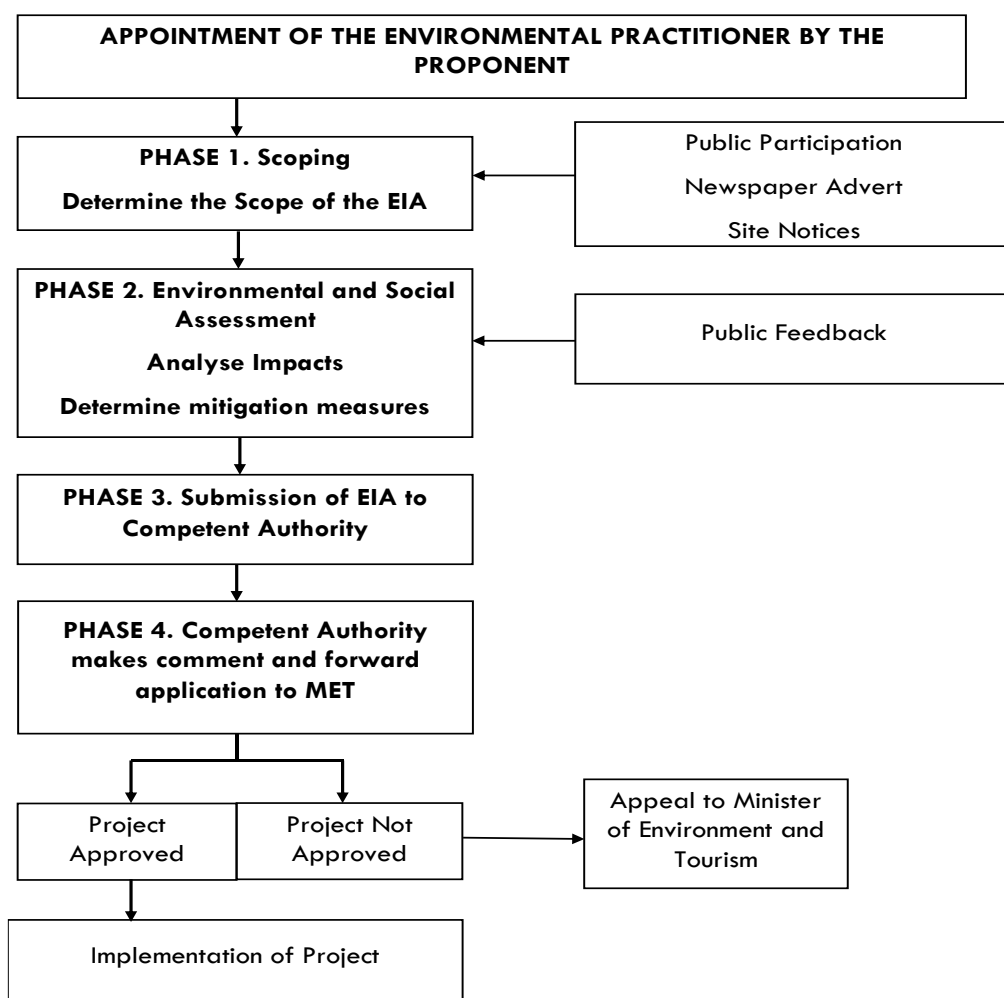
The Terms of Reference (TORs) for this Environmental Impact Assessment (EIA) is in accordance with the EMA and its EIA Regulation Section 9 (a-b). It considers other relevant local, national and international laws. These guidelines are aimed to focus on issues of greater environmental concerns and to develop mitigation measures for effective environmental management. Eventually, this EIA is aimed at obtaining the ECC for the project and to ensure environmental sustainability. The TORs of this project includes, but not limited to the following;

- Provide a comprehensive description of the proposed Project;
- Identify relevant legislation and guidelines for the project;
- Identify potential environmental (physical, biological and social) conditions of the project location and conduct risk assessment;
- Inform Interested and Affected Parties (I&APs) and relevant authorities about the proposed project to enable their participation and contribution;
- Develop an Environmental Management (EMP) that would be a legal guideline for the environmental protection by the project

## 1.4. Scope of the EIA

The scope of this project is guided by the EIA Regulations 2012, which follows the process as shown in figure 1. The scope aims at identifying possible impacts, assessing the impact and formulate the optimum, practical mitigation measure to minimize the impacts.

Red-Dune (RD) believes that the developed Environmental Management Plan (EMP) provides practical mitigation measure which shall ensure environmental sustainability. Further, RD believes that, the information provided is adequate and sufficient to enable the Environmental Commissioner (EC) to make an informed decision and issue the Environmental Clearance Certificate for the project.

