EXPLORATION FOR QUARTZITE DIMENSION STONE QUARRY

SCOPING REPORT: ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

FOR THE PROPOSED EXPLORATION STUDY FOR QUARTZITE AT CLAIM No: 71474, 71473, 71472, 71574, 71575, AND 71576 ERONGO REGION, ARANDIS DISTRICT, NAMIBIA
PROJECT DETAILS

TITLE: SCOPING REPORT ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED EXPLORATION STUDY FOR QUARTZITE AT CLAIM No: 71474, 71473, 71472, 71574, 71575, AND 71576 ERONGO REGION, ARANDIS DISTRICT, NAMIBIA

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DECLARATION

I hereby declare that:

a. I have the knowledge of and experience in conducting assessments, including knowledge of the Acts, regulations, and guidelines that are relevant to the proposed exploration project.

b. I have performed the work relating to the application in an objective manner, even if this results in views and findings that are not favorable to the applicant.

Mr J.S Munango
Position: Director/Environmental Assessment Practitioner (EAP)
**REPORT/DOCUMENT CONTROL FORM**

<table>
<thead>
<tr>
<th>PROJECT NAME:</th>
<th>EXPLORATION FOR QUARTZITE DIMENSION STONES QUARRY</th>
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<td><strong>Document Title:</strong></td>
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<tr>
<td><strong>Document status:</strong></td>
<td>Draft/Interim/Final: FINAL</td>
</tr>
<tr>
<td><strong>Issue Date:</strong></td>
<td>10 January 2020</td>
</tr>
<tr>
<td><strong>Prepared for:</strong></td>
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<td><strong>Client Name:</strong></td>
<td>Mr Johannes J Sirunda</td>
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**Prepared by:** Mr. J.S Munango

**Verification by:** Mr. J.S Munango

**Client approval:** Mr. Johannes J Sirunda
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### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EC</td>
<td>Environmental Commissioner</td>
</tr>
<tr>
<td>SADC</td>
<td>Southern African Democratic Country</td>
</tr>
<tr>
<td>RSA</td>
<td>Republic of South Africa</td>
</tr>
<tr>
<td>MME</td>
<td>Ministry of Mines and Energy</td>
</tr>
<tr>
<td>MET</td>
<td>Ministry of Environment and Tourism</td>
</tr>
<tr>
<td>MAWF</td>
<td>Ministry of Agriculture Water and Forestry</td>
</tr>
<tr>
<td>DWA</td>
<td>Department of Water Affairs</td>
</tr>
<tr>
<td>ML</td>
<td>Mining License</td>
</tr>
<tr>
<td>DEA</td>
<td>Department of Environmental Affairs</td>
</tr>
<tr>
<td>SM</td>
<td>Site Manager</td>
</tr>
<tr>
<td>ENC</td>
<td>Environmental Coordinator</td>
</tr>
<tr>
<td>SF</td>
<td>Site Foreman</td>
</tr>
<tr>
<td>PS</td>
<td>Project Staff</td>
</tr>
<tr>
<td>PP</td>
<td>Project Proponent</td>
</tr>
<tr>
<td>EIA-C</td>
<td>Environmental Impact Assessment Consultant</td>
</tr>
<tr>
<td>I&amp;Aps</td>
<td>Interested and Affected Parties</td>
</tr>
<tr>
<td>EAs</td>
<td>Environmental Assessments</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) (SCOPING) REPORT
1. Introduction

1.1. Project Background

The applicant is proposing to carry out an exploratory study to quarry for quartzite in the Arandis district Area in Erongo Region (Figure 1) on the following registered mining claims numbers found in EPL 7862:

- **MC1**: 71473,
- **MC2**: 71474,
- **MC3**: 71575,
- **MC4**: 71574, and
- **MC5**: 71576,
- **MC6**: 71472,

In accordance with the Environmental Management Act (2007) and EIA Regulations (2012) an Environmental Impact Assessment (EIA) is required for the “Mining and Prospecting Activities”. Acacia Enviro Consulting Cc has been appointed to conduct an EIA and develop an Environmental Management Plan (EMP) for the proposed project. Johannes S Munango is the Environmental Assessment Practitioners that conducted the EIA. His CV is attached as Appendix A.

The above-mentioned mining claims are located in EPL 7862, which is found in Farm Namibfontein number 91, owned by Mr. Johan Breytenbach. The owner of the farm Namibfontein 91 has endorsed the Non-Exclusive Prospective Licenses in which the above-mentioned mining claims are registered (Appendix E). Access to the farm Namibfontein 91 was also granted through the signed agreement between the farm owner and Stone Evolution and Equipment Hire herewithin referred to as the mining contractor (Appendix C).
Figure 1: Mining Claim Area in Erongo Region
1.2. The objectives of the Environmental Assessment Process

The study will involve investigation and assessment of the likely short and long-term positive and negative environmental impacts of the proposed exploration and possible testing of a quarry with the following main objectives:

- To prepare an Environmental Impact Assessment report including details of the proposed exploration and possible test a quarry mining;
- Develop an Environmental Management Plan (EMP) based on the outcomes of this study report in order to support the environmental management of the proposed exploration and possible test quarry mining;

1.3. The available regional and local infrastructure and services to the project area

The mining claims 71474, 71473, 71472, 71574, 71575, and 71576 are linked to the national road network by B2, connecting C32 the road between Usakos and Arandis. Arandis is the major settlement found nearby the claim areas. To access the claim, a gravel road stretch of about 1km will be needed or existing gravel road to MTC tower could be used. The nearest port for transporting the quartzite slab to South Africa will be WalvisBay. Below find the summarised table depicting the available infrastructure and services to the project area or mining claim area numbers 71474, 71473, 71472, 71574, 71575, and 71576:

Table 1: Infrastructure and services at or nearby the project area

<table>
<thead>
<tr>
<th>Location</th>
<th>The Mining Claim area located 44.8 km from Arandis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Town / Settlement</td>
<td>The main town close to the claim area is Arandis</td>
</tr>
<tr>
<td>Road Linkages</td>
<td>B2 connecting to c34</td>
</tr>
<tr>
<td>Rail Linkages</td>
<td>None</td>
</tr>
<tr>
<td>Estimated Distances</td>
<td>Claim to Arandis 44.8km</td>
</tr>
<tr>
<td></td>
<td>Claim to Usakos 47.4km</td>
</tr>
<tr>
<td></td>
<td>Claim to Karibib 79.2km</td>
</tr>
<tr>
<td></td>
<td>Claim to WalvisBay 139km</td>
</tr>
<tr>
<td>Nearest Port Facility</td>
<td>The nearest Port Facility is at WalvisBay</td>
</tr>
<tr>
<td>Water Availability</td>
<td>During the exploration phases, water will be transport to the site to fill up a 500L tank.</td>
</tr>
<tr>
<td>Electricity Availability</td>
<td>There are no power infrastructures nearby the exploration site. Generators will be used on-site for power supply.</td>
</tr>
</tbody>
</table>

### 1.4. Terms of Reference

Terms of reference” means a document which forms part of a scoping report and sets out how an assessment must be carried out. The term of reference for the proposed project was set out based on the requirement by the Environmental Management Act (2007) and Regulation (2012). The steps which were followed are described as follows:

a) a description of all tasks to be undertaken as part of the assessment process, including any specialist 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; and

d) The nature and extent of the public consultation processes to be conducted during the assessment process.
2. Background to quartzite exploration

2.1. What is dimension stone?
Dimension stone in accordance with the provisions of Schedule 1, Groups of Minerals, Elements and Rock (Section 1), Part 2 of the Minerals (Prospecting and Mining) Act, 1992, (Act No. 33, 1992), Dimension Stone Group include all rock material occurring naturally in, on or under the earth which is capable of being cut, shaped or used in blocks, slabs, sheets and tiles for the construction or cladding of buildings, paving, monuments and memorials. Exploration or prospecting means any operations carried on in connection with prospecting, including any accessing, extraction or incidental winning of any mineral or group of minerals for the purposes of mineralogical examination, assaying, test work or marketability surveys. While exploration area or prospecting area means the area of land to which an exclusive prospecting license relates or prospecting area.

Dimension stone is one of the oldest and most durable building materials. The Egyptian pyramids were built from quarried stone in about 2800 B.C., and the Babylonians used to cut stone in 600 B.C. to build the renowned Hanging Gardens, one of the Seven Wonders of the World. The Greeks and Romans also used cut and finished stone widely as construction, decorative, and statuary material.

The principal rock types used for dimension stone are granite, limestone, marble, sandstone, quartzite, and slate. Of these, quartzite, granite, limestone, and marble are the three main materials for construction, decorative and statuary. Physical properties, such as durability, strength, and the ability of the stone to hold a surface finish, are important in the industry. To the customer, the esthetic properties such as color, texture, and pattern, and surface finish are very important.

Besides meeting the desired physical and esthetic properties, the rock must be relatively free of fractures so that it can be split or cut from a quarry face in large multi-tonne blocks and transported to the processing plant. Prospecting for, and mining and production of dimension stone are more sophisticated and require more care than the same processes or the methods used for natural stone aggregate or sand and gravel.
Dimension stone exploration involves seven phases but completion of each phase prior to test quarrying does not guarantee a successful quarry, but it provides sufficient information to make an informed decision as to whether or not to proceed to the next stage taking the risks of a negative outcome into account. Below are the seven phases that will be applicable to this project:

- Desktop Study
- Field evaluation
- Detailed mapping
- Drilling
- Geophysical methods
- Bulk Sampling
- Test Quarrying

**Desktop Study:** the first phase of any dimension stone exploration should comprise a desktop study. This phase involves the investigation of available geological maps and reports, with focus placed on desired rock types (i.e. quartzite). For example, when looking for quartzite, it would be suitable to target lithologies, while if a multi-colored patterned material is sought, regional metamorphic provinces should be examined for potential outcrops of suitable stone.

