Mitten Minerals Exploration (Pty) Ltd

Environmental Impact Assessment (EIA) Report to Support the Application for Environmental Clearance Certificate (ECC) for the Proposed Exploration Activities in the Exclusive Prospecting License (EPL) No. 8997

Grootfontein District, Otjozondjupa Region, Central Namibia

November 2023

13 Feld Street, P. O. Box 3489
WINDHOEK, NAMIBIA

PROPONENT, LISTED ACTIVITIES AND RELATED INFORMATION SUMMARY

MEFT ECC REFERENCE APPLICATION No.
231109002446

TYPE OF AUTHORISATIONS REQUIRING ECC
Exclusive Prospecting License (EPL) No. 8997
for ECC for Exploration

NAME OF THE PROPONENT
Mitten Minerals Exploration (Pty) Ltd

COMPETENT AUTHORITY
Ministry of Mines and Energy (MME)

ADDRESS OF THE PROPONENT AND CONTACT PERSON
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WINDHOEK, NAMIBIA
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PROPOSED PROJECT
Proposed Minerals Exploration / Prospecting activities in the Exclusive Prospecting License (EPL) No. 8997

PROJECT LOCATION
Grootfontein District,
Otjozondjupa Region, Central Namibia
(Latitude: -19.874722, Longitude: 17.576944)

ENVIRONMENTAL CONSULTANTS
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ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)
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PhD, PG Cert, MPhil, BEng (Hons), Pr Eng
Email: frontdesk@rbs.com.na

CITATION: ***Risk-Based Solutions (RBS), 2023****. Environmental Impact Assessment (EIA) Report to Support the Application for Environmental Clearance Certificate (ECC) for the Proposed Exploration Activities by Mitten Minerals Exploration (Pty) Ltd in the Exclusive Prospecting License (EPL) No. 8997, Grootfontein District, Otjozondjupa Region, Central Namibia.*

DR SINDILA MWIYA, TEAM LEADER / ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP), PERMITTING / DE-RISKING ADVISORS / ENVIRONMENTAL CONSULTANTS DECLARATION

I, Dr Sindila Mwiya, working for Risk-Based Solutions (RBS) CC, the Permitting / De-Risking Advisors / Environmental Consultants and being the Environmental Assessment process Team Leader and EAP for the preparation of this Environmental Impact Assessment (EIA) Report to support the application for an New Environmental Clearance Certificate (ECC) for the proposed mining and ongoing exploration activities by Mitten Minerals Exploration (Pty) Ltd (the Proponent), in the Exclusive Prospecting License (EPL) No. 8997, Grootfontein District, Otjozondjupa Region, Central Namibia, hereby declares that:

1. This Environmental Impact Assessment (EIA) Report has been prepared in accordance with the provisions of the Minerals (Prospecting and Mining) Act (No 33 of 1992), the Environmental Management Act, 2007, (Act No. 7 of 2007), all other applicable national laws, and Regulations and Good International Industry Practice (GIIP).

2. I am highly qualified and experienced in environmental assessments and management, marine seismic survey operations, offshore oil and gas exploration and production operations and hold a PhD with research interests, academic training, and technical knowledge in Engineering Geology, Geotechnical, Geoenvironmental and Environmental Engineering, Artificial Intelligence and Knowledge-Based Systems with special focus on EIAs, EMPs, EMSs, SEAs, SEMPs and ESG with respect to subsurface resources (minerals, petroleum, water) and energy in arid and semiarid environments.

3. I am an Engineering and Environmental Geologist with extensive technical knowledge and experience in conducting environmental assessments, management, and monitoring for offshore and onshore subsurface resources (petroleum, solid state minerals, water, geothermal), exploration and utilisation and have undertaken more than 300 projects since 2004, covering resources exploration and production related environmental assessments, management, and monitoring projects in different parts of the World.

4. I have performed the work relating to this project in an objective manner, even if the outcomes will result in views or Records of Decision that may not be favourable to the Stakeholders or the Proponent, and.

5. I am an independent consultant not related to the Proponent, I co-own and operate an independent company (Risk-Based Solutions CC) which is not related to the Proponent. Except for the fees payable for professional consulting services rendered to the Proponent, I have no shares, interests, or involvement in the license, financial or other affairs or business or operational decisions of either the Proponent or the decision-making structures of Government.

……

Dr Sindila MWIYA
Environmental Assessment Practitioners (EAPs)\Team Leader
Permitting / De-Risking Advisors / Environmental Consultants
RISK-BASED SOLUTIONS (RBS) CC

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NON-TECHNICAL SUMMARY

Mitten Minerals Exploration (Pty) Ltd (the "PROPONENT") has been granted the preparedness to grant application for Exclusive Prospecting Licenses (EPL) No. 8997 with respect to dimension stone, base and rare metals, industrial minerals, and precious metals group of minerals. The physical license will only be granted by the Mining Commissioner if the Proponent is issued with an Environmental Clearance Certificate (ECC) by the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

If the ECC is granted, the Proponent intends to conduct exploration / prospecting activities starting with desktop studies including the processing and interpretation of the existing geophysical and other historical minerals exploration datasets, followed by regional field-based reconnaissance activities. If the initial exploration results are positive, the Proponent will implement detailed site-specific field-based activities using techniques such as geological mapping, geophysical surveys, trenching, drilling, and sampling for laboratory tests.

The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfilment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECC.

This Environmental Impact Assessment (EIA) Report has been prepared by Risk-Based Solutions on behalf of the Proponent to support the application for ECC with respect to the proposed prospecting / exploration activities.

The 47430.1076 Ha EPL No. 8997 is in the Grootfontein District, Otjozondjupa Region, Central Namibia. The EPL 8997 has a total area of 47425Ha and covers the following private commercial farmlands: Otjikururume 502, Omuhona 503, Hamburg 504, Okorusu 499, Devon 566, Driekoppies 801, Kehuru 496, Walldorf 147, Okumukanti 148, Zunis 149 and Eenberg 802.

The EPL 8997 falls within the Kalahari, Thornbush shrubland and Karstveld vegetation zones. It is estimated that at least 67 species of reptile, 15 amphibian, 86 mammal, 213 bird species (breeding residents), 131 larger trees and shrubs (>1m in height) and 111 grasses are known to or expected to occur in the general area of which a low proportion are endemics species (e.g., 14.9% for reptiles being the highest).

The EPL area falls within the Otavi Constituency and according to the national census of 2011, has a total population of 12488, which comprises of 46.1% females and 53.9% males. The Town of Otavi is the nearest town to the EPL area. The socioeconomic activities in the surrounding areas are dependent on commercial agriculture, tourism, mining (B2 Gold Project) and cement manufacturing by Ohorongo Cement.

The impacts that the proposed exploration activities and associated infrastructure such as access and exploration supporting facilities will have on the receiving environment (physical, biological, and socioeconomic) will depend on the extent of the proposed activities over the development area/s, management of the affected area/s and how the mitigations as detailed in the EMP Report are eventually implemented and monitored by the Proponent.

As part of the environmental assessment process and as provided in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012, the public were consulted though the publication of notices in the local newspapers undertaken during the October 2023. A stakeholder register was opened on the Thursday 5th October 2023, the same date the first advert was published in the New Era daily Newspaper. Subsequent public notices were published in the for five (5) consecutive working days in Windhoek Observer Daily Newspaper from Friday 13th – Thursday, 19th October 2023. The deadline for written submissions and input to the environmental assessment process was Friday 27th October 2023. No registrations or writer submission were received during the consultation period that started from the 5th – 27th October 2023.

Based on the findings of this EIA Report, it is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The Proponent shall take into consideration the following key requirements in implementing the proposed exploration programme:

(i) The Proponent shall negotiate Access Agreements with the landowner/s as may be applicable.

(ii) The Proponent shall obtain all other applicable permits such as freshwater abstraction, wastewater discharge as may be required.

(iii) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the Proponent and the landowner/s in line with all applicable national regulations.

(iv) The Proponent shall adopt the precautionary approach / principles in instances where baseline information, national or international guidelines or mitigation measures have not been provided or do not sufficiently address the site-specific project impact.

(v) Before entering any private or protected property/ area such as a private farm, the Proponent must give advance notices and obtain consent to always access the EPL area, and.

(vi) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the Proponent shall promote access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / landowners/s or as may be needed for environmental protection including wildlife management. The abstraction of the groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowner/s must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

Once and if economic minerals resources are discovered, a separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports shall be prepared as part of the feasibility study for possible mining operations. The site-specific EIA and EMP reports shall cover the area identified to have potential economic minerals resources including the pit / shaft area/s, waste rock, tailings dump, access, office blocks, water, and external infrastructure support areas such as water pipeline, powerline, and main road/s.

In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for any possible mining operations, the following field-based and site-specific specialist studies shall be considered in the TOR for the EIA and EMP studies in an event of a discovery of economic minerals resources and possible development of a mining project within the EPL No. 8997:

(i) Groundwater studies including modelling as maybe applicable.

(ii) Field-based flora and fauna diversity.

(iii) Dust, noise, and sound modelling linked to engineering studies.

(iv) Archaeological assessment.

(v) Socioeconomic assessment, and.

(vi) Others as may be identified / recommended by the stakeholders/ landowners/ Environmental Commissioner or specialists.

1. BACKGROUND

1.1 Introduction

Mitten Minerals Exploration (Pty) Ltd (the "**Proponent**") has been granted the preparedness to grant application for Exclusive Prospecting Licenses (EPL) No. 8997 with respect to dimension stone, base and rare metals, industrial minerals, and precious metals group of minerals.

The physical license will only be granted by the Mining Commissioner if the Proponent is issued with an Environmental Clearance Certificate (ECC) by the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

Mitten Minerals Exploration (Pty) Ltd is locally owned Namibian company focused on the acquisition and development of mining projects in Namibia.

1.2 Proposed Scope of Work

The Proponent intends undertake exploration activities covering desktop studies, followed by site-specific activities on targets that may be delineated and using exploration techniques/ methods such as geophysical surveys, geological mapping, trenching, drilling, bulk sampling, and test mining. If the proposed exploration activities lead to positive results, the exploration data collected will then be put together into a prefeasibility report and if the prefeasibility result proves positive then a detailed feasibility study supported by detailed site-specific drilling, bulk sampling, laboratory tests and conduct test mining activities on the discovered mineralised locality will be undertaken.

A positive feasibility study will be required to support the application for a Mining License (ML) together with a new site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) with specialist studies such as flora, fauna, socioeconomic, water, traffic, dust and noise modelling and archaeology to be undertaken to support the application for the new ECC for mining and minerals process.

1.3 Regulatory Requirements

The proposed minerals exploration / prospecting activities in the EPL 8997 falls under the activities that are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC).

To obtain the ECC for the listed activities, the Proponent was required to have prepared Environmental Assessment comprising Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) Reports or Environmental Impact Assessment (EIA) and EMP) Reports for the proposed minerals prospecting programme.

In fulfilment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECC. Interested and Affected Parties (I&APS) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed prospecting activities.

1.4 Location, Land Use, Infrastructure and Services

1.4.1 Location and Land Use

The Exclusive Prospecting Licence (EPL) No. 8997 is in the Grootfontein District, Otjozondjupa Region, Central Namibia (Fig. 1.2 - 1.4). The EPL 8997 has a total area of 47430.1076 Ha and covers the following private commercial farmlands: Otjikururume 502, Omuhona 503, Hamburg 504, Okorusu 499, Devon 566, Driekoppies 801, Kehuru 496, Walldorf 147, Okumukanti 148, Zunis 149 and Eenberg 802 (Fig. 1.4).

The land use of the local area dominated by commercial cattle and small stock agriculture, conservation, tourism, and hospitality centred around game farming, and minerals exploration and mining. The game farms are also important conservation areas for endemic and protected flora and act as sanctuaries for endangered faunal species.

The game farms offer visitors the opportunity to be close to nature with a variety of tailor-made tourism products such game viewing, trails, and hunting activities. Bush thickening or encroachment is viewed as an economic problem in the general area. The EPL area is not part of the communal or commercial conservancy system.

1.4.2 Supporting Infrastructure and Services

The EPL is accessible via the D2806 from Kobat settlement and cutting across the EPL area or via the D2809 and D2810 branching off from the B1 and B8 Roads, respectively. The Town of Otavi is about 30 km from the northwest boundary of the EPL area along the D2810 road and 50 km along the D2809 road (Figs. 1.1 - 1.4).

Otjiwarongo, the regional centre of the Otjozondjupa Region and Walvis Bay the main Port are situated about 100 km and 514 km away respectively from the EPL area. Namibia's capital City, Windhoek, is located approximately 350 km south of EPL 8997 Area (Fig. 1.1).

The proposed / ongoing exploration programme will not require major water and energy resources. Water requirements for exploration will be provided from the available local water resources supplied by private boreholes and NamWater local / regional water supply schemes. Electricity needs will be supplied by generators and solar installations while diesel and petrol will be the main sources of fuels and readily available in the Towns of Otjiwarongo and Otavi.

In an event of a discovery of economic minerals resources, and the subsequent development of a mining project within the EPL Area, there will be a need to have reliable energy and water supply sources. Sources of the water supply will be provided by NamWater from possible local and regional groundwater resources still to be determined. Electricity supply will be provided by NamPower from already existing infrastructure in the region also still to be determined.

The assessment of the energy and water resources requirements for any possible mining operations will be evaluated in detail in the environmental assessment that will be undertaken as part of the feasibility study if economic resources are discovered within the EPL 8997 Area.

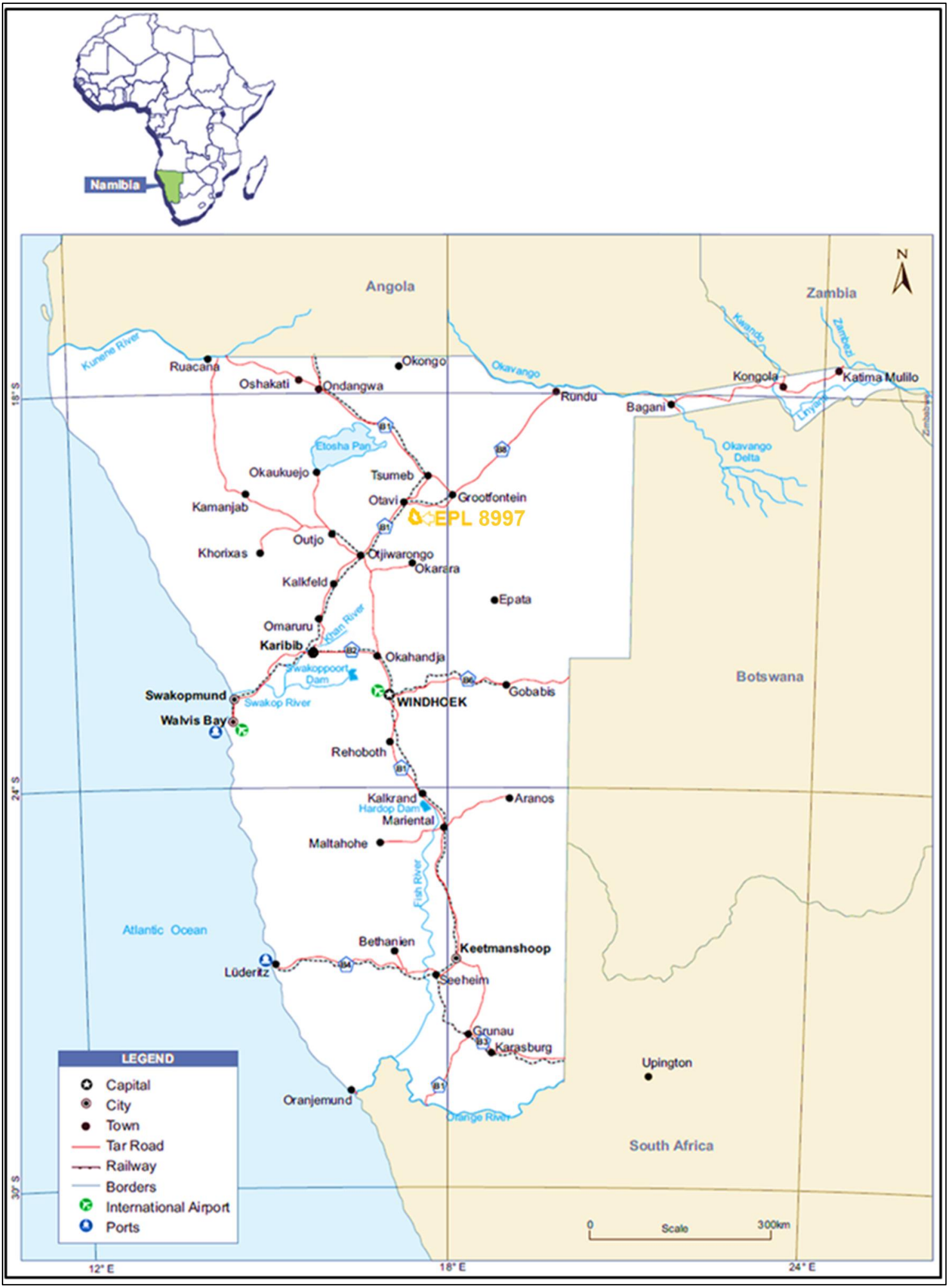


Figure 1.1: Regional location of the EPL No 8997 Area.

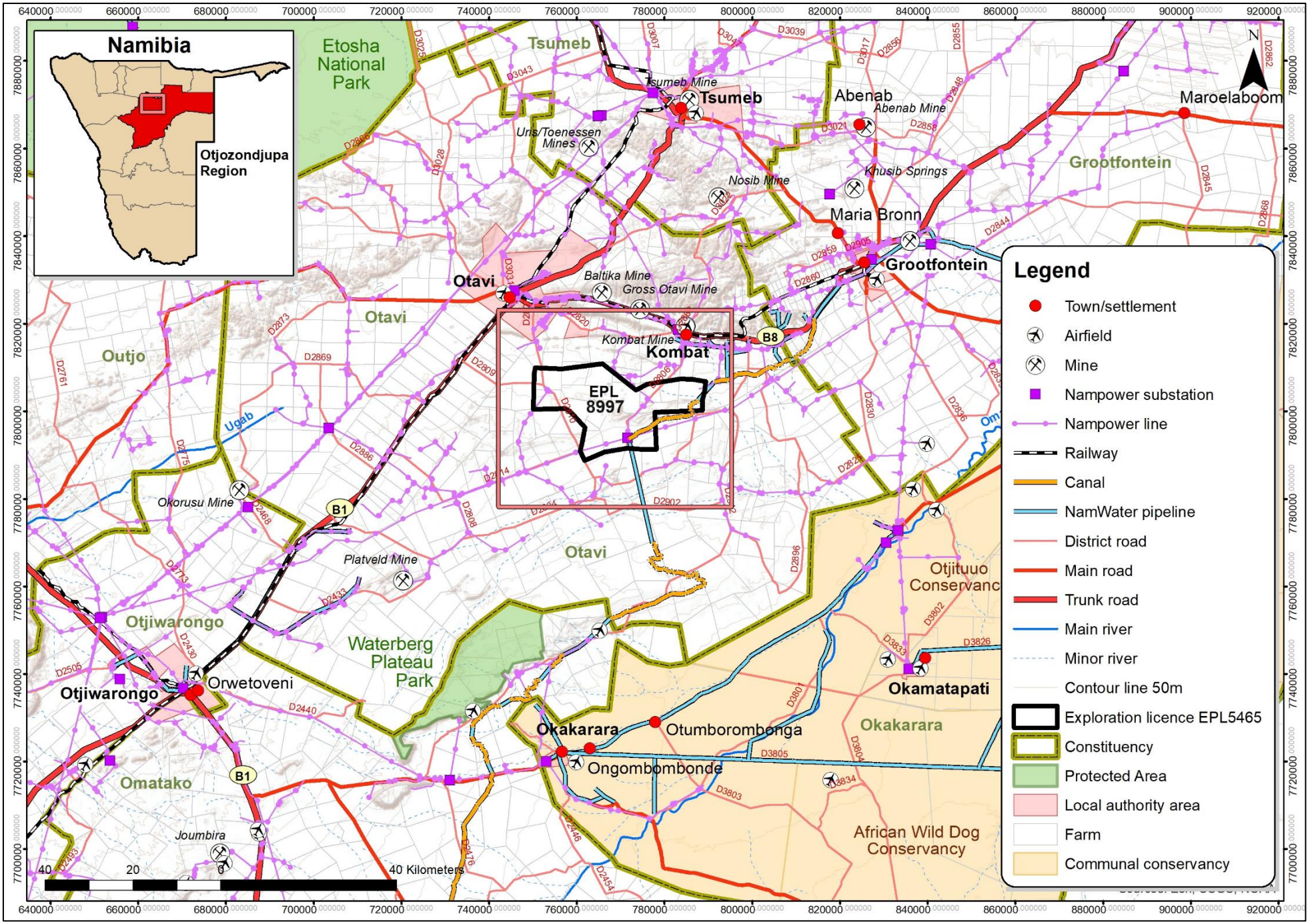


Figure 1.2: Detailed regional location of the EPL 8997.

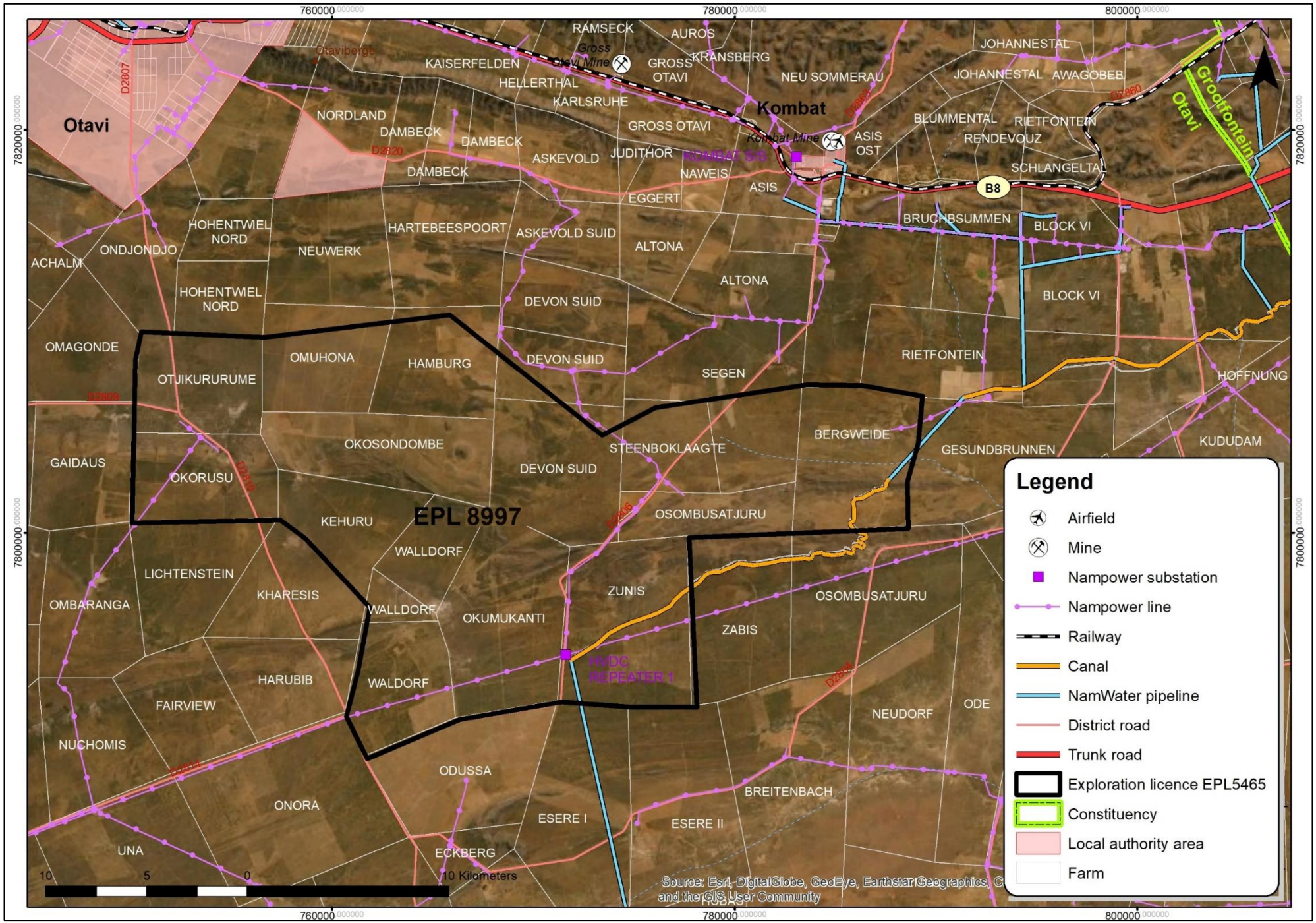


Figure 1.3: Commercial farmland covered by the EPL 8997 and access.