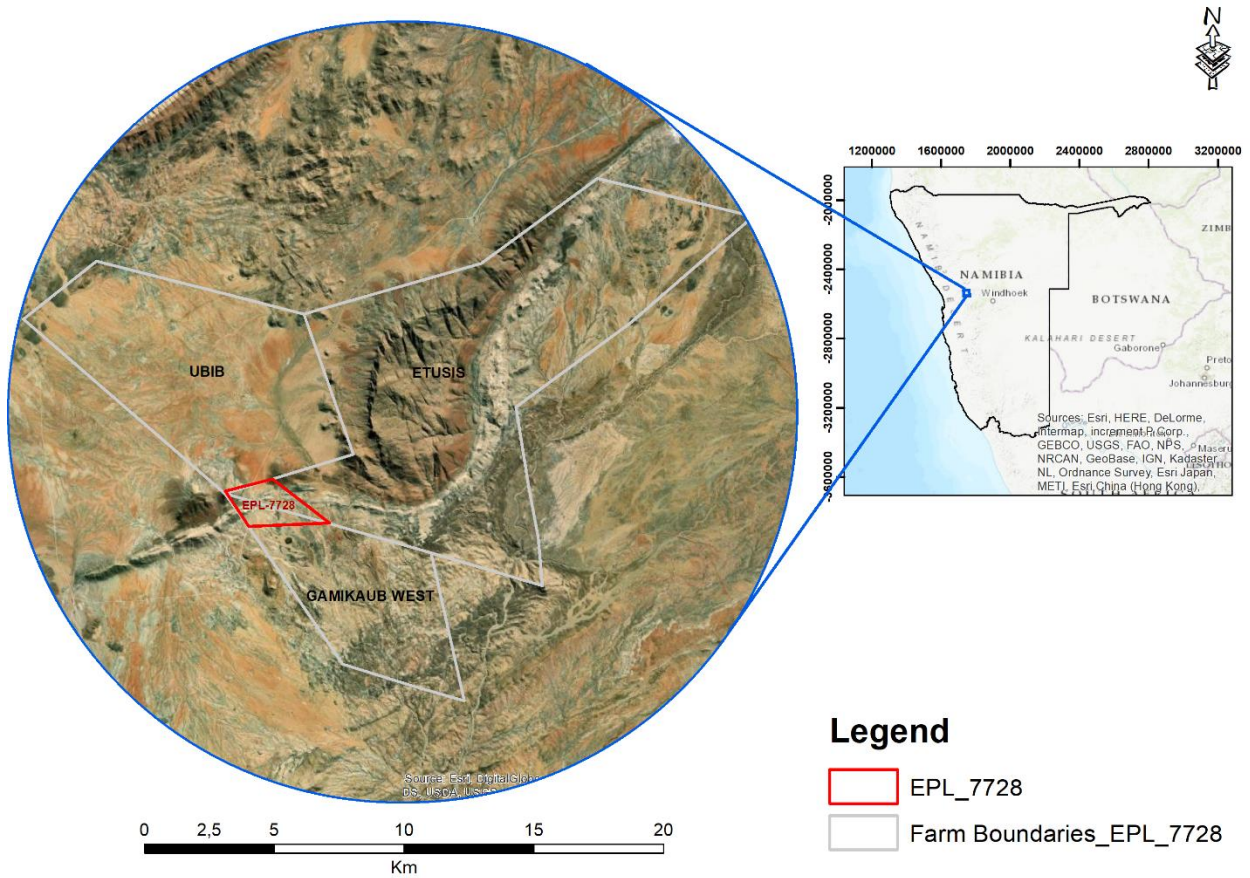


**Figure 1** The EIA Process in Namibia

## 2. Project Description

### 2.1. Location

The EPL is located about 40km south of Karibib town in Erongo (-22.236326 S, 15.644079 E) (Figure 2). It measures 424.2737 hectares (ha) and covers portion of farm Etusis No. 75 and Farms Kubas No. 77.



**Figure 2.** Tipton Investment EPL 7728 (Blue Shape)

**Table 2.** GPS Coordinates for EPL 7728

1) 22°1407" S, 15 ° 37'53" E	2) 22 ° 13'51" S, 15 ° 38'57" E
3) 22 ° 14'46" S, 15 ° 40'14"E	4) 22 ° 14'51", S 15 ° 38'25" E

## 2.2. Project Activities

The proposed exploration would adopt various prospecting methods for Dimension stones

- Reconnaissance field mapping
- Geochemical soil sampling and target generation
- Diamond/RC Drilling of geophysical target

The above proposed activities would be undertaken in phases as explained below.

### 2.2.1. Phase 1. Non-Invasive Exploration

The initial phase of mineral prospecting and exploration involves non-invasive work. These activities do not cause physical damage to the environment. These activities include geological studies and field mapping where analysis of historical data, geological maps and their interpretations take place. Analysis of these data would generate geophysical targets where evasive exploration would take place. The non-invasive exploration activities are explained below;

**Geological studies and field mapping**, during this stage, various geological data for the area will be collected from different sources to analyse and study available information of the area. Information are derived from aerial photo. These geological photos are studied to generate target point where geochemical soil sampling are to be taken.

### 2.2.2. Phase 2. Evasive Exploration

The second phase of exploration includes sampling for geochemical samples from targets sites. During this phase collection of geochemical samples from hole of various depth through drilling shall take place. If the target sites is not accessible with existing roads new access road will be established. Normally, farm roads are meant for light vehicles, exploration vehicles have the potential to damage the farm access roads. Hence proper road maintenance must be implemented to ensure that the roads are left on good state.

Generally, the EPL has poor vegetation cover. The area is largely encroached by bushes of *Acacia Mellifera*, and have patch distribution of *Acacia Erioloba* which is a protected species. On some hills, there are various species of *Sterculia africana* on marble outcrops. This is a protected species, however its distribution pattern shows that it is distributed throughout the country and mostly confined to rock outcrops. It is high in abundance around Karibib area. There is no endangered vegetation of high conservation importance that warrant collection of seed or re-plantation of vegetation. If at all necessary is required to clear some trees / shrubs to access target a site, consent for clearing must be obtained from land owners and protected tree species must be avoided. The recommendation of the vegetation study carried out for the area must be implemented to ensure sustainable conservation.

**Drilling** is done at the final stage of exploration to evaluate the prospect of minerals and determine the feasibility of mining. Drill rods are used to collect geological samples from the earth's subsurface. The drill targets will be generated from the mapping and sampling programmes. Exploration activities mainly use two types of drilling; Reverse Circulation (RC) and Diamond Core drilling. Reverse circulation gained prominence due to its effectiveness and conservative when it comes to water use.

**Reverse Circulation** drilling often referred to as 'RC' drilling uses rods (shafts) with inner and outer tubes with drill bit attached to an air-filled interchanging piston known as a hammer. The hammer produces drill cuttings that are returned to the surface inside the rods. RC drill are carried on drill rigs, which are mostly powerful heavy truck. RC drilling is the most preferred method because it is less costly and produces liable materials that are free from contamination. In an arid place like Namibia, RC Drilling would be advantageous because it does not require water for rock drilling unlike Diamond core drilling that requires water for lubrication. Once the proposed exploration has been concluded, the impacted sites must be rehabilitated as provided for by the Environmental Management Plan.

When necessary, a base camp for accommodation may be set up or use of existing farms houses or camping sites. This must first be agreed with the farm owners. In an event where

a base camp is set up, waste management provisions must be implemented which include; a garbage dump and pit toilet must be established where no hazardous waste shall be dumped, an impermeable skip container must be on site for collecting hazardous waste. At the end of exploration, toilet pits and garbage dump must be dump filled before leaving the site. Alternatively, the use of the mobile toilets is recommended where waste should be disposed at an approved municipal area of Karibib. To ensure environmental protection from oil, fuel, and lubricants, servicing of vehicles and equipment must take place at an agreed designated area. In event where the farm owner does not allow servicing of the vehicles or machineries, such activities must take place at designated area.

