

Environmental Assessment for Eight Exclusive Prospecting Licenses in the Omaheke Region

Final Scoping Report for Submission to the Environmental Commissioner

October 2018



Trans Kalahari Copper Namibia (Pty) Ltd



Executive Summary

Introduction

Trans Kalahari Copper Namibia (Pty) Ltd (the Proponent) intends to carry out mineral prospecting activities on eight Exclusive Prospecting Licenses (EPLs) (EPL 7049, EPL 7050, EPL 7051, EPL 7052, EPL 7053, EPL 7054, EPL 7055 and EPL 7056) (the project). The Proponent recently applied for and has been issued the aforementioned eight EPLs.

More geological information within the eight EPLs is required with respect to base and precious metal deposits. Some of the geological information collected during the exploration process will be made available to the Ministry of Mines and Energy. Furthermore, the demand for copper in the medium to long-term (i.e. approx. 10 years) is expected to exceed supply. It is therefore both necessary and desirable to carry out minerals exploration on the eight EPLs within the Omaheke Region.

Public Consultation

The first round of public consultation took place from the 15th August to the 5th of September 2018. The main issues that were raised during the first round of public consultation are as follows:

- Impact on road infrastructure (negative).
- Waste management impacts (negative).
- Impact on water demand (negative).
- Impacts on water quality (negative).
- Impacts on fauna and flora (negative).
- Potential opportunities for water use by affected community from holes drilled by the Proponent (positive).
- Impact on traditional foraging (negative).

The second round of public consultation took place from the 1st to the 12th of October 2018. No comments on the content of the draft scoping report were submitted during the aforementioned period.

Conclusions and Recommendations

Based on the findings of this impact assessment, the following can be concluded with respect to the social environment:

- The creation of temporary skilled and unskilled employment for Namibians is a **positive** impact of low-medium significance.
- The impact associated with an improved geological understanding regarding base and precious metals in the project area and the potential improved access groundwater are significant **positive** impacts.
- Impacts associated with traffic safety, dust, health and safety and archaeology are **negative** impacts of low or low-medium significance.

Mitigation measures and recommendations have been prescribed in this report (and the EMP – Appendix B) to reduce the significance of these key impacts (and others) to acceptable levels.

Based on the findings of the impact assessment conducted the following can be concluded with respect to the biophysical environment:

- Potential faunal and floral disturbance, owing to the relatively small extent of the exploration activities, constitutes a **negative** impact of low significance.
- Impacts associated with pollution of surface and groundwater resources and water demand, because of the relatively small scale of the proposed activity, constitutes a **negative** impact of low significance.

Mitigation measures and recommendations have been prescribed in this report (and the EMP – Appendix B) to reduce the significance of these key impacts (and others) to acceptable levels.

Based on the project information provided by the Proponent and the findings of the impact assessment conducted, it can be concluded that that the proposed project may be granted an Environmental Clearance Certificate, provided recommendations and impact mitigation measures in this report and all the provisions in the EMP are adhered to.

The findings of this scoping phase conclude that no further detailed assessments are required.

Furthermore, the implementation of the aforementioned recommendations, impact mitigation measures and EMP provisions should be monitored by the applicable Competent Authority to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed.

It is therefore recommended that an Environmental Clearance Certificate be issued for the proposed project, subject to the following recommendations:

- All required permits, licenses and approvals for the existing activity should be obtained as required.

- All mitigations listed in Table 7-3 to Table 7-12, and the Environmental Management Plan (Appendix B) should be implemented as stipulated.
- All the necessary traffic safety and occupational health and safety precautions as laid out in Chapter 7 – Impact Assessment should be adhered to.
- Wastewater from the toilets and washing facilities should be treated separately.
- Toilet water should be treated using one of the following methods:
 - Discharged into chemical toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.
 - A type of pit latrine (where excreta in the pit is treated to prevent the waste from being a water pollution risk).
- Where clearing is unavoidable, permits for clearing protected plant species should be obtained from the nearest forestry office.
- Areas where exploration activities have ceased should be rehabilitated, as far as practicable, to their original state.