**Detailed Mapping:** this phase involves field evaluation to indicate a potentially economically viable resource, and detailed geological mapping of the deposit should be conducted. Mapping traverses should be planned, and if necessary cleaned by mechanical means, compressed air or pressurized water jets. After cleaning and washing, the traverses should be measured and mapped in detail on a scale of between 1:100 and 1:250 according to the size of the deposit. During detailed mapping, special attention should be paid to the composition, color, and structure of the stone, as well as the fracturing. Important portions of the traverses should also be photographed. A geological map should be constructed as a record of field results and also to give a basis for further evaluations of the physical extent and morphology of the prospecting area.

**Geophysical Methods:** While the previous steps or phases give an indication of the deposit from a surface point of view, a thorough three-dimensional assessment is a prerequisite prior to taking the risk of bulk sampling and test quarrying, which entail
significantly higher expense and are far more environmentally disruptive than the previous stages of exploration for dimension stone. Indeed, Luodes et al concluded that for a successful evaluation study, the discontinuous and varied nature of geological features in three dimensions must be clearly understood. Geophysical methodologies are important in the more detailed research stages as a complement to the in situ fracturing surveys and are significantly cheaper than core drilling.

**Drilling:** if the outcome of field evaluation and geophysical investigations (if conducted) is positive, the next step should be to drill the formation in order to demarcate the ore deposit as well as to provide information on the vertical extent of the formation and possible defects with depth; which has implications on the recovery. Generally, diamond core drilling is preferable, as the core can be evaluated not only for color consistency but also for defects such as joints, veins, and banding which may influence the recovery of marketable blocks. Percussion drilling is cheaper than diamond core drilling but has the limitation that chips of stone are produced which are only indicative of color consistency.

**Bulk Sampling:** should the results of drilling prove positive, the next phase is to conduct bulk sampling to remove several blocks in order to test market acceptance. The number of blocks required will depend on the marketing strategy and whether or not the prospector has access to a factory that can cut slabs of the material. In general, most non-vertically integrated companies will need to remove around twenty blocks for distribution into the market, while a vertically integrated company may get away with as few as two blocks, as it is able to distribute slabs into the world market in order to evaluate response to the material. Many operators confuse the stage of bulk sampling with the stage of test quarrying. It should be emphasized that the aim of bulk sampling is to get sufficient representative sample blocks of the stone in order to test the market reaction to the material and that it is not necessary to open a full-blown quarry for this purpose.

**Test Quarrying:** In the case of successful market feedback to bulk samples, or in the case of an established material, the final phase of prospecting is test quarrying. The aim of test quarrying is to fully evaluate the recovery of saleable blocks within the formation in order to determine whether full-scale mining is economically viable, as well as to evaluate the implications of extraction methods on the economics of quarrying. Test quarrying is required, as other methods described above can only give an indication of
the range of possible recovery, and the actual recovery possible can only be established by actual mining of the formation and recording the resultant production and costs. It also allows for the adjustment of extraction methods in order to determine the most feasible method to be employed.

2.2. What is Quartzite dimension
Dimension stone sold as Quartzite includes non-foliated metamorphic rock composed almost entirely of quartz. It is formed when quartz-rich sandstone is altered by the heat, pressure, and chemical activity of metamorphism. Quartzite usually has the look of marble but it is more durable than marble. Quartzite is usually white to gray in color. Some rock units that are stained by iron can be pink, red, or purple. Other impurities can cause quartzite to be yellow, orange, brown, green, or blue.

Quartzite is one of the most physically durable and chemically resistant rocks found on Earth’s surface. When the mountain ranges are worn down by weathering and erosion, less-resistant and less-durable rocks are destroyed, but the quartzite remains. This is why quartzite is so often the rock found at the crests of mountain ranges and covering their flanks as a litter of scree. Quartzite has a diversity of uses in construction, manufacturing, architecture, and decorative arts.

2.3. Concluding remark on this section
In this section, information was provided to explain different steps or phases that are involved in dimension stone exploration, and also explaining what is quartzite as a dimension stone. The following section provides information on what the applicant proposes for this project.
3. Project description

3.1. The rationale for the proposed project
The dimension stone industry in Namibia has been in existence for many years; however, its potential has not yet been fully developed. The prospecting company should utilize this opportunity to take advantage of this development. The demand for demission stone is increasing in Namibia, SADC and the rest of the world.

Namibia's internal market for dimension stone is small, being limited mainly to tombstone manufacture with the occasional building cladding/flooring application. Regionally, Namibia exported (10,830 t) and (41,456 t) of its 2004 marble and granite production respectively to SADC countries, mainly South Africa.

The annual production of marble and granite has shown a rapid increase in tonnage since 2003. There has been an increase in the variety of dimension stone now available, which is mainly due to the upswing in dimension stone exploration in Namibia, with 28 exploration licenses, 19 Mining Licences (2004) for dimension stone granted and several applications pending.

For this reason, the applicant is proposing to carry out an exploration or prospecting study to quarry for quartzite. If the quarry test will be successful, employment will be created for people within the vicinity of the project.

3.2. Proposed locality
Based on technical investigations the proponent identified an optimal site where the testing will take place (Figure 2). The site is outside the Tsaobis nature park. It is located 1 minute from the nearest road B2. It is 79.2km southwest of Karibib, 47.4km Northwest of Usakos, 44.8 km southwest of Arandis 22.8km northeast of Trekkopje Mountain falling within the following coordinates (Figure 2) in EPL 7862:

\[22^\circ 7'10.13"S\]
\[15^\circ 12'2.56"E\]
Figure 2: Locality of the Mining Claims
The above mentioned mining claims are all found in EPL 7862 and are in close proximate to each other as shown in the Figure 3.
Figure 3: Locality of the mining claims in EPL 7862
3.3. Geology of the area

Figure 4 and 5 presents the geology of the quartzite exploration, it further reveals that the project site is underlain by metamorphic rocks of the Swakop Group in the Damara Supergroup (i.e. Mica, schist, and discontinuous dolomite, calc-silicate rocks, and quartzite, Arandis Formation, 850 – 550 Ma), and associated granitic intrusions of the Damint Granite Suite (650 – 470 Ma). According to Miller (2008), the secondary deformation structures around the project site are related to rift events of the North Central Tectonostratigraphic zone (nCZ) and are therefore expected to be tensile deformation lineaments. Theoretically, tensile deformation structures tend to open up and become preferential groundwater/surface water pathways.

Figure 4 below, shows that the Swakop Group is the main prevalent part of the Damara Supergroup in the study area. for that reason, the complete stratigraphic column the Damara Supergroup is presented in Tables 2.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>FORMATION</th>
<th>MEMBER</th>
<th>LITHOLOGY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWAKOP</td>
<td>Damint Suite</td>
<td>Granite</td>
<td>Schist &amp; minor amphibolite</td>
<td>Target Resource</td>
</tr>
<tr>
<td></td>
<td>Kuiseb</td>
<td></td>
<td></td>
<td>Widespread</td>
</tr>
<tr>
<td></td>
<td>Arises River</td>
<td>Calc-silicate rock, calc marble</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Otjongeama</td>
<td>Main marble member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karibibi</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obserwasser</td>
<td>Schist &amp; phylitic schist, metagreywacke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arandis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Okawayo</td>
<td>Discontinuous marble, biotite schist, calc-silicate rocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spes Bona</td>
<td>Calc-silicate rock, metagreywacke, schist, quartzite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Muller, 2008)

From a geochemistry point of view, the dominant rock type on the project site mainly consists of potassium/sodium aluminum silicate (Na-K (AlSi3O8) with minor calcium and manganese oxides. Whereas schist which is the host rock to the granite intrusion generally comprise of quartz (SiO4), mica (K(Mg, Fe)3 Al2Si3O10(OH, F – biotite,
KAL3Si3O10(OH)2 - muscovite), Cordierite ((Mg, Fe)2AL3(ALSi5O18), sillimanite and Fe_Ti oxides.

Weathered granites and schists, particularly in wet acid environments (PH<7) release parts of their mineral elements into soil or water in varying amounts and can be a source of soil or/and water contamination.

In the presence of potential contaminant pathways like fractures, the land disturbance that might enhance the weather-ability of the intact rock should be restricted to the minimum disturbance required to meet the envisioned project objectives.

Although wet and slightly acidic environments might not exist at the project site, it should be understood that weathering is a natural process that takes place in all rocks upon exposure to atmospheric conditions.

To avoid the enhancement of weathering/soil erosion, all measures which will be outlined in the EMP should strictly be adhered to, these will include but not limited to the use of neutral water, minimum disturbance of rocks and soil and avoiding wastewater runoff.
Figure 4: Geology of the area
Figure 5: Geology of the mining claim area
3.4. Climate
In the absence of site-specific metrological information, a general description of the
climate of the Erongo region is presented. The Erongo Region is located in the central-western part of Namibia. Landmark features of its boundaries include the Atlantic Ocean in the west, the Ugab River in the north, and the Kuiseb River as part of the southern border. Much of the region is occupied by the Namib Desert which stretches parallel to
the coast for the length of the country, to about 120-150 km inland. The climate of the
Erongo Region is characterized by aridity. Prominent features of the climate include very
low rainfall, averaging about 300 mm in the north-eastern parts and less than 15 mm at
the coast with great variability in annually, coastal fog that brings moisture in frequent but small amounts, which moderates the heat and moisture extremes on the western side, wind regime which includes prominent southerly and south-westerly winds during the summer, and north-easterly winds in the winter.