## **2.3. Equipment**

### **2.3.1. Vehicles**

Pickup will be used during the exploration (Figure 3). Water will be supplied by a water trucks. Night driving, reckless driving and speeding are prohibited. A bulldozer may be used for the access road and this must be agreed with farm owners.



**Figure 3.** Exploration vehicles (For illustration purposes)

### 2.3.2. Drilling

A 4X4 Lorries and skid mounted drill rig may be used to carry the drill on target sites (figure 4).



**Figure 4.** A truck mounted RC drill rig and a skid mounted drill rig (For illustration purposes)

### **3. Description of the Affected Environment**

#### **3.1. Physical Environment**

##### 3.1.1. Climate

The climatic condition of Karibib district is characterized by an interface between inland and desert weather towards the west. Its climate is semi desert type of climate, with little rainfall of about 239 mm annually. The rainy season is usually November and December and relatively high rainfall is received in the months of February and March. The months of June to August usually feature the winter period with little or no rainfall at all.

Comparing to the Eastern Zambezi region which receives the highest rainfall in the country at 600mm per year, the area is a relatively a dry place.

The average maximum temperature is between 32-36°C and minimum between 6-8°C. The hottest months of the year are December and January with an average temperature of 25.2 °C while the lowest average temperatures in the year occur in June and July, when it is around 17.0 °C. A such Karibib is characterized by two dominant seasons, a mild winter and very hot summer.

There is little data available for the prevailing wind direction in the Karibib area. According to the Stubenrauch Planning Consultants (2016), the environmental scoping study done for the expansion of the Navachab mine indicates that the predominant day-time wind is north-east, while at night-time the prevailing wind is southeast and south-southeast. During winter time, the prevailing winds are from the northeast and east (east winds) while in summer and spring time the prevailing winds are from the northwest north-westerly directions.

##### 3.1.2. Geology

According to the Atlas of Namibia, the area falls in a predominately Damara Granite intrusion rocks formed about 650 million years ago, and it is about 1000-1200m above sea



level. The marble-dominated Karibib Formation exhibits considerable thickness variations. According to Frommurze H.F *et al* 1942, the Marble series of the Damara granite system normally forms conspicuous ridges due to weather-resisting nature of the marble. The intense folding of these ancient sediments has thrown them in the form of several parallel ridges, which are in close proximity. There is a line of intermittent marble composed of marble and Damara quartzite to Okawayo. This marble belt runs through Okawayo areas and through south of the Railway from Karibib which explain why there are several marble quarries in the Karibib area.

### 3.1.3. Topography and Drainage

The EPL area is relative flat with hill and mountains (Fig 5). The general drainage of Karibib is toward south eastern and central to the Khan River and its tributaries. The Khan River from Karibib is fed by the tributaries of Omaruru River. These rivers are not perennial streams but flow is only during good rainfall, which is minimal in the area. After rainfall season, the area is hot and dry for the rest of the year. The Khan River is the main tributary of the Swakop River which normally flows during the rain seasons in November and February/March. The Khan originated from Otjisemba settlement, north-west of Okahandja. Its River course passes westwards of Karibib to Usakos, and further in a south-western direction through the Namib Desert to join the Swakop River 40km east of Swakopmund that drains into the Atlantic Ocean.



**Figure 5.** Landscape of some areas of EPL 7728

#### 3.1.4. Ecology

##### a. Flora

The EPL area was assessed on 11<sup>th</sup> February 2021 to establish the vegetation in the study area for this EIA (Figure 6). This information has been sourced from observations made during a site visit and desk study on existing literature from previous research conducted in the area. The vegetation structure at the site is predominantly sparse shrubland. This is characterized by an abundance of different species of both trees and shrubs and few rock outcrops

The area is mainly made up of shrubs of, *Acacia mellifera*, *Catophractes alexandri* (Trumpet-thorn) and individual trees of *Acacia erioloba*. Specimens of the protected *Sterculia africana* were found. Although this tree species is widely distributed throughout the country, its range is largely restricted to rocky outcrops and hill slopes.

*Sterculia africana*, occurs in the arid western part of Namibia and can also be found in different habitats such as rocky slopes in the west and sandy soils in the north-east. Its seeds are edible and its fibres can be used for ropes and hats (Manheimer & Curtis, 2009).

Overall, the EPL has a relatively low plant diversity which is expected from an arid area. Pictures of the dominant plants / trees are presented in the subsequent table with their conservation status.



*Acacia elioloba*:

**Protection status:** Protected in Namibia under the Preservation of trees and forests Ordinance of 1952



*Acacia elioloba* branch



*Acacia mellifera*

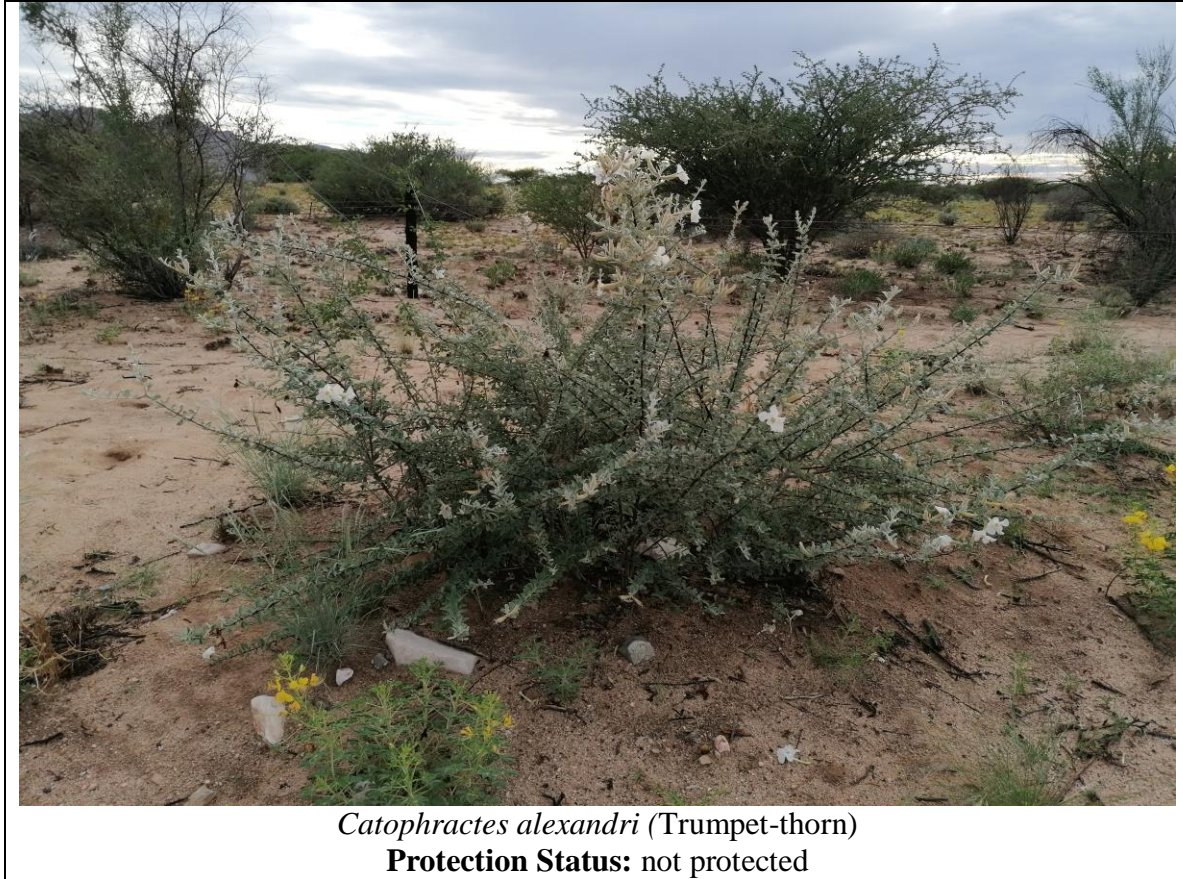
**Protection status:** not protected



*Branch of acacia mellifera*



*Sterculia africana* as observed on site



**Figure 6.** Dominant Species observed at the study area

b. Fauna

The study area is made up of mixed farming which comprises of small and large livestock as well as game farming.

3.1.5. Ecological Impact Assessment

**Impact on flora:** The impact on vegetation is expected to be minimal. If ever necessary to clear an area for the access road to target site, mature and protected trees must be avoided. Furthermore, clearing of an area must be agreed with farm owners. However, should the exploration yield into feasible data for mining operation, it will be inevitable for some tree to be affected. A comprehensive vegetation study must then be conducted.

**Impact on fauna:** The areas consist of farm animal which are accustomed to human activities, however will animals may be disturbed by the movement of people, which may impact the operation of the farm, especially during hunting. Therefore, before moving into an area on the farm, it is necessary to ensure proper consultation with the farm owners.

#### 3.1.6. Socio-Economic Environment

Exploration activities do not involve significant employment. The effect on socio-economic is deemed minimal. However, in cases where the exploration yields into the establishment of a mine, there will be great benefit to the socio-economic of the farm owners and surrounding people and towns. The project is not expected to negatively impact the operation of farmers. All operation must be within the confines of an agreement between Tipton Investment and farm owners.

#### 3.1.7. Land Use

The EPL is located on portions two farms where land use is mainly mixed farming with livestock and game for hunting.

#### 3.1.8. Heritage and Archaeology Material

The National Heritage Council Act 27 of 2004 provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Register; and to provide for incidental matters.

In consultation with local people and random movement on site as well the use of National Heritage Register, there were no heritage or archaeological sites found, neither known on the EPL. However, this is owing to the knowledge that, geological setting of areas with that has potential of dimension stones that consists of granite, sandstones and dolomite forms that are associated with archaeological landscapes that may constitute characteristics

of Later Stone Age (LSA). The investigation of LSA in dimension stones can only be establish after drilling.

Heritage material in the form of protected tress where sited and mitigation measures to ensure conservation were developed. Furthermore, a chance found for the heritage and archaeological materials is develop for the environmental management plan (EMP).

### 3.1.9. Population Demography

The area is located in Erongo region, Karibib district. According to the latest Labour Survey of 2016, Namibian total population stood at 2,324,388 million people with the total labour force of 1,026,268 million people. Of the total labour force, 69.4% are employed while 34.0% are unemployed. Erongo region has a total population of 182,402 thousand people with a total labour force of 107,523. Of the total workforce in the region, 78.1% and 21.9% are employed and unemployed respectively. Karibib has a total population of 13 320 thousand people and an annual growth rate of 1.0%. About 76% of the population comprises of the labour force with 59% and 41% employed and unemployed respectively. Karibib is sparsely populated with a population density of 0.9 persons per km<sup>2</sup>.

#### 4. Project Alternatives

The provision of EMA requires an EIA to explore various project alternatives which aims to ensure that a chosen project component does not have significant impact to the environment. Project alternatives ranges from not implementing the project (No go alternative), when the environmental impacts are severe, or there is high degree of uncertainty. Other alternative considers the project site, technology and equipment to be used. The description of alternatives is given in the table 3 below.

**Table 3.** Project alternatives

Alternative	Description	Advantages	Disadvantage	Chosen Option
<b>No Project</b>	This alternative would keep a status qou	<p>There would be NO environmental threats such as;</p> <ul style="list-style-type: none"> <li>• Waste Generation with potential Surface and Ground Water Pollution</li> <li>• Habitat destruction / Land degradation by Construction / upgrading of access roads</li> <li>• Drilling of holes</li> <li>• Social effect on Human Health and Safety Risk</li> </ul>	<p>The following benefits would be lost if the project does go ahead.</p> <ul style="list-style-type: none"> <li>• Prospective of new mining project that culminate into loss of income</li> <li>• Compromise on government development goals of manufacturing and industrialization</li> </ul>	NO



Alternative	Description	Advantages	Disadvantage	Chosen Option
			<ul style="list-style-type: none"> <li>Increase in poverty reduction through loss of employment opportunity</li> </ul>	
<b>Project Site</b>	Exploration activity follow mineralization of mineral. Hence there is no specific site. However, activities shall by all mean avoid protected sites and minimize environmental damage.			
<b>Implement project</b>	This entails the implementation and operation of the project	<ul style="list-style-type: none"> <li>Enhance development</li> <li>Enhance skill and capacity building</li> <li>Improved technology transfer</li> <li>Increase chances of establishing of a new mine</li> </ul>	The natural environment may be disturbed, but with adequate implementation of the Environmental Management Plan, environmental sustainability shall be achieved.	Yes
<b>Drilling Type:</b> <ul style="list-style-type: none"> <li><b>RC vs Diamond</b></li> </ul>	Cost effective Does not require water for lubrication compared to Diamond drilling	<ul style="list-style-type: none"> <li>RC drilling: This type of drilling is ideal as it does not require water for lubrication and cooling, hence it conserve water compared to diamond drilling</li> </ul>	No significant disadvantage to the environment	RC Drilling