Table of Contents

Executive Summary.....	ii
List of Figures and Tables.....	vii
Abbreviations and Acronyms.....	viii
Appendices.....	ix
Glossary.....	x
1 Introduction.....	1
1.1 Project Background.....	1
1.2 Project Need and Desirability.....	1
1.3 Terms of Reference.....	2
1.4 Environmental Assessment Process.....	2
1.4.1 Registration of Application for Environmental Clearance Certificate.....	2
1.4.2 The Scoping Phase.....	3
2 Project Team.....	4
2.1 John Pallett.....	4
2.2 Sheldon Husselmann.....	4
3 Project Description.....	5
3.1 Project Location.....	5
3.2 Project Inputs, Processes and Outputs.....	5
3.2.1 Project Inputs.....	5
3.2.2 Project Processes.....	7
3.2.3 Project Outputs.....	11
3.2.4 Sequence of Minerals Exploration Activities.....	12
3.3 No-Action Alternative.....	13
4 Legislation Relevant to the Project.....	14
4.1 National Legislative Requirements.....	14
4.2 International Treaties and Conventions.....	19
5 Description of the Receiving Environment.....	20
5.1 Biophysical Environment.....	20

5.1.1	Climate	20
5.1.2	Topography	20
5.1.3	Geology and Soil	20
5.1.4	Hydrogeology	22
5.1.5	Biodiversity	22
5.2	Socio-Economic Environment	24
5.2.1	Regional Demographic Overview.....	24
5.2.2	Otjombinde Constituency	25
5.2.3	Land Use.....	26
5.2.4	Archaeology and Heritage Resources	27
6	Public Consultation	28
6.1	First Round of Public Consultation.....	28
6.1.1	Public Consultation Activities	28
6.1.2	Comments Received and Responses Provided	29
6.1.3	Outcome of First Round of Public Consultation	36
6.2	Second Round of Public Consultation	36
6.2.1	Public Consultation Activities	36
6.2.2	Comments Received and Responses Provided	37
7	Impact Assessment	38
7.1	Assessment Method.....	38
7.2	Comprehensive Assessment	39
7.3	Key Impacts Identified.....	41
7.3.1	Operation Phase	41
7.3.2	Cumulative Impacts	53
8	Conclusions and Recommendations.....	54
8.1	Conclusion	54
8.2	Recommendations	55
9	References	57

List of Figures and Tables

Figure 3-1:	Location of 8 EPLs in the Omaheke Region	6
Figure 3-2:	Airborne geophysics instruments	8
Figure 3-3:	Ground geophysics cutline and peg.....	9
Figure 3-4:	Soil sample collection and equipment.....	10
Figure 3-5:	Scenes from typical drilling operation	11
Figure 5-1:	Map displaying geology of the project area	21
Figure 5-2:	View of typical vegetation occurring in project area along M119	22
Figure 5-3:	Map displaying water resources in the project area	23
Figure 7-1:	Screening process for determining key impacts.....	38
Table 4-1:	Legislation applicable to the project.....	14
Table 4-2:	International Treaties and Conventions applicable to the Project.....	19
Table 6-1:	Comments received and responses provided during the first round of public consultation	30
Table 7-1:	Criteria applied to each potential impact	39
Table 7-2:	Key potential impacts expected during the operational phase	42
Table 7-3:	Assessment of impact associated with employment creation	42
Table 7-4:	Assessment of impact associated with improved geological understanding....	44
Table 7-5:	Assessment of impact associated with improved access to groundwater.....	44
Table 7-6:	Assessment of potential traffic safety impact	45
Table 7-7:	Assessment of dust impacts	47
Table 7-8:	Assessment of potential health and safety impacts.....	48
Table 7-9:	Impact assessment pertaining to heritage/archaeological remains	49
Table 7-10:	Assessment of impact associated with disturbance of flora and fauna	50
Table 7-11:	Assessment of impacts associated with surface water, groundwater and soil contamination/pollution	51
Table 7-12:	Assessment of impact associated with water demand	53

Abbreviations and Acronyms

CV	Curriculum Vitae
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
GG	Government Gazette
GN	Government notice
I&AP	Interested and Affected Party
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MME	Ministry of Mines and Energy
NSA	Namibia Statistics Agency
RA	Roads Authority
ToR	Terms of Reference

Appendices

Appendix A: Application for Environmental Clearance Certificate

Appendix B: Environmental Management Plan

Appendix C: CVs of EAPs responsible for the Environmental Assessment

Appendix D: Public Consultation

Appendix D1: List of pre-identified Interested and Affected Parties (I&APs)