1.5 Project Motivation

The EPL 8997 is situated in a highly prospective area for base and rare metals, dimension stones, industrial minerals and precious metals associated with local Damara and post Damara rocks. Gold and associated minerals are known to occur in the general area and mined by B2 Gold Namibia.

The proposed / ongoing exploration activities has some limited socioeconomic benefits which are mainly centred around the payment of the annual license rental fees to the Central Government through the Ministry of Mines and Energy (MME) and value addition to the potential underground mineral resources in the area which otherwise would not have been known if the exploration in the EPL 8997 did not take place.

The potential discovery of additional economic minerals resources and the development of new mining project in the area will have much greater and positive socioeconomic benefits to the local community Otavi, Otjozondjupa Region and Namibia as a whole.

Additional socioeconomic benefits will also be realised at regional and national levels in terms of capital investments, value addition opportunities, license rental fees, royalty taxes payable to Government, direct and indirect contracts and employment opportunities, export earnings, foreign direct investments, and various taxes payable to the Government.

1.6 Approach, Alternatives, Key Issues and Methodology

1.6.1 Terms of Reference (ToR) and Approach

Risk-Based Solutions (RBS) was appointed by the Proponent to prepare the EIA and EMP Reports to support the application for renewal of the Environmental Clearance Certificate (ECC) for the EPL No. 8997 with respect to the proposed exploration activities. The EIA process reviewed the receiving environmental settings (physical, biological, socioeconomic and ecosystem services, function, use values and non-use) and proposed exploration activities, identified the impacts and then assessed the likely impacts (positive and negative) on the receiving environment (Table 1.1).

The key deliverable comprised this EIA Report and a separate Environmental Management Plan (EMP) report detailing appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative impacts identified. The EIA and EMP report and the completed Application for Environmental Clearance Certificate (ECC) shall be submitted to the client (Proponent) and the Office of the Environmental Commissioner, Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT) through the Ministry of Mines and Energy (the Competent Authority) for review and issue of the Records of Decisions (RDs).

The EIA and EMP processes have been performed with reasonable skill, care, and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques that have been applied are all in conformity to the national regulatory requirements, process and specifications in Namibia as required by MME, MEFT and Ministry of Agriculture, Water and Land Reform (MAWLR). Both the EIA and EMP Reports have been prepared in line with the January 2015 MET Environmental Assessment Reporting Guideline.

Table 1.1: Summary of the proposed activities, alternatives and key issues considered during the Environmental Assessment (EA) process covering Scoping, EIA and EMP Processes.

<table>
<tr><th colspan="2">PROJECT ACTIVITIES</th><th>ALTERNATIVES CONSIDERED</th><th colspan="2">Key Issues to be Evaluated and Assessed with Environmental Management Plan (EMP) / Mitigation Measures Developed</th></tr>
<tr><td>1. Project Implementation and Initial Desktop Exploration Activities</td><td>Review of existing information and all previous activities in order identify any potential target/s in within the EPL Area</td><td rowspan="6">(i) Location for Minerals Occurrence: Several economic deposits are known to exist in different parts of Namibia, and some have been explored by different companies over the years. The proponent intends to explore / prospect for possible economic minerals occurrence in the EPL area as licensed. Minerals occurrence is linked to the geology or local rock outcrops and site-specific.

(ii) Other Alternative Land Uses: Game farming, tourism, and agriculture

(iii) Ecosystem Function (What the Ecosystem Does.

(iv) Ecosystem Services.

(v) Use Values.

(vi) Non-Use, or Passive Use.

(vii) The No-Action Alternative

(viii) Others to be identified during the public consultation process and preparation of the EIA and EMP Reports</td><td colspan="2">Potential land use conflicts / opportunities for coexistence between proposed exploration and other existing land uses such as conservation, tourism, and agriculture</td></tr>
<tr><td>2. Regional Reconnaissance Field-Based</td><td>Reginal mapping and sampling to identify and verify potential targeted areas based on the recommendations of the desktop work undertaken under (1) above</td><td>PHYSICAL ENVIRONMENT</td><td>• Water Quality
• Physical infrastructure and Resources
• Air quality,
• Noise and dust
• Landscape and topography value
• Soil quality
• Climate Change Influences</td></tr>
<tr><td>3. Initial Local Field-Based Activities</td><td>May include Widely spaced geological mapping, sampling, surveying and possible trenching and drilling to determine the viability of any delineated local target/s</td><td>BIOLOGICAL ENVIRONMENT</td><td>• Habitat Protected Areas
• Flora
• Fauna
• Ecosystem functions, services, use values and non-Use or passive use</td></tr>
<tr><td>4. Detailed Local Field-Based Activities on Delineated Targets If Any</td><td>Following the delineation of potential target/s, conduct detailed mapping, trenching, sampling, surveying, and drilling in order to determine the viability of the project.</td><td rowspan="2">SOCIOECONOMIC, CULTURAL, AND ARCHAEOLOGICAL ENVIRONMENT</td><td rowspan="2">• Local, regional, and national socioeconomic settings
• Commercial Agriculture
• Community Protected Areas
• Tourism and Recreation
• Cultural, Biological and Archaeological Resources</td></tr>
<tr><td>5. Prefeasibility and Feasibility Studies</td><td>Assess the viability of any delineated local target/s and more detailed mapping, trenching, bulk sampling, drilling, and test mining activities where applicable. If the project proves viable, a feasibility report and application for Mining License will be undertaken.</td></tr>
</table>

1.6.2 Environmental Assessment Process and Steps

The EIA and EMP process used for this project took into considerations the provisions of the Environmental Impact Assessment (EIA) Regulations, 2012 and the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) as outlined in Fig. 1.4.

The environmental assessment steps undertaken or still to be taken are summarised as follows (Fig. 1.5):

(i) Project screening process (**Undertaken in September 2023**).

(ii) Preparation of the Draft BID/Draft Scoping Report with Terms of Reference (ToR) for review by the Proponent (**Undertaken in October 2023**).

(iii) Preparation of the Public Notice to be published in the local newspapers as part of required public consultation process (**Undertaken in in October 2023**).

(iv) Opened the Stakeholder register (**Undertaken in October 2023**).

(v) Project registration / notification through the completion of the online formal registration / notification form on the MEFT online Portal (www.eia.meft.gov.na), together with the hardcopies of the Draft BID/Scoping Report with ToR submitted to the Environmental Commissioner in the MEFT through the Ministry of Mines and Energy (MME) Director of Energy (Competent Authority) for review (**Undertaken in November 2023**).

(vi) Published public notices inviting stakeholders and the public to participate in environmental assessment process. Notices were published in the local newspapers (**Undertaken in October 2023 from the 5th – 27th October 2023 and run for a period of 21 days from the 1st publication**).

(vii) Preparation of the Draft EIA and EMP Reports for client review (**Undertaken in October and November 2023**).

(viii) Comments and inputs from the client and stakeholder consultations used to finalise the EIA and EMP Reports (**Undertaken in November 2023**).

(ix) The final EIA and EMP reports to be submitted to the Environmental Commissioner in MEFT through the MME (Competent Authority) in fulfilment of all the requirements of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) for application of the Environmental Clearance Certificate (ECC) for the proposed project (**Undertaken in November 2023**).

(x) Following the submission of the application for ECC to the Environmental Commissioner, the public and stakeholders who are interested or affected by the proposed project will have additional **fourteen (14) days** to submit comments / inputs about the proposed project direct to the Environmental Commissioner when the application will be made available for additional comments / inputs by the Environmental Commissioner on the MEFT digital Portal www.eia.meft.gov.na, (**To be Undertaken in November 2023**), and.

(xi) Wait for the Records or Decisions (RDs) from the Environmental Commissioner (**From November 2023**).

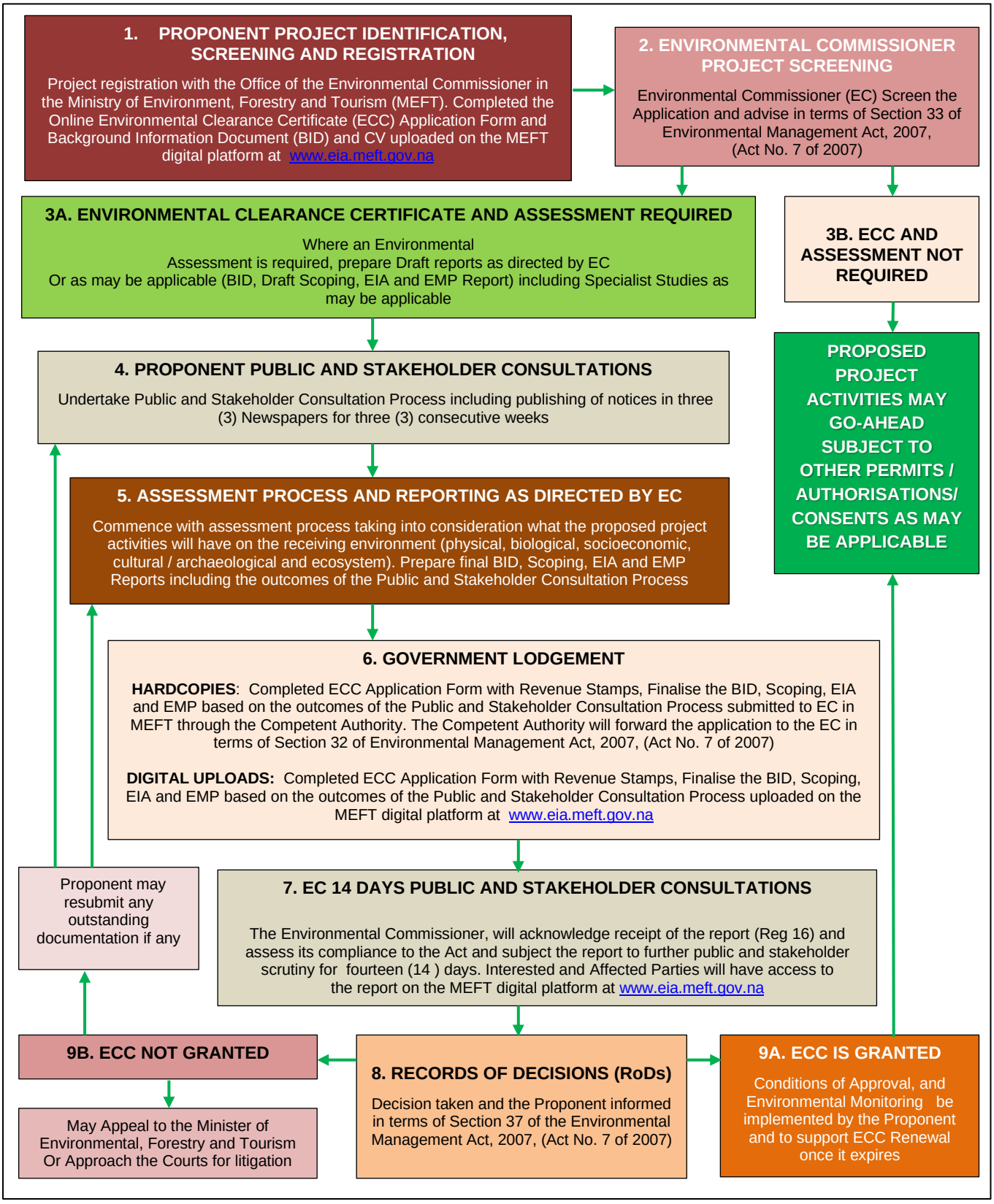


Figure 1.4: RBS Schematic presentation of Namibia's Environmental Assessment Procedure.

1.6.3 Assumptions and Limitations

The following assumptions and limitations underpin the approach adopted, overall outcomes and recommendations for this study:

- The proposed exploration activities as well as all the plans, maps, EPL Boundary / coordinates and appropriate data sets received from the Proponent, project partners, regulators, Competent

Authorities and specialist assessments are assumed to be current and valid at the time of conducting the studies and compilation of this environmental report.

- The impact assessment outcomes, mitigation measures and recommendations provided in this report are valid for the entire duration of the proposed exploration / prospecting activities.

- A precautionary approach has been adopted in instances where baseline information was insufficient or unavailable or site-specific locations of the proposed project activities is not yet available, and.

- Mandatory timeframes as provided for in the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) have been observed and will apply to the review and decision of this report by the Competent Authority and the Environmental Commissioner.

1.7 Structure of the Report

The following is the summary structure outline of this EIA report.

1. **Section 1: Background** covering the proposed project location with available infrastructure and services.

2. **Section 2: Project Description** covering the summary of the proposed project exploration activities.

3. **Section 3: Regulatory Framework** covering the proposed exploration with respect to relevant legislation, regulations and permitting requirements.

4. **Section 4: Receiving Environment** covering physical, biological and socioeconomic environments of the proposed project area.

5. **Section 5: Impact Assessment** covering the likely positive and negative impacts the proposed project activities are likely to have on the receiving environment.

6. **Section 6: Conclusions and Recommendations**- Summary of the findings and way forward.

7. **SECTION 7: Annexes**

2. DESCRIPTION OF THE EXPLORATION

2.1 General Overview

The overall aim of the proposed project activities (exploration / prospecting programme) is to search for potential economic minerals resources (base and rare metals, dimension stones, industrial minerals, and precious metals) within the EPL area.

The following is the detailed overview of the proposed activities:

(i) Initial desktop exploration activities (review of existing information and all previous activities in order identify any potential target/s in the EPL Area).

(ii) Regional reconnaissance field-based activities such as reginal mapping, aerial survey and existing data analysis and sampling to identify and verify potential targeted areas based on the recommendations of the desktop work undertaken under (i) above.

(iii) Initial local field-based activities such as widely spaced geological mapping, sampling, surveying and possible trenching and drilling to determine the viability of any delineated local target, and.

(iv) Detailed local field-based activities such very detailed geological mapping, trenching, bulk sampling, surveying, and detailed drilling to determine the feasibility of any delineated local targets and conduct test mining activities.

The scope of the required field-based support and logistical activities will depend on the scale of proposed exploration activities to be undertaken.

The proposed exploration activities will be supported by existing tracks and campsites / farmstead as well as existing accommodation in in the area. In the absences of existing tracks, the field team will create such new tracks with the permission of the landowner/s and depending on the scale of exploration.

In the absences of existing suitable campsite / farmstead, temporary camp will be setup at suitable locations within the EPL area in line with the EMP provisions. The size of the exploration camp will be of very limited footprints during the exploration phase but may be expanded for the test mining and mine development phases in an event of a discovery of economic minerals resources.

2.2 Proposed Detailed Local Field-Based Activities

Several regional reconnaissance field-based mapping and sampling activities as well as initial local field-based mapping and sampling activities have already been undertaken within the EPL area but will still be extended to other parts of the EPL Area where potential minerals occurrences are expected.

Other activities to be undertaken as part of the detailed local field-based activities include the following:

(i) Surface and subsurface geological mapping including boreholes drilling and logging, sampling, and laboratory analyses / assessments.

(ii) Trenching, logging, sampling, and laboratory analyses of shallow targets.

(iii) Baseline studies such as fauna and flora diversity spanning across the seasons in twelve (12) months and hydrogeological assessments including boreholes drilling and possible groundwater modelling, and.

(iv) Logistical support such as access preparation, exploration, and camp sites management.

2.3 Prefeasibility and Feasibility Study

Prefeasibility and feasibility studies will be implemented on site-specific area and is subject to the positive outcomes of the detailed local field-based exploration activities. The activities to be undertaken as part of the prefeasibility and feasibility will include the following:

(i) Detailed site-specific surveys.

(ii) Detailed geological mapping.

(iii) Bulk sampling and testing.

(iv) Ore reserve calculations.

(v) Geotechnical studies for mine plan and, design.

(vi) Detailing technical viability studies including forecasts of estimated expenditure and financial.

(vii) Mine planning and designs including all supporting infrastructures (water, energy, and access).

(viii) Environmental Impact Assessment for mining.

(ix) Environmental Management Plan for mining.

(x) Test mining activities, and.

(xi) Preparation of feasibility report and application for Mining License.

Field-based support and logistical activities will be very extensive because the local field-based activities will be undertaken on a specific area for a very long time (up to one year or more in some instances).

The activities will be supported by existing tracks and campsites / lodging facilities available in the area.

3. LEGISLATIVE FRAMEWORK

3.1 Overview

There are four sources of law in Namibia: (1) statutes (2) common law (3) customary law and (4) international law. These four kinds of law are explained in more detail in the other factsheets in this series. The constitution is the supreme law of Namibia. All other laws must be in line with it. The most important legislative instruments and associated permits\licenses\authorisations\concerts\ compliances applicable to the ongoing exploration activities and possible test mining include Minerals exploration and mining, environmental management, land rights, water, atmospheric pollution prevention and labour as well as other indirect laws linked to the accessory services of exploration and possible test mining operations.

3.2 Key Applicable Legislation

3.2.1 Minerals Exploration and Mining Legislation

The national legislation governing minerals prospecting and mining activities in Namibia fall within the jurisdiction of the Ministry of Mines and Energy (MME) as the Competent Authority (CA) responsible for granting authorisations. The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing minerals prospecting and mining activities in Namibia. A new Bill, to replace the Minerals (Prospecting and Mining) Act (No 33 of 1992) is being prepared and puts more emphasis on good environmental management practices, local participation in the mining industry and promotes value addition as prescribed in the Minerals Policy of 2003.

The Minerals (Prospecting and Mining) Act (No 33 of 1992) regulates reconnaissance, prospecting (exploration) and mining activities. The Mining Commissioner, appointed by the Minister, is responsible for implementing the provisions of this Act including reporting requirements, environmental obligations as well as the associated regulations such as the Health and Safety Regulations.

3.2.2 Environmental Management Legislation

The Environmental Assessment (EA) process in Namibia is governed by the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) in the Ministry of Environment, Forestry and Tourism (MEFT). The objectives of the Act and the Regulations are, among others, to promote the sustainable management of the environment and the use of natural resources to provide for a process of assessment and control of activities which may have significant effects on the environment. The Minister of Environment, Forestry and Tourism (is authorised to list activities which may only be undertaken if an environmental clearance certificate has been issued by the environmental commissioner, which activities include those relating to exploration and mining operations.

In addition to the requirements for undertaking Environmental Assessment prior to the project implementation, the Environmental Management Act and the EIA Regulations also provide for obligations of a license holder to provide for project rehabilitation and closure plan. In the regulations, the definition of “rehabilitation and closure plan” is a plan which describes the process of rehabilitation of an activity at any stage of that activity up to and including closure stage.

3.2.3 Water Legislation

The Water Act 54 of 1956 has now been replaced by the Water Resources Management Act, 2013 (Act No. 11 of 2013), which commenced in August 2023 following the Gazetting of the Water Resources Management Regulations, 2023. The Water Resource Management Act 2013 and the Regulations provides for the management, development, protection, conservation, and use of water resources. The Water Resources Management Regulations, 2023, comprising the following fourteen (14) parts (Annex 2):

1. Preliminary.

2. Pricing policy for services in water sector.
3. Basin management committees.
4. Water management standards and licensed laboratories.
5. Water services, abstraction and use licenses.
6. Procedures and conditions for artificial recharge of aquifers.
7. Driller's licences.
8. Water pollution control.
9. Dams, dam safety and flood management.
10. Control of activities affecting wetlands, water resources and resource quality.
11. Removal of rocks, sand, or gravel from watercourse for sale or commercial exploitation.
12. Control of aquatic invasive species.
13. Protection of riparian zones, and.
14. Water services provided by State.

The Proponent shall take not of all the provisions of the Water Resources Management Regulations, 2023 including licensing requirements related to the proposed minerals explorations. In accordance with the Act, the ongoing exploration must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater as well as for "water works". The broad definition of water works will include the reservoir on site, water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater). The Act requires the license holder to have a wastewater discharge permit for discharge of effluent.

3.2.4 Atmospheric Pollution Prevention Legislation

The Atmospheric Pollution Prevention Ordinance, 11 of 1976 falling under the Ministry of Health and Social Services (MHSS) provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.

3.2.5 Labour, Health, and Safety Legislations

The Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007), falling under the Ministry of Labour, Industrial Relations, and Employment Creation (MLIREC) refers to severance allowances for employees on termination of a contract of employment in certain circumstances and health, safety and welfare of employees.

In terms of the Health Safety and Environment (HSE), the Labour Act, 2007 protects employees and every employer shall, among other things: provide a working environment that is safe, without risk to the health of employees, and that has adequate facilities and arrangements for the welfare of employees, provide and maintain plant, machinery and systems of work, and work processes, that are safe and without risk to the health of employees, and ensure that the use, handling, storage or transportation of hazardous materials or substances is safe and without risk to the health of employees.

All hazardous substances shall have clear exposure limits and the employer shall provide medical surveillance, first-aid, and emergency arrangements as fit for the operation.

3.2.6 Other Applicable National Legislations

Other Important legislative instruments applicable to the ongoing exploration operations in the EPL 8997 include the following (Table 3.1):

- Explosives Act 26 of 1956 (as amended in SA to April 1978) – Ministry of Home Affairs, Immigration, Safety and Security (MHAISS).
- National Heritage Act 27 of 2004 – Ministry of Education, Arts and Culture (MEAC).
- Petroleum Products and Energy Act 13 of 1990 – Ministry of Mines and Energy (MME).
- Nature Conservation Ordinance, No. 4 of 1975 – Ministry of Environment, Forestry and Tourism (MEFT).
- Forest Act 12 of 2001 – Ministry of Environment, Forestry and Tourism (MEFT).
- Hazardous Substances Ordinance 14 of 1974 – Ministry of Health and Social Services (MHSS), and.
- Public Health Act 36 of 1919 – Ministry of Health and Social Services (MHSS).

Table 3.1 summarises the key selected legislations relevant applicable to the ongoing exploration in the EPL 8997.

3.3 Standards and Guidelines

Industrial effluent likely to be generated by the proposed activities must comply with provisions of the provisions of the Water Resources Management Regulations, 2023 (Annex 2). The only key missing components to the regulatory frameworks in Namibia are the standards, and guidelines with respect to gaseous, liquid, and solid emissions.

However, in the absence of national gaseous, liquid, and solid emission limits for Namibia, the proposed project shall target the Multilateral Investment Guarantee Agency (MIGA) gaseous effluent emission level and liquid effluent emission levels (Table 3.2).

Noise abatement measures must target to achieve either the levels shown in Table 3.3 or a maximum increase in background levels of 3 dB (A) at the nearest receptor location off-site (MIGA guidelines).

Table 3.1: Legislation relevant to the ongoing exploration operations in the EPL 8997.