3.5. Infrastructure and exploration equipment required for the project
The exploration period will last for 6 Months using the exploration methods outlined in
section two (2) above. During the exploration process, compressed air powered Jack Hummers will be used to drill 5mm diameter holes to a depth of 200cm. In order to
create weak points for bulk sampling, the holes will be drilled in a rectangle pattern. The
collected bulk samples will ship to The Republic of South Africa (RSA) and Italia for
gotechnical and construction material tests. Besides drilling which induced shallow cracks into the quartzite, and no blasting will be conducted.

3.5.1. Exploration equipment’s
The lists of machines/equipment that will be used in the exploration process are given in
table 3 below.

Table 3: List of machines/equipment and quantity to be used in exploration

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>2</td>
</tr>
<tr>
<td>Jack Hummer</td>
<td>2</td>
</tr>
<tr>
<td>Perforator</td>
<td>1</td>
</tr>
<tr>
<td>Diamond Wire Saw</td>
<td>1</td>
</tr>
<tr>
<td>Generator</td>
<td>1</td>
</tr>
</tbody>
</table>
3.5.2. Infrastructure requirements

a. Waste disposal infrastructure
Bins will be provided, and all litter will be disposed of at the nearest municipal dumping site (i.e. Proposed Arandis). Industrial waste will be mainly wire, cable, drill bits, these items will be collected and removed from the site. No unused machines part will remain on-site. Chemical Toilets (Mobi Loo) will be erected on-site for the use of the workers.

b. Road proposed
The existing roads B2 will be used for transportation of types of equipment to and from the site and also the bulk samples collected for testing. To get to the site a small stretch of road will be needed to be made from the main road to the claim and the road will be about +1km long.

3.6. Concluding remark on this section
In this section information on the rationale for the project, project location, geology of the project location, and climate of the area where provided. Moreover, infrastructure that will be needed for the project, and the types and quantity of exploration equipment were also described in this section. Human waste from the chemical toilets (Mobi loo) will be dumped at Arandis Municipality Sewerage System.
4. Legal and regulatory framework review

The national regulations governing prospecting and mining for dimension stone activities in Namibia fall within the jurisdiction of the Ministry of Mines and Energy (MME). The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing the mining and prospecting industry in Namibia.

The Minerals (Prospecting and Mining) Act (No 33 of 1992) regulates reconnaissance license, prospecting license, and mining of minerals and dimension stone or rocks. The Act details reporting requirements for monitoring of activities and compliance with environmental performance, such as disposal methods and rehabilitation. The Mining Commissioner, appointed by the Minister, is responsible for implementing the provisions of this Act as well as the associated regulations such as the Health and Safety Regulations. Several explicit references to the environment and its protection are contained in the Minerals Act, which provides for environmental impact assessments, rehabilitation of prospecting and mining areas and minimizing or preventing pollution.

4.1. Mineral Act of 1992 and the types of license it regulates

Below is an outline of the Mineral Act, linking the type of license it regulates, project activities at every license stage and the environmental requirements are (Table 4).

Table 4: Types of license regulated by the Mineral Act of 1992, activities and environmental requirements

<table>
<thead>
<tr>
<th>Types of license</th>
<th>Activities</th>
<th>Environmental Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive Reconnaissance License (ERL)</td>
<td>1. Project Identification, 2. Reconnaissance</td>
<td>None Complete Environmental Questionnaire</td>
</tr>
<tr>
<td>Types of license</td>
<td>Activities</td>
<td>Environmental Requirements</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Exclusive Prospecting License (EPL)</td>
<td>Exploration based on the following steps: Desktop study, Detailed Mapping, Geophysical Methods, Drilling and Bulk Sampling, Test a quarrying</td>
<td>Scoping Report, Environmental Impact Assessment (EIA)</td>
</tr>
<tr>
<td>Mining License</td>
<td>Preconstruction and Construction, Operation and, Ongoing Monitoring, Decommissioning, Closure, Restoration, and Aftercare</td>
<td>Full Environmental Assessment, covering Scoping, Environmental Impact Assessment(EIA) and the development of and Environmental Management Plan (EMP)covering the complete project lifecycle including preconstruction, construction operation, and ongoing, decommissioning and aftercare. Aspects of the Environmental Management Plan are usually incorporated into an Environmental Management Systems</td>
</tr>
</tbody>
</table>
4.2. Legal instrument relevant to this project

There are various legal instruments that advocates for the effects of prospecting or exploration on the environment and prospecting in general. Table 5 shows the summaries of the legislation that are relevant to this project:

Table 5: Legal instruments relevant to this project

<table>
<thead>
<tr>
<th>Topic</th>
<th>Legislation</th>
<th>Provisions</th>
<th>Regulatory Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Impact Assessment</td>
<td>Environmental Management Act of 2007 and EIA regulation of 2012</td>
<td>Provides a list of activities that require an environmental assessment, including Mining and Quarrying. Activities such as exploration or prospecting for minerals or dimension stone, mining for minerals or dimension stone. The Act also provides procedures for adequate public participation during the environmental assessment process for the interested and affected parties to voice and register their opinions and concern about a project.</td>
<td>Ministry of Environment and Tourism</td>
</tr>
<tr>
<td>Water Supply and Effluent Discharge</td>
<td>Water Resources Management Act of 2004</td>
<td>This Act provides provisions for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. The Act states that a license or permit is required to abstract and use water, and also discharge effluent. In accordance with the Act, and due to the nature of the project, abstraction and use permits won’t be required for this project as an on-site water tank (500L) will be used. The capacity of the onsite tank is less than 20000m3 benchmark for the water work permit. Effluent (i.e. Human Waste) from the mobile toilet will be discharged at the Arandis Municipality sewerage system. No effluent will be discharged in a watercourse. Wastewater from dust suppression will be minimal and the water is expected to evaporate faster than it infiltrates. Therefore, no effluent discharge permits will be required for this project</td>
<td>Ministry of Agriculture Water and Forestry</td>
</tr>
<tr>
<td>Topic</td>
<td>Legislation</td>
<td>Provisions</td>
<td>Regulatory Authority</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Hazardous Substance such as used oil which (e.g. diesel)</td>
<td>Hazardous Substance Ordinance 14 of 1974</td>
<td>The Act provides for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature of the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith</td>
<td>Ministry of Health and Social Services</td>
</tr>
<tr>
<td>Fauna and flora</td>
<td>The Nature Conservation Ordinance, Ordinance of 1975</td>
<td>In the course of the Mine’s activities, care must be taken to ensure that protected plant species and the eggs of protected and game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment and Tourism. For this project, due to its areal extent and location outside a protected area, a permit will not be required.</td>
<td>Ministry of Environment and Tourism (MET)</td>
</tr>
<tr>
<td>Topic</td>
<td>Legislation</td>
<td>Provisions</td>
<td>Regulatory Authority</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Used oil</td>
<td>Petroleum Products and Energy Act 13 of 1990</td>
<td>The Act provides provisions for any certificate holder or another person in control of activities related to any petroleum product is obliged to report any major petroleum product spill (defined as a spill of more than 200ℓ per spill) to the Minister. Such a person is also obliged to take all steps as may be necessary for accordance with good petroleum industry practices to clean up the spill. Should this obligation not be met, the Minister is empowered to take steps to clean up the spill and to recover the costs thereof from the person. Used oil from this project will be disposed of at the Walvis Bay Municipality Hazardous Waste Site. Permission will be required from the facility owner prior to the dumping of the used oil.</td>
<td>Ministry of Mines and Energy</td>
</tr>
<tr>
<td>Employees</td>
<td>The Labour Act, 2007 (Act No. 11 of 2007)</td>
<td>The Labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and maintain the welfare of the people. This Act is aimed at establishing a comprehensive labor law for all employees; to entrench fundamental labor rights and protections; to regulate basic terms and conditions of employment; to ensure the health, safety, and welfare of employees</td>
<td>Ministry of Labour and social welfare</td>
</tr>
<tr>
<td>Archaeological sites</td>
<td>National Heritage Act 27 of 2004 Ministry of Youth</td>
<td>This Act provides provisions for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The proposed exploration project will ensure that if any archaeological or paleontological objects, as described in the Act, are found in the course of its construction, mining operations or closure that such find is reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage.</td>
<td>National Service, Sport, and Culture</td>
</tr>
<tr>
<td>Desertification</td>
<td>United Nation Convention to Combat Desertification 1992</td>
<td>The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability</td>
<td>United Nation Convention</td>
</tr>
</tbody>
</table>
Biodiversity

Convention on Biological Diversity (CBD) 1992

This convention advocates for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

United Nation Convention

4.3. Regulatory authorities and permitting

The environmental regulatory authorities responsible for environmental protection and management in relation to the proposed exploration project including their role in regulating environmental protection are listed in Table 5. Table 6 shows an extract from the legal instruments of the regulating authorities with respect to the relevant permits/licenses required for the proposed exploration study.