1st Round of Public Consultation

Appendix D2: Notification email sent to I&APs

Appendix D3: Background Information Document (BID)

Appendix D4: Letter sent via courier to regional authority

Appendix D5: Proof of delivery of letter sent to regional authority via courier

Appendix D6: Notification letter hand delivered to national ministries and state-owned enterprises situated in Windhoek

Appendix D7: Proof of hand delivery of notification letter sent to national ministries and state-owned enterprises situated in Windhoek

Appendix D8: Copies of newspaper notices

Appendix D9: Proof of notices placed on-site and at the reception area of the Omaheke Regional Council

Appendix D10: Gobabis public meeting minutes

Appendix D11: Talismanis public meeting minutes

Appendix D12: Public meeting minutes emailed to meeting attendees

Appendix D13: List of registered I&APs

Appendix D14: Copy of correspondence between I&APs and the EAP

2nd Round of Public Consultation

Appendix D15: Notification email sent to I&APs

Appendix D16: Invitation to public feedback meeting

Appendix D17: Public feedback meeting minutes

Appendix D18: Feedback meeting minutes emailed to attendees

Glossary

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.

Environmental Management Plan – as defined in the EIA Regulations, a plan that describes how activities that may have significant environments effects are to be mitigated, controlled and monitored.

Interested and Affected Party (I&AP) - in relation to the assessment of a listed activity includes - (a) any person, group of persons or organisation interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - practical measures to reduce adverse impacts.

Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity.

Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

1 Introduction

This chapter of the report provides a background and motivation to the project; the study's terms of reference; purpose of this report; the assumptions and limitations of the study; and an outline of the remainder of the report.

1.1 Project Background

Trans Kalahari Copper Namibia (Pty) Ltd (the Proponent) intends to carry out mineral prospecting activities on eight Exclusive Prospecting Licenses (EPLs) (EPL 7049, EPL 7050, EPL 7051, EPL 7052, EPL 7053, EPL 7054, EPL 7055 and EPL 7056) (see Figure 3-1 below) located in the Omaheke Region, Namibia (the project). The Proponent recently applied for and has been issued the aforementioned eight EPLs.

Previous companies have conducted exploration over parts of the area covered by the EPLs in question (mostly toward the northern half of the area). However, no work has been carried since 2016 when their EPL's were not renewed. Kopore Metals Ltd has carried out minerals exploration on the Botswana side of the Kalahari Copper Belt.

Trans Kalahari Copper Namibia (Pty) Ltd is a 100% Namibian-owned incorporated subsidiary of Kopore Metals Limited, an Australian publicly listed company (ASX:KMT¹)

1.2 Project Need and Desirability

Namibia's Vision 2030 and Namibia's National Development Plan 5 both recognise a need for and place significant value on economic growth and employment creation. The potential mining of base and precious metals within the areas covered by the EPLs has the potential to contribute to both of these national priorities.

Despite the current volatility within the copper market, demand for copper in the medium to long-term (i.e. approx. 10 years) is expected to exceed supply (Fatima, 2018). Exploration activities within the eight EPLs seek to identify potential economic copper-silver mineralisation, which will require feasibility studies and if proven to be economic aid in mine planning. Future exploration programmes will utilise this information to will enable a more effective and efficient exploration targeting and potential mining of any identified target deposits in future.

¹ <https://www.asx.com.au/asx/share-price-research/company/KMT>

More geological information within the eight EPLs is required with respect to base and precious metal deposits. Some of the geological information collected during the exploration process will be made available to the Ministry of Mines and Energy.

It is therefore both necessary and desirable to carry out minerals exploration on the eight EPLs within the Omaheke Region (referred to hereafter as the project or proposed project).

1.3 Terms of Reference

In light of the need to undertake the project Independent Environmental Consultants (hereafter referred to as IEC or the Environmental Assessment Practitioner (EAP)) was appointed by the Proponent to undertake an environmental assessment (EA) for purpose of applying for an Environmental Clearance Certificate (ECC) for the project.

No formal Terms of Reference (ToR) were provided by the Proponent. Therefore, the ToR for conducting this EA were taken to be the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its Environmental Impact Assessment (EIA) Regulations (GN. No. 30 of 2012) (see Chapter 4 – Legislation Relevant to the Project).