LAW	SUMMARY DESCRIPTION
Constitution of the Republic of Namibia, 1990	The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature, and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled "promotion of the Welfare of the People". This article states that the Republic of Namibia shall – "Actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at … maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for all Namibians, both present and future. The Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory."
Minerals (Prospecting and Mining) Act, 1992 ***Ministry of Mines and Energy (MME)***	The Minerals Act governs minerals prospecting and mining. The Act *provides for the reconnaissance, prospecting, and mining for, and disposal of, and the exercise of control over minerals in Namibia. and to provide for matters incidental thereto. A new Minerals Bills is currently under preparation.*
Environmental Management Act (2007) - ***Ministry of Environment, Forestry and Tourism*** **(MEFT)**	The purpose of the Act is *to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. to promote the co-ordinated and integrated management of the environment. to give statutory effect to Namibia's Environmental Assessment Policy. to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international conventions*. In terms of the legislation, it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment, Forestry and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.
Water Resources Management Act, 2013 (Act No. 11 of 2013) and the Regulations, 2023 **Minister of Agriculture, Water and Land reform (MAWLR)**	This Act provide for the management, protection, development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters. The Act provides for no rights of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the proposed project must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater (already obtained) as well as for "water works". The broad definition of water works will include the reservoir on site, water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater) and the Mine will be operated on a zero-discharge philosophy. It will, therefore, not be necessary to obtain permits for discharge of effluent.
Forest Act 12 of 2001 - **Minister of Environment, Forestry and Tourism (MEFT)**	The Act provide for the establishment of a Forestry Council and the appointment of certain officials. to consolidate the laws relating to the management and use of forests and forest produce. to provide for the protection of the environment and the control and management of forest fires. Under Part IV Protection of the environment, Section 22(1) of the Act, it is unlawful for any person to: cut, destroy, or remove: (a) any vegetation which is on a sand dune or drifting sand or in a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully or (b) any living tree, bush or shrub growing within 100m of a river, stream, or watercourse. Should either of the above be unavoidable, it will be necessary to obtain a permit from the Ministry. Protected tree species as listed in the Regulations shall not be cut, destroyed, or removed.
Hazardous Substance Ordinance 14 of 1974 ***Ministry of Health and Social Services***	Provisions for hazardous waste are amended in this act as it 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 or 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".*

Table 3.1: *Cont.*

Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 ***Ministry of Agriculture, Water and Land Reform*** **(MAWLR)**	This Act provide for the acquisition of agricultural land by the State for the purposes of land reform and for the allocation of such land to Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been socially, economically, or educationally disadvantaged by past discriminatory laws or practices. to vest in the State a preferent right to purchase agricultural land for the purposes of the Act. to provide for the compulsory acquisition of certain agricultural land by the State for the purposes of the Act. to regulate the acquisition of agricultural land by foreign nationals. to establish a Lands Tribunal and determine its jurisdiction. and to provide for matters connected therewith.
Explosives Act 26 of 1956 (as amended in SA to April 1978) - ***Ministry Home Affairs, Immigration, Safety and Security (MHAISS)***	All explosive magazines are to be registered with the Ministry of Mines and Energy as accessory works. In addition, the magazines must be licensed as required by Section 22. The quantity of explosives and the way it is stored must be approved by an inspector. The inspector has powers to enter the premises at any time to conduct inspections regarding the nature of explosive, quantity, and the way it is stored. At closure, all explosives are to be disposed of accordingly.
Atmospheric Pollution Prevention Ordinance 11 of 1976. ***Ministry of Health and Social Services (MHSS)***	This regulation sets out principles for *the prevention of the pollution of the atmosphere and for matters incidental thereto.* Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.
The Nature Conservation Ordinance, Ordinance 4 of 1975, ***Ministry of Environment, Forestry and Tourism*** **(MEFT)**	During 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, Forestry and Tourism. Should the Proponent operate a nursery to propagate indigenous plant species for rehabilitation purposes, a permit will be required. At this stage, however, it is envisaged that this type of activity will be contracted out to encourage small business development.
Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007 **Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)**	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 labour law for all employees. to entrench fundamental labour rights and protections. to regulate basic terms and conditions of employment. to ensure the health, safety and welfare of employees* under which provisions are made in chapter 4*. Chapter* 5 of the act improvises on the *protection of employees from unfair labour practice.*
Petroleum Products and Energy Act 13 of 1990 ***Ministry of Mines and Energy (MME)***	Any consumer installation as envisaged in this Act must be licensed. Appropriate consumer installation certificate will need to be obtained from the Ministry for each fuel installation. The construction of the installation must be designed in such a manner as to prevent environmental contamination. Any certificate holder or other 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 person is also obliged to take all steps as may be necessary in 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. General conditions apply to all certificates issued. These include conditions relating to petroleum spills and the abandonment of the Site. The regulation further provides that the Minister may impose special conditions relating to the preparation and assessment of environmental assessments and the safe disposal of petroleum products.
National Heritage Act 27 of 2004 ***Ministry of Education, Arts and Culture (MEAC)***	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 activities will ensure that if any archaeological or paleontological objects, as described in the Act, are found during the implementation of the activities, such a find shall be reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage.

Table 3.2: Liquid effluent emission levels (MIGA /IFC).

Pollutant	**Max. Value**
pH	6-9
Total suspended solids	50 mg/l
Total metals	10 mg/l
Phosphorous (P)	5 mg/l
Fluoride (F)	20 mg/l
Cadmium (Cd)	0.1 mg/l

Table 3.3: Noise emission levels (MIGA /IFC).

	Maximum Allowable Leq (hourly), in dB(A)	
Receptor	Day time (07:00 – 22:00)	Nighttime (22:00 – 07:00)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

3.4 International and Regional Treaties and Protocols

Article 144 of the Namibian Constitution provides for the enabling mechanism to ensure that all international treaties and protocols are ratified. All ratified treaties and protocols are enforceable within Namibia by the Namibian courts, and these include the following:

- The Paris Agreement, 2016.
- Convention on Biological Diversity, 1992.
- Vienna Convention for the Protection of the Ozone Layer, 1985.
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.
- United Nations Framework Convention on Climate Change, 1992.
- Kyoto Protocol on the Framework Convention on Climate Change, 1998.
- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, 1989.
- World Heritage Convention, 1972.
- Convention to Combat Desertification, 1994. and

- ❖ Stockholm Convention of Persistent Organic Pollutants, 2001.
- ❖ Southern Africa Development Community (SADC) Protocol on Mining, and.
- ❖ Southern Africa Development Community (SADC) Protocol on Energy.

3.5 Recommendations on Permitting Requirements

It is hereby recommended that the Proponent must follow the provisions of all relevant national regulatory throughout the proposed project lifecycle and must obtain the following permits/ authorisations as maybe applicable / required as the proposed project develops:

(i) Valid EPL as may be applicable from Department of Mines in the MME.

(ii) Valid ECC from the Department of Environmental Affairs in the MEFT.

(iii) The Proponent shall apply for all the applicable permits as provided in the Water Resources Management Regulations, 2023 including freshwater abstraction and wastewater discharge permits from the Department of Water Affairs (DWA) in the MAWLR before drilling a water borehole and discharge wastewater into the environment respectively (Annex 2), and.

(iv) All other permits as may be applicable for the proposed exploration operations and test mining activities.

4. SUMMARY OF NATURAL ENVIRONMENT

4.1 Climate

The EPL area fall in an area of Namibia which receives the highest rainfall ranging between 600 - 700 mm per year and can reach 900 mm per year in good a rainy year (Mwiya and Giles, 2004). The rainy season around the EPL area is from January to March. The moist rain bearing winds are typically from the north and north-east. The high rainfall around the EPL area is due to the regional surrounding Otavi Mountainland topographic higher areas effect which forces incoming moist air to rise and causes heavy condensation and subsequent high precipitation.

According to Mwiya and Giles, (2004) the average monthly rainfall is more than evaporation from January to March. This relationship between rainfall and evaporation indicates that excess rainwater may be available for potential leachate generation around the area during the rainy season. Solar radiation is around 6 kwH/m^2/d with highest temperatures generally above 30°C in summer and lowest just below freezing during the winter months (Stankevica, 2015).

The contrasts between the higher regional mountainous terrain and generally flat EPL area terrain have a considerable influence on the local wind patterns. Regional wind velocity reaches up to 2.5 m/s, with the lowest velocities typically being in the morning and afternoon (Mwiya and Giles, 2004). However, wind effects are controlled by topography and vegetation influences and are expected to show considerable local variations around the region and the local EPL area.

4.2 Topography

The regional terrain around the EPL 8997 is rocky and rugged in nature with steep slopes characterising the mountainous sections whilst the foothills of the mountains are flat and gently undulating (Fig. 4.1). Within the EPL area, the drainage of the area is dendritic in nature with ephemeral streams, often steeply incised, forming small early-stage tributaries of the Ondangaura Ephemeral Rivers systems (Fig. 4.1).

4.3 Likely Fauna Diversity

4.3.1 Reptiles

The overall reptile diversity and endemism in the general area is estimated at between 71-80 species and 5-8 species, respectively (Mendelsohn et al. 2002). Griffin (1998a) presents figures of between 41-50 and 31-40 for lizard and snake diversity, respectively, from the general area in north-central Namibia.

According to Griffin (1998a) 11-20 endemic lizards and 9-10 endemic snakes are expected from this area. At least 67 species of reptiles are expected to occur in the general area with 10 species being endemic (14.9%). These consist of at least 2 tortoise, 1 terrapin, 36 snakes (2 blind snake, 3 thread snake, 2 pythons, 2 burrowing asps, 1 centipede eater, 1 quill snouted and 25 typical snakes) and 28 lizards (3 worm lizard, 6 skinks, 7 Old World lizards, 2 plated lizards, 1 girdled lizard, 1 monitor lizard, 1 chameleon, 1 agama and 6 geckos). Typical snakes (25 species – 2 species being endemic (8%) and 1 species insufficiently known and rare (4%), Old World lizards (7 species – 1 species being endemic (14.3%) and geckos (6 species – 2 species being endemic (33.3%) are the most numerous reptiles expected from the general area.

The burrowing worm lizards are more numerous in the sandier northeastern parts of Namibia. Namibia with approximately 129 species of lizards (Lacertilia) has one of the continents richest lizard faunae (Griffin 1998a).

Since reptiles are an understudied group of animals, especially in Namibia, it is expected that more species may be in the general area.

4.3.2 Amphibians

According to Mendelsohn et al. (2002), the overall frog diversity in the general area is estimated at between 12-15 species. Griffin (1998b) puts the species richness in the general area at between 14-15 species.

According to the literature, at least 15 species of amphibians can occur in suitable habitat in the general. The area is underrepresented, with 1 rain frog, 3 toads, 1 kassina, 2 rubber frogs, 2 puddle frogs, 1 ornate frog, 1 caco, 1 bullfrog, 2 sand frogs and 1 platanna known and/or expected (i.e. potentially could be found in the area) to occur in the area.

None of the amphibians are endemic (Griffin 1998b) while 1 species is classified as “near threatened” due to habitat loss and development (Pyxicephalus adspersus) (Du Preez and Carruthers 2009) – i.e. 6.7% of amphibians of conservation value from the general area. Pyxicephalus adspersus is more common in northern Namibia where their numbers are also declining due to overutilization as food by humans (Griffin pers. com.). The IUCN (2015) lists all the species as “least concern”.

The most important species is Pyxicephalus adspersus although they are widespread in Namibia and not exclusively associated with the area. Permanent water bodies viewed as amphibian habitat in the area include the various fountains known to occur in the Karst formations in the surrounding topographically higher areas. Other potential habitats in the area include farm reservoirs and earth dams although the latter are also dependant on localised showers and temporary of nature.

However, the area does not have unique amphibian habitat with potential habits being associated with the various ephemeral drainage lines associated (Fig. 4.1).

4.3.3 Mammals

Overall terrestrial diversity and endemism – all species – is classified “average to high” in overall (all terrestrial species) diversity and “high” in endemism in the north-central part of Namibia (Mendelsohn et al. 2002). The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “high” with kudu, springbok and Burchell’s zebra having average densities while the overall diversity and density of large carnivorous mammals (large predators) is “average” with 4 species expected of which leopard and cheetah have high densities (Mendelsohn et al. 2002).

The overall mammal diversity in the general area is estimated at between 76-90 species with 3-4 species being endemic to the area (Mendelsohn et al. 2002). Griffin (1998c) puts the species richness distribution of endemics also between 9-11 species.

According to the literature at least 86 species of mammals are known and/or expected to occur in the general area of which 4 species (4.7%) are classified as endemic. The Namibian legislation classifies 8 species as vulnerable, 3 species as rare, 1 species as specially protected game, 9 species as protected game, 4 species as insufficiently known, 1 species as peripheral, 1 species as migrant, 4 species as huntable game, 3 species as problem animals and 4 species not listed.

At least 29.1% (25 species) of the mammalian fauna that occur or are expected to occur in general Tsumeb area are represented by rodents of which 3 species (12%) are endemic. This is followed by bats with 25.6% (22 species) of which 1 species (i.e., Cistugo seabrai) is endemic and rare (4.5%) and carnivores with 22.1% (19 species) of which 1 species (4.6%) are endemic.

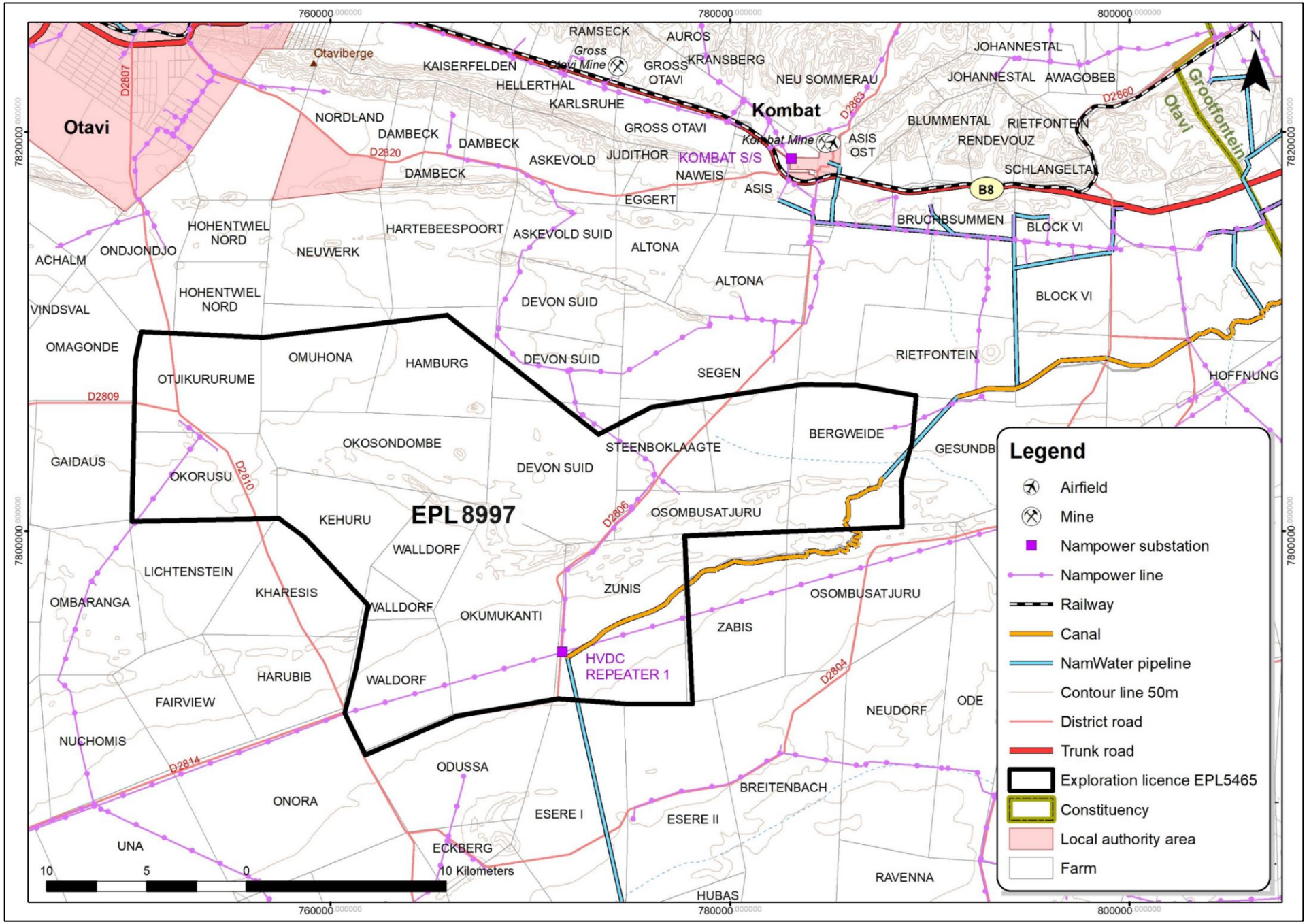


Figure 4.1: Topographic features associated with the EPL 8997.

4.3.4 Birds

At least 213 species of terrestrial ["breeding residents"] birds occur and/or could occur in the general area at any time (Hockey et al. 2006, Maclean 1985, Tarboton 2001). All the migrant and aquatic species have been excluded here. Eight of the 14 Namibian endemics are expected to occur in the general area (71.4% of all Namibian endemic species or 3.8% of all the species expected to occur in the area). Seven species are viewed as endangered, 6 species as near threatened and 3 species as vulnerable (Simmons et al. 2015).

Furthermore, Simmons *et al.* (2015) classifies 2 species as near endemic which were previously seen as endemic (i.e., violet wood-hoopoe and Rűppel's parrot). The IUCN (2015) classifies 2 species as endangered (Ludwig's bustard and white-backed vulture), 1 species as near threatened (kori bustard) and 2 species as vulnerable (martial eagle and secretarybird). Sixty-one (28.6% of all the birds expected) species have a southern African conservation rating with 13 species classified as endemic (21.3% of southern African endemics or 6.1% of all the birds expected) and 48 species classified as near endemic (78.7% of southern African endemics or 22.5% of all the birds expected) (Hockey et al. 2006).

The most important "endemic" species known/expected to occur in the general area are viewed as Hartlaub's Spurfowl (Pternistis hartlaubi), Monteiro's Hornbill (Tockus monteiri), Damara Hornbill (Tockus damarensis), Carp's tit (Parus carpi), Rockrunner (Achaetops pycnopygius), Bare-cheeked babbler (Turdoides gymnogenys) and Poicephalus rueppellii (Rüppell's Parrot – near-endemic). The 7 species listed by Simmons et al. (2015) as endangered (violet wood-hoopoe, Lűdwigs bustard, white-backed vulture, tawny/booted/martial eagles and bateleur) and 2 species listed by the IUCN (2015) as endangered (Ludwig's bustard and white-backed vulture), near threatened (kori bustard) and vulnerable (martial eagle and secretarybird) are viewed as the most important. The larger raptors (e.g. vultures, eagles, etc.) are often persecuted due to actual and perceived livestock mortalities or succumb when feeding on poisoned carcasses set for problem predators.

4.3.5 Sensitive Areas – Vertebrate Fauna

The general EPL area is regarded as "moderate to high" in overall (all terrestrial species) diversity and endemism (Mendelsohn *et al.* 2002). According to Simmons (1998b) central Namibia has between 161-200 endemic vertebrates (all vertebrates included).

The overall diversity and abundance of large herbivorous mammals (big game) is viewed as "high" with 7-8 species while the overall diversity of large carnivorous mammals (large predators) is determined at 4 species with leopard and cheetah being the most important with "high" densities followed by brown hyena with "medium" densities (Mendelsohn *et al.* 2002).

The following is the summary of the most important fauna and flora (habitat) areas within the EPL area:

(i) Topographically higher areas with rocky outcrops [botanical richness and endemic vertebrates].

(ii) Local Ephemeral Rivers [biotic richness, large dwelling mammals, high value for human subsistence and tourism].

4.4 Likely Flora Diversity

4.4.1 Trees/shrubs

The EPL 8997 falls within the Kalahari, Thornbush shrubland and Karstveld vegetation zones (Fig. 4.2). According to Curtis and Mannheimer (2005) and Mannheimer and Curtis (2009) between 94 and 130 species of trees and shrubs are known and/or expected to occur in the general area, respectively (total = 131 species). Thirty-seven (28.2%) species of larger trees and shrubs have some kind of protected status in the general area. Three species (2.3%) are endemic, 5 species (3.8%) near-

endemic, 23 species (17.6%) protected by the Forestry Act No. 12 of 2001, 6 species (4.6%) protected by various Forestry laws according to Curtis and Mannheimer (2005) and Mannheimer and Curtis (2009), 4 species (3.1%) protected by Nature Conservation Ordinance No. 4 of 1975 with 3 species (2.3%) classified as CITES Appendix 2 species. According to their protective status Cyphostemma juttae (endemic, NC), Erythrina decora (Forestry#, endemic) and Heteromorpha papillosa (endemic) are probably the trees/shrubs most sensitive that are expected to occur in the general area.

4.4.2 Grass Diversity

Up to 111 grasses are expected in the general area of which 4 species are viewed as endemic (Eragrostis omahekensis, Eragrostis scopelophila, Pennisetum foermeranum and Setaria finite). Pennisetum foermeranum is associated with rocky mountainous terrain and consequently only expected is such suitable habitat. Eragrostis omahekensis is virtually only found on disturbed soils – e.g., close to watering points – while Eragrostis scopelophila is associated with mountainous areas under trees and shrubs. The endemic Setaria finite is associated with drainage lines in the general area. never very common and probably the grass species most likely to be affected most by development in the area.

4.4.3 Other Species

The following is a summary of various other species that maybe found in and around the EPL area depending on season (set or dry): Aloes, Commiphoras, Herbs, Ferns, Lichens, Lithops and other species with commercial potential that could occur in the general area include Harpagophytum procumbens (Devil's claw) exploited and Citrullus lanatus (Tsamma melon).

4.4.4 Sensitive Habitats

The following are the key likely protected species / sensitive areas that maybe found within the EPL area:

(i) **Protected species**: The protected tree species – *Acacia erioloba, Albizia anthelmintica*, *Aloe litoralis*, *Boscia albitrunca* and *Ziziphus mucronata* – are viewed as the most important if found within the EPL particularly around any targeted site-specific development area (Figs. 4.1 and 4.2), and.

(ii) **Drainage lines**: Comprising the ephemeral drainage lines in the immediate vicinity of any targeted site-specific development area. These are viewed as important for flora as most of the larger specimens are often associated with such areas and serve as habitat for various vertebrate fauna.

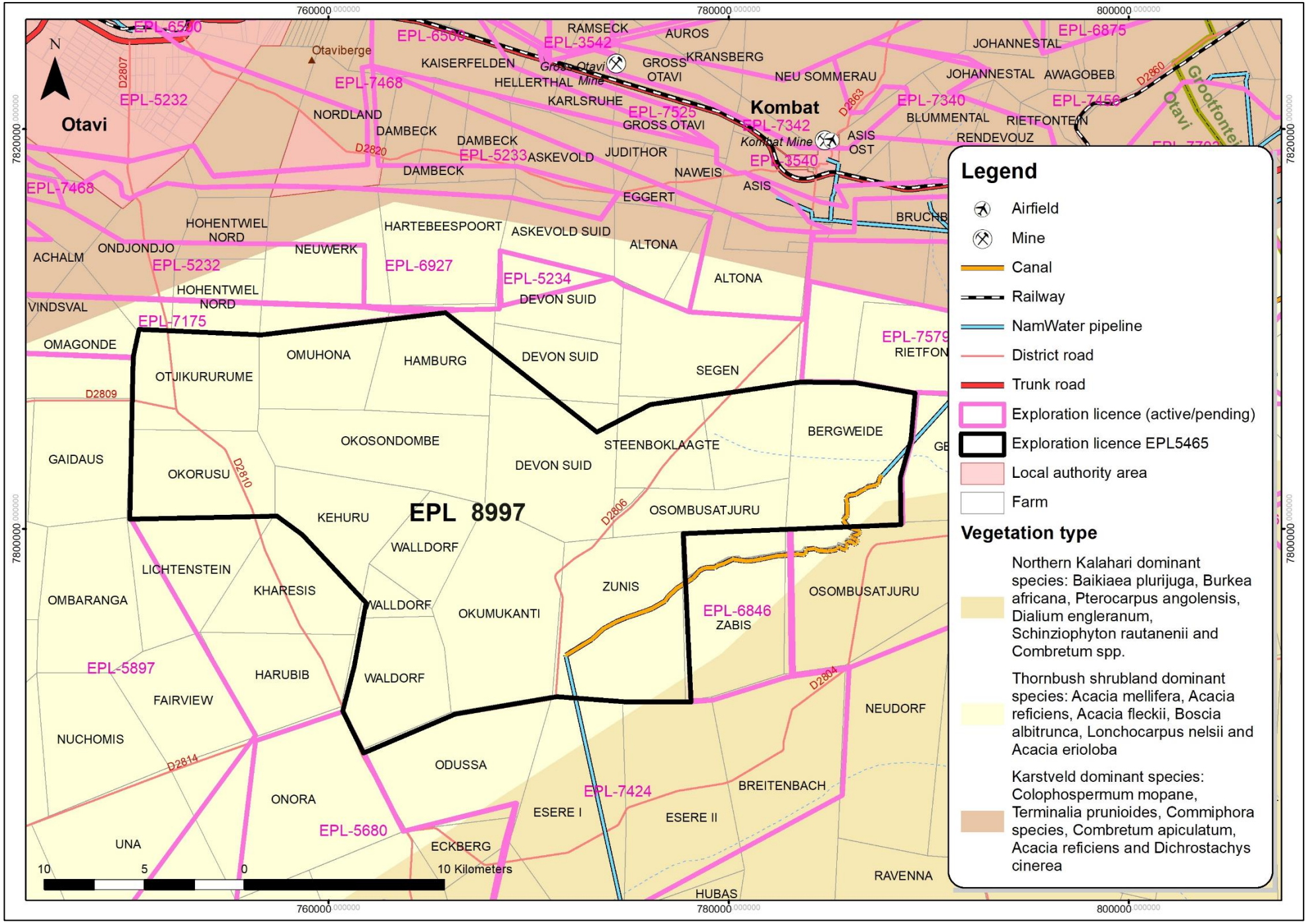


Figure 4.2: Vegetation map of the EPL 8997, other existing minerals licenses and infrastructures in the surrounding areas.