Table 6: The regulatory authority and permitting

<table>
<thead>
<tr>
<th>Activities list</th>
<th>Applicable Legislation</th>
<th>Permitting Authority</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploration Programme</td>
<td>Minerals (Prospecting and Mining) Act, 1992</td>
<td>Ministry of Mines and Energy</td>
<td>Field Work to follow on the issue of Environmental Clearance</td>
</tr>
<tr>
<td>EIA Clearance for Exploration</td>
<td>Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)</td>
<td>Ministry of Environment and Tourism (MET)</td>
<td>To be applied upon completion of this EIA and EMP Report for Exploration</td>
</tr>
<tr>
<td>EIA Clearance for Mining</td>
<td>Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)</td>
<td>Ministry of Mines and Energy</td>
<td>To apply if Economic Resources are Discovered and Project Advances to Feasibility and if the Feasibility Proves Positive</td>
</tr>
</tbody>
</table>
## Activities list

<table>
<thead>
<tr>
<th>Activities list</th>
<th>Applicable Legislation</th>
<th>Permitting Authority</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction, alteration of waterworks with the capacity to hold in excess of 20,000L. The abstraction of water other than that provided by Nam Water. Discharge of effluents or construction of effluent facility or disposal site</td>
<td>Water Resources Management Act, 2004 (No. 284 of 2004).</td>
<td>Ministry of Agriculture, Water and Forestry</td>
<td>To Apply when Required</td>
</tr>
<tr>
<td>Removal, destruction of indigenous trees, bushes or plants within 100 yards of stream or watercourse</td>
<td>Forestry Act, 12 of 2001</td>
<td>Ministry of Water Affairs and Forestry (MWAF)</td>
<td></td>
</tr>
<tr>
<td>Discarding or disposing of used oil</td>
<td>Petroleum Products and Energy Act 13 of 1990</td>
<td>Ministry of Mines and Energy (MME).</td>
<td>To Apply when Required</td>
</tr>
<tr>
<td>License to Purchase, store and use of Explosive</td>
<td>Explosives Act 26 of 1956 (as amended in SA to consultation with Ministry of Mines and Energy (MME).)</td>
<td>Ministry of Safety and Security in</td>
<td></td>
</tr>
<tr>
<td>Magazines for Blasting</td>
<td>April 1978,</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.4. Concluding remark on this section

In this section information on the relevant legislation to the project, the types of license required and the permits were presented. The regulatory authorities relevant to the project were also mentioned in this section.
5. Affected environment

5.1. General description of the project

The proposed exploration project for mining claims number: 71474, 71473, 71472, 71574, 71575, and 71576 involves undertaking an exploration study for dimension stone in particular quartzite. The overall aim of the project is to evaluate for the possible development of a viable quarry for quartzite. The activities that will be undertaken will start with preliminary studies, detailed assessments, construction, operation closure, rehabilitation, and aftercare. The mineral groups that are targeted in these claims are dimension stone in particular quartzite.

Dimension Stone: In accordance with the provisions of Schedule 1, Groups of Minerals, Elements and Rock (Section 1), Part 2 of the Minerals (Prospecting and Mining) Act, 1992, (Act No. 33, 1992), Dimension Stone Group include all rock material occurring naturally in, on or under the earth which is capable of being cut, shaped or used in blocks, slabs, sheets and tiles for the construction or cladding of buildings, paving, monuments and memorials.

Exploration phases for the dimension stone described in section two will be followed. The following are the exploration phases:

a) Desktop Study
b) Field evaluation
c) Detailed mapping
d) Drilling
e) Geophysical methods
f) Bulk Sampling
g) Test Quarrying

5.2. Social environment and archaeology

It is anticipated that the project will not have any negative impact on the people within its vicinity. Instead, the project poses a significant positive impact on the people within its vicinity for employment creation, support of local retailers, export taxes and VAT payment to the Government. The project site is located very far from major settlements such as Henties Bay, Swakopmund, and Walvis Bay. Arandis and Usakos are the only major settlements near the project site, with a distance of about 44.8 km to Arandis and
47.4 km to Usakos respectively. Both Arandis and Usakos are linked to this project on the B2 road. Waste that will be generated on-site is proposed to be dumped at Arandis and Usakos.

The economy of Arandis and the surrounding community relies heavily on tourism and Mining. With regard to employment, about 5 to 8 people will be recruited on this project during the exploration period and more during the quarrying phase.

No archaeological and heritage sites are known to be located within the proposed exploration site. The project management should, however, be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological findings.

5.3. Biophysical Environment
5.3.1. Geology
The project site is underlain by metamorphic rocks of the Swakop Group in the Damara Supergroup (i.e. Mica, schist, and discontinuous dolomite, calc-silicate rocks, and quartzite, Arandis Formation, 850 – 550 Ma), and associated granitic intrusions of the Damint Granite Suite (650 – 470 Ma). There is also a number of linear secondary deformation structure (joints, fractures, and dikes) which are visible on satellite images. According to Miller (2008), the secondary deformation structures around the project site are related to rift events of the North Central Tectonostratigraphic zone (nCZ) and are therefore expected to be tensile deformation lineaments. Theoretically, tensile deformation structures tend to open up and become preferential groundwater/surface water pathways.

5.3.2. Biodiversity (fauna and flora)
The site is situated in the Namib Biome which is characterized by less than 1% of both trees and grass cover (figures 5), the trees which are mainly shrubs rarely attain 2 m in height. The dominant vegetation consists of lichens, psilicoulon salicorniodes and salsola species. In areas of the Namib where more conspicuous lichens do not dominate, a biological soil crust can most easily be seen underneath stones and rocks that harbour fensteralgen (green diatoms) and blue-green algae (cyanobacteria, appear black in their dry state) (Rumrich et al. 1989, 1992; Büdel & Wessels 1991; Belnap & Lange 2001). These organisms find a home under translucent quartz and quartzite stones, and they can also grow as a near-surface ring around opaque or large stones
The plant resources of the area are of limited value and on a scale range of none, poor, low, moderate, good to excellent; they are classified in the None Value category (Mendelson, 2002). Regardless of their low value, due diligence to minimize vegetation disturbance will be exercised during the exploration process.

Figure 6: Types of vegetation and vegetation cover at Project Site

5.3.3. **Groundwater and surface water hydrogeology**

The hydrogeological unity within which the project site is located is indicated by the hydrogeological map of Namibia (DWA, 20034) as an area of very limited groundwater potential. However, river bed (alluvial) deposits, local fractures, and granite contacts can contain significant amounts of groundwater for local/domestic use. Groundwater occurrence is therefore related to north-trending east fractures in the formation, contacts of intrusive linear rock masses (dikes and granite), and alluvial river beds, particularly where the latter attains thicknesses of more than 60 m.

Information from boreholes situated 14 Km east of the site reveals shallow groundwater levels of between 25 to 45 m below ground. Outside the Omaruru River Bed, the Swakop Group in the absence of the Karibib Formation is not worth considering as an aquifer.

The nearest productive aquifer is the Omaruru Delta (OMDEL) which is approximately 65 Km west of the out boundary of the project area. From a pollution vulnerability point
of view, OMDEL has been conceptualized as a double-layered aquifer with the top layer being clayish and the bottom/productive layer consisting of coarse fluvial lags. The current groundwater levels at OMDEL range from 30 to 50 m below ground level. Furthermore, a combination of both the terrain slope, fracture orientation, and the groundwater flow direction directs any liquid fluid (wastewater) from the site into the southwest direction.

Considering the size of the project area, flow direction, nature of the envisioned quartzite quarrying exploration exercise, the distance to OMDEL as well as the nature of OMDEL overburden, it can be said with a relatively high level of confidence that OMDEL won’t be threatened by the exploration activities of the site under review. The same goes for the nearest private boreholes which are about 14 Km upstream of the project site.

5.3.4. Drainage
From a drainage point of view, the project site is situated in the southern part of the lower Omaruru Catchment with typical lower catchment characteristics (*narrow width, relatively deep soil cover, flat slope, low altitude, low runoff velocity, and a characteristic depositional sediment transport*), about 58 Km south of the currently active Omaruru River channel. The local surface drainage trends northwest, while the regional trend of surface water flow is essentially southwest. The average annual rainfall of the area is between 50 and 100 mm, therefore the area has a very limited potential for surface runoff.

All in all, it can be claimed that the area is generally vulnerable to erosion considering the less than 1 % vegetation cover and strong desert winds. However, the low runoff potential, flat overall slope and typical depositional sediment transport character of lower catchments tend to moderate the area’s vulnerability to erosion.

5.4. Potential impact identified
5.4.1. Positive impacts
- Employment creation
- Support to local retailers shops
- Export taxes and VAT payment
- Provision of infrastructure i.e roads
- Increase the demands of goods and services in remote and impoverished towns
5.4.2. Negatives impacts

- Liquid waste: oil spillage and wastewater
- Solid waste: wires, drill bits, and human waste
- Land and soil disturbance: on-site and the proposed 1km stretch road
- Biodiversity: fauna and flora
- Air pollution
- Noise pollution

5.5. Concluding remark on this section

In this section, the affected environment was described. The social and the biophysical environmental information were provided and also the potential positive and negative impacts of the project were identified.
6. Public consultation process

6.1. Legal and policy requirement


Public consultation is a crucial part of the EIA process. This provides an opportunity to stakeholders or interested members of the public to find out more about what is being proposed, and to raise any issues or concerns. The Environmental Management Act 2007 and its EIA regulations of 2012 are the key documents governing environmental impact assessment in Namibia.