This EA has been conducted with the aim to apply for an ECC only. Any additional permits or licenses and/or approvals that are required (see Chapter 4) for the operation of the project should be applied for by the Proponent.

1.4 Environmental Assessment Process

The steps followed as part of this EA process are; registration of application for an ECC and carrying out the scoping phase of the EA process as prescribed by the EIA Regulations.

1.4.1 Registration of Application for Environmental Clearance Certificate

The first step followed as part of this EA process was to identify the listed activities, which the proposed project entails, as stipulated in the 'List of Activities that may not be undertaken without an Environmental Clearance Certificate' (GN. No. 29 of 2012). One listed activity, listed below, was identified.

Mining and Quarrying Activities

3.1 The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.

In accordance with Section 32 of the EMA, applications for an ECC should be submitted to the relevant Competent Authority. The Competent Authority is defined as that authority having the jurisdiction to approve or permit a particular listed activity in accordance with the relevant

national legislation. The Ministry of Mines and Energy (MME) was identified as the Competent Authority. Therefore, the application for an ECC was submitted on 10 August 2018 to the MME (Appendix A) and a copy of the same application submitted on the same day to the Environmental Commissioner (Appendix A) as prescribed by Regulation 6 (Form 1 of Annexure 1) of the EIA Regulations (GN. No. 30 of 2012), as provided for under Section 56 of the EMA.

1.4.2 The Scoping Phase

After submitting an application for an ECC the scoping phase commences, culminating in the production of a draft scoping report, which includes all the findings of the scoping phase. This report includes the following:

- A description of the proposed project (including need and desirability of the proposed activity and no-action alternative) (Chapter 1);
- A description of the existing biophysical and social conditions of the receiving environment (Chapter 3);
- Legislative provisions that have relevance to the proposed project (Chapter 4);
- A description of the public consultation process followed (as described in Regulations 7 and 21 of the EIA Regulations) (Chapter 6);
- A description and significance assessment of all identified potential impacts (positive and negative) associated with the proposed project (Chapter 7); and
- Management and mitigation measures required to avoid or minimise the potential negative impacts as outlined in the Environmental Management Plan (EMP) (Appendix B).

The purpose of this report is to provide the Environmental Commissioner's office with sufficient information on the potential impact of the proposed project to make a decision with respect to the associated application for an ECC.

2 Project Team

The project team for this EA consists of John Pallett and Sheldon Husselmann, both of whom have significant experience conducting EAs (scoping and assessment level) within the Namibian environmental context.

2.1 John Pallett

John Pallett is a certified Environmental Assessment Practitioner (EAP), with qualifications in geology (BSc) and zoology (BSc Honours). He specialises in providing environmental advice and evaluating environmental issues, particularly through Environmental Impact Assessments (EIAs) and strategic SEAs, for the benefit of managers, decision-makers and the lay public. He has been affiliated to the Southern African Association for Impact Assessment (SAIEA) since 2008, and the Desert Research Foundation of Namibia – Environmental Evaluation Associates of Namibia (DRFN-EEAN) for 14 years up to 2008. See CV (Appendix C1).

2.2 Sheldon Husselmann

Sheldon Husselmann is the holder of BSc, BSc (Honours) and MSc in Environmental and Geographical Science (2010, 2011 and 2016 respectively).

During his 6 years as an EAP with Enviro Dynamics cc, GCS Water Environmental Engineering (Pty) Ltd and Urban Green cc, he has gained valuable experience in conducting EAs (including public consultation), both in team set-up as well as individual team leader. Sheldon has also been affiliated with the SAIEA since June 2018. Find attached his CV (see Appendix C2).

3 Project Description

3.1 Project Location

The project is located approximately 180 km northeast of Gobabis in the Omaheke Region (Figure 3-1). The eight EPLs cover an area measuring approximately 660,000 ha. The Proponent aims to evaluate and explore across all its granted EPL areas.

3.2 Project Inputs, Processes and Outputs

The target groups of minerals comprise base and precious metals. Base metals are relatively common and inexpensive metals, as opposed to precious metals such as silver. In mining terms base metals are specifically non-ferrous (i.e. contain no iron). Targets in the aforementioned target groups of minerals include copper, lead, nickel, tin and zinc (base metals) and silver (precious metals).