4.5 Summary of the Socioeconomic Settings

4.5.1 Regional Profiles

The EPL 8997 falls within the Otjozondjupa Region (Fig. 4.3). According to the NSA, (2011), the following is the summary of the regional and local socioeconomic environment of the area linked to the population and housing census, basic analysis with highlights about the Otjozondjupa Region (Fig. 4.3):

- The Project area is situated in Otjozondjupa Region with a population of 143 903 people and an area of 105 295.1 km^2.

- The Otjozondjupa Region had a relatively young population with 36.2% of the population being less than 15 years of age. The median age of Otjozondjupa Region was 22 years and was therefore intermediate.

- The urbanization rate in Otjozondjupa Region stands at 54% which is above the national average of 42.8%. Thus, the urbanisations are more progressive in Otjozondjupa Region that the average for Namibia. The urbanization of Otjozondjupa Region has gained momentum between the last two Censuses, 2001 and 2011, from 41% of population living in urban areas in 2001 to 54% in 2011.

- Literacy rate for Otjozondjupa Region was 83% with no major difference between males and females (female 82.9 % and males 83.4%). The literacy rate in urban areas stood at 90.9 %, while in rural areas it stood at 73%. It is the 3rd least literate region in Namibia after Kunene and Omaheke Regions.

- The 2011 Census revealed that 17.6 % of the population aged 6 years and above never attended school in Otjozondjupa Region.

- Otjozondjupa Region has relatively high labour force participation rate (71.5%) in comparison to the national average of 66% with substantially higher rates for males than females (66.5% and 76.2% respectively).

- Otjiwarongo is a large town and the biggest business centre for the Otjozondjupa Region and regional capital.

- The main industries in Otjozondjupa Region are agriculture and forestry followed by social security, then administrative and support service activities. Wages and salaries are the highest main source of income in Otjozondjupa (59.6%).

- The most common source of energy for lighting in Otjozondjupa Region was electricity from the main grid, used by 55.2 percent of the households. Solar energy was not widely used, but played a more important role in rural areas (2.8%) than in urban areas (0.3%).

- Otjozondjupa has 72 schools with a total of 36,284 pupils.

- In terms of communication technology, the constituencies have relatively poor network coverage due to its remoteness and vastness of the constituencies coupled with low population. However, radio and digital television coverage exists in most parts of the constituencies, particularly within the settlements and their nearby places are connected to national grid.

- Limited economic activities are available within the project area. The agriculture, hunting and forestry sectors employ most of the region's economically active population, and.

- The availability of elements such as lime, fluorspar, manganese and copper offer a number of processing opportunities, such as the manufacturing of cement and industrial lime.

4.5.2 Local Profile

Locally, the EPL 8997 falls within Otavi Constituency. According to the 2011 Population and Housing Census, the project location, Otavi constituency and Town is home to 12488 and 5242 people respectively (National Statistics Agency, 2014a. 2014b). Otjozondjupa Region has a population of 143,903 with most of the population (54%) living in urban areas (National Statistics Agency, 2014b). According to the National Statistics Agency (2013) the population of the Otjozondjupa Region increased from 135,384 in 2001 to 143,903 in 2011. The economy of the region is mainly based on primary activities such as tourism, minerals exploration, mining, and agriculture, with limited activities in the manufacturing sector.

According to SPC, 2015, the local economic activities of Otavi are dominated by trading, agriculture, and manufacturing. The economy of the town is very much reliant on the surrounding commercial farms, Namib Mills and to some degree Ohorongo Cement and B2Gold Mine operations. The town itself has a small and relatively poor economic and tax base, which means that the income for the Town Council is relatively, low (SPC, 2015).

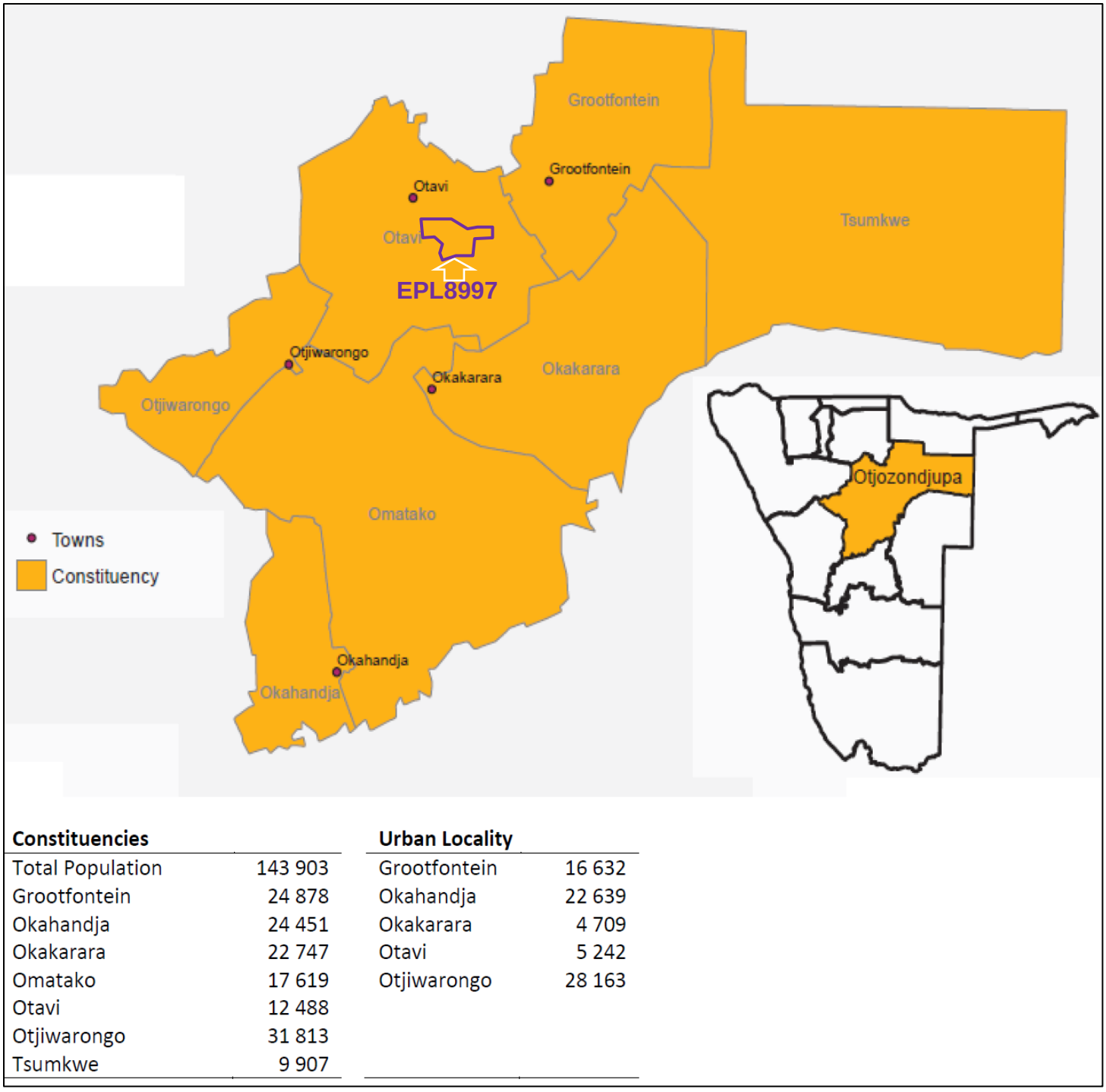
Otavi is a cattle farming community while cement manufacturing by Ohorongo and the opening the B2 Gold Mine has made the town a key industrial and logistic hub. Although agriculture provide greater numbers of employment opportunities to the local communities of Otavi, unemployment is common locally particularly for people with low to no skills. Locally, the proposed project development is likely to have very limited direct positive impacts to socioeconomic setting of Otavi, apart from broadly contributing to very limited employment opportunities during the exploration phase.

The overall local socioeconomic profiles of Otavi constituency are shown in Table 4.1.

4.5.3 Socioeconomic Conclusions

The proposed exploration activities in the EPL 8997 are likely to coexists with the current and future land uses such as the commercial agriculture. Socioeconomic impacts at the exploration stage are likely to be minimal and tend to be positive in an event of a discovery of economic minerals resources. A clear understanding of these impacts may help communities understand and anticipate the effects of the proposed exploration.

One of the major possible impacts of the proposed / ongoing exploration activities include employment and unrealistic expectations about the development of a mine and coexistence opportunity / conflicts associated with the current land uses. It is important for local communities to bear in mind that 99.9% of the exploration projects will not advance to a mine development.



Constituencies	
Total Population	143 903
Grootfontein	24 878
Okahandja	24 451
Okakarara	22 747
Omatako	17 619
Otavi	12 488
Otjiwarongo	31 813
Tsumkwe	9 907

Urban Locality	
Grootfontein	16 632
Okahandja	22 639
Okakarara	4 709
Otavi	5 242
Otjiwarongo	28 163

Figure 4.3: Constituencies and population of Otjozondjupa Region (Source: National Statistics Agency (NSA), 2011).

Table 4.1: Otavi Constituency – Census selected indicators, 2011 and 2001 (Source: National Statistics Agency (NSA), 2011).

	2011	2001			2011	2001
Population Size				Labour force, 15+ years, %		
Total	12 488	12 387		In labour force	75	64
Females	5 754	5 834		Employed	69	77
Males	6 734	6 544		Unemployed	31	23
				Outside labour force	19	28
Sex ratio: Males per 100 females	117	112		Student	38	24
				Homemaker	15	53
Age composition, %				Retired, too old, etc.	47	18
Under 5 years	13	14				
5 – 14 years	21	21		Housing conditions, %		
15 – 59 years	60	58		Households with		
60+ years	6	5		Safe water	92	95
				No toilet facility	42	38
Marital status: 15+ years, %				Electricity for lighting	51	37
Never married	53	51		Wood/charcoal for cooking	72.4	67
Married with certificate	25	19				
Married traditionally	6	5		Main source of income, %		
Married consensually	14	22		Household main income		
Divorced/Separated	1	1		Farming	7	5
Widowed	1	2		Wages & Salaries	72	64
				Cash remittance	3	12
Private households				Business, non-farming	6	5
Number	3 128	3 007		Pension	7	7
Average size	3.7	4.0				
				Disability, %		
Head of household, %				With disability	5	3
Females	29	25				
Males	71	75				
Literacy rate, 15+ years, %	73	65				
Education, 15+ years, %						
Never attended school	28	32				
Currently at school	18	7				
Left school	49	57				

4.6 Ground Components

4.6.1 Regional and Local Geology

The EPL 8997 falls within the Central Zone of the Damara Sequence which underlies most of Namibia (Fig. 4.4). The oldest rocks within the Central Zone are the pre-Damaran basement that consists of gneiss and granite lithologies found in different parts of the zone (Miller, 1992). According to Miller, (1983a), the sequence was deposited during successive phases of rifting, spreading, subduction and continental collision. Much of the basal succession (Nosib Group), laid down in or marginal to intracontinental rifts, consists of quartzite, arkose, conglomerate, phyllite, calc-silicate, subordinate, limestone and evaporitic rocks. Local alkaline ignimbrites with associated subvolcanic intrusions ranging from 840 to 720 million years in age also form part of the regional geology (Miller, 1992).

According to Miller, (1992), widespread carbonate deposition followed and overlapped far beyond early rift shoulders (Kudis, Ugab and basal Khomas Subgroups). interbedded mica and graphitic schist,

quartzite (some ferruginous), massflow deposits, iron-formation and local within-plate basic lava point to fairly variable depositional conditions south of a stable platform where only carbonates with very minor clastics occur (Otavi Group). Near the southern margin of the orogen, deep-water fans, facies equivalents of the carbonates were deposited on either side of a Southern Zone Ocean separating Kalahari and Congo Cratons (Auas and Tinkas Formations). Thick schistose metagreywacke and metapelite (Kuiseb Formation) overlie the above rocks. The lithostratigraphy of the Damara Sequence in the Central Zone (CZ) in which the EPL 8997 falls has been reviewed and significantly revised by Badenhorst (1987), who has also correlated the stratigraphy across the Omaruru Lineament.

The simplified local geology of the EPL area is shown in Fig. 4.5.

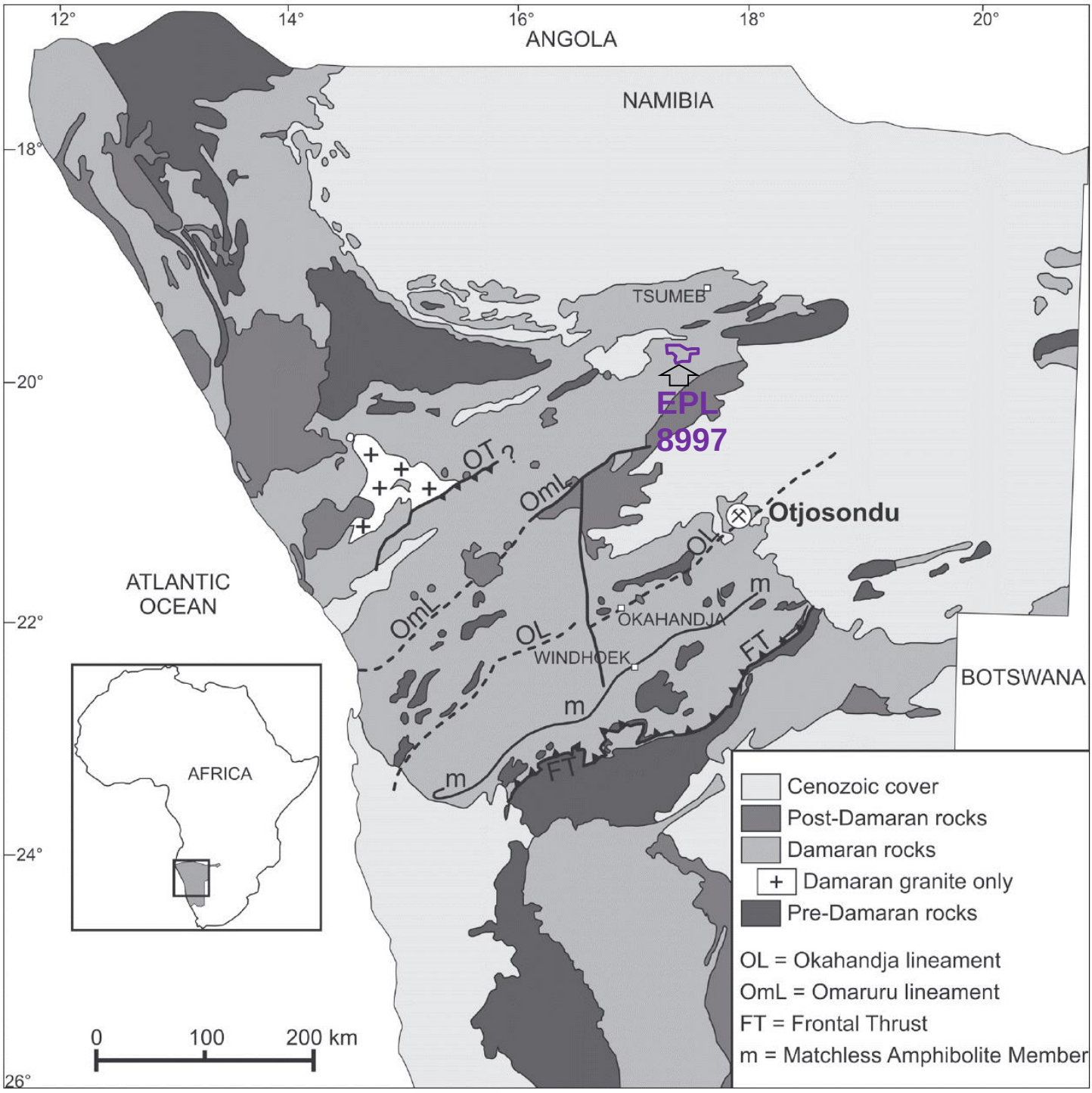


Figure 4.4: Simplified geological map of the Pan-African Damara orogenic belt of Namibia (Miller, 2008), with the Otjosondu ferromanganese deposit located just north of the Okahandja lineament.

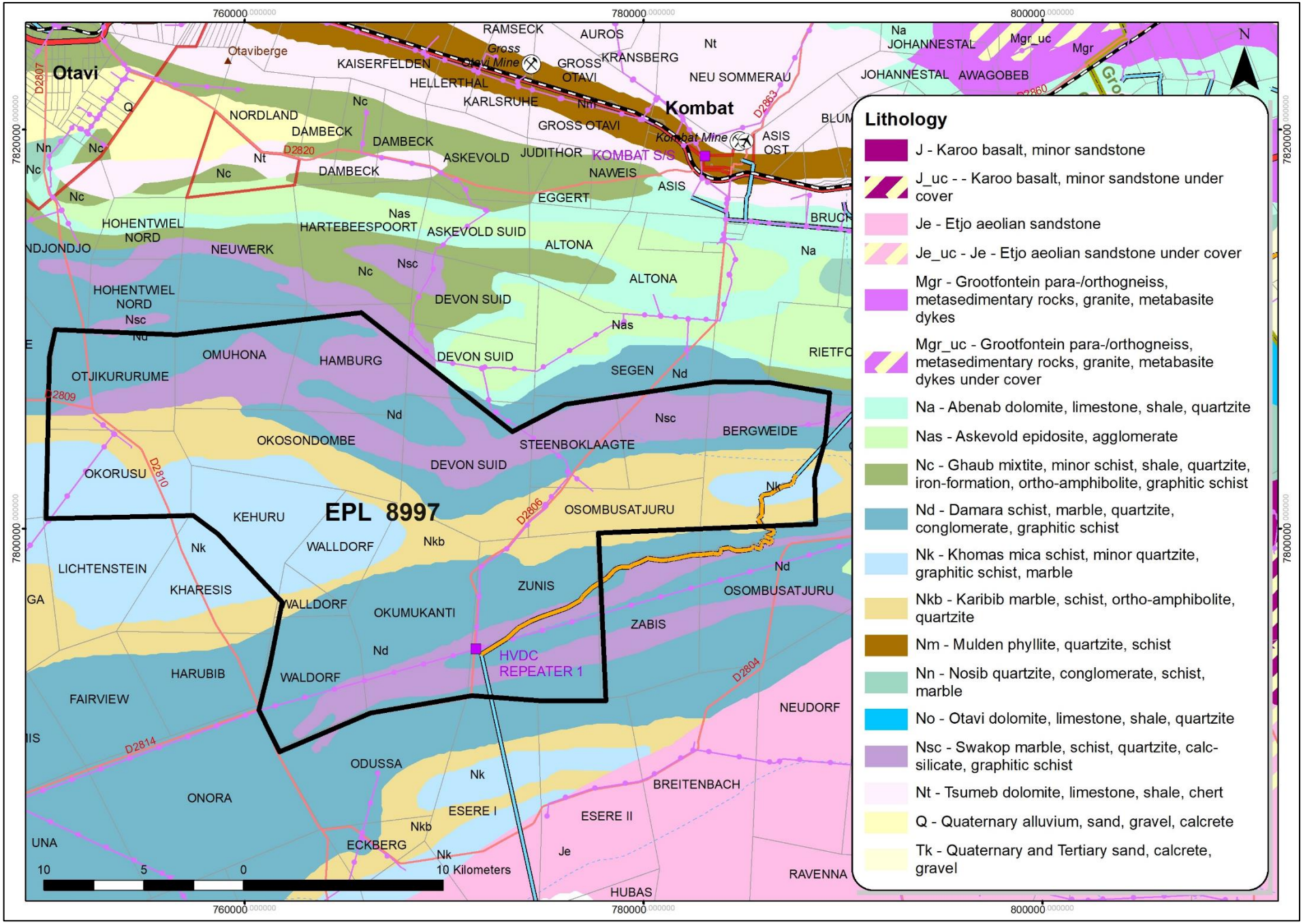


Figure 4.5: Simplified geological map of the EPL 8997.

4.7 Water

4.7.1 Overview

According to the Department of Water Affairs and Forestry, (2001) and the regional and local geology, the EPL 8997 falls within an area with very limited economic groundwater water resources (aquifers) (Fig. 4.6). Water supply in the general area is from local groundwater resources (Department of Water Affairs, 2001).

The proposed project activities (exploration programme) will utilise local groundwater resources. No site-specific hydrogeological specialist study, groundwater modelling or water sampling and testing activities have been undertaken for this study.

4.7.2 Sources of Water Supply

The source of water supply for the proposed exploration and in particular the proposed drilling of exploration boreholes if need arises to drill, will be from existing groundwater resources. The Proponent must obtain permission from the landowner before using water from any existing local boreholes and infrastructures.

If there is a need to drilling a water borehole to support the proposed exploration programme, the Proponent must obtain permission from the landowner and Department of Water Affairs in the MAWLR.

In an event of discovery of economic minerals resources, the sources of water supply for the mining related operations will be supplied from groundwater resources if proven to be available following a detailed hydrogeological and groundwater modelling study that must be undertaken as part of the EIA supporting the feasibility study. Currently, potential available groundwater resources in the area will not be sufficient to support any new larger-scale mining related operation within the EPL 8997.

However, some parts of the EPL area are covered by local fractured, fissured, karstified and porous rocks that seems to have localised moderate groundwater potential (Figs. 4.5 and 4.6).

4.7.3 Water Vulnerability Assessments and Recommendations

Possible pathways that will aid groundwater vulnerability in this area are mainly fractured zones and faults that outcrop on the surface without impermeable infillings as well as unconfined shallow aquifers. The general EPL area has limited groundwater resources that are likely to be vulnerable to pollution (Fig. 4.6). The overall water be vulnerability to pollution because of the proposed exploration as well as other existing activities is moderate (Fig. 4.6).

The general area has several Ephemeral River Channels which could be potential pathways for pollution migration especially during the rainy season from November to March. Discharge of liquid or solid wastes including wastewater, chemical, fuels or oils into any public stream is prohibited and the Proponent must implement the provisions of the EMP on water and waste management as detailed in EMP Report.

It is hereby recommended that a detailed site-specific hydrogeological specialist study including groundwater modelling, water sampling and testing must be undertaken as part of the EIA and EMP that may be implemented to support the feasibility study for any viable mining project that may be development within the EPL area, if economic resources are discovered.