## 5. Policy and Legal Framework

**Table 4.** Policy and Legal framework

Legislation	Summary	Applicability to Assessment
<b>The Namibian Constitution</b>	The State shall actively promote and maintain the welfare of the people by adopting policies aimed at ... The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future.	Protection of the environment and biodiversity. Ensures that these principles are enshrined in the EIA documentation
<b>Environmental Management Act No. 7 of 2007</b>	To promote sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters	The Act provides a list of activities that may not be undertake without an environmental clearance certificate to prevent environmental damages.
<b>Mineral Resource Act, Act 1992.</b>	Prospecting and Mining of Mineral in Namibia and Issuance of all Permits.	Issuance of Mining permits
<b>Draft Pollution Control and Waste Management Bill</b>	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management.	To protect the Environment from possible hydrocarbons and oil leaks from the machinery, trucks and vehicles.

<b>Legislation</b>	<b>Summary</b>	<b>Applicability to Assessment</b>
<b>Environmental Policy framework (1995)</b>	This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment.	Consideration of all possible impacts and incorporate them in the development stages
<b>Regulations Related to the Health and Safety of Employees at Work. Reg No. 156</b>	Promotes the Safety and Health of employees at the work place	To ensure employees health and safety at work
<b>Public Health Act No. 36 of 1919</b>	To Protect the public from nuisance and 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.	To ensure that the project is not a nuisance to land owners and the public at large
<b>Labour Act No. 11 of 2007</b>	This Act outlines the labour laws which encompass protection and safety of employees at work.	Fair labour practises to be observed with regard to this act
<b>Water Act No, 54 of 1956</b>	All water resources belong to the State. It prevents pollution and promotes the sustainable utilization of the resource	Prevention of discharging contaminated water at unauthorised places
<b>Soil Conservation Act No. 76 of 1969</b>	To promotes the conservation and compacting of soil erosion	Uncontrolled movement of heavy vehicles and truck at areas surrounding the site may cause land degradation

Legislation	Summary	Applicability to Assessment
<b>Water Resource Management Act No.11 of 2011</b>	The Act stipulates the prevention of pollution for Surface and Ground water sources.	Oil spillage coming from machinery requires proper monitoring.
<b>Public Health Act no. 36 of 1919</b>	The Act gives provision for the protection for the health of all people.	The noise and dust level emanating from the project could affect the surrounding community and vegetation in the vicinity.
<b>National Heritage Act No.27 of 2004</b>	The Act gives provision of the protection and conservation of places and objects with heritage significance.	The chance find of Human Remains due to colonial history or crime, Artefacts, and or heritage materials within the EPL
<b>Minerals (Prospecting and Mining) Act No 33 of 1992</b>	Section 50 (i) requires “an environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations”	The proposed activity is prospecting for minerals, hence it requires an EIA to be carried out and adhere to the act’s provisions.

## 6. Public Consultation

The provision of the EMA requires an EIA process to follow a robust and comprehensive public consultation. This is an important process, because it gives members of the public, especially the Interested and Affected Parties to comment or raise concerns that may affect the socio-economic or general environment as a result of the project. Further, it solicits crucial local knowledge that the Environmental Assessment Practitioner may not have.

### 6.1. Newspaper Adverts

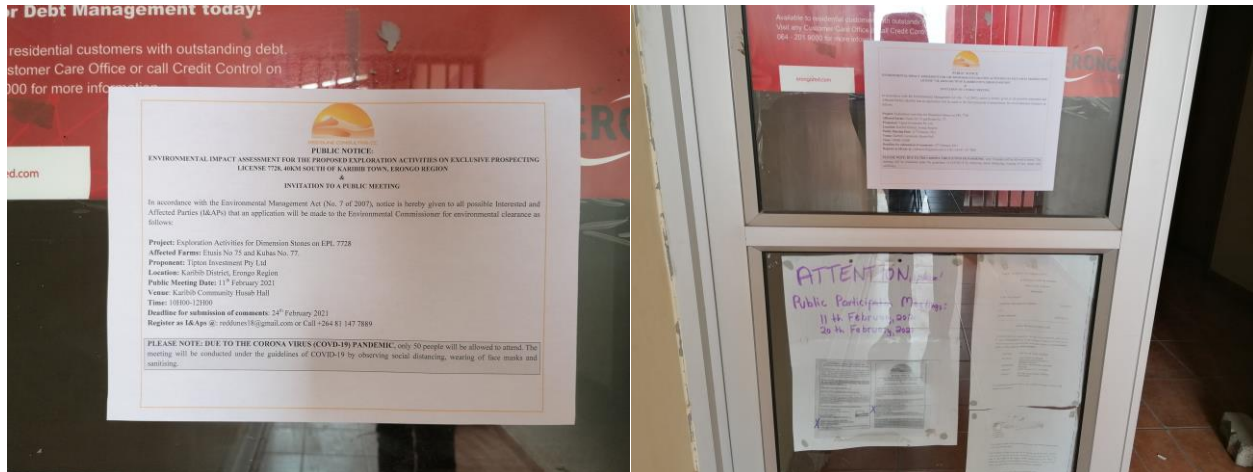
The EMA requires that, the project must be advertised into two (2) daily newspapers that are widely circulated in the country (Table 5). That means a total of four adverts was done. The project was advertised for two consecutive weeks in the New Era, Confidante and The Namibian newspapers.

**Table 5.** Newspaper Adverts

<b>Newspaper</b>	<b>Date advertised</b>
New Era	2 <sup>nd</sup> -Feb-2021 & 9 <sup>th</sup> - Feb-2021
Confidante	4 <sup>th</sup> -Feb-2021
The Namibian	9 <sup>th</sup> - Feb- 2021

### 6.2. Site Notices

Site notices were placed at the Town Council offices and at Karibib Town Council Community Usab Hall informing the public about the proposed project and the public meeting figure 7.