3.2.1 Project Inputs

The inputs required for minerals exploration activities in terms of vehicles and equipment include the following:

- 4x4 vehicles
- Truck mounted drill rig and diesel-powered generator for Percussion, reverse circulation and diamond drilling.
- Diesel bowser (bundled)
- One Compressor
- Oils, grease and drilling fluid (stored in manufacturers approved containers)
- Water bowser

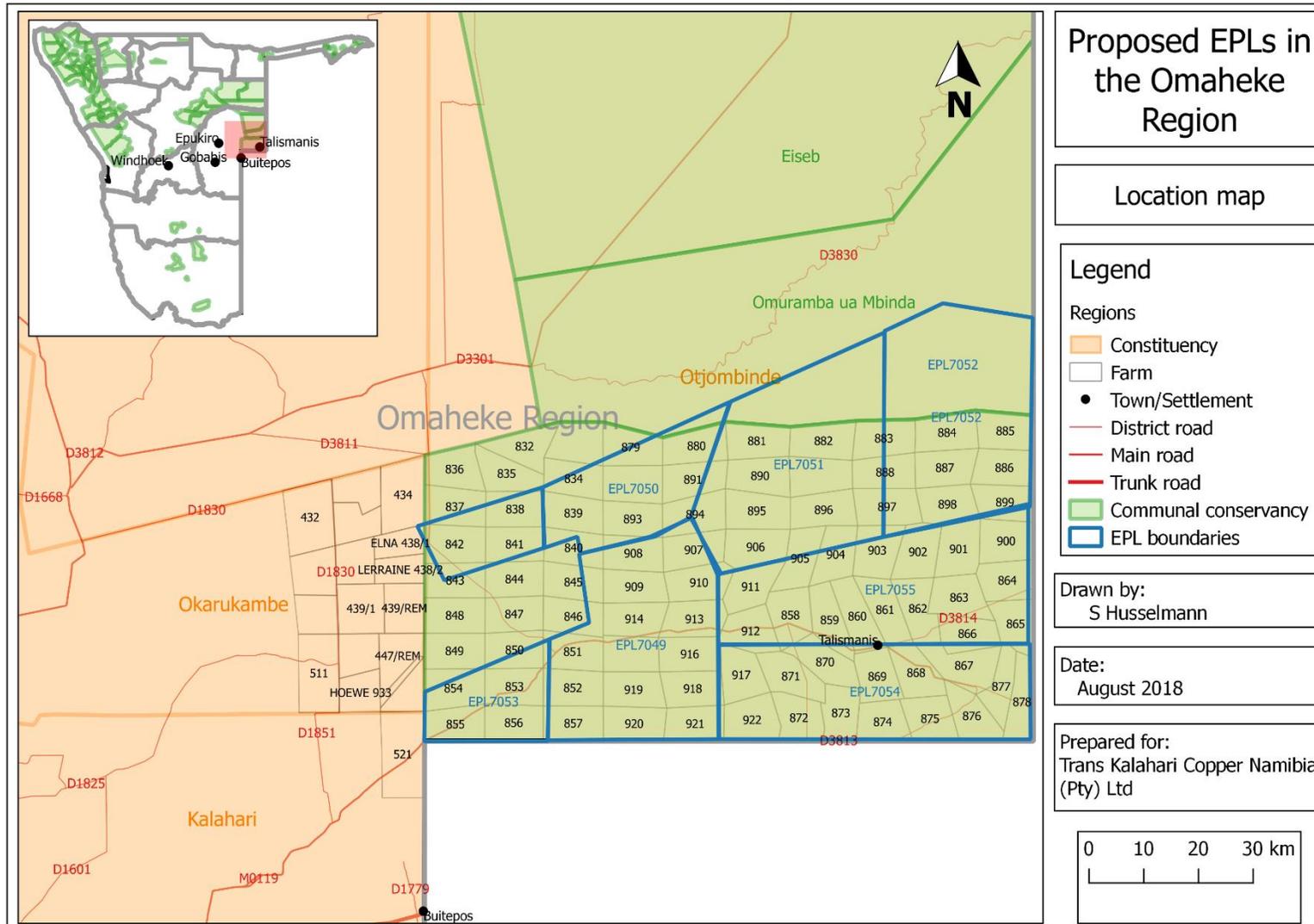


Figure 3-1: Location of 8 EPLs in the Omaheke Region

Accommodation for all staff utilised for the airborne geophysics, soil sampling and ground geophysics will be sourced at nearby urban settlements. Only for the geological drilling activities will staff reside in temporary accommodation near exploration sites. The eight-man drilling crews will be temporarily accommodated in tents. All equipment and vehicles and equipment will be stored at a designated area near the temporary accommodation.