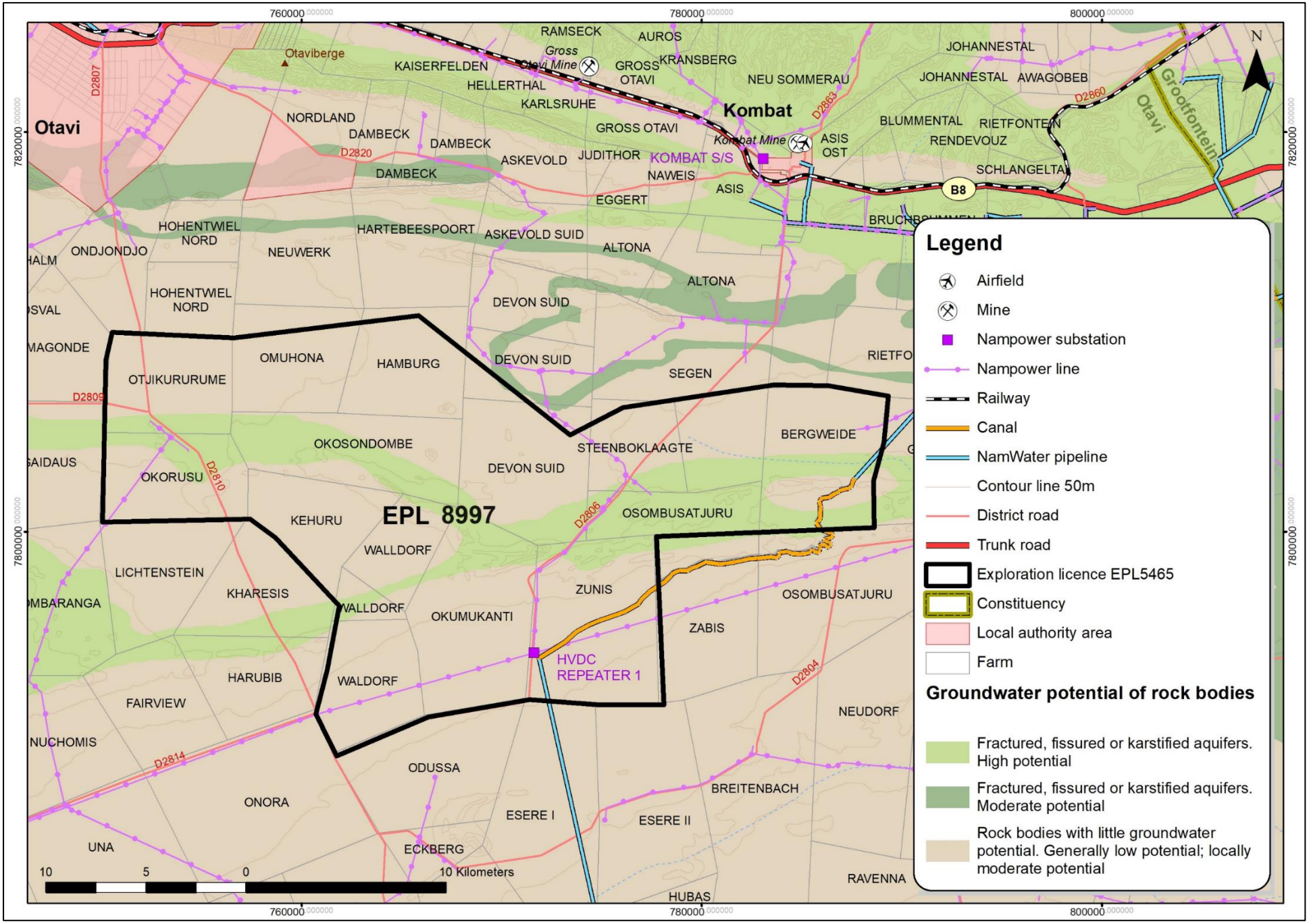


Figure 4.6: Simplified hydrogeological map of the EPL 8997.

4.8 Archaeology

4.8.1 Regional Archaeological Setting

Modern humans and their ancestors have lived in Namibia for more than one million years, and there are fossil remains of lineal hominin ancestors as early as the Miocene Epoch (Kinahan, 2017). Namibia has a relatively complete sequence covering the mid-Pleistocene to Recent Holocene period, represented by thousands of archaeological sites mainly concentrated in the central highlands, escarpment, and Namib Desert.

According to Kinahan, (2017), the Recent Holocene archaeological sequence in Namibia, i.e., the last 5 000 years, is of particular importance because it provides the background evidence for the development and recent history of the indigenous peoples of Namibia before the advent of written historical records during the colonial era.

Many archaeological sites from this period are of great significance to the understanding of Namibian history, and some are of global importance.

4.8.2 Local Likely Archaeological Setting

The EPL area is likely to have evidence from the early colonial period relates to iron and manganese mining in the general area and a combination of trade, missionary activity, and indigenous tribes use of iron for various applications.

The Proponent must not disturb major natural shelters or cavities that may be unearthed because they could hold some highly significant historical or cultural sites that would require detailed documentation and possibly mitigation measures to be adopted in the event of encroachment by the proposed exploration activities.

The EPL area does not have a known heritage site (https://maps.landfolio.com/Namibia).

4.8.4 Archaeological Conclusions and Recommendations

The area of interest for the proposed exploration probably has archaeological potential, although no archaeological sites have been recorded so far from within the area itself. The following are the key recommended actions related to archaeology in the EPL Area:

(i) Contractors working on the site should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found during development should be reported to the National Heritage Council.

(ii) The chance finds procedure as outlined in the EMP must be always implemented, and.

(iii) Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the mining operations.

4.9 Public Consultations

4.9.1 Overview

As part of the environmental assessment process and as provided in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012, the public were consulted though the publication of notices in the local newspapers undertaken during the October 2023.

A stakeholder register was opened on the Thursday 5th October 2023, the same date the first advert was published in the New Era daily Newspaper (Fig. 4.7). Subsequent public notices were published

in the for five (5) consecutive working days in Windhoek Observer Daily Newspaper from Friday 13th – Thursday, 19th October 2023 (Figs. 4.8-4.12).

The deadline for written submissions and input to the environmental assessment process was Friday 27th October 2023. No registrations or writer submission were received during the consultation period that started from the 5th – 27th October 2023.

4.9.2 Stakeholders and Public Discussions

No inputs/ comments / objections have been received during the consultation period that was provided during the month of October 2023 (Figs. 4.7 - 4.12).

4.9.3 Stakeholders and Public consultations Recommendations

Overall, in meeting the need for continuous public / stakeholder consultation process, this EIA has recommended that the Proponent shall notify the landowners on the implementation of the proposed project once the ECC has been granted and negotiate access agreements as may be applicable.

Such communications shall be maintained throughout the lifecycle of the proposed project.

This recommendation may be included as condition on the ECC to be issued.

Hearing impaired feel secluded

Creating awareness... A group of people with hearing impairment who were in attendance to raise awareness. Photo: Taimi Haihambo

Taimi Haihambo

ONGWEDIVA - An abundant number of people with hearing impairment feel neglected and left out due to their condition.

According to Lina Mweyakulya, a board member of the Namibian National Association of the Deaf (NNAD), people with hearing impairment feel neglected due to that a lot of people in different institutional services are not trained on how to communicate using sign language.

This is despite Oshana region having over 500 people with hearing challenges.

Mweyakulya gave an example of health institutions, stating that when hearing impaired people visit hospitals, they end up getting wrong medications because nurses and doctors do not understand what they are trying to communicate.

She said those with hearing impairment and are convicted of crime find themselves being kept in custody for a very long period due to communications barriers.

"If the court does not have a sign language interpreter, the suspect will remain in custody for a very long time and until the court officials get interpreters to help do the job," said Mweyakulya.

She was speaking at the ministry of gender equality hall in Ongwediva, where masses gathered to raise awareness on hearing impairment last week.

Festus Hangula (27) who has a hearing impairment said that he is capable of doing different tasks, but when people hear about his condition, they turn him away.

He said they miss out on job opportunities because some interviews are oral while others are written but, in most cases, they do not understand questions. At times, he said, they get phone calls from companies where they applied for a job, but end up not getting it because they are unable to hear what is communicated over the phone.

"We are asking the government to start offering sign language training to everyone for communication purposes," said Hangula.

-taimihaihambo2000@gmail.com

Drought, unemployment fuel livestock theft

ETANGA – The Kunene region has seen the worst dry spells in the past decade, resulting in more than 90% of livestock losses, farmers are now hit by livestock theft.

The farmers say there is a spike in livestock theft despite their attempts to recover their herd numbers after it was ravaged by climatic shocks.

As a result of these losses, most farmers are now at the mercy of the government's food and drought assistance programmes.

During a recent interview with Nampa, Namibian Police community affairs officer in Kunene, Inspector Vehangaiza Candy Ruiter revealed that the majority of stock theft cases involve farmers who have lost livestock as a result of the current climatic crisis and are now attempting to recoup and replace.

According to Ruiter, most young people are involved in livestock thievery due to the fact they are unemployed, and as a result, they turn to crime.

"Many of the suspects steal because they have lost their livestock and want to restart farming. Many young people desire contemporary stuff, yet they are unemployed, therefore, they commit crimes. Others steal to sell biltong or dried meat to street vendors, particularly in Outjo and Kamanjab," said Ruiter.

Since the very beginning, livestock has been the economic backbone of most Kunene farmers. Nevertheless, authorities in the region have reported an increase in livestock theft, which is now threatening community livelihoods on top of the recurring drought.

Some farmers who spoke to Nampa in Etanga, approximately 100 kilometres north of Opuwo, said stock theft has had a detrimental influence on their lives as the cattle are their sole means of existence.

Chief Vemuii Tjambiru of the Kakurukouje Traditional Authority was amongst many who decried livestock theft, stating that it is impossible to police stock theft since most of the region lacks borderlines to prevent the free movement of livestock from one constituency to another.

He, too, supported Ruiter's comment that the lack of formal education and the high unemployment rate among young people are factors in stock theft.

The region's police have been under growing pressure to tighten security and reduce the increase in stock theft, which includes outsiders from other regions.

The most prominent areas for stock theft, according to Ruiter, are Omakange, Outjo, Okonjota, Okorosave, Okapembapu, and Ohandungu, where goats, donkeys, and cattle have been reported stolen.

He said the police were able to apprehend a large number of these culprits, as well as retrieve some of the stolen livestock.

According to police records, 172 incidences of theft of livestock have been reported to the Kunene police in the last eight months. The region itself has reported over 1 600 cases across the board. *-Nampa*

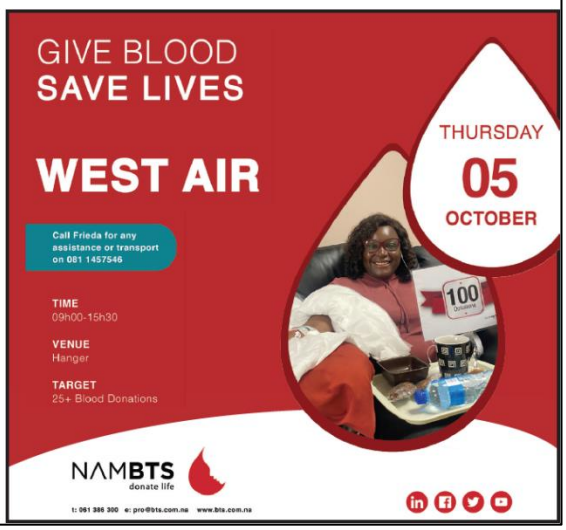


Figure 4.7: Copy of the public notice that was published in the New Era newspaper daily dated Thursday, 5th October 2023.

OBSERVER MONEY

New platform to power Africa's energy transition

In its 30th year of existence, leading African upstream oil-and-gas event Africa Oil Week (AOW) has launched a bold new brand and mission, with a broader energy focus in line with the global energy transition and Africa's evolving role.

The event is evolving into a new platform, to be known as AOW: Investing in African Energy. It will provide a single, inclusive forum for investing in African energy, addressing the continent's immediate energy needs, while driving dialogue to accelerate the clean-energy transition.

"This is the perfect time to launch a bold new brand and mission," says Yemi Ibidunni, Event Director of AOW. "The continent's diverse energy landscape, from its hydrocarbon reserves to its renewables potential, makes Africa a critical player in shaping a sustainable energy future. The platform is evolving to reflect that."

The new evolution of the event will bring together two existing events: the long-established Africa Oil Week, and the two-year-old Green Energy Africa Summit, previously run as parallel events from the same venue in Cape Town.

> The continent's diverse energy landscape, from its hydrocarbon reserves to its renewables potential, makes Africa a critical player in shaping a sustainable energy future.

The new format will have a broader focus, to reflect the global move to a diversified energy mix, while ensuring Africa has the resources to power the next phase of its development.

The Energy Investment Village for clean-tech start-ups will sit at the heart of the exhibition, and the event will also feature an advanced government meetings programme and new networking lounges where delegates can connect.

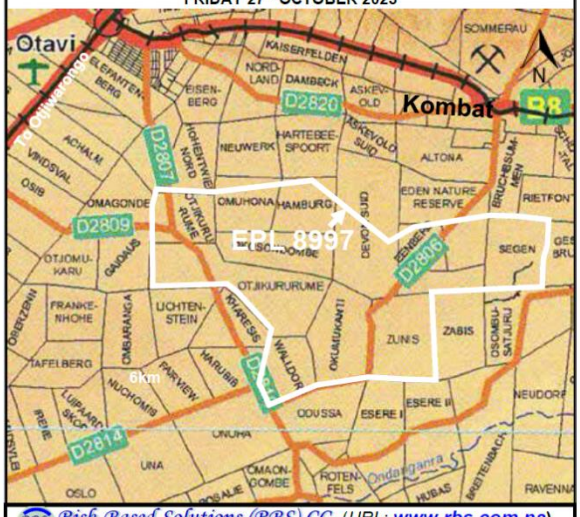
AOW 2024 is scheduled to run over five days from October 7–11, 2024, with a comprehensive onsite and evening networking programme.

PUBLIC NOTICE

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) BY MITTEN MINERALS EXPLORATION (Pty) Ltd FOR PROPOSED MINERALS EXPLORATION ACTIVITIES IN THE EXCLUSIVE PROSPECTING LICENSE (EPL) No. 8997, GROOTFONTEIN DISTRICT, OTJOZONDJUPA REGION

Mitten Minerals Exploration (Pty) Ltd (the "**PROPONENT**") has been granted the preparedness to grant application for Exclusive Prospecting Licenses (EPL) No. 8997 with respect to Dimension Stone, Base and Rare Metals, Industrial Minerals, and Precious Metals group of minerals The physical license will only be granted by the Mining Commissioner if the Proponent is issued with an Environmental Clearance Certificate (ECC) by the Environmental Commissioner. The EPL 8997 has a total area of 47430.1076 Ha and covers the commercial farmlands as indicated on the map. If the ECC is granted, the Proponent intends to conduct exploration / prospecting activities starting with desktop studies including the processing and interpretation of the existing geophysical and other historical minerals exploration datasets, followed by regional field-based reconnaissance activities. If the initial exploration results are positive, the Proponent will implement detailed site-specific field-based activities using techniques such as geological mapping, geophysical surveys, trenching, drilling, and sampling for laboratory tests. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfilment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECC. Interested and Affected Parties (I&APS) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed prospecting activities. A Background Information Document (BID) is available on request upon registration.

REGISTER BY EMAIL: frontdesk@rbs.com.na
Dr Sindila Mwiya (EAP/Technical Permitting Advisor/Consultant
CONSULTATION DURATION AND DEADLINE FOR WRITTEN SUBMISSIONS IS: FRIDAY 27th OCTOBER 2023



Risk-Based Solutions (RBS) CC- (URL: www.rbs.com.na)
Your Technical Specialist Consultants, Permitting & De-Risking Advisors in Natural Resources in Petroleum Exploration & Production/ Minerals Exploration & Mining / Energy / Water / Environmental Assessments & Management (ESG, SEA, EIA, EMP, EMS)

PUBLIC NOTICE

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) BY PRIMARY RESOURCES NAMIBIA CC FOR PROPOSED MINERALS EXPLORATION ACTIVITIES IN THE EXCLUSIVE PROSPECTING LICENSE (EPL) No. 8947, KARIBIB \ OMARURU DISTRICTS, ERONGO REGION

PRIMARY RESOURCES NAMIBIA CC (the "**PROPONENT**") has been granted the preparedness to grant application for Exclusive Prospecting Licenses (EPL) No. 8947 with respect to Dimension Stone, Base and Rare Metals, Industrial Minerals, Precious Metals and Nuclear Fuels group of minerals. The physical license will only be granted by the Mining Commissioner if the Proponent is issued with an Environmental Clearance Certificate (ECC) by the Environmental Commissioner. The EPL No. 8947 has a total area of 20873.4747 Ha and falls within the State land as indicated on the map. If the ECC is granted, the Proponent intends to conduct exploration / prospecting activities starting with desktop studies including the processing and interpretation of the existing geophysical and other historical minerals exploration datasets, followed by regional field-based reconnaissance activities. If the initial exploration results are positive, the Proponent will implement detailed site-specific field-based activities using techniques such as geological mapping, geophysical surveys, trenching, drilling, and sampling for laboratory tests. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfilment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECC. Interested and Affected Parties (I&APS) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed prospecting activities. A Background Information Document (BID) is available on request upon registration.

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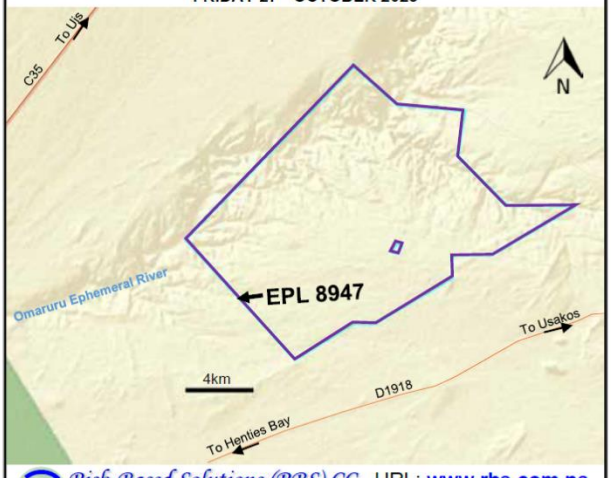

Risk-Based Solutions (RBS) CC—URL: www.rbs.com.na
Your Technical Specialist Consultants, Permitting & De-Risking Advisors in Natural Resources in Petroleum Exploration & Production/ Minerals Exploration & Mining / Energy / Water / Environmental Assessments & Management (ESG, SEA, EIA, EMP, EMS)

Figure 4.8: Copy of the public notice that was published in the Observer daily newspaper dated Friday, 13th October 2023.

WORLD & AFRICA

North Korea sending Russia military equipment, US claims

MATT MURPHY

US officials have accused North Korea of supplying vast amounts of military hardware to Russia for use in Ukraine.

Pyongyang has supplied up to 1,000 containers of "equipment and munitions" in "recent weeks", National Security Council Spokesperson John Kirby said.

Officials also released photos of what they said were 300 containers assembled for transport in Najin, North Korea.

Last month, North Korean leader Kim Jong Un visited Russia to discuss potential military cooperation.

Moscow's military is believed to be burning through huge amounts of artillery shells and missiles in its ongoing invasion of Ukraine, and has been seeking to replenish its supplies from some of its isolated allies.

Some analysts believe that Mr Kim's regime could be sitting on huge stores of arms, but could be reluctant to hand over too much given its relative lack of resources.

US intelligence agencies tracked the deliveries, which officials said took place between 7 September and 1 October.

Speaking at a news conference on Friday, Mr Kirby said the equipment was exported via sea and rail to a supply depot in southwestern Russia, near Tikhoretsk, about 180 miles (290km) from the Ukrainian border.

Mr Kirby did not specify the nature of the munitions he says were supplied by Mr Kim's regime, but the US has previously accused Moscow of purchasing rockets and artillery shells from Pyongyang.

Since Russia launched its invasion of Ukraine in February 2022, US officials have consistently voiced concerns that North Korea has supplied munitions to Russia.

"We condemn [North Korea] for providing Russia with this military equipment, which will be used to attack Ukrainian cities, kill Ukrainian civilians and further Russia's illegitimate war," Mr Kirby told reporters.

He said the deliveries by North Korea violate UN Security Council resolutions "which is why we will continue to aggressively raise these arms deals at the UN alongside with our allies and partners".

In July, Russian Defence Minister Sergei Shoigu visited the country with a military delegation and met with Mr Kim, who displayed a number of weapons systems - including the Hwasong intercontinental ballistic missile (ICBM).

And in September, Mr Kim met with Russian President Vladimir Putin at the Vostochny space centre in Russia's far east.

Observers say that North Korean weapons would only give a short-term boost to Russia's war effort. They point to how Moscow, with hugely depleted ammunition, is relying on older, more unreliable artillery shell stocks.

And speaking recently at a ceremony to mark his retirement as chairman of the US Joint Chiefs of Staff, Gen Mark Milley said he was "sceptical" that any such deliveries would play a decisive role in the conflict. But it comes as the US has been forced to pause plans to send an additional $6bn in military aid to Kyiv, amid an ongoing budget row in the House of Representatives.

President Biden said earlier this week that the temporary agreement between House Democrats and Republicans may force him to find alternative ways to fund Ukraine's war effort.

-BBC NEWS

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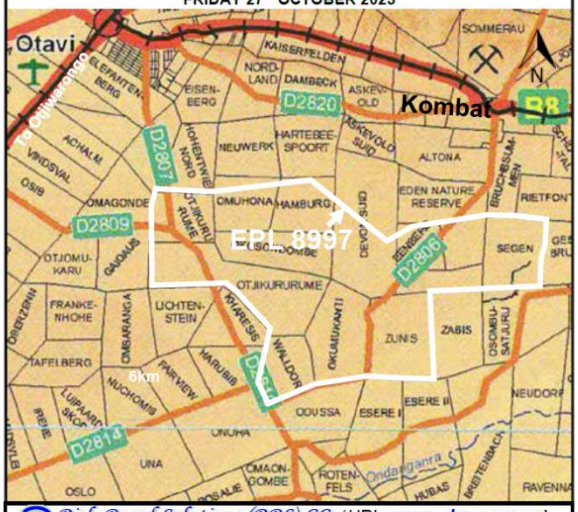

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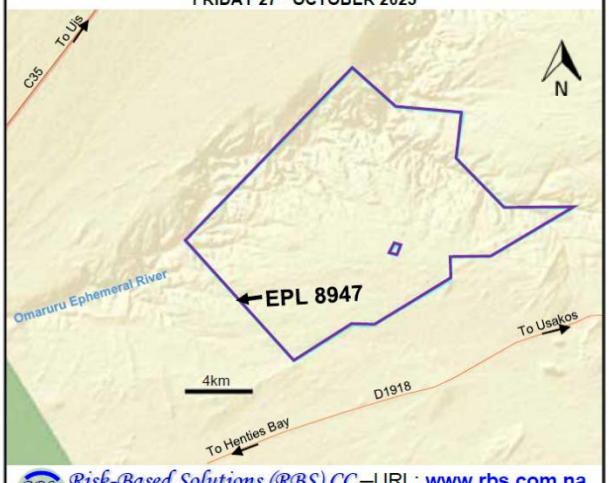

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Figure 4.9: Copy of the public notice that was published in the Observer daily newspaper dated Monday, 16th October 2023.

WORLD & AFRICA

Israeli strikes on Gaza intensify as humanitarian crisis deepens

Israeli forces kept up their bombardment of Gaza on Monday after diplomatic efforts to arrange a ceasefire to allow foreign passport holders to leave and aid to be brought into the besieged Palestinian enclave failed.

Residents of Hamas-ruled Gaza said overnight air strikes were the heaviest yet as the conflict entered its 10th day with an Israeli ground offensive believed to be imminent.