**Figure 7** Notice of proposed project and invitation to the Public Meeting

### 6.3. Public Meeting

#### 6.3.1. Introduction

A public meeting was convened on 11<sup>th</sup> February 2021 at the community hall of Karibib Town Council Usab hall. The meeting was not well attended, however it attracted other miners and community activist (figure 8).



**Figure 8.** Public meeting Karibib Town Council Usab Hall

As customary to all public meetings, Red-Dune Consulting explained to the meeting in layman terms what exploration entails, access / entry contract, COVID-19 response and compliance of the proponent to the EMP.

### 6.3.2. Environmental Impact Assessment (EIA) process

Red-Dune gave an overview of the mineral exploration process and the environmental impact assessment process as per the provision of the Environmental Management Act 2007, (Act No 7 of 2007) and the scope of the project.

Stakeholders were informed of their importance for participating in the EIA to ensure critical environmental issues are considered. For example, if a specific site has a social value (i.e. cemetery) and the farmer doesn't want it to be accessed/disturbed, the farmer has the right to refuse the proponent from entering that site.

Once the EMP is approved by the Ministry of Environment and Tourism (MET), then it becomes a legal guiding tool for the proponent to undertake the exploration process. The proponent is required to rehabilitate any physical exploration done on an area, failure to do so, the farmer has the right to report them to MEFT and the proponent is liable to conviction under the EMA.

To enlighten the stakeholders, a list of the potential environmental threats identified were given and their mitigation measures explained as stated in the environmental management plan (EMP);

- Site Access Conflict: Farm entry permission
- Human Health: COVID-19 transmission
- Safety Risk: Employees
- Soil and Ground Water pollution: Fuel, Oil, and Lubricants
- Biodiversity Loss: Clearing of vegetation for site access
- Human Wildlife conflict and Poaching
- Drilling activities: Wild life disturbances, Dust & Noise, Spill of Hydraulic Fluids & Ground water

- Land Degradation: Use of heavy vehicle on farm roads
- Pollutions: Solid waste generated by workers, ablution facilities

The mitigation measures for the above impacts are outlined in the Environmental management plan.



6.3.3. Comment / Question and Response

**Table 6.** Comment, Concerns and Response Table

No	Name	Comments / Concern / Input	Section where the comments addressed	How it is addressed
1	Mining Claim Owner	<p>1. There is bad cooperation with the owner of Farm Etusis. We are currently operating a quarry on Farm Etusis, but the owner, who is based in Germany lacks cooperation and charges access fees</p> <p>2. We have observed appalling living conditions of employees in the Dimension mining industry in Karibib. The owners are not taking care of their employees, the employment contracts do not have provision for social benefits such as housing, this we don't want to be continuing. We want all players in this industry to provide social benefits, especially decent housing to the employees.</p>	Page, 27,33 and 34 as well in the EMP	<p>Red-Dune informed the meeting that this issue is not unique to Karibib. Many at times, farm owners are reluctant to allow mining activities on their farms. Some claim that their landscape will be damaged and little is done to rehabilitate the environment. Therefore, it is recommended to establish a cordial relationship with the farm owner. If at all the farm owner refuse entry, there are appropriate laws that regulate underground resources and perhaps approach the office of the mining commissioner.</p> <p>On housing for employees, the meeting was informed that, there is little to be done to compel operators to ensure their employees have social benefits, unless there was legal provision. However, concern groups can opt to establish a legal association for the dimension stones miners that will be a bargaining union for the miners and operators.</p>
2	Participants	If the exploration yield into mining, will the proponent export law material or will there be any value addition	None	Red-Dune have limited capacity in terms of legal provision on percentages of resources that must be processed locally and those that get exported. This is a trade issue and I Red-Dune is certain that there are applicable laws pertaining to this issues under the Ministry of Trade and Industry.

## 7. Impact Identification and Risk Assessment

### 7.1. Impact Identification

During literature review and site assessment, possible impacts were listed. The criteria used to assess the impacts and the method of determining their significance is outlined in Table 6. This process conforms with the Environmental Impact Assessment Regulations of Environmental Management Act, 2007 (Government Gazette No. 4878) EIA regulations. The approach for determining and analyzing impacts is undertaken into two steps.

- **Impact Determination**; during this step, the impact is assessed based on severity, spatial scale and its duration.
- **Impact Significance**; various rating exists to determine the overall rating of the impact

Impact significance is determined under two mitigation scenarios; **without mitigation** and **with mitigation**. The confidence of impact mitigation depends on the level of certainty based on available information to assess the impact. Impacts whose level of uncertainties are high, a specialist study maybe commissioned to understand and develop the mitigation measures. If after a specialist studies there are still further uncertainties pertaining the impact, a precaution measure is applied to allow for more studies to be undertaken.

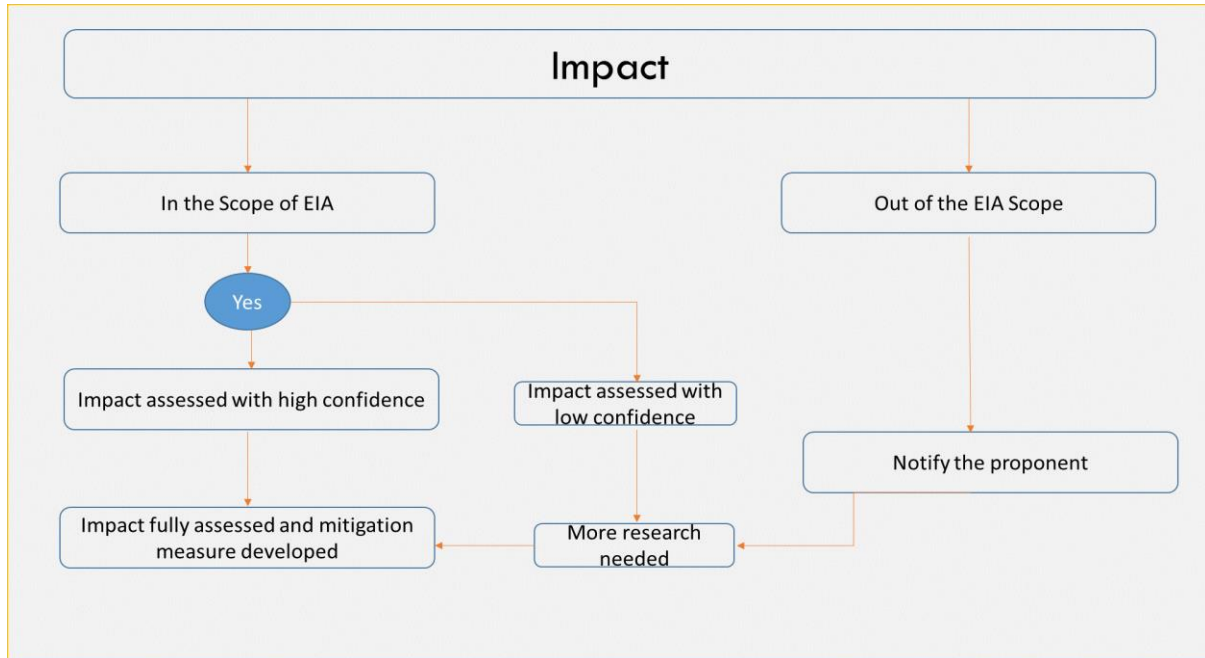
**Table 7.** Criteria for impact assessment