One of the key objectives of the Act is to prevent and mitigate the significant effects of activities on the environment by:

“Ensuring that there are opportunities for timeous participation of interested and affected parties throughout the assessment process; and ensuring that the findings of an assessment are taken into account before any decision is made in respect of activities.”

The key principle of the Environmental Management Act 2007 advocates for public participation. The principles states that “the participation of all interested and affected parties must be promoted and decisions must take into account, the interest, needs and values of interested and affected parties”.

Section 21 of the EIA Regulations outlines procedure on public participation process as follows:

“(2).The person conducting a public consultation process must give notice to all potential interested and affected parties of the application which is subjected to public consultation by:

a) Fixing a notice board at a place conspicuous to the public at the boundary or on the fence of the site where the activity to which the application relates or is to be undertaken;
b) Giving written notice to:
   i. The owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site;
   ii. The local authority council, regional council and traditional authority, as the case may be, in which the site or alternative site is situated;
   iii. Any other organ of state having jurisdiction in respect of any aspect of the activity; and
c) Advertising the application once a week for two consecutive weeks in at least two newspapers circulated widely in Namibia.

(3) A notice, notice board or advertisement referred to in sub regulation (2) must -

a) Give details of the application which is subjected to public consultation; and

b) State:

i. That the application is to be submitted to the Environmental Commissioner in terms of these regulations;

ii. The nature and location of the activity to which the application relates;

iii. Where further information on the application or activity can be obtained; and

c) The manner in which and the person to whom representations in respect of the application may be made.

(6) When complying with this regulation, the person conducting the public consultation process must ensure that a) information containing all relevant facts in respect of the application is made available to potential interested and affected parties; and b) consultation by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application.

28. For the purpose of the Act and these regulations a notice is given to a person or a person is informed of a decision, if a document to that effect is:

(a) Delivered personally to that person;

(b) Sent by registered post to the persons last known address;

(c) Left with an adult individual apparently residing at or occupying or employed at the person’s last known address; or

(d) In the case of a business-

(i) Delivered to the public officer of the business;

(ii) Left with an adult individual apparently residing at or occupying or employed at its registered address;

(iii) Sent by registered post addressed to the business or its public officer at their last known addresses; or

(iv) Transmitted by means of a facsimile transmission to the person concerned at the registered office of the business.”
6.2. Consultation approach
The following activities were undertaken to facilitate stakeholder and community participation during this EIA process:

- The I&AP list was compiled by using GIS information on farm owners’ names and addresses along the proposed route. The farmers’ telephone numbers were searched in the telephone directory and with the assistance of Telecom’s Directory Information service. General stakeholders such as regional and local councils, relevant ministries, NGO’s, and institutions were incorporated from other databases.
- A Background Information Document (BID) was compiled, which was distributed via the Internet, NamPost and by Fax. The BID also served as an invitation to I&APs to attend the public meetings. (See Appendix F).
- The BID invitation was followed up with telephone calls to all commercial farm owners.
- Advertisements to invite interested and affected parties to the public meetings were placed in The Windhoek Observer and Confidente newspapers for two consecutive weeks (Appendix D).

6.3. The interested and affected parties (I & AP’s)
The I&APs for this project were identified using information from the existing Acacia Enviro Consulting Cc stakeholder database. Notices were placed in various newspapers inviting the public to register as interested and affected parties. Organizations were also selected whom the consultant considered to be interested in or affected by this particular project. An I&APS can be defined as ‘(a) any person, group of persons or organization interested in or affected by activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.

6.4. The outcome of the public consultation meeting
Only one email was received requesting the BID document of the proposed project.

6.5. Concluding remark on this section
In this section, issues on public participation process such steps or methods that were followed, process, the outcome of the public participation process, and key issues identified were presented. Moreover, the legality patterning to public participation was also presented.
7. Impact assessment

7.1. The methodology used or adopted for the impact assessment
The assessment process that was developed by Acacia Enviro Consulting Cc was formulated based on the collection and interpretation of the available literature pertaining to the dimension stone quarry. The process included the review of previous EIA’s and EMP’s done in the surrounding areas and those about dimension stone in Namibia. Other relevant documents were identified and collected including:

- Environmental regulations covering environment, water, energy, health, and safety as well as all the related policies and guidelines;
- Mining regulations and all the related introductory information obtained from the Office of the Mining Commissioner in the Ministry of Mines and Energy;
- Topographic maps, information and data sets about the location and characteristics of mining claim numbers 71474, 71473, 71472, 71574, 71575, and 71576.
- Information and data sets about the environmental regulation, biodiversity and natural environment around the mining claim numbers 71474, 71473, 71472, 71574, 71575, and 71576 obtained from the Directorate of Environmental Affairs in the Ministry of Environment and Tourism;
- Information and data sets about the regional and local geology, geological maps and all the related data sets, published materials and open file documents have all been located in the Directorate of the Geological Survey in the Ministry of Mines and Energy;

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature</td>
<td>Reviews the type of effect that the proposed activity will have on the relevant component of the environment and includes “what will be affected and how?”</td>
</tr>
<tr>
<td>Extent</td>
<td>Indicates whether the impact will be site-specific; local (limited to within 15 Km of the area); regional (limited to ~100 Km of the area); national (limited to the coastline of Namibia); or international (extending beyond Namibia’s borders).</td>
</tr>
<tr>
<td>Duration</td>
<td>Reviews the lifetime of the impact, as being short (days, &lt;1 month), medium (months, &lt;1 year), long (years, &lt;10 years), or permanent (generations, or &gt;10 years).</td>
</tr>
<tr>
<td>Criteria</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Intensity</td>
<td>Establishes whether the magnitude of the impact is destructive or innocuous and whether or not it exceeds set standards, and is described as none (no impact); low (where natural/social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).</td>
</tr>
<tr>
<td>Probability</td>
<td>Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).</td>
</tr>
<tr>
<td>Degree of Confidence in Predictions</td>
<td>Is based on the availability of specialist knowledge and other information.</td>
</tr>
</tbody>
</table>

The application of the above criteria to determine the significance of potential impacts uses a balanced combination of nature, extent, duration, and intensity/magnitude, modified by probability, cumulative effects, and confidence. Significance is described as follows as shown in table 9:

**Table 8: Definitions of various significant rating**

<table>
<thead>
<tr>
<th>SIGNIFICANCE RATING</th>
<th>CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/magnitude, if at a local scale/extent and of temporary duration/time.</td>
</tr>
<tr>
<td>Medium</td>
<td>Where the impact could have an influence on the environment, which will require modification of the development design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.</td>
</tr>
<tr>
<td>High</td>
<td>Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(i.e.) causing it, should not be permitted (i.e. there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.</td>
</tr>
</tbody>
</table>
7.2. **Identification of key issues**

Potentially significant impact identified from the baseline conditions, legal requirement, and public participation process was screened to obtain issues that require further investigation or assessment and those that don't require further investigation. The process shown in the flow chart below was used for the screening of potential issues. Table 10, shows the screening of the identified impact using the flow chart.
Table 9: Potential significant impact screening process

<table>
<thead>
<tr>
<th>Issues/Impact</th>
<th>Proponent Responsibility</th>
<th>Sufficient Info Yes/No</th>
<th>Mitigation Available</th>
<th>Full assessment required</th>
<th>Issues covered in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment creation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Support to local retailers shops</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Export taxes and VAT payment</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Liquid waste: used oil and wastewater</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Solid waste: wires, drill bits, and human waste</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Land and soil disturbance: on-site and the proposed 8km stretch road</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
<tr>
<td>Impact on Biodiversity: fauna and flora</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Addressed in the EMP</td>
</tr>
</tbody>
</table>
7.3. **Social-economic implications**

7.3.1. **Background to the problem**

Unemployment is not only a responsibility of the Government, but it is also incumbent on citizens to create jobs for fellow Namibians. The proponent would like to carry out an exploratory study that would recruit 5 to 8 Namibians and more during the quarry phases if the exploration study is successful.

7.3.2. **The potential effect of the project**

During the six-month exploration study, 5 to 8 employees will be recruited by The proponent. Upon completion of the study, a decision will be made as to whether a quarry should be started or not. If the exploration study findings are positive more local Namibians within the vicinity of the project will be employed. In order to ensure positive economic impacts support local retailers will be recommended. Furthermore, export taxes and VAT payments will also impact positively on the National Economy.

7.3.3. **Significance**

By implementing the exploration study the socioeconomic significance of project can be summarized as follows:

**Table 10: The expected significance of the project on social-economic implications**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Social economics implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent</td>
<td>local</td>
</tr>
<tr>
<td>Duration</td>
<td>short</td>
</tr>
<tr>
<td>Intensity</td>
<td>low</td>
</tr>
<tr>
<td>Probability</td>
<td>definite</td>
</tr>
<tr>
<td>Significance before mitigation</td>
<td>low</td>
</tr>
<tr>
<td>Significance after mitigation</td>
<td>low</td>
</tr>
<tr>
<td>Degree of confidence in predictions</td>
<td>high</td>
</tr>
</tbody>
</table>
7.4. Liquid waste: used oil or oil spillage and wastewater

7.4.1. Background to the problem
There are various waste disposal methods used worldwide in the mining industry. Management of used oil at a large scale is reported to be a challenge as more significant maintenance is required to minimize the losses of the oil into the environment (Richards, 2009). Used oil once it spills, it causes a detrimental effect on both living and none living things because its chemical constituents are poisonous. The oil coats and clings to every rock and grain of sand. Sometimes if the oil washes into coastal marshes, mangrove forests or other wetlands, fibrous plants and grasses absorb the oil, which can damage the plants and make the whole area unsuitable as wildlife habitat.