Bombing carried on through the day, they said, and many buildings were flattened, trapping yet more people under the rubble. Israeli officials issued multiple warnings of Hamas rocket fire into Israel.

Diplomatic efforts have been under way to get aid into the enclave, which has endured unrelenting Israeli bombing since the October 7 attack on Israel by Hamas that killed 1 300 people, the bloodiest single day in the state's 75-year history.

But Israel's chief military spokesperson, Rear Admiral Daniel Hagari said there was no Gaza ceasefire and that Israel was continuing its operations.

"There are no such efforts under way at this time. If anything changes, we will inform the public. We are continuing our fight against Hamas, this murderous organisation that carried this (the assaults) out."

Israel has imposed a full blockade and is preparing a ground invasion to enter Gaza and destroy Hamas, which has continued to fire rockets at Israel since its brief cross-border assault. On Monday, rocket-warning sirens sounded in several towns in southern Israel, the Israeli military said.

Israeli troops and tanks are already massed on the border.

Authorities in Gaza said at least 2 750 people had so far been killed by the Israeli strikes, a quarter of them children and nearly 10 000 wounded. A further 1 000 people were missing and believed to be under rubble.

With food, fuel and water running short, hundreds of tons of aid from several countries have been held up in Egypt pending a deal for its safe delivery to Gaza and the evacuation of some foreign passport holders through the Rafah border crossing.

Earlier on Monday, Egyptian security sources had told Reuters that an agreement had been reached to open the crossing to allow aid into the enclave.

But Israeli Prime Minister Benjamin Netanyahu's office said in a statement, "There is currently no truce and humanitarian aid in Gaza in exchange for getting foreigners out."

Hamas official Izzat El Reshiq told Reuters there was "no truth" to the reports about the crossing opening or a temporary ceasefire.

Egypt has said the crossing was rendered inoperable due to Israeli bombardments on the Palestinian side.

Egyptian Foreign Minister Sameh Shoukry said on Monday the Israeli government had yet to take a stance that allowed the crossing to open.

-SABC NEWS

Smoke billows following Israeli strikes in Gaza City, 11 October 2023.-Image Credits :Reuters

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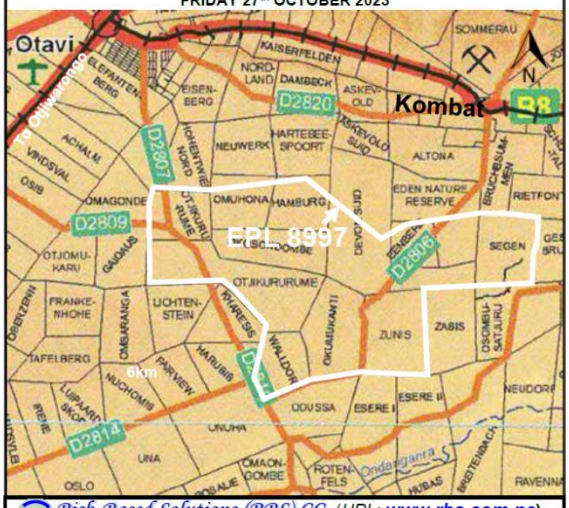

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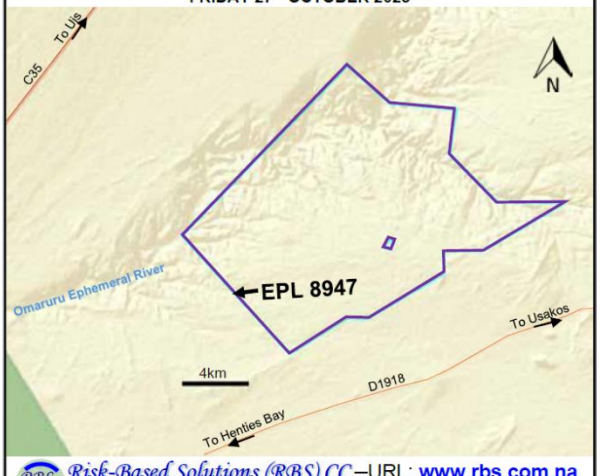

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Figure 4.10: Copy of the public notice that was published in the Observer daily newspaper dated Tuesday, 17th October 2023.

WORLD & AFRICA

Iran's Khamenei demands Israel stop bombardment of Gaza

Iran's Supreme Leader Ayatollah Ali Khamenei has accused Israel of carrying out a genocide against Palestinians in Gaza and warned Israel that it must pull back from its attacks on the besieged territory.

Speaking on Tuesday Khamenei said Israeli officials should face trial for their actions in Gaza and warned that "no one can stop" forces opposed to Israel if it continues its assault.

"If the crimes of the Zionist [Israeli] regime continue, Muslims and resistance forces will become impatient, and no one can stop them," Khamenei said. "The bombardment of Gaza must stop immediately."

"Regarding the situation in Gaza, we all have a responsibility to react; we must react," he said.

Iranian officials often use the term "axis of resistance" to refer to a network of Iran-backed armed groups throughout the region that includes Hezbollah in Lebanon.

Iran's Fars News Agency also reported that Islamic Revolutionary Guard Corps (IRGC) Deputy Commander-in-Chief Ali Fadavi warned of further action by Iran-backed groups across the region.

"The resistance front's shocks against the Zionist regime will continue," he said.

> If the crimes of the Zionist [Israeli] regime continue, Muslims and resistance forces will become impatient, and no one can stop them

Israel has pounded Gaza from the air since Hamas launched a surprise attack from Gaza on southern Israel on October 7, when hundreds of Hamas fighters breached the Israeli fence that surrounds Gaza and killed at least 1,400 people, mostly civilians, according to Israeli authorities.

After the attack, Israel cut off food, water, and electricity to the more than 2.3 million residents of Gaza and launched an aerial assault that has destroyed entire neighbourhoods, killed more than 3,000 people and wounded 12,500 others, according to Palestinian authorities.

Iran's Supreme Leader Ayatollah Ali Khamenei speaks in a meeting in Tehran, Iran, on Tuesday, October 17 [Office of the Iranian Supreme Leader via AP]

The question of potential expansion of the fighting to include not just Hamas, the Palestinian group that governs Gaza and receives some support from Iran, but more formidable Iran-backed groups such as Hezbollah in southern Lebanon, has loomed over the 11-day war.

Iranian President Ebrahim Raisi said on Monday that supporting the Palestinians was Iran's foreign policy priority but that the armed groups make their own independent decisions.

Israel has said it intends to destroy Hamas and has mobilised hundreds of thousands of military reservists ahead of an expected ground offensive on Gaza. Military experts have warned that any ground offensive into densely populated areas of Gaza would be extremely challenging and could potentially lead to heavy losses on both sides.

The Israeli military suggested on Tuesday that it was considering other options as it prepares for "the next stages of the war" against Hamas.

"Everyone is talking about a ground offensive, but it could be something else," Israeli army spokesperson Richard Hecht said on Tuesday without providing further details.

"Any ground operation [by Israel into Gaza], starting such an operation, that could be a trigger" for other armed groups to join the war, Mahjoob Zweiri, a professor at Qatar University, told Al Jazeera.

The United States has sought to deter Iran-backed groups from joining the war, moving two aircraft carriers to the eastern Mediterranean and putting 2,000 of its troops on deployment alert. Israel has warned that any party that joins the fighting will pay a heavy price.

But a widening of the conflict could also cause considerable problems for Israel, which would be faced with the prospect of barrages of missiles from Hezbollah's considerable arsenal and a two-front war that could stretch the capacity of its forces.-AL JAZEERA

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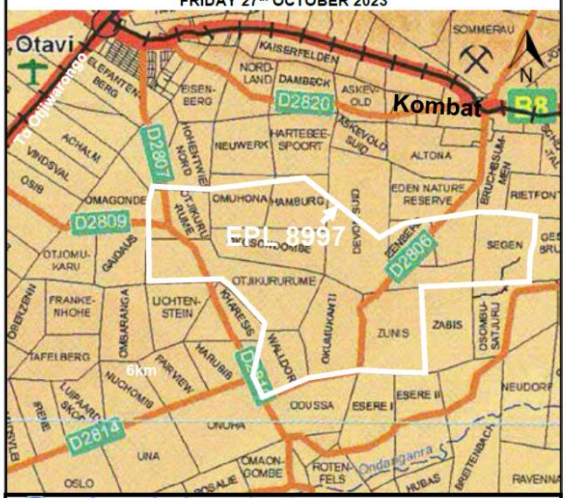

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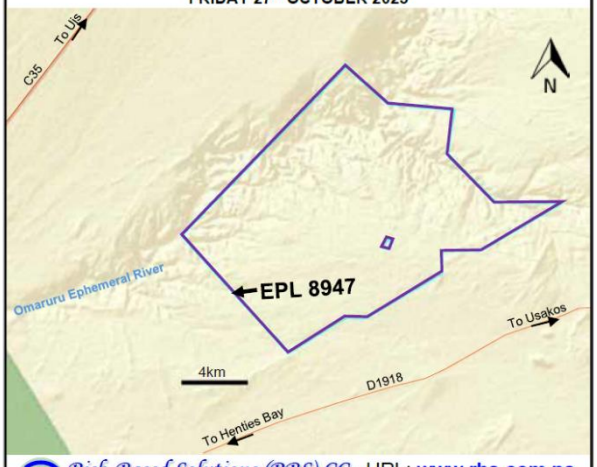

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Figure 4.11: Copy of the public notice that was published in the Observer daily newspaper dated Wednesday, 18th October 2023.

WORLD & AFRICA

Guinea-Bissau capital without power over unpaid bill to Turkey's Karpowership

GLORIA ARADI & YUSUF AKÍNPÈLÚ

A Turkish firm has cut power supplies to Guinea-Bissau's capital over an unpaid bill of at least $15m (£12m), plunging the city into darkness.

It has severely disrupted daily life, with hospitals affected and radio stations off-air.

Economy Minister Suleimane Seidi acknowledged the arrears, saying most of the bill would be paid in 15 days.

Karpowership is one of the world's biggest floating power plant operators, supplying several African states.

But it has taken a tough line over non-payment. Last month, it cut power to Sierra Leone's capital, Freetown, over an unpaid bill of $40m.

The Turkish company has also signed a deal to supply power to South Africa, saying it will cover more than 5% of the country's total electricity needs.

South Africa has been hit by a wave of power cuts with people going without electricity for up to 10 hours a day.

Power was cut in Bissau, a city with a population of more than 400,000, in the early hours of Tuesday and has not been restored, a resident told the BBC.

Some public hospitals are now using generators to carry out surgery, local journalist Assana Sambu told the BBC.

But they don't have running water because there is not enough electricity, and hospital directors have appealed for power in order to cook food for their patients.

Another journalist, Alberto Dabo, said he was drinking water from a well because water supplies had been cut amid the sweltering heat which reaches 40C.

"Our houses are very hot. Most families stay outside till 4am before entering their houses to spend the rest of the night. You can't stay indoors because of the heat."

State-run Rádio Nacional is among media outlets that have stopped broadcasting, while the private radio station where Sambu works is only partially operating, he added.

Karpowership says it has been supplying 100% of Guinea-Bissau's electricity since signing a five-year agreement with the state-owned electricity and water utility company in 2019.

The country is one of the poorest in the world and has been beset by instability since independence.

"Unfortunately, following a protracted period of non-payment, our [floating power plant] is now unable to continue operating," a Karpowership spokesperson was quoted by the Reuters news agency as saying.

"We are working around the clock with officials to resolve this issue and we aim to have generation back online as soon as possible," the spokesperson added.

Energy Minister Isuf Baldé said $6m of the $15m bill had been paid.

"In a small and poor country like Guinea-Bissau, carrying out a transfer operation of this level, $10m, takes time," he said.

He added that the contract with Karpowership needed to be renegotiated because costs had almost doubled since it began, to a level Guinea-Bissau could no longer afford.

The company also supplies electricity to six other African countries - Ghana, The Gambia, Ivory Coast, Mozambique, Senegal and Sierra Leone.

The company prides itself as "the owner, operator and builder of the world's only Powership (floating power plant)".

Its involvement in the electricity sector is the latest example of Tukey's growing influence in Africa.

Although access to electricity has increased in sub-Saharan Africa in recent years, it still remains low, with more than 50% of the region's population having no grid connection, according to the United Nations Conference on Trade and Development (Unctad).

-BBC NEWS

Figure 4.12: Copy of the public notice that was published in the Observer daily newspaper dated Wednesday, 19th October 2023.

5. IMPACT ASSESSMENT AND RESULTS

5.1 Impact Assessment Procedure

The Environmental Assessment process that has been undertaken with respect to the proposed exploration programme for the EPL No. 8997 has been conducted in accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007).

5.2 Alternatives and Ecosystem Assessments

The following alternatives have been considered:

(i) **EPL Location:** Several potential economic minerals deposits are known to exist in the general area and linked to the regional geology of the EPL area. The Proponent intend to explore / prospect for all the licensed minerals groups likely to be associated with the regional and local geology. The minerals occurrences are site-specific and related to the regional and local geology of a specific area to which there are no alternatives sites to consider with respect to the license location. The only other alternative is the no-action option (no exploration activities are implemented in a specific area).

(ii) **The No-Action Alternative** - A comparative assessment of the environmental impacts of the 'no-action' alternative (a future in which the proposed exploration activities do not take place) has been undertake. An assessment of the environmental impacts of a future, in which the proposed exploration and possible discovery of economic minerals resources does not take place, may be good for the receiving environment because there will be no negative environmental impacts due to the proposed minerals exploration or possible mining operation that may take place in the EPL area.

The environmental benefits will include:

- ❖ No negative impacts because of no mineral exploration taking place, and.
- ❖ Potential future mining related negative environmental impact on the receiving environment.

However, it is important to understand that even if the proposed exploration activities do not take place, to which the likely negative environmental impacts are likely to be low and localised, the other current and future land uses such as agriculture and tourism will still have some negative impacts on the receiving environment. The likely negative environmental impacts of the other current and future land use that may still happen in the absence of the proposed minerals exploration activities includes:

- ❖ Land degradation due to drought and Climate Change.
- ❖ Overgrazing / over stocking beyond the land carrying capacity.
- ❖ Poor land management practices,
- ❖ Wildfires, and.
- ❖ Erosion and overgrazing.

Furthermore, it is important to understand what benefits might be lost if the proposed exploration activities do not take place. Key loses that may never be realised if the proposed project activities do not go-ahead include Loss of potential added value to the unknown underground minerals resources that maybe found within the EPL No. 8997, socioeconomic benefits derived from current and future exploration, direct and indirect contracts and

employment opportunities, export earnings, foreign direct investments, license rental fees, royalties, and various other taxes payable to the Government.

(iii) **Other Alternative Land Uses:** The EPL area fall within the well-known commercial agricultural land uses area dominated by cattle, game, and small stock farming activities. The growing game farming is also making tourism a vital socioeconomic opportunity in the general area. Minerals exploration and mining activities are well known land use options in Namibia and the surrounding EPL area. Due to the limited scope of the proposed exploration and the implementation of the EMP, it is likely that the proposed exploration can coexist with the current and potential future land uses within the general area.

(iv) **Potential Land Use Conflicts:** Considering the current land use practices (agriculture and tourism) as well as potential other land uses including minerals exploration, it is likely that potential economic derivatives from any positive exploration outcomes leading to the development of a mine in the general area can still co-exist with the existing and potential future land use options of the general area. However, much more detailed assessments of any likely visual and other socioeconomic impacts will need to be included in the EIA that must be undertaken as part of the prefeasibility and feasibility studies if economic minerals resources are discovered. The use of thematic mapping and delineation of various land use zones for specific uses such as agriculture, conservation, mining, or tourism etc, within the EPL area will greatly improve the multiple land use practices and promote coexistence for all the possible land use options.

(v) **Ecosystem Function** (**What the Ecosystem Does**)**:** Ecosystem functions such as wildlife habitats, carbon cycling or the trapping of nutrients and characterised by the physical, chemical, and biological processes or attributes that contribute to the self-maintenance of an ecosystem in this area are vital components of the receiving environment. However, the proposed exploration activities will not affect the ecosystem function due to the limited scope of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

(vi) **Ecosystem Services:** Food chain, harvesting of animals or plants, and the provision of clean water or scenic views are some of the local ecosystem services associated with the EPL area. However, the proposed exploration activities will not affect the ecosystem services due to the limited scope and area of coverage of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

(vii) **Use Values**: The EPL area has direct values for other land uses such as agriculture, conservation, and tourism as well as indirect values which includes Watching a television show about the general area and its wildlife, food chain linkages that sustains the complex life within this area and bequest value for future generations to enjoy. The proposed exploration activities will not destroy the current use values due to the limited scope of the proposed activities as well as the adherence to the provisions of the EMP as detailed in the EMP report, and.

(viii) **Non-Use or Passive Use**: The EPL area has an existence value that is not linked to the direct use / benefits to current or future generations. The proposed exploration activities will not affect the ecosystem current or future none or passive uses due to the limited scope of the proposed activities that will leave much of the EPL area untouched because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

5.3 Key Issues Considered in the Assessment Process

5.3.1 Sources of Impacts (Proposed Project Activities)

The proposed exploration activities covering initial desktop exploration activities (no fieldwork undertaken, regional reconnaissance, initial local field-based activities, detailed local field-based

activities, prefeasibility and feasibility studies related activities are the key sources both negative and positive impacts on the receiving environment.

5.3.2 Summary of Receptors Likely to be Negative Impacted

Based on the findings of this report, the following is the summary of the key environmental receptors that are may be negatively impacted by the proposed activities:

- **Physical environment:** Water quality, physical infrastructure and resources, air quality, noise and dust, landscape and topography, soil quality and, Climate change influences.

- **Biological environment:** Habitat, protected areas and resources, flora, fauna, and ecosystem functions, services, use values and non-use or passive use, and.

- **Socioeconomic, cultural and archaeological environment:** Local, regional and national socioeconomic settings, commercial and subsistence agriculture, community protection areas tourism and recreation cultural, biological and archaeological resources.

5.4 Impact Assessment Methodology

5.4.1 Impact Definition

In this report, a natural and/or human environmental impact is defined as: “Change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.” (ISO 14001).

All proposed project activities (routine and non-routine) were considered during the Scoping, EIA and EMP Phases in terms of their potential to:

- Interact with the existing environment (physical, biological, and social elements), and.

- Breach relevant national legislation, relevant international legislation, standards and guidelines, and corporate environmental policy and management systems.

Where a project activity and receptor were considered to have the potential to interact, the impact has been defined and ranked according to its significance. Table 5.1 provides the definition of different categories of impacts identified and used in this report.

This report has assessed the potential impacts resulting from routine Project activities, if the Project activities that may cause an impact that will occur but the impact itself will be dependent on the likelihood (Probability) (Table 5.1).

Correct control measures through the implementation of the EMP and monitoring thereof, often reduce any negative significant impacts on the receiving environment as the results of the project activities. The assessment, therefore, has focussed on the measures aimed at preventing the occurrence of an impact as well as mitigation measures that may be employed.

Table 5.1: Definition of impact categories used in this report.

Nature of Impact	Adverse	Considered to represent an adverse change from the baseline, or to introduce a new undesirable factor.
	Beneficial	Considered to represent an improvement to the baseline or to introduce a new desirable factor.
Type of Impact	Direct	Results from a direct interaction between a planned or unplanned Project activity and the receiving environment.
	Indirect	Results from the Project but at a later time or at a removed distance or which may occur as a secondary effect of a direct impact.
	Cumulative	Results from (i) interactions between separate Project-related residual impacts. and (ii) interactions between Project-related residual impacts in combination with impacts from other projects and their associated activities. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
Duration of Impact	Short-term	Predicted to last only for a limited period but will cease on completion of the activity, or as a result of mitigation/reinstatement measures and natural recovery typically within a year of the project completion.
	Medium-	Predicted to last only for a medium period after the Project finishing, typically one to five years.
	Long-term	Continues over an extended period, typically more than five years after the Project's completion.
	Permanent	Occurs during the development of the Project and causes a permanent change in the affected receptor or resource that endures substantially beyond the Project lifetime.
Scale of Impact	Local	Affects locally important environmental resources or is restricted to a single habitat/biotope, a single community.
	Regional	Affects nationally important environmental resources, or an area that is nationally important/protected or has macro-economic consequences.
	National	Affects nationally important environmental resources, or an area that is nationally important/protected or has macro-economic consequences.
	International	Affects internationally important resources such as areas protected by international Conventions
	Transboundary	Impacts experienced in one country as a result of activities in another.
Probability	Negligible	Possibility negligible
	Improbable	Possibility very low
	Probable	Distinct possibility
	Highly Probable	Most likely
	Definite	Impact will occur regardless of preventive measures

5.4.2 Knowledge-Based Impact Assessment Process

5.4.2.1 Characterisation of the Impact Assessment Inputs Variables

The impact assessment process for the proposed minerals exploration took into consideration the interactions of the proposed activities with respect to the Knowledge-Based System Model Methodology (KBSMM) characterised climatic, environmental, and ground model datasets of the receiving environment (physical, biological, socioeconomic and ecosystem services and functions).

The influence assessment of the characterised components of the environment has been based on a Knowledge-Based System Model Methodology (KBSMM), a PhD research-based and industry tested / validated Artificial Intelligent (AI) framework developed by Dr Sindila Mwiya.

The KBSMM model inputs variables covered characterised climatic, environmental, and ground model datasets. Source-Pathway-Receptor risk assessment approach was used to determine or validate the influence (impact assessment), and ultimate likely harm that may be linked to the various phased activities of each of the various stages of the proposed minerals exploration implementation process (Fig. 5.1).

5.4.2.2 Climatic Data Sets/Components Inputs

The climatic data sets that have been used in the regional and local site-specific assessment process comprised precipitation, temperature, evapotranspiration and wind data sets. The following is summary explanation of the roles that climatic data sets may have on the proposed minerals exploration implementation process (Fig. 5.1):

- Temperature: Temperature had a direct influence on the fluids that may influence the operation of the site by supporting evapotranspiration. It also has an influence on the planning, operation and implementation of the various project activities.

- Rainfall: Rainfall is one of the data sets used in the water balance assessments with respect to potential fluid production and flash flood occurrences. The data sets had some influence on mobilisation pollutants that may be associated with the proposed project activities.

- Evapotranspiration: This combined effect of evaporation and transpiration is important in water balance assessments with direct influences on the implementation of the various project activities, and.

- Wind Direction and Speed: The direction and speed of the prevailing winds may be critical to the site operations and determination of the optimum operational requirements. The data had a direct influence on the site operations including dust and noise management.

5.4.2.3 Environmental Data Sets/Components Inputs

The regional or local environmental data sets used in this project comprise:

- Economic activities (Proposed minerals exploration) and coordination support available in the area or area.

- Types and amounts of waste likely to be generated.

- Likely contaminants from the activities.

- Ecological, habitats and ecosystems including fauna and flora.

- Community considerations such, land ownership, social, health and safety, and.

- Archaeological, cultural and political issues.

The following is summary explanation of the role of the environmental data sets may have on the proposed minerals exploration implementation process (Fig. 5.2):

- Economic activities and logistic support: The types of economic activities and logistical support services and infrastructure for the proposed activities are a key source of impact component of the environmental data sets in the determination of the likely impacts on the receptors, and.

- The likely Types and amount of waste: Understanding the characteristics of the liquid and solid waste streams be handled is vital in the evaluation of the hazard exposure in terms of the overall risk assessment to the receptors.