The resource inputs required for the mining exploration activities include the following:

- **Water** – 200 litres of water per week for domestic use, bought from the nearest supplier. Rotary Air Blast (RAB)/Percussion and Reverse Circulation (RC) drilling do not require water for drilling. Diamond drilling requires approximately 10,000 litres per hole (the number of diamond-drilled holes will depend on the results of the exploration programme), bought from the nearest supplier stored on site in industry standard water reservoirs. However, ground conditions vary and in cases of fractured formations more water may be required. In the case of intersecting open fractures or faulted ground, stabilising agents and packing materials such as bentonite may be used to seal the water loss and minimise water usage.
- **Fuel** – approximately 600 litres of diesel is required per day. A bunded diesel bowser, will remain on-site, which will be filled by a diesel bowser truck 2-3 times a week.
- **Electricity** – electricity for operations will be supplied by diesel generators.
- **Personnel** – Each rig (i.e. 3 in total) has an eight-man crew of which one would be supervisor, driver, and driller. The remaining members would be semi/unskilled labourers. However, a maximum of eight people will reside on-site at any given time during drilling operations.
- **Sanitation** – portable chemical toilets will be available at the temporary accommodation near exploration sites or a type of pit latrine (where excreta in the pit is treated to prevent the waste from being a water pollution risk).

3.2.2 Project Processes

The minerals exploration activities intended can be divided into two categories:

1. Non-invasive techniques:
 - a. Airborne Geophysics.
 - b. Ground Geophysics.
 - c. Soil Sampling.
2. Invasive techniques:
 - a. Diamond Drilling.
 - b. RAB/Percussion Drilling.
 - c. Reverse Circulation (RC) Drilling.

Information regarding the general sequence of minerals exploration activities is provided first and then each exploration technique/process is described in turn.

3.2.2.1 Airborne Geophysics

The Proponent will conduct a series of ground (detailed below) and airborne geophysical surveys. Both geophysical techniques have been employed for mineral exploration for decades and proven to be very efficient and successful exploration techniques. The Proponent will contemplate using both of these non-invasive methods.

The Proponent has successfully employed the electromagnetic (EM) and magnetic airborne geophysical techniques on the Kalahari Copper Belt and identified regional scale magnetic anomalies.



Figure 3-2: Airborne geophysics instruments

The airborne geophysical technique seeks to measure electrical (conductor) and magnetic variations in the physical parameters of the earth. Changes up to 600m below the earth's subsurface can produce measurable variations, which can be collected and analysed by highly sophisticated measuring instruments (Figure 3-2), suspended underneath a helicopter (on average 60m above the surface).

The main advantage of an airborne survey over a ground-based one is that a much greater land area can be covered in the same time period.

3.2.2.2 *Ground Geophysics*

Ground geophysics entails the use of portable electronic equipment carried on foot by exploration staff within a target area. Two ground geophysics methods will be used – magnetometer and the Min-Max method:



Figure 3-3: Ground geophysics cutline and peg

1. A magnetometer measures the earth's magnetic field. It comprises a pole with a sensor on it and backpack and receiver. This equipment is carried by a person, who walks through the target area and it takes readings every 20 -25 metres.
2. Max-Min is an electromagnetic method, which requires two people. One person walks 200m in front of the other. One person carries a backpack with a transmitter and the other person carries a backpack with a receiver. The electromagnetic field of a given area is thus measured.

Minor bush trimming is required where vegetation is too thick to walk through (Figure 3-3). In this instance a one metre width area (25cm to either side of their shoulders) is trimmed.

3.2.2.3 Soil Sampling

Soil sampling (Figure 3-4) is the process of collecting and analysing unconsolidated soil to locate geochemical anomalies in the underlying rock and to use these to find ore bodies.