Water is used mainly for cooling for large or small mining activities. The wastewater that is generated is in most cases recycled. But the management of this wastewater sometimes poses a challenge as it requires effective maintenance of facilities holding the wastewater. Incident of wastewater pollution has been reported worldwide, caused by to lack of wastewater management program.

7.4.2. Potential effect form liquid waste
The spill of oil or used oil is associated with detrimental environmental effects. Used oil that will be generated on-site for this project during the exploration process will be minimal. But, regardless of the quantity, management measures will be put in place to make sure that no incident of oil spill takes place.

Wastewater that will be generated during the exploration process will be minimal about less than a 25 liter a day. Therefore, it is assumed that most of this water will evaporate faster than it will infiltrate.
7.4.3. Significance

The significance of the identified problem of the study can be summarized as follows:

Table 11: The expected significance of the project on liquid waste

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Liquid waste:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent</td>
<td>local</td>
</tr>
<tr>
<td>Duration</td>
<td>short</td>
</tr>
<tr>
<td>Intensity</td>
<td>low</td>
</tr>
<tr>
<td>Probability</td>
<td>definite</td>
</tr>
<tr>
<td>Significance before mitigation</td>
<td>Medium for used oil and low for wastewater</td>
</tr>
<tr>
<td>Significance after mitigation</td>
<td>Low for both</td>
</tr>
<tr>
<td>Degree of confidence in predictions</td>
<td>high</td>
</tr>
</tbody>
</table>

7.5. Solid waste: wires, drill bits, and human waste

7.5.1. Background to the problem

Solid waste management is a national problem worldwide, and sometimes this problem extends beyond the mining industry scale. In the mining industry or exploration industry, different types of solid waste are generated and some of these wastes contain toxic substances that can affect living and non-living things. Therefore proper handling and management of these wastes are critical for the protection of the environment.

7.5.2. Potential effects from solid wastes

Solid waste that will be generated from this project if not managed will have an effect on the environment. The effect will mainly be at the project site. Human waste that will be generated during the exploration process, if not managed will have an effect on the environment although on a small scale.
7.5.3. Significance

The significance of the identified problem of the study can summarise as follows:

Table 12: The expected significance of the project on solid waste

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Solid waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent</td>
<td>local</td>
</tr>
<tr>
<td>Duration</td>
<td>short</td>
</tr>
<tr>
<td>Intensity</td>
<td>low</td>
</tr>
<tr>
<td>Probability</td>
<td>definite</td>
</tr>
<tr>
<td>Significance before mitigation</td>
<td>Medium</td>
</tr>
<tr>
<td>Significance after mitigation</td>
<td>Low f</td>
</tr>
<tr>
<td>Degree of confidence in predictions</td>
<td>high</td>
</tr>
</tbody>
</table>

7.6. Land or soil disturbance: on-site and the proposed 1km stretch road from B2 road.

7.6.1. Background to the problem

During the exploration process, land or soil will be disturbed both on-site and along the proposed stretch road of about 1km linking the project site to the B2 road. The soil will be removed on the surface rocks during the drilling to recover the slabs needed for testing.

7.6.2. The potential effect of land or soil disturbance

The removed soil during drilling if not properly managed will affect the growth of vegetation and the development of biodiversity hiding or resting spots.

7.6.3. Significance

The significance of the identified problem of the study can summarize as follows:
Table 13: The expected significance of the project on soil or land disturbance

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Soil or land disturbance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent</td>
<td>local</td>
</tr>
<tr>
<td>Duration</td>
<td>short</td>
</tr>
<tr>
<td>Intensity</td>
<td>low</td>
</tr>
<tr>
<td>Probability</td>
<td>definite</td>
</tr>
<tr>
<td>Significance before mitigation</td>
<td>Medium</td>
</tr>
<tr>
<td>Significance after mitigation</td>
<td>Low</td>
</tr>
<tr>
<td>Degree of confidence in predictions</td>
<td>high</td>
</tr>
</tbody>
</table>

7.7. Impact on biodiversity: fauna and flora

7.7.1. Background to the problem

Biodiversity (i.e. fauna and flora) is likely to be affected by the project during the exploration process. But due to the size of the project and duration, the impact is manageable.

7.7.2. The potential effect of biodiversity impact

The vegetation types that are found in this area are classified in the none value category. In addition to vegetation, various invertebrates also host the area. Regardless of the low value of the existing vegetation on-site and along the road, activities that will be undertaken during the exploration process is likely to have an effect on the vegetation and the invertebrates. Therefore management measures will be considered to minimize the above impacts.

7.7.3. Significance

The significance of the identified problem of the study can summarize as follows:

Table 14: The expected significance of the project on Biodiversity: fauna and flora

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Soil or land disturbance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent</td>
<td>local</td>
</tr>
<tr>
<td>Duration</td>
<td>short</td>
</tr>
<tr>
<td>Intensity</td>
<td>low</td>
</tr>
<tr>
<td>Criteria</td>
<td>Soil or land disturbance:</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Probability</td>
<td>definite</td>
</tr>
<tr>
<td>Significance before mitigation</td>
<td>Medium</td>
</tr>
<tr>
<td>Significance after mitigation</td>
<td>Low f</td>
</tr>
<tr>
<td>Degree of confidence in predictions</td>
<td>high</td>
</tr>
</tbody>
</table>

7.8. **Concluding remark on this section**
In this section, the identified impact was screened and assessed. The mitigation measures of the identified impact will be addressed in the Environmental Management Plan (EMP) report.
8. Conclusion and recommendations

8.1. Conclusion
The Mining claim numbers 71474, 71473, 71472, 71574, 71575, and 71576 are in the Arandis district Area of the Erongo Region. The implementation of the proposed exploration study by the proponent will be undertaken with provisions of the EIA regulation of 2012. Based on the assessment of both negative and positive impacts undertaken for the proposed exploration study activities, a number of high positive and negative impacts have been identified. Overall, positive impacts of the proposed exploration study and possible testing of quarry mining activities outweigh the negative ones at local, regional, national and global levels.

Based on the findings of this Environmental Assessment Study, the proposed exploration activities can be implemented in accordance with the provisions of the EMP. Once the exploration study prove that the project is economically viable, a separate full Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) will be developed and implemented in order to support the application of a Quarrying (Mining) License (ML) and then start with the full-scale quarrying (mining) project development covering preconstruction, quarry construction, operation, rehabilitation, closure, and aftercare stages.

8.2. Recommendations
It is hereby recommended that the proponent take all the necessary steps to implement all the recommendations of the EMP for the successful implementation and completion of the proposed exploration study for the Mining claim number 71474, 71473, 71472, 71574, 71575, and 71576, located in the Arandis Area in the Erongo Region. Recommended actions to be implemented by the proponent as part of the management of the likely impacts through implementation of the EMP are as follows:

- Contract an Environmental Coordinator / Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness-raising of the workforce, contractors and sub-contractors in the field during the whole duration of the proposed exploration study and testing of a quarry mining program period;
- Provide all other necessary support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned exploration and possible testing of quarry mining activities;

- Develop a simplified environmental induction and awareness program for all the workforce, contractors and subcontractors;

- Where contracted service providers are likely to cause environmental impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;

- Implement internal and external monitoring of the actions and management strategies developed during the mineral exploration and possible mining duration and a final Environmental Monitoring report be prepared by the Environmental Coordinator / Consultant / Suitable in-house resource person and to be submitted to the regulators and to end the proposed mineral exploration;

- Develop and implement a monitoring program that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA for possible mining projects.
9. References


Department of Water Affairs (DWA). (2002). The hydrogeological map of Namibia


IUCN. (1996). IUCN red list of threatened animals, IUCN, Gland, Switzerland.


Kisting, J., 2008. Opportunities in the renewable energy sector in Namibia, Baobab Equity Management (Pty) Ltd, Windhoek, Namibia


Risk Based Solution. (2011). Final EIA and EMP for the proposed exploration and possible testing a mine for the EPL no-4458, Karas Region. Swedish Exploration.


10. Appendices: List of appendices

- Appendix A: Abridge CV’s
- Appendix B: Issue and responses trail
- Appendix C: Agreement between the farm owner with the proponent mining contractor
- Appendix D: Newspaper adverts
- Appendix E: Endorsement of Non-Exclusive Prospecting Licences
- Appendix F: Background Information Document (BID)
Appendix A: Abridge CV

**J. S MUNANGO CURRICULUM VITAE (CV)**

First Names: Johannes Sirunda  
Last name: Munango  
Address: P.O.Box 32237, Pioneer spark, Windhoek

Telephone: +264 814112046  
E-mail: raychilunda@gmail.com

**PERSONAL STATEMENT**

Johannes Sirunda Munango is a highly enthusiastic, qualified environmental scientist with over 3 years of working experience in the field environmental management. He holds a BSc (Hon) in Integrated Environmental sciences and an MSc in Environmental Science.