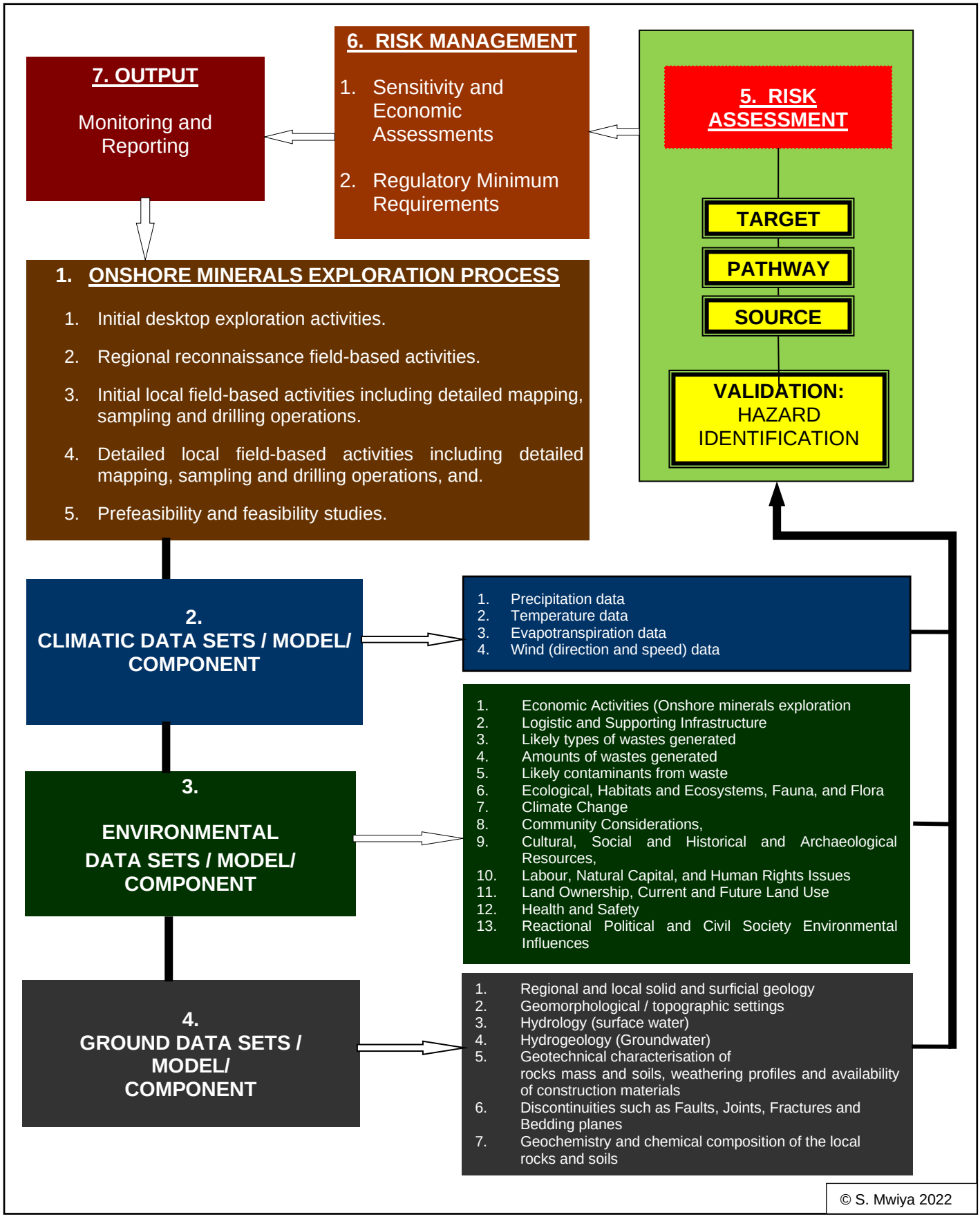

Figure 5.1: Detailed outline of the technical methodology based on a complete looped Knowledge-Based System Model Methodology (KBSMM) used in the impact assessment, risk assessment and determination of the monitoring and reporting strategy. The system model methodology has a built-in looping that allows for the evaluation of a phased onshore minerals exploration process project lifecycle.

- ❖ Likely contaminants: The state (solid, gas, liquid, or vapour) of any likely contaminants that may associated with the proposed phased onshore minerals exploration activities play a major role in the determination of the likely harm, mitigation, monitoring and reporting strategies.

- ❖ Ecological, habitats, ecosystems, fauna, flora, and local, regional or global Climate Change influences: At national, regional and local levels, there are a number of unique and protected habitats, ecosystems, fauna and flora and highly vital as they support other sectors of the national economy such as tourism, agriculture, food security and services. Understanding the likely level of sensitivity of the regional or local areas is highly important to the successful determination of the likely impacts and harm, development mitigation measures, monitoring and reporting strategy to be implemented for the proposed phased onshore minerals exploration process, and.

- ❖ Community considerations: Local community issues and acceptability of the proposed activities by the local community is of vital importance. Other key components of the community considerations include land ownership (State land / Communal or Private), land use, local social settings, labour, natural capital, human rights, public and workers health and safety, archaeological, cultural, political, and civil society influences.

As part of the data collection, evaluation, influence and risk assessment process of the proposed phased onshore minerals exploration, determination of the mitigation measures, monitoring and reporting strategies, specialist assessments conducted as part of the EIA process provided vital recommendations incorporated in this report.

5.4.2.4 Ground Data Sets/Components Inputs

The ground data sets covered regional/local solid and surficial geology, geomorphological / topographic settings, hydrology (surface water), hydrogeology groundwater), geotechnical and geochemical characterisation of rocks and soils, weathering profiles and availability of construction materials, and discontinuities such as faults, joints, fractures, and bedding planes of the drilled sites (Fig. 5.1). The geology (solid and superficial) and water (surface and groundwater resources are all targets that may be influenced (impacted) by the various activities of the proposed phased minerals exploration process implementation. Other ground components which include the local terrain (geomorphology and topographic features), discontinuities, geotechnical as well as geochemical /mineralogy will aid the influence of sources in causing or minimising the impacts to be controlled through mitigations (Fig. 5.1). Regional/local solid and surficial geology, geomorphological and topographic settings also linked directly to the availability of local construction and operational materials in support of the proposed phased minerals exploration process project implementation lifecycle (Fig. 5.1).

5.4.2.5 Source-Pathway-Receptor Risk Assessment, Harm and Monitoring

To evaluate the level of influence (impact), risk, and harm that the proposed onshore phased minerals exploration process implementation, the assessment process was focused on the sources, pathways, and targets / receptor chains (Fig. 5.2). It is important to note that in the absence of any of the interlinked three (3) components (sources, pathways, or targets/ receptor) there is no harm or risk to mitigate, monitor or manage (Figs. 5.2 and 5.3).

The risk source/s refers to knowledge - based identified potential hazards that may be present and can cause harm to the exposed target/s / receptors (Fig. 5.3). The risk pathway refers to the route direct or indirect though which the risk source/s may be transferred and exposed to a target/s of concern.

The risk target/s or receptor/s refers to the destination (area point of exposure) at which the source/s may cause harm. The characterisation of source/s, pathway/s and target/s chain has been undertaken for climatic, environmental and ground model data components with respect to the proposed phased onshore minerals exploration process.

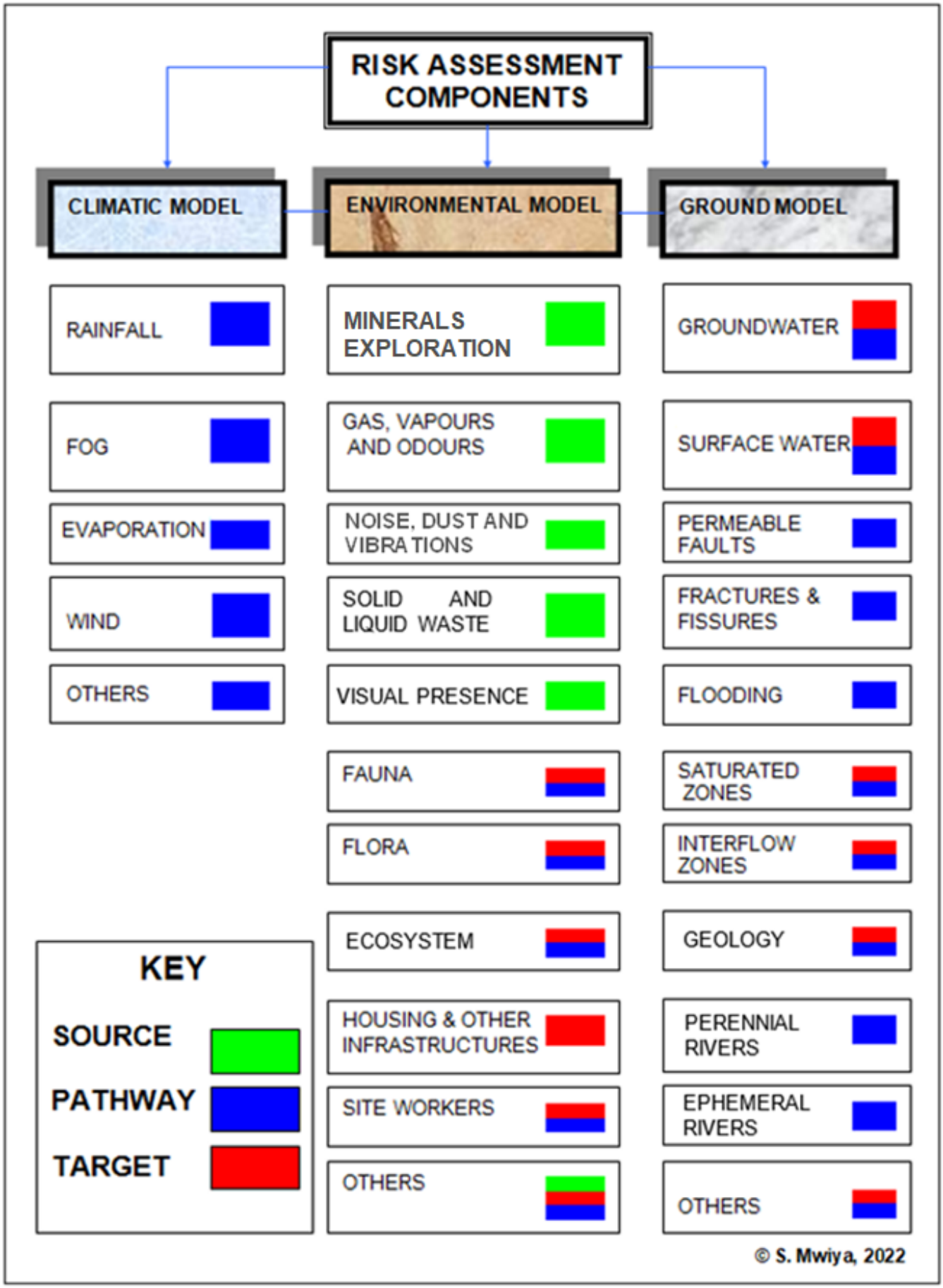

Figure 5.2: A Knowledge-Based System Model Methodology (KBSMM) characterised interactive risk assessment system output field-based and tested / validated Artificial Intelligent (AI) framework windows for onshore phased minerals exploration process implementation project lifecycle.

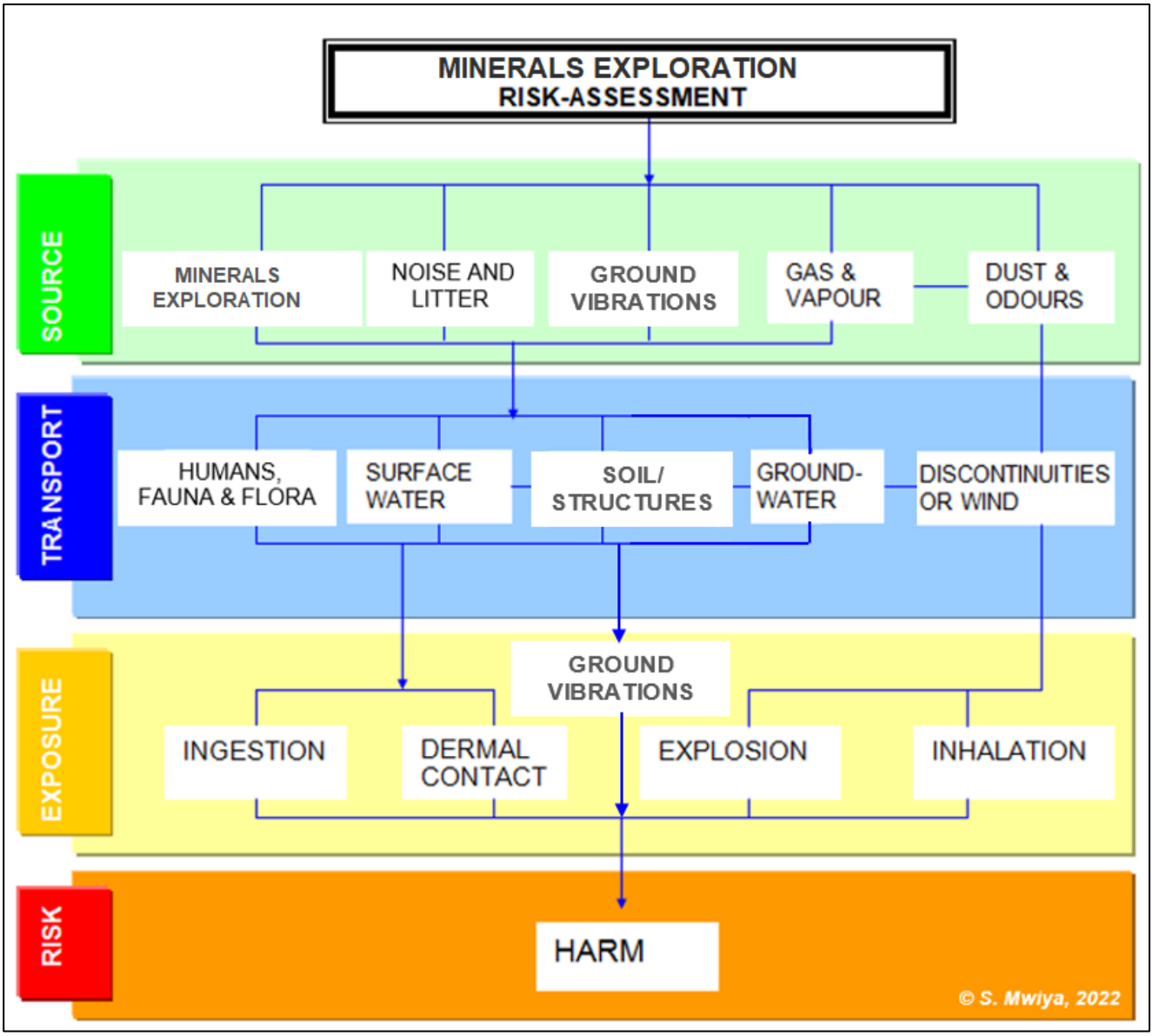

Figure 5.3: A Knowledge-Based System Model Methodology (KBSMM) characterised system output research-based and tested / validated Artificial Intelligent (AI) framework risk consequences (harm) pathways to the receiving target/receptors windows for onshore phased minerals exploration process project implementation lifecycle.

5.4.2.6 Individual Components Impact Assessment Criteria

Based on the Terms of Reference and individual components impact assessment outputs of the KBSMM for the proposed phased minerals exploration process and the lessons learned (created knowledge-base) from the previous phased minerals exploration processes operations undertaken and tested since 1999 when the KBSMM was developed, all key components of the receiving environment were identified and assessed with respect to the overall proposed activities and likely significant impacts on the receiving environment with the aim of developing appropriate mitigation measures as detailed in the EMP Report.

5.4.3 Overall Component and Significant Impact Assessment

5.4.3.1 Overall Component Impact Assessment

The overall component impact assessment and evaluation process has been undertaken by considering the activities of the proposed phased minerals exploration process operations as the

overall source of impact (Figs. 5.1-5.3). As illustrated in Figs. 5.1-5.3, the receiving environment has been considered as the receptor / target that may be impacted positively or negatively by the activities of the proposed phased minerals exploration process.

The characterised components of the receiving environment encompassed the following:

- Physical Conditions / Natural Environment – Air, noise, water, green space, climate change, built environment – houses, roads, transport systems, buildings, infrastructure, etc.
- Biological Conditions: fauna, flora, habitats, and ecosystem - services, function, use values and non-use etc., and.
- Socioeconomic Conditions: Social, economic, labour, gender, human rights, natural and social capital, archaeological, cultural resources, and cultural issues

In evaluating the individual degree of potential negative impacts, the following factors have been taken into consideration:

- Impact Severity: The severity of an impact is a function of a range of consideration, and.
- Likelihood of Occurrence (Probability): How likely is the impact to occur?

In evaluating the severity of potential negative environmental impacts, the following factors have been taken into consideration:

- Receptor/ Resource Characteristics: The nature, importance, and sensitivity to change of the receptors / target or resources that could be affected.
- Impact Magnitude: The magnitude of the change that is induced.
- Impact Duration: The time over which the impact is expected to last.
- Impact Extent: The geographical extent of the induced change, and.
- Regulations, Standards and Guidelines: The status of the impact in relation to regulations (eg. discharge limits), standards (eg. environmental quality criteria) and guidelines.

The overall impact severity has been categorised using a subjective scale as shown in Table 5.2 for magnitude, Table 5.3 for duration and Table 5.4 for extent.

Table 5.2: Scored on a scale from 0 to 5 for impact magnitude.

SCALE (-) or (+)		DESCRIPTION
0		no observable effect
1		low effect
2		tolerable effect
3		medium high effect
4		high effect
5		very high effect (devastation)

Table 5.3: Scored time over which the impact is expected to last.

SCALE (-) or (+)		DESCRIPTION
T		Temporary
P		Permanent

Table 5.4: Scored geographical extent of the induced change.

SCALE (-) or (+)		DESCRIPTION
L		limited impact on location
O		impact of importance for municipality.
R		impact of regional character
N		impact of national character
M		impact of cross-border character

The likelihood (probability) of the pre-identified events occurring has been ascribed using a qualitative scale of probability categories (in increasing order of likelihood) as shown in Table 5.5. Likelihood of an impact occurring is estimated based on experience (existing knowledgebase) and/ or evidence that such an outcome has previously occurred. Impacts resulting from routine/planned events are classified under category (E).

Table 5.5: Summary of the qualitative scale of probability categories (in increasing order of likelihood).

SCALE (-) or (+)		DESCRIPTION
A		Extremely unlikely (e.g., never heard of in the industry)
B		Unlikely (e.g., heard of in the industry but considered unlikely)
C		Low likelihood (e.g., such incidents/impacts have occurred but are uncommon)
D		Medium likelihood (e.g., such incidents/impacts occur several times per year within the industry)
E		High likelihood (e.g., such incidents/impacts occur several times per year at each location where such works are undertaken)

The overall individual components impact assessment with respect to the impact duration, geographical extent and probability of occurrence have been categorised using a semi quantitative approach as shown in Table 5.6 and the results are presented under Subsection 5.4.4.

5.4.3.2 Overall Significant Impact Assessment

The determination of the significance of the negative impacts / key issues caused by the proposed phase minerals exploration activities as key sources of such impact has been based on the environmental baseline results such as the intensity and duration of the likely negative impact as assessed under individual components likely to be impacted. The assessment focused on the existence of potential pathways, and the degree to which the proposed project activities are likely to result in unwanted consequences on the receptor, covering the receiving environment (natural, built, socioeconomic, flora, fauna, habitat, and ecosystem).

5.4.4 Proposed Project Activities Summary of Impacts Results

The results of the impacts assessment and evaluation has adopted a matrix assessment framework linked to the KBSMM framework. Assessment results of the magnitude, duration, extent, and probability of the potential impacts due to the proposed project activities interacting with the receiving environment are presented in form of a matrix table as shown in Tables 5.6-5.9.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude (Table 5.6), temporally duration (Table 5.7), localised extent (Table 5.8) and low probability of occurrence (Table 5.9) due to the limited scope of the proposed activities and the use of step progression approach in advancing exploration. The step progressional approach will allow the Proponent to evaluate the results of exploration success and the implementation of the next stage of exploration will be subject to the positive outcomes of previous activities as graded (Tables 5.6-5.9). It is important to note that the assessment of the likely impacts as shown in Tables 5.6 - 5.9, have been considered without the implementation of mitigation measures as detailed in EMP Report. The need for implementation of the appropriate mitigation measures as presented in the EMP Report has been determined based on the results of the impact assessment (Tables 5.6 - 5.9) and the significant impacts as detailed in Tables 5.10 and 5.11.

Table 5.6: Results of the sensitivity assessment of the receptors (Physical, Socioeconomic and Biological environments) with respect to the proposed exploration / prospecting activities.

RECEPTOR SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL, AND ARCHAEOLOGICAL ENVIRONMENT				
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iii) Purchase and analysis of existing Government aerial hyperspectral	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4

SENSITIVITY RATING		CRITERIA
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.

Table 5.6: Cont.

RECEPTOR SENSITIVITY			PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
SENSITIVITY RATING		CRITERIA	Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.																
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.																
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance																
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.																
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.																
3. Initial Local Field-Based Activities	(i)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(ii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(iii)	Ground geophysical survey (Subject to the positive outcomes of i and ii above)	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(iv)	Possible Trenching (Subject to the outcomes of i - iii above)	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(v)	Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(vi)	Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
4. Detailed Local Field-Based Activities	(i)	Access preparation and related logistics to support activities	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
	(ii)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(iii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
	(iv)	Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
5. Prefeasibility and Feasibility Studies	(i)	Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
	(ii)	Detailed drilling and bulk sampling and testing for ore reserve calculations	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
	(iii)	Geotechnical studies for mine design	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
	(iv)	Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(v)	EIA and EMP to support the ECC for mining operations	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4
	(vi)	Preparation of feasibility report and application for Mining License	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4

Table 5.7: Results of the scored time (duration) over which the impact is expected to last.

RECEPTOR SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
SCALE / DESCRIPTION: T = Temporary; P = Permanent		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	(iii) Purchase and analysis of existing Government aerial hyperspectral	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P

Table 5.7: *Cont.*

DURATION OF IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL, AND ARCHAEOLOGICAL ENVIRONMENT				
SCALE / DESCRIPTION: T = Temporary; P = Permanent		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
3. Initial Local Field-Based Activities	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
4. Detailed Local Field-Based Activities	(i) Access preparation and related logistics to support activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
5. Prefeasibility and Feasibility Studies	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iii) Geotechnical studies for mine design	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(v) EIA and EMP to support the ECC for mining operations	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P
	(vi) Preparation of feasibility report and application for Mining License	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	P

Table 5.8: Results of the scored geographical extent of the induced change.

SCALE		DESCRIPTION
L		limited impact on location
O		impact of importance for municipality
R		impact of regional character
N		impact of national character
M		impact of cross-border character

GEOGRAPHICAL EXTENT OF IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	(iii) Purchase and analysis of existing Government aerial hyperspectral	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	N
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical, and remote sensing mapping and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	N
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical, and remote sensing mapping and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	N
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	N
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	N

Table 5.8: *Conti.*

GEOGRAPHICAL EXTENT OF IMPACT			PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
SCALE		DESCRIPTION	Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
L		limited impact on location																
O		impact of importance for municipality																
R		impact of regional character																
N		impact of national character																
M		impact of cross-border character																
3. Initial Local Field-Based Activities	(i)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(ii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iii)	Ground geophysical survey (Subject to the positive outcomes of i and ii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iv)	Possible Trenching (Subject to the outcomes of i - iii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(v)	Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(vi)	Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
4. Detailed Local Field-Based Activities	(i)	Access preparation and related logistics to support activities	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(ii)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iv)	Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
5. Prefeasibility and Feasibility Studies	(i)	Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(ii)	Detailed drilling and bulk sampling and testing for ore reserve calculations	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iii)	Geotechnical studies for mine design	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(iv)	Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(v)	EIA and EMP to support the ECC for mining operations	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N
	(vi)	Preparation of feasibility report and application for Mining License	L	L	L	L	L	L	L	L	L	L	L	L	L	O	R	N

Table 5.9: Results of the qualitative scale of probability occurrence.