A soil sampling survey consists of a series of grids or lines where soil samples are collected generally at 25 metre or 50 metre intervals. The actual sampling involves removing the top two centimetres of material to make sure the top organic layer has been removed in a 20 cm by 20 cm area. The clean area is homogenised down to a depth of 10 centimetres and then the soil material is put into a sieve to obtain a soil sample of approximately 100 grams. The remaining soil is returned back into the hole and covered and the organic layer is returned.



Figure 3-4: Soil sample collection and equipment

3.2.2.4 Diamond Drilling

Exploration diamond drilling is used in the mining industry to probe the contents of potential mineral ore deposits. By withdrawing a small diameter core of rock from the orebody, geologists can analyse the core by chemical assay and conduct petrologic, structural and mineralogical studies of the rock.

Diamond core drilling uses a diamond-studded drill bit attached to the end of a hollow drill rod. Diamond drilling differs from other geological drilling in that a cylindrical core of solid rock is extracted during the process. Water is injected into the drill pipe, which serves the purpose of cooling and lubricating the drill bit as well as washing out drill cuttings.

Inside the drill rod, a core tube is attached to a cable via a latching mechanism. The core tube is lifted to the surface using the cable, so the solid core can be removed.

3.2.2.5 RAB/Percussion Drilling

Similar to a water drilling rig, a percussion drilling rig (Figure 3-5) uses compressed air to drill. No water is used for drilling. The drill rod is a hollow steel tube.

When drilling through sand a non-toxic biodegradable foam will be added, which holds the sand in place while drilling.

Once bedrock is reached, drilling will continue until a further two metres of bedrock are drilled. The bedrock sample is collected on the surface and geologically logged in the field. The bedrock sample analysis provides guidance in terms of drill targeting for potential future reverse circulation (RC) holes.

As many as 8 holes are drilled at each site. Holes are drilled only as deep as the overburden at each site, estimated up to 60m depth. Generally, an initial percussion drilling programme would not exceed 800m in total, unless further geological information is required.

After the percussion hole is completed and samples are collected, every hole is filled up with any residual drill material that was collected during the drilling process. The hole is then capped just below surface with cement and marked bearing the name of the drilling hole.

The relevant land owners are then consulted and provided with details about the current boreholes to provide guidance on the depth of the overburden and the depth to the top of any borehole water (if intersected).

3.2.2.6 Reverse Circulation Drilling

Reverse circulation drilling is achieved by blowing compressed air down the annulus of the drill rod, the differential pressure creates air lift pushing water and cuttings up the inner tube that is inside each rod.

The drill cuttings travel up the inside of the drill rod and are collected in a sample bag on the surface. Samples are collected (Figure 3-5) every metre and the number of samples is therefore dictated by the depth of the hole.

Generally, a RC drilling program will see multiple holes drilled at 60-90° inclination and can range from 60 to 500m in depth.

3.2.3 Project Outputs

The main project outputs are as follows:

- **Solid waste** – general solid waste (food waste, plastic, paper, etc.) and mining exploration solid waste (used drill rig components, discard/waste rock samples etc.) will be generated by the mining exploration activities.
- **Liquid waste** – Wastewater will be produced by toilets (at the exploration sites) and washing facilities. The wastewater collected from the portable chemical toilets and washing facilities will be transported to the nearest suitable local authority wastewater treatment facility. Fuels and oils will be used on-site and might spill.
- **Mining samples** – usable rock samples.



Figure 3-5: Scenes from typical drilling operation

3.2.4 Sequence of Minerals Exploration Activities

The project will include a variety of exploration techniques, described in the following sections. The early phase, regional exploration, normally comprises a mixture of non-invasive techniques such as soil sampling and ground geophysics and invasive drilling techniques. During these early phases, all the Proponent's employees and contractors will employ industry standard best practice techniques and will incorporate the taking of 'before' and 'after' photographs. This photographic record will be included in annual environmental monitoring reports to show the minimum impact and environmental best practice that is adopted by the Proponent and all sub-contractors, as well as provide a record for the Department of Environmental Affairs (DEA) and Interested and Affected Parties (I&APs).

Before any work is carried out all personnel (including fully employed, contracted, and casual) will be inducted on the Proponent's Environmental Health and Safety policy and procedures and processes to follow while conducting the work.