**KEY QUALIFICATIONS:**

M.Sc.: Environmental Science, University of Mysore, India  
B.Sc.: Integrated Environmental Science (honours), University of Namibia

**EDUCATION & TRAINING:**

<table>
<thead>
<tr>
<th>Masters of Science in Environmental Science, University of Mysore, India: August 2017 – June 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thesis:</strong> SPATIAL CHANGES IN PHYSICO-CHEMICAL AND BIOLOGICAL CHARACTERISTICS OF WATER AND SEDIMENT SAMPLES OF GIRIBETTA AND SHETTY KERE LAKES OF MYSORE DISTRICT, INDIA</td>
</tr>
<tr>
<td><strong>Major Subjects:</strong></td>
</tr>
</tbody>
</table>
| - Environmental chemistry  
- Environmental Biotechnology  
- Environmental Microbiology  
- Environmental Biology  
- Environmental geology  
- Water and wastewater management  
- Climate change and current issues  
- Conservation of biodiversity  
- Solid waste management  |
| - Energy and green technology  
- Occupational health hazards  
- Marine ecology and coastal pollution |

33
<table>
<thead>
<tr>
<th>Bachelors of Science in Integrated Environmental Science (Honours), University of Namibia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research topic:</strong></td>
</tr>
</tbody>
</table>
| **Major subjects:** | • Environmental impact assessment  
                      • Environmental planning and management  
                      • Environmental pollution control  
                      • Environmental Science  
                      • Watershed management  
                      • Agro-forestry  
                      • Environmental Science  
                      • genetics  
                      • General microbiology  
                      • Biochemistry |
| **Leadership skills** | • Academic concentration in Environmental studies  
                      • Student leader (chairperson of Environmental society 2014 - 2015)  
                      • Participant in the world wetland and water day 2014  
                      • participant in the AU model summit 2014 |
| **RESEARCH INTERESTS:** | • Natural Resource Management  
                      • Conservation of Biodiversity  
                      • Solid waste management  
                      • Marine ecology  
                      • Water quality analysis  
                      • Occupational Health Hazards and Safety  
                      • Hydrogeology  
                      • Impact of Climate Change on Water Resources |
PROFESSIONAL TRAINING AND WORK EXPERIENCE

I. 09/2019: Guest Lecturer (Climatology/Social Studies) on a Voluntary basis - University of Namibia (Khomasdal Campus) 3 weeks duration

II. 2013 -2016: Project assistant and Junior EAP at HJ GeoEnviro Consulting and Trading Cc (independent consultant).

Environmental management Projects completed under HJ GeoEnviro:

2013: Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the proposed granite exploration study by Stone Evolution and Equipment Hire Cc, Swakopmund.

2014: Environmental Impact Assessment (EIA) and Environmental Management for the proposed small scale surface mining for marble for EPL: 4692, Erongo Region, Karibib District, Namibia by Bohale Investment Cc, Karibib.

2014: Environmental Impact Assessment (EIA) and Environmental Management for the proposed small scale surface mining for marble for EPL: 4693, and 4694, Erongo Region, Karibib District, Namibia by Bohale Investment Cc, Karibib.

2014: Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the proposed upgrading and renovation of domestic wastewater oxidation pond system for the Himarwa Ithete Senior Secondary School, Kavango West Region, Mpungu District, Namibia.

III. 12/2015-01/2016: Ministry of Environments and Tourism (Windhoek) Intern
Duties:
- Assisting with issuing of permits (Hunting permits; Devil’s claw harvesting etc.)
- Law enforcement

IV. 12/2013-01/2014: Ministry of Environments and Tourism (Rundu), in Mangetii and Bwabwata National parks (Intern)
Duties:
- Human-Wildlife conflict
- Law enforcement
- Game park maintenance

COMPETENCY IN INSTRUMENTATION
• Calibration, use, and maintenance of UV-VIS spectrophotometer in assessing various forms of pollution
• Calibration, use, and maintenance of Dosimeter in monitoring radiation pollution
• Calibration, use, and maintenance of Microscope
• Calibration, use, and maintenance of Flame photometer in determining and monitoring of some of the physicochemical parameters of water or air pollution
• Weather monitoring equipment
• Calibration, use, and maintenance of a CO detector in monitoring air quality
• Nephelometry

Other Skills:

• Research and problem-solving
• Field sampling: air, water, and soil
• Strong analytical skills
• Preparation and testing samples of gases, soils, water, industrial wastewater, and other materials to determine pollutant levels or identify sources of contamination
• Assessing environmental and social impacts of planned or on-going development activities
• a broad understanding of local, national and global environmental issues
• ability to gather, analyse and communicate complex technical data

IT SKILLS: Ms office suite, ArcGIS, Statistical skills in SPSS 14.0 for window,

REFERENCES:

Prof. S. L. Belagali
Professor in Environmental chemistry
Chairman DOS Environmental science
Phone: 0821-2419627/628
E-mail: slb.envsci@gmail.com
Mob: +919663120626, +919342122325

Dr. N. S. Raju
Associate professor in Environmental microbiology
DOS Environmental science
Phone: 0821-2419630
E-mail: nsr.envsci.uni-mysore.ac.in

Dr. Jack R Kambatuku
HOD: Integrated Environmental Science (Ogongo Campus)
Faculty of Agriculture and Natural Resources
University of Namibia
Tel: +264 65 2235 205

Mr C. Togarepi
Faculty of agriculture and natural resources
Department of Agricultural Economics
Mobile: +264 81 274 1071
E-mail: jkambatuku@unam.na

E-mail: ctogarepi@unam.na
Appendix B: Issue and responses trail

Acacia ENV acaciaenv1@gmail.com

IP registration
5 messages

Hafeni Hiveluah <hafexx@gmail.com> Sun, Dec 22, 2019 at 2:25 PM
To: acaciaenv1@gmail.com

Dear Mr Munango,

Pls register me for the EIA & EMP for the proposed quarry for quartzite at mining claims 71472-4 & 71574-6 ,Arandis. Ref:Confident,12-18 Dec19.
Thanking you in advance.

Hafeni Hiveluah
+264811433057
"YOU WIN OR LOOSE BY THE WAY THAT YOU CHOOSE"-UNKNOWN

Hafeni Hiveluah <hafexx@gmail.com> Sun, Dec 22, 2019 at 2:29 PM
To: acaciaenv1@gmail.com

Do send me the BID.

Hafeni Hiveluah
+264811433057
"YOU WIN OR LOOSE BY THE WAY THAT YOU CHOOSE"-UNKNOWN

[Quoted text hidden]

Acacia ENV <acaciaenv1@gmail.com> Wed, Jan 8, 2020 at 6:17 PM
To: Hafeni Hiveluah <hafexx@gmail.com>

Dear Hafeni

Please find the attached BID as per your request.

Kind regards

[Quoted text hidden]
ACACIA ENVIRO CONSULTING

REGISTRATION AND COMMENTS SHEET

EIA PROCESS FOR THE PROPOSED EXPLORATION STUDY FOR QUARTZITE AT CLAIM No: 71474, 71473, 71472, 71574, 71575, AND 71576 ERONGO REGION, ARANDIS DISTRICT, NAMIBIA

I request to be registered as an interested and Affected Party in respect of the proposed project. Please ensure that I receive all updates of information and that I am invited to the meetings, as well as kept fully informed of the EIA process.

Attention: Johannes Munango

<table>
<thead>
<tr>
<th>Name:</th>
<th>Telephone: 0811433067</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization:</td>
<td>Fax:</td>
</tr>
<tr>
<td>Designation:</td>
<td>Email:</td>
</tr>
<tr>
<td>Postal address/City:</td>
<td>Box 62843, WHA</td>
</tr>
</tbody>
</table>

My interest in this project: RESOURCE EXTRACTION SUSTAINABILITY

Comments and matters of concern: Ref to any email.

Signature: [Signature] Date: 8/1/2020

Please return this completed document (with all requested details)

Email: acaciaenv1@gmail.com

EIA_QUARTZITE_BID REPORT BY ACACIA ENVIRO CONSULTING
Email: acaciaenv1@gmail.com
Mobile: +264 814112646
Appendix C: Agreement between the farm owner with the proponent mining contractor

ACCESS AND COMPENSATION AGREEMENT

In terms of section 52(1)(a)(i) of the
Minerals (Prospecting and Mining) Act 33 of 1992

Entered into between

JOHAN BREYTENBACH
IDENTITY NUMBER: 540231100227
Physical address: Farm Namibfontein, District Karibib, Erongo Region
(hereinafter referred to as the “Owner”) AND

STONE EVOLUTION & EQUIPMENT HIRE CC
A close corporation duly incorporated
with registration number CC/2002/2018
of physical address: 11B Dr Eugene Muller Street, Swakopmund
(hereinafter referred to as the “Contractor”)

PREAMBLE
(A) The Contractor is permitted to conduct mining operations by the holder of claims 71474 and 71473, situated on the Namibfontein in the district of Karibib, Erongo Region (the “Property”).
(B) The Property is owned by the Owner.
(C) The Claim License of the Claimholder, read with the contract between them, authorize the Contractor to conduct mining operations in respect of Dimension Stone on the Property over the area covered by the License.

THE PARTIES HEREBY AGREE AS FOLLOWS:
1. This Agreement is to be read with the Agreement between Johannes James Sirunda and the Contractor, signed on 07 November 2019 which is attached as Annexure 1.
2. The Owner has read the Agreement and agrees that the two agreements are interdependent. He specifically agrees to the fact that the Contractor will not necessarily be active on the Property on a permanent basis and may at times mine elsewhere. For those months, the compensation as stated in Clause 3 will not be payable.

3. Compensation:
The Contractor shall pay the Owner a compensation in the amount of N$10 000 (exclusive of VAT) per month in respect of months or parts thereof during which the Contractor is mining on the Property or busy with mining related activities.