Risk Event	Rating	Description of the risk that may lead to an Impact
Impact type	0	No Impact
	+VE	Positive
	-VE	Negative
Probability	The probability that an impact may occur under the following analysis	
	1	Improbable (Low likelihood)
	2	Low probability
	3	Probable (Likely to occur)
	4	Highly Probable (Most likely)
	5	Definite (Impact will occur irrespective of the applied mitigation measure)
	The confidence level of occurrence in the prediction, based on available knowledge	

<b>Confidence level</b>	L	Low
	M	Medium
	H	High
<b>Significance (Without Mitigation)</b>	0	None (Based on the available information, the potential impact is found to not have a significant impact)
	L	Low (The presence of the impact's magnitude is expected to be temporal or localized, that may not require alteration to the operation of the project)
	M	Medium (This is when the impact is expected to be of short term moderate and normally regionally. In most cases, such impacts require that the projects is altered to mitigate the impact or alternative method of mitigation is implemented)
	H	High (The impact is definite, can be regional or national and in long term. The impact could have a no go implication unless the project is re-designed or proper mitigation can practically be applied)
<b>Mitigation</b>	The applied measure / alternative to reduce / avoid an impact	
<b>Significance (With Mitigation)</b>	0	None (Based on the available information, the potential impact is found to not have a significant impact)
	L	Low (The presence of the impact's magnitude is expected to be temporal or localised, that may not require alteration to the operation of the project)
	M	Medium (This is when the impact is expected to be of short term moderate and normally regionally. In most cases, such impacts require that the projects is altered to mitigate the impact or alternative method of mitigation is implemented)
	H	High (The impact is definite, can be regional or national and in long term. The impact could have a no go implication unless the project is re-designed or proper mitigation can practically be applied)
<b>Duration</b>	Time duration of the impacts	
	1	Immediate
	2	Short-term (0-5 years)
	3	Medium-term (5-15 years)
	4	Long-term (more than 15 years)
	5	Permanent
<b>Scale</b>	The geographical scale of the impact	
	1	Site specific
	2	Local
	3	Regional
	4	National
	5	International

## 7.2. Impact Risk Assessment Procedure

An illustration of an impact analysis is shown in Figure 10.



**Figure 9.** Matrix used for the impact assessment

## 7.3. Identified Impacts

The following negative and positive impacts were identified. An EIA is a living document, impacts that could not be identified for this scoping report and identified later should be taken into account and adequate mitigation measures must be applied.

### 7.3.1. Potential Negative Impacts

- Noise pollution from heavy machinery and drilling
- Soil disturbance
- Loss of habitat and biodiversity from site preparations and occupation
- Air pollution from vehicle emission and dust emission from drilling activities

- Health and Safety risk
- COVID-19 risk
- Risk of pollution from generated domestic solid wastes
- Risk of contamination of ground water from oil, grease and lubricants from heavy vehicles, and drilling activities.

#### 7.3.2. Potential Positive Impact of the project

- Direct and indirect creation of employment opportunities
- Knowledge and technology transfer.
- Increased economic activities
- Increase in National economy through payments of taxes.

## **8. Risks Assessment**

### **8.1. Planning Phase**

To ensure that the project is accepted by the public and avoid possible conflicts, the project was advertised into three newspapers that are widely circulated country wide and a public meeting was held at Karibib Town. Access to farms must be done under a signed agreement between farmers and Tipton Investment Pty Ltd.

## 8.2. Operational Phase

### 8.2.1. Socio-Economic Impacts

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
<p><b>Access / Entry to the farms</b> Farms are private property and permission of entry must be obtained from farm owners</p>	<ol style="list-style-type: none"> <li>1. Prepare an access / entry contract agreement and present it to the farmers for the scrutiny</li> <li>2. Inform farm owner well in advance before your planned activities</li> <li>3. Do not enter the farm without owners' consent</li> <li>4. Due to COVID-19, exploration personnel must be free of COVID-19. This must be confirmed by their health certificates.</li> <li>5. All COVID-19 measures must be implemented (wearing of mask and hand sanitizers)</li> </ol>	Not significant with the proposed measure	
<p><b>Employment</b></p>	<ol style="list-style-type: none"> <li>1. Ensure that all general work is reserved for local people unless in</li> </ol>	<p><b>Type</b></p>	<p>+VE</p>
		<p><b>Severity</b></p>	<p>Medium</p>

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
		Scale / Extend	Local
It is not anticipated that a significant number of employment shall be created during the operation of the project.	<p>circumstances where specialized skills are required.</p> <p>2. Fair compensation and labour practise as per Namibian Labour Laws must be followed</p> <p>3. Ensure skill transfer to the locals</p> <p>4. Use local supplier for good and service where possible</p>	<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low
<b>HIV/AIDS, Alcohol and Drug abuse</b>  Namibia has high prevalence of HIV/AIDS and it is important to ensure that employees are sensitized about the pandemic.	<p>1. Provide awareness to the employees / recyclers on danger of alcohol and drug abuse</p> <p>2. Provide Condoms at site</p>	<b>Type</b>	-VE
		<b>Severity</b>	High
		<b>Scale / Extend</b>	Local
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium,
		<b>With Mitigation</b>	Low
<b>Health and Safety</b>  The Regulations Relating to the Health and Safety of Employees at Work, made under Labour Act of 1992 (Act No. 6 of	1. Implement COVID-19 preventative measures	<b>Type</b>	-VE
		<b>Severity</b>	High