IMPACT PROBABILITY OCCURRENCE			PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
			Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1. Initial Desktop Exploration Activities	(i)	General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E
	(ii)	Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E
	(iii)	Purchase and analysis of existing Government aerial hyperspectral	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E
	(iv)	Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E
2. Regional Reconnaissance Field-Based Activities	(i)	Regional geological, geochemical, topographical and remote sensing mapping and data analysis	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
	(ii)	Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
	(iii)	Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
	(iv)	Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
	(v)	Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E

SCALE		DESCRIPTION
A		Extremely unlikely (e.g. never heard of in the industry)
B		Unlikely (e.g. heard of in the industry but considered unlikely)
C		Low likelihood (egg such incidents/impacts have occurred but are uncommon)
D		Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)
E		High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)

Table 5.9: *Cont.*

IMPACT PROBABILITY OCCURRENCE			PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
			Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
3.	**Initial Local Field-Based Activities**	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
		(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	B	B	B	B	B	B	B	B	B	B	B	B	B	D	D	E
		(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	B	B	B	B	B	B	B	B	B	B	B	B	B	D	D	E
		(iv) Possible Trenching (Subject to the outcomes of i - iii above)	B	B	B	B	B	B	B	B	B	B	B	B	B	D	D	E
		(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	B	B	B	B	B	B	B	B	B	B	B	B	B	D	D	E
		(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
4.	**Detailed Local Field-Based Activities**	(i) Access preparation and related logistics to support activities	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
5.	**Prefeasibility and Feasibility Studies**	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(iii) Geotechnical studies for mine design	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	C	C	C	C	C	C	C	C	C	C	C	C	C	D	D	E
		(v) EIA and EMP to support the ECC for mining operations	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E
		(vi) Preparation of feasibility report and application for Mining License	A	A	A	A	A	A	A	A	A	A	A	A	A	D	D	E

SCALE		DESCRIPTION
A		Extremely unlikely (e.g. never heard of in the industry)
B		Unlikely (e.g. heard of in the industry but considered unlikely)
C		Low likelihood (egg such incidents/impacts have occurred but are uncommon)
D		Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)
E		High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)

5.5 Evaluation of Significant Impacts

5.5.1 Overview

The significance of each impact has been determined by assessing the impact severity against the likelihood (probability) of the impact occurring as summarised in the impact significance assessment matrix provided in Table 5.10.

5.5.2 Significance Criteria

Significance criteria for negative/adverse impacts (i.e., relative ranking of importance) are defined in Table 5.10. It is important to note that impacts have been considered without the implementation of mitigation measures. The need for appropriate mitigation measures as presented in the EMP report has been determined based on the impact assessment presented in this report.

Table 5.10: Scored impact significance criteria.

IMPACT SEVERITY (Magnitude, Duration, Extent, Probability)	**RECEPTOR CHARACTERISTICS (SENSITIVITY)**				
	Very High (5)	**High (4)**	**Medium (3)**	**Low (2)**	**Negligible (1)**
Very High (5)	Major [5/5]	Major [4/5[	Moderate [3/5]	Moderate [2 /5]	Minor 1/5
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor [1/4]
Medium (3)	Major [5/3]	Moderate [4/3]	Moderate [3/3]	Minor [2/3]	None [1/3]
Low (2)	Moderate [5/2]	Moderate [4/2]	Minor [3/2]	None [2/2]	None [1/2]
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]

5.5.3 Assessment Likely Significant Impacts

The assessment of significant impacts depended upon the degree to which the proposed project activities are likely to results in unwanted consequences on the receptor covering physical and biological environments (Table 5.11). Overall, the assessment of significant impacts has focused on the ecosystem-based approach that considers potential impacts to the ecosystem. The main key sources of impacts that have been used in the determination of significant impacts posed by the proposed minerals exploration comprised activities. Each of the main areas of impact have been identified and assessed as follows:

- Positive Impacts are classified under a single category. they are then evaluated qualitatively with a view to their enhancement, if practical.
- Negligible or Low Impacts will require little or no additional management or mitigation measures (on the basis that the magnitude of the impact is sufficiently small, or that the receptor is of low sensitivity).
- Medium or High Impacts require the adoption of management or mitigation measures.
- High Impacts always require further management or mitigation measures to limit or reduce the impact to an acceptable level.

Overall, the results of the significant impact assessment matrix for the proposed minerals exploration activities on the physical and biological environments are shown in Tables 5.11.

Table 5.11: Significant impact assessment matrix for the proposed exploration activities.

SIGNIFICANT IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
IMPACT SEVERITY (Magnitude, Duration, Extent, Probability)	RECEPTOR CHARACTERISTICS (SENSITIVITY)	Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
Very High (5)	Major [5/5]																
High (4)	Major [5/4]																
Medium (3)	Major [5/3]																
Low (2)	Moderate [5/2]																
Negligible (1)	Minor [5/1]																
Very High (5)	Major [4/5[																
High (4)	Major [4/4]																
Medium (3)	Moderate[4/3]																
Low (2)	Moderate[4/2]																
Negligible (1)	Minor [4/1]																
Very High (5)	Moderate [3/5]																
High (4)	Moderate [3/4]																
Medium (3)	Moderate[3/3]																
Low (2)	Minor[3/2]																
Negligible (1)	None [3/1]																
Very High (5)	Moderate [2 /5]																
High (4)	Moderate [2/4]																
Medium (3)	Minor[2/3]																
Low (2)	None[2/2]																
Negligible (1)	None[2/1]																
Very High (5)	Minor 1/5																
High (4)	Minor[1/4]																
Medium (3)	None[1/3]																
Low (2)	None[1/2]																
Negligible (1)	None [1/1]																
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
	(iii) Purchase and analysis of existing Government aerial hyperspectral	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4

Table 5.11: *Cont.*

SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
3. Initial Local Field-Based Activities	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	4/4
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	4/4
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	4/4
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	4/4
4. Detailed Local Field-Based Activities	(i) Access preparation and related logistics to support activities	2\2	2\2	2\2	2\2	2\2	2\2	3/2	3/2	3/2	3/2	3/2	2\2	2\2	3\3	3\3	4/4
	(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	2\2	2\2	2\2	2\2	2\2	2\2	3/2	3/2	3/2	3/2	3/2	2\2	2\2	3\3	3\3	4/4
	(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	3\3	3\3	4/4
	(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	2\2	2\2	2\2	2\2	2\2	2\2	3/2	3/2	3/2	3/2	3/2	2\2	2\2	3\3	3\3	4/4
5. Prefeasibility and Feasibility Studies	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	3\3	3\3	4/4
	(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3\3	3\3	4/4
	(iii) Geotechnical studies for mine design	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	2\2	3\3	3\3	4/4
	(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3\3	3\3	4/4
	(v) EIA and EMP to support the ECC for mining operations	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	3\3	3\3	4/4
	(vi) Preparation of feasibility report and application for Mining License	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	3\3	3\3	4/4

IMPACT SEVERITY (Magnitude, Duration, Extent, Probability)	RECEPTOR CHARACTERISTICS (SENSITIVITY)				
	Very High (5)	High(4)	Medium (3)	Low (2)	Negligible (1)
Very High (5)	Major [5/5]	Major [4/5[	Moderate [3/5]	Moderate [2 /5]	Minor 1/5
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor[1/4]
Medium (3)	Major [5/3]	Moderate[4/3]	Moderate[3/3]	Minor[2/3]	None[1/3]
Low (2)	Moderate [5/2]	Moderate[4/2]	Minor[3/2]	None[2/2]	None[1/2]
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]

5.6 Assessment of Overall Impacts

5.6.1 Summary of the Results of the Impact Assessment

In accordance with Tables 5.6 - 5.11, the following is the summary of the overall likely negative and significant impacts of the proposed exploration activities on the receiving environment (physical, biological, and socioeconomic environments) without:

(i) Initial desktop exploration activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]** (Table 5.11). Except for the socioeconomic components which carry a **(+)**, the rest of the likely impacts are negative **(-)**.

(ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]**. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[1/1]** (Table 5.11). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**.

(iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations**.** Overall significant impacts will be negligible **[2/2]**. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[2/2]** (Table 5.11). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**. Cultural, biological, and archaeological resources will have high significant negative impacts **[4/4]**.

(iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium **[2/2]** without mitigations and low with mitigations (Table 5.11). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**. Tourism and recreation will have medium significant negative impacts **[3\3]**, and cultural, biological, and archaeological resources will have high significant negative impacts **[4/4]**. and.

(v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be medium **[3/3]** without mitigations and low with mitigations for bulk sampling, test mining and field logistics (Table 5.11). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**. Tourism and recreation will have medium significant negative impacts **[3\3]**, and cultural, biological, and archaeological resources will have high significant negative impacts **[4/4]**.

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusions

Mitten Minerals Exploration (Pty) Ltd (**the Proponent**) intends to undertake exploration activities in the Exclusive Prospecting Licence (EPL) No. 8997 covering base and rare metals, dimension stones, industrial minerals, and precious metals. The exploration activities to be undertaken as assessed in this environmental assessment are as follows:

(i) Initial desktop exploration activities.

(ii) Regional reconnaissance field-based activities.

(iii) Initial local field-based activities including detailed mapping, sampling, and drilling operations.

(iv) Detailed local field-based activities including detailed mapping, sampling, and drilling operations, and.

(v) Prefeasibility and feasibility studies including possible test mining.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will be of low magnitude, temporally duration, localised extent, and low probability of occurrence.

6.2 Recommendations

It is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The Proponent shall take into consideration the following key requirements for implementing the proposed exploration programme:

(i) Based on the findings of this EIA Report, the Proponent shall prepare an EMP Report with key mitigations measures.

(ii) Mitigation measures shall be implemented as detailed in the EMP report.

(iii) The Proponent shall negotiate Access Agreements with the landowner/s as may be applicable.

(iv) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the Proponent and the landowner/s in line with all applicable national regulations.

(v) Before entering any private or protected property/ area such as a private farm, the Proponent must give advance notices and obtain permission to always access the EPL area, and.

(vi) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the Proponent shall promote access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / landowners/s or as may be needed for environmental protection including wildlife management. The abstraction of the groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowner/s must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

6.3 Summary ToR for Test Mining and Mining Stages

In an even that economic minerals resources are discovered within the EPL 8997 area and could lead to the development of mining project, a new Environmental Clearance Certificate (ECC) for mining will be required. The ECC being supported by this EIA Report only covers the exploration phase.

A separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports supported by specialist studies as maybe applicable must be prepared to support the application for the new ECC for mining operations. The EIA and EMP studies shall form part of the prefeasibility and feasibility study with respect to the test mining or possible mining operations.

The site-specific EIA and EMP shall cover the area identified to have potential economic minerals resources as well as all areas to be used for infrastructural support areas such as pit / shaft area/s, waste rock, tailings dump, access, office blocks, water, and energy infrastructure support areas (water, energy and road / access). In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for the test mining / mining stages, the following field-based and site-specific specialist studies shall be undertaken as part of the EIA and EMP for possible test mining or mining operations in an event of a discovery of economic minerals resources and possible development of a mining project:

(i) Groundwater studies including modelling as maybe applicable.

(ii) Field-based flora and fauna diversity.

(iii) Noise and Sound modelling linked to engineering studies.

(iv) Archaeological assessments.

(v) Socioeconomic assessment, and.

(vi) Others as may be identified / recommended by the stakeholders/ landowners/ Environmental Commissioner or specialists.

The aims and objectives of the Environmental Assessment (EA) covering EIA and EMP to be implemented as part of the feasibility study if a variable resource is discovered are:

(i) To assess all the likely positive and negative short- and long-term impacts on the receiving environment (physical, biological, and socioeconomic environments) at local (EPL Area), regional, national (Namibia) and Global levels using appropriate assessment guidelines, methods and techniques covering the complete project lifecycle. The EIA and EMP to be undertaken shall be performed with reasonable skill, care, and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques shall conform to the national regulatory requirements, process and specifications in Namibia and in particular as required by the MME, MEFT and MAWLR, and.

(ii) The development of appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative influences of the negative impacts identified or anticipated. Such mitigation measures shall be contained in a detailed EMP report covering the entire project lifecycle.

7. REFERENCES

1. GENERAL READING

Department of Water Affairs and Forestry, 2001. Groundwater in Namibia: An explanation to the hydrogeological map. *MAWRD*, Windhoek, 1, 128 pp.

Geological Survey of Namibia, 1999. Regional geological map of Namibia. Ministry of Mines and Energy, Windhoek, Namibia.

Günzel, A. 2000. Personal communication during the discussion on the geology of Tsumeb area, Tsumeb.

Lombaard, A.F., Günzel, A., Innes, J. and Krüger, T.L. 1986. The Tsumeb-lead-copper-zinc-silver deposits, South West Africa/Namibia. In: Anhaeusser, C.R. and Maske, S. (eds), Mineral deposits of Southern Africa vol. 2, Geol. Soc. S.Afr., Johannesburg, 1761-1787.

Miller, R.McG. 2008. The geology of Namibia. Geological Survey, Ministry of Mines and Energy, Windhoek, Vol. 3.

Miller, R. McG., 1992. Stratigraphy. *The mineral resource of Namibia*, *Geological Survey of Namibia, MME*, Windhoek, 1.2 .1 -1.2.13.

Miller, R. McG., 1983a. The Pan – African Damara Orogen od S.W.A. / Namibia, Special Publication of the Geological Society of South Africa, **11**, 431 - 515.

Miller, R. McG., 1983b. Economic implications of plate tectonic models of the Damara Orogen, Special Publication of the Geological Society of South Africa, **11**, 115 -138.

Ministry of Environment and Tourism, 2002. Atlas of Namibia. Comp. J. Mendelsohn, A. Jarvis, T. Roberts and C. Roberts, David Phillip Publishers, Cape Town.

Müller, M.A.N. 1984. Grasses of South West Africa/Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.

Mwiya, S. 2003. Development of a knowledge-based system methodology for design of solid waste disposal sites in arid and semiarid environments. Unpublished PhD thesis, University of Portsmouth, UK, 348 pp.

Mwiya and Giles, 2004. A knowledge-based approach to Municipal Solid Waste Disposal Site Development in the Karstified Dolomitic Terrain around the town of Tsumeb in North-Central Namibia Communications, Geological Survey of Namibia, 13 (2004), 9-22, Windhoek, Namibia.

National Planning Commission (NPC) (2013). Policy Brief: Trends and Impacts of Internal Migration in Namibia. National Planning Commission: Windhoek.

National Statistic Agency (NSA) (2012). Poverty Dynamics in Namibia: A Comparative Study Using the 1993/94, 2003/04 and the 2009/2010 NHIES Surveys. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2013). Profile of Namibia: Facts, Figures and other Fundamental Information. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2014a). Namibia 2011 Population and Housing Census Main Report. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2014b). 2011 Population and Housing Census: Oshikoto Regional Profile. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2014c). Namibia 2011 Census Atlas. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2014d). The Namibia Labour Force Survey 2013 Report. National Statistics Agency: Windhoek

National Statistics Agency (NSA) (2014e). Gross Domestic Product: First Quarter 2014. National Statistics Agency: Windhoek

Roesener, H., Schneider, G., and Petzel, V., 2004. Okahandja – Otjiwarongo –Tsumeb – Tsumeb: The Roadside Geology of Namibia, (G. Schneider ed.), Gebruder Borntraeger, Berlin, 9.19: 214 – 219.

Schneider, G.I.C. and Seeger, K.G. 1992. Copper, 2.3,118 pp. In: The Mineral Resources of Namibia, Geological Survey of Namibia, Windhoek.

Seeger, K.G. 1990. An evaluation of the groundwater resources of the Grootfontein karst area. Department of Water Affairs, Windhoek, Namibia.

Stankevica, V., 2015. Development of mining settlements in Namibia: an investigation into prospects for Rosh Pinah, Klein Aub and Tsumeb., PhD Thesis, University of Namibia, Windhoek,

Steven, N. M., 1993. A study of epigenetic mineralization in the Central Zone of the Damara Orogen, Namibia, with special reference to gold, tungsten, tin, and rare earth element. *Geological Survey of Namibia, Memoir* 16,166 pp.

Van Wyk, B. and Van Wyk, P. 1997. Field guide to trees of Southern Africa. Cape Town: Struik Publishers.

Van Oudtshoorn, F. 1999. Guide to grasses of southern Africa. Briza Publications, Pretoria, South Africa.

World Travel and Tourism Council, 2013, Travel and Tourism Economic impact 2013, Namibia, London, United Kingdom.

South African National Standards (SANS), 2005**.** South African National Standard, Ambient Air Quality – Limits for Common Pollutants. SANS 1929:2005. Standards South Africa, Pretoria.

2. REFERENCES AND FURTHER READING ON FAUNA AND FLORA

Alexander, G. and Marais, J. 2007. A guide to the reptiles of southern Africa. Struik Publishers, Cape Town, RSA.

Barnard, P. 1998. Underprotected habitats. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Bester, B. 1996. Bush encroachment – A thorny problem. *Namibia Environment* 1: 175-177.

Branch, B. 1998. Field guide to snakes and other reptiles of southern Africa. Struik Publishers, Cape Town, RSA.

Branch, B. 2008. Tortoises, terrapins and turtles of Africa. Struik Publishers, Cape Town, RSA.

Boycott, R.C. and Bourquin, O. 2000. The Southern African Tortoise Book. O Bourquin, Hilton, RSA.

Broadley, D.G. 1983. Fitzsimons' Snakes of southern Africa. Jonathan Ball and AD. Donker Publishers, Parklands, RSA.

Brown, C.J., Jarvis, A., Robertson, T. and Simmons, R. 1998. Bird diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Brown, I, Cunningham, P.L. and De Klerk, M. 2006. A comparative study of wetland birds at two dams in central Namibia. *Lanioturdus* 39(1): 2-9.

Buys, P.J. and Buys, P.J.C. 1983. Snakes of Namibia. Gamsberg Macmillan Publishers, Windhoek, Namibia.

Carruthers, V.C. 2001. Frogs and frogging in southern Africa. Struik Publishers, Cape Town, RSA.

Channing, A. 2001. Amphibians of Central and Southern Africa. Protea Bookhouse, Pretoria, RSA.

Channing, A. and Griffin, M. 1993. An annotated checklist of the frogs of Namibia. *Madoqua* 18(2): 101-116.

Coats Palgrave, K. 1983. Trees of Southern Africa. Struik Publishers, Cape Town, RSA.

Cole, D.T. and Cole, N.A. 2005. Lithops Flowering Stones. Cactus and Co. Libri

Craven, P. 1998. Lichen diversity in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Craven, P. (ed.). 1999. A checklist of Namibian plant species. Southern African Botanical Diversity Network Report No. 7, SABONET, Windhoek.

Crouch, N.R., Klopper, R.R., Burrows, J.E. and Burrows, S. M. 2011. Ferns of southern Africa – a comprehensive guide. Struik Nature, Cape Town, RSA.

Cunningham, P.L. 1998. Potential wood biomass suitable for charcoal production in Namibia. *Agri-Info* 4(5): 4-8.

Cunningham, P.L. 2006. A guide to the tortoises of Namibia. Polytechnic of Namibia, Windhoek, Namibia.

Curtis, B. and Barnard, P. 1998. Sites and species of biological, economic or archaeological importance. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Curtis, B. and Mannheimer, C. 2005. Tree Atlas of Namibia. National Botanical Research Institute, Windhoek, Namibia.

De Graaff, G. 1981. The rodents of southern Africa. Buterworths, RSA.

Du Preez, L. and Carruthers, V. 2009. A complete guide to the frogs of southern Africa. Struik Publishers, Cape Town, RSA.

Estes, R.D. 1995. The behaviour guide to African mammals. Russel Friedman Books, Halfway House, RSA.

Giess, W. 1971. A preliminary vegetation map of South West Africa. *Dinteria* 4: 1 – 114.

Griffin, M. 1998a. Reptile diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Griffin, M. 1998b. Amphibian diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Griffin, M. 1998c. Mammal diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Griffin, M. 2003. Annotated checklist and provisional national conservation status of Namibian reptiles. Ministry of Environment and Tourism, Windhoek.

Griffin, M. and Coetzee, C.G. 2005. Annotated checklist and provisional national conservation status of Namibian mammals. Ministry of Environment and Tourism, Windhoek.

Hebbard, S. n.d. A close-up view of the Namib and some of its fascinating reptiles. ST Promotions, Swakopmund, Namibia.

Hockey, P.A.R., Dean, W.R.J. and Ryan, P.G. 2006. Roberts Birds of Southern Africa VII Edition. John Voelcker Bird Book Fund.

IUCN, 2015. IUCN red list of threatened animals, IUCN, Gland, Switserland.

Joubert, E. and Mostert, P.M.K. 1975. Distribution patterns and status of some mammals in South West Africa. *Madoqua* 9(1): 5-44.

Komen, L. n.d. The Owls of Namibia – Identification and General Information. NARREC, Windhoek.

Maclean, G.L. 1985. Robert's birds of southern Africa. John Voelcker Bird Book Fund.

Maggs, G. 1998. Plant diversity in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Mannheimer, C. and Curtis, B. (eds) 2009. Le Roux and Müller's field guide to the trees and shrubs of N amibia. Macmillan Education Namibia, Windhoek.

Marais, J. 1992. A complete guide to the snakes of southern Africa. Southern Book Publishers, Witwatersrand University Press, Johannesburg, RSA.

Mendelsohn, J., Jarvis, A., Roberts, A. and Robertson, T. 2002. Atlas of Namibia. A portrait of the land and its people. David Philip Publishers, Cape Town, RSA.

Monadjem, A., Taylor, P.J., F.P.D. Cotterill and M.C. Schoeman. 2010. Bats of southern and central Africa. Wits University press, Johannesburg, RSA.

Müller, M.A.N. 1984. Grasses of South West Africa/Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.

Müller, M.A.N. 2007. Grasses of Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.

NACSO, 2010. Namibia's communal conservancies: a review of progress and challenges in 2009. NACSO, Windhoek.

Passmore, N.I. and Carruthers, V.C. 1995. South African Frogs - A complete guide. Southern Book Publishers, Witwatersrand University Press, Johannesburg, RSA.

Rothmann, S. 2004. Aloes, aristocrats of Namibian flora. ST promotions, Swakopmund.

SARDB, 2004. CBSG Southern Africa. In: Griffin, M. 2005. Annotated checklist and provisional national conservation status of Namibian mammals. Ministry of Environment and Tourism, Windhoek.

Schultz, M. and Rambold, G. 2007. Diversity shifts and ecology of soil lichens in central Namibia. Talk, Ecological Society of Germany, Austria and Switzerland (GfÖ), 37th Annual Meeting, Marburg: 12/9/2007 to 15/9/2007.

Schultz, M., Zedda, L. and Rambold, G. 2009. New records of lichen taxa from Namibia and South Africa. *Bibliotheca Lichenologica* 99: 315-354.

Simmons, R.E. 1998a. Important Bird Areas (IBA's) in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Simmons, R.E. 1998b. Areas of high species endemism. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Simmons R.E., Brown C.J. and Kemper J. 2015. Birds to watch in Namibia: red, rare and endemic species. Ministry of Environment and Tourism and Namibia Nature Foundation, Windhoek.

Skinner, J.D. and Smithers, R.H.N. 1990. The mammals of the southern African subregion. University of Pretoria, RSA.

Skinner, J.D. and Chimimba, C.T. 2005. The mammals of the southern African subregion. Cambridge University Press, Cape Town, RSA.

Stander, P. and Hanssen, L. 2003. Namibia large carnivore atlas. Unpublished Report, Ministry of Environment and Tourism, Windhoek.

Steyn, M. 2003. Southern African Commiphora. United Litho, Arcadia.

Tarboton, W. 2001. A guide to the nests and eggs of southern African birds. Struik Publishers, Cape Town, RSA.

Taylor, P.J. 2000. Bats of southern Africa. University of Natal Press, RSA.

Tolley, K. and Burger, M. 2007. Chameleons of southern Africa. Struik Nature, Cape Town, RSA.

Van Oudtshoorn, F. 1999. Guide to grasses of southern Africa. Briza Publications, Pretoria, South Africa.

Van Wyk, B. and Van Wyk, P. 1997. Field guide to trees of Southern Africa. Cape Town: Struik Publishers.

8. ANNEXES

1. BID / Scoping Report

2. Water Resources Management Regulations, 2023