All monies payable to the Owner shall be paid in the following account:

**BANK:**
**ACCOUNT HOLDER:** [Name]
**ACCOUNT NUMBER:** [Number]
**ACCOUNT TYPE:** [Type]
**BRANCH:** [Branch]
**BRANCH CODE:** [Code]
**REFERENCE:** [Fees]

The amount stated above, shall increase at the same percentage of increase of monies payable by the Contractor to the Claimholder.

4. Rights of the Contractor
The Contractor shall be entitled to exercise all the normal rights of prospecting and mining including bringing personnel, machinery, temporary buildings, toilet facilities, pipelines and power lines onto the property. No fire-arms or animals may be brought or kept on the property without a prior written permission of the Owner. If any legislation is applicable to these activities, the Contractor will comply with same.

5. Obligations of the Contractor

5.1 The Contractor and his employees will act in an environmentally responsible manner, without removing wood or leaving litter on the Property, including oil spills.

5.2 Upon completion of the activities of the Contractor, the Property must be rehabilitated as far as the surface of the claims is concerned, in terms of the then current legislation, including sealing of all boreholes sunk by the Contractor.

[Signature]
[Signature]
5.3 The Contractor shall keep its employees under proper control, so that they do not cause any nuisance for the Owner or his employees or guests. Record of all personnel of the Contractor must be available for inspection by the Owner at any reasonable time.

5.4 No loitering or entering of any part of the property will be allowed, except the claims and roads leading thereto. All gates opened in this respect must be promptly closed after passing through. Should the roads be damaged by machinery or any activity of the Contractor, the Contractor shall repair such roads to be in the same good condition as they were before the Contractor started its activities on the Property, on cessation of the activities of the Contractor.

5.5 The Contractor shall take care and all reasonable precautionary measures to avoid fires, injury or any damage to the Property of the Owner.

6. Water Supply
Taking into account that the Property suffers from a shortage of water, the Contractor may, with the prior written consent of the Owner, which shall not unreasonably be withheld, sink boreholes, provided that it does not affect the usage of water by the Owner of the Property. Water for human consumption, must however be supplied by the Contractor, from a source other than the Property. Water for the mining activities of the Contractor may be pumped from existing boreholes at cost of the Contractor.

7. Non-interference
The Owner, or any of its employees, shall not interfere, or cause interference of the lawful activities of the Contractor and will not enter the claims without prior arrangement with the contractor.

8. Cession
The Contractor will have the right to cede any of its rights in terms of this Agreement, provided the owner has been given 14 (fourteen) days written notice of the cession or resigning.

9. Domicilium and notices
The parties choose as their domicilia citandi et executandi for the purpose of giving any notice, the address as set out in the recitals of this Agreement.
10. **Ending of this Agreement:**

This Agreement ends when the Agreement between the Contractor and the Claimholder ends. Furthermore, this Agreement may be cancelled by either party should a breach persist despite a notice or remedy as same, being sent 90 ordinary days prior to such cancellation. All notices must be in writing and delivered at the said domicilia.

11. **Amendment**

No amendment of this Agreement will be valid unless it is in writing and is signed by the duly authorised representatives of the parties thereto.

THUS DONE AND SIGNED AT **USAKOS** ON THIS 25 DAY OF NOVEMBER 2019.

AS WITNESSES:

1. 

2. 

THUS DONE AND SIGNED AT **USAKOS** ON THIS 27 DAY OF NOVEMBER 2019.

AS WITNESSES:

1. 

2. 

REPRESENTATIVE OF THE CONTRACTOR
Appendix D: Newspaper adverts
Gabriel Jesus says he has to “keep scoring” after his hat-trick inspired the Blues to come from behind to win their final Champions League Group C game at Dinamo Zagreb.

The Brazil forward, 22, who is spearheading City’s attack with Sergio Aguero out injured, has now scored five goals in his last five starts for the club.

And his form is likely to be key for City, who are third in the Premier League, 14 points behind leaders Liverpool.

“Now the goals are coming so I’m so happy but I cannot stop - I have to keep scoring,” Jesus said.

“I have to do my job. My job is to score goals and help the team, without the ball and with the ball. Last month, I was not scoring and I felt so bad because I have to score and help my teammates.”

City, who qualified prior to their trip to Croatia, finished top of Group C, with Atalanta qualifying in second after their 3-0 win at Shakhtar Donetsk.

Dani Olmo had opened the scoring for the hosts, with a sparkling volley from Damian Kadzior’s right-wing

But Pep Guardiola’s side dominated possession throughout and levelled before the break, with Jesus heading a Riyad Mahrez cross into the top left corner.

City then put City ahead early in the second half, placing an effort into the bottom right corner after a one-two with Phil Foden and some neat footwork.

The Brazil forward tapped Benjamin Mendy’s cross into an unguarded Dinamo goal four minutes later but he was then substituted. Foden rounded off a fine display from the visitors, prodding in Bernardo Silva’s cross, to give the score an emphatic feel.

City advance to the knockout stages unbeaten in the competition this term and will be one of the seeds in Monday’s last-16 draw.

Dinamo’s defeat, coupled with Atalanta’s victory, sees the Croatian champions finish bottom of the group to miss out on a place in the Europa League.

Foden capitalises on chance to impress

With City having already confirmed their passage into the last 16, Guardiola made eight changes against the Spanish side, which saw some young talent come through the ranks.

Gabriel Jesus

made eight changes against Real Betis. Young players, such as Phil Foden, impressed against Dinamo Zagreb.

But the youngest was 22-year-old Ben Chilwell, who notched a goal and an assist against Dinamo Zagreb.

The left-back, who has been a regular in Liverpool’s first team, has made several impressive performances in the League Cup.

His touch to Jesus’s assist was sublime, setting the Brazilian up for his second goal against Dinamo Zagreb.

PUBLIC NOTICE: EIA & EMP FOR THE PROPOSED QUARRY FOR QUARTZITE AT MINING CLAIMS 71474, 71473, 71472, 71574, 71575, AND 71576 LOCATED 44.8KM SOUTH-WEST OF ARANDIS.

The proponent/applicant of the above mining claims is proposing to conduct an exploration study to quarry quartzite 44.8KM South-west of Arandis. Acacia Environmental Consulting CC has been appointed to undertake the EIA. All I&AP’s are invited to a register for comments/inputs on and before the 31st of December 2019.

For more information please contact:
Mr. J Munango (MSc ENVS, BSc Int ENV)  
Nobile: +264 81 4112046  
Email: acaciaenv@gmail.com
Fishing canned to 3% of GDP

The fishing industry has for the past 10 years only contributed an average of 3% of GDP per year, a paltry figure below the utilised capacity of the resource.

- Finance ministry investigates fishrot, seeks to recover funds
- Fishing industry contributes only N$3b p.a.
- After-effects on economy expected

Defence to buy land for N$84m at Keetmans
IT'S TIME TO GIVE BLOOD

Additional clinics have been arranged in Windhoek this Saturday, 7 December 2019:
Maerua Mall (In front of House and Home) 09h00-14h30
Tal Street Centre (Windhoek) 09h00-14h00
Maroela Mall (Ongwediva) 09h00-14h30
Dunes Mall (Walvis Bay) 09h00-14h00

Those interested in becoming a blood donor should be older than 16 years, weigh more than 50kg, lead a sexually safe lifestyle and enjoy generally good health.

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For more information please contact:
Mr J Munango (MSc ENVS, BSc Int ENVS)
Nobile: +264 81 4112046
Email: acaciaenv1@gmail.com
Search widens on Fishrot Minister

The Fishrot 6 want to go home for Christmas

Resident Hage Geingob has given a clear indication that his next Cabinet will be appointed on merit, and that he will specifically seek out candidates for Cabinet posts that can review key ministerial sectors to uncover any malpractice.

The Resident was speaking at a Swapo Party Central Committee meeting in Windhoek this week. Geingob is expected to announce his new Cabinet ministers at the beginning of his second five-year term in March next year when the current administration completes its five-year term.

"In the next administration, I am looking to appoint ministers who have the necessary capability to review key sectors in a similar fashion so that any malpractice can be uncovered and fair allocation methods, which benefit all Namibians, are introduced," he said.
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For more information please contact:
Mr J Munango (MSc ENVS, BSc Int ENVS)
Nobile: +264 61 4112046
Email: acaciaenv1@gmail.com

NOTICE OF ENVIRONMENTAL ASSESSMENT AND PUBLIC PARTICIPATION PROCESS

Mafuta Environmental Consultants hereby gives notice to all potential interested and Affected Parties (I&APs), that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (CM 30 of 6 February 2013) for the following:

Project Title: Proposed Construction of a Feedlot with

Project Description: Construction and operation of a feedlot with Drainage systems, Feeding pens, Pex drains, Sedimentation systems, Effluent Treatment and Perimeter fencing.

Project Location: The envisaged feedlot is located at Museese Green Scheme Project located 100km South-East of Nkurenkuru Town in Karange West Region-Namibia.

Proposant: Ministry of Agriculture, Water and Forestry

Participation Details: A public participation meeting will be held at Museese Green Scheme Offices on Tuesday, 17 December 2019, and Time: 10:00 AM. The Participation Period is until 19 January 2020. Interested and Affected Parties can register or request for documents by submitting your name, contact information and your interests in writing to:

Ms. Martha Kajuku
Tel: +264 814442480
Email: mafuta0@gmail.com

Mr. Terence Kasingwadi
Tel: +264 91625694
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<th>District/Region</th>
<th>Full Name of Land Owner</th>
<th>Signature of Land Owner</th>
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(Enforcement of Sections 16(2) of the Minerals (Prospecting and Mining) Act, 1992)