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
		Scale / Extend	Local
<p>1992) place legal duty on employers to provide a health and safe working environment to the employees and any person other than the employees who might be affected by their operations. Operation of specialized drilling equipment may increase safety risk if not executed correctly</p>	<p>2. Employees must NOT be exposed to noise levels above the required -85dB (A) limit over a period of 8 hours.</p> <p>3. Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m<sup>3</sup> for respiratory dust and 15mg/m<sup>3</sup> for total dust.</p> <p>4. Supply clean drinking water to the site, such as portable water tank;</p> <p>5. Used mobile toilets</p> <p>6. Ensure that supervisor has gone through occupational health and first aid course,</p> <p>7. Train employee on hazard and risk avoidance</p> <p>8. Provide insect repellent, mosquito nets and if necessary immunization to prevent deadly diseases such as malaria</p> <p>9. All employees must be in possession of the health certificate and screened for</p>	<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	High
		<b>With Mitigation</b>	Low



Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
	communicable diseases such as TB and COVID-19.		
<b>Heritage and Archaeology</b>  There are no registered heritage or archaeology materials on site apart from scattered protected trees. A chance found was developed.	1. Employee must be trained on the possible find of heritage and archaeological material in the area;  2. Implement a chance find and steps to be taken for heritage and archaeological material finding (Heritage (rock painting and drawings), human remains or artefacts) are unearthed by; <ul style="list-style-type: none"> <li>i. Stopping the activity immediately</li> <li>ii. Informing the operational manager or supervisor</li> <li>iii. Cordoned of the area with a</li> </ul>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Local
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium,
		<b>With Mitigation</b>	Low

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
	<p>danger tape and manager to take appropriated pictures.</p> <p>iv. Manager/supervisor must report the finding to the following competent authorities, National Heritage Council of Namibia (061 244 375) National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).</p>		

### 8.2.2. Bio-Physical Impacts

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
<p><b>Flora</b></p> <p>The target areas for drilling and trenching may require the clearing of vegetation. Unless</p>	<p>1. Implement recommendation from the vegetation study</p> <p>2. Ensure that access roads are rehabilitated after use</p>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
totally unavoidable, mature and protected trees must not be cut down.		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low
<b>Fauna</b>  There are domestic and wild animals on farms. These animals are accustomed to human activities; hence human presence shall not impact them severely. However, employees must be cautioned against poaching.	<ol style="list-style-type: none"> <li>1. Do not kill animal, unless such animals pose eminent danger to humans</li> <li>2. There must be ZERO tolerance to poaching to ensure this, no weapon and traps are allowed on site;</li> </ol>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Probable
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low
		<b>With Mitigation</b>	Medium
<b>Surface and Ground Water Pollution</b>  Heavy vehicle and machinery may pollute water sources from leakages of oils, hydraulic fluids, lubricants and greases. These pollutants may reach underground water through seepage. Further surface water may be polluted from surface run off soils that is polluted.	<ol style="list-style-type: none"> <li>1. Fuelling of heavy vehicle on site must be well coordinated at designated places agreed with the farm owners</li> <li>2. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluids leakages</li> <li>3. All vehicle and machinery must be well service to avoid leakages</li> <li>4. Provide and train on oil spill emergency response</li> </ol>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low
		<b>With Mitigation</b>	Low

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
	5. Servicing of vehicles and machinery must take place at designated sites agreed with the farm owners		
<p><b>Land Degradation</b></p> <p>The uncontrolled movement of heavy machinery at the project site as well as on access loads may cause land degradation.</p>	<ol style="list-style-type: none"> <li>1. Movement of heavy vehicles must be coordinated and restricted to be on access roads</li> <li>2. Normally, farm roads are meant for light vehicles, exploration vehicles have the potential to damage the farm access roads. Hence proper road maintenance must be implemented to ensure that the roads are left on good state</li> </ol>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low
<p><b>Waste Generation</b></p> <p>General household waste management measures must be put in place.</p>	<ol style="list-style-type: none"> <li>1. Provide Skip bins to collect waste and be disposed of at an approved disposal site</li> <li>2. Do not burry waste on site</li> <li>3. Excavate a small biodegradable waste site that would be dump filled at the end of the project which must first be agreed with farm owner alternatively, provide mobile toilets that will be disposed at an approved municipal site</li> </ol>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low

Potential Environmental / Social Impact	Mitigation Measures	Significance of the Impact	
	3. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site.		
<b>Noise Pollutions</b>	<ol style="list-style-type: none"> <li>1. Heavy vehicles must be well serviced</li> <li>2. Switch off engine for vehicles when not in use</li> <li>3. Drive at 30/km while on farm</li> </ol>	<b>Type</b>	-VE
		<b>Severity</b>	Medium
		<b>Scale / Extend</b>	Site Specific
		<b>Probability</b>	Definite
		<b>Confidence level</b>	High
		<b>Without Mitigation</b>	Medium
		<b>With Mitigation</b>	Low

## **9. Decommissioning and Rehabilitation**

The exploration activities do not necessarily yield into a decommissioning phase, but rather a rehabilitation phase. The rehabilitation shall include all footprints that were created as a result of exploration mainly, access roads, trenches and drilled holes. Waste dumps with biodegradable materials must be backfilled as well as pit latrine toiled if any. In the end, the rehabilitation must satisfy the farm owners.

## **10. Conclusions and Recommendations**

### **10.1. Conclusions**

Normally, exploration phase does not yield high level bio-physical environmental damage. Negligible footprint from access roads, and drilling are not expected to cause irreversible harm to the environment. Trenches, drilled holes and access roads are normally fully rehabilitated and always re-vegetate after rainfall season. Henceforth, the proposed exploration activities are expected to be undertaken in an environmentally sustainable manner. In events where this exploration yield into a feasibility mining operation, a comprehensive environmental impact assessment must be undertaken.

### **10.2. Recommendations**

It is recommended to the approving authority for an issuance of the Environmental Clearance Certificate for the proposed Exploration activities on EPL 7728

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