Consultations with all the land owners, users and community and government stakeholders will commence to introduce the company, to explain the purpose and stage of the proposed exploration, determine the current operating procedures and rules of the farm or area, and to develop land access agreements with each owner or user.

Due to the iterative, results-driven and phased nature of mineral exploration programmes, it is not possible at an early stage of exploration to give exact areas for future drilling or an exact duration of the exploration activities. Soil sampling programmes may last from between one week to one month at a time over specific areas until the area has been fully explored. Drilling programmes may initially range from two weeks to a month at a time, depending on the planned programme or based on the results of the programme. The Proponent undertakes to work with all relevant stakeholders to keep them informed of exploration progress in order to facilitate site visits and access to ongoing field exploration programmes.

In general terms, the minerals exploration activities can take up to a maximum of seven years, with different projects at various stages of the exploration phase.

3.3 No-Action Alternative

In the event that the proposed project was denied an Environmental Clearance Certificate (ECC) no minerals exploration would take place. The default activity taking place within the area bounded by the EPLs would be communal livestock farming. This would entail the following (among other consequences):

- Negative:
 - The loss of a few potential semi and unskilled jobs and associated income for a few individuals (and their dependents).
 - The loss of potential detailed geological information regarding base and precious metal deposits in the area bounded by the EPLs.
 - Loss of potential groundwater information and potential water-yielding boreholes.
- Positive:
 - No added pressure on existing infrastructure and resources (water, roads, fences, gates etc.).
 - No nuisance/inconvenience (leaving farm gates open etc.).
 - No waste generation.

The loss of potential groundwater information and potential water yielding boreholes is potentially significant and therefore represents a potentially significant opportunity cost in light of the scarcity of water and high-water demand. The loss of a few potential jobs represents a small opportunity cost given the current troubling unemployment situation within the Otjombinde Constituency (and the Omaheke Region at large). The use of the land for livestock farming will not be influenced by the exploration activities and therefore these land uses can co-exist. The increase in pressure on existing infrastructure will be relatively small – a few large vehicles and service vehicles on roads, and small volumes of water for most exploration activities. Based on the above, the no-action/“no-go” alternative is not recommended.

4 Legislation Relevant to the Project

Natural resource management within the Namibian context is provided for by legislation regulating its various social and biophysical sectors.

There are several sectoral laws that fall under the general category of environmental law. Examples of relevant sectors include forestry, water and mining. Any development, such as the proposed project, is expected to have certain impacts and would therefore have to comply with the relevant legislative requirements before being implemented.

This chapter provides an overview to the legislation that is applicable to both the assessment process and the various project activities. It is accordingly divided into: (i) national legislative requirements – i.e. the legal framework for environmental management in Namibia and national sectoral legislative requirements (including required approvals/permits) applicable to the activities of the proposed project; and (ii) relevant international legislation.

4.1 National Legislative Requirements

The legal framework for EA in Namibia and national sectoral legislation pertaining to various environmental aspects (including approval and permit requirements) are listed in Table 4-1 below.

Table 4-1: Legislation applicable to the project

Statute	Provisions	Project Implications
Environmental Assessment Legal Framework		
The Namibian Constitution (1990)	Article 95 (1) states that <i>“the State 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 utilization of natural resources on a sustainable basis”</i> Article 100 stipulates that all natural resources are vested in the state, unless otherwise legally owned. The use of such resources is only allowed within reasonable limits and beyond such limits, permission should be obtained	The project should support the provisions of the Namibian Constitution

Statute	Provisions	Project Implications
	<p>from a competent authority responsible for the use and governance of the concerned natural resources.</p>	
<p>Environmental Management Act (No 7 of 2007)</p>	<p>Section 3(2) of the EMA provides a set of principles that give effect to the provisions of the Namibian Constitution for integrated environmental management.</p> <p>Section 27(3) stipulates that no party, whether private or governmental, can conduct a listed activity without an ECC obtained from the Environmental Commissioner.</p> <p>Section 40(1) stipulates that an ECC remains valid for a period not exceeding three years, subject to cancellation or suspension.</p>	<p>The project should adhere to the principles provided in the EMA.</p> <p>An ECC should be obtained for the proposed project.</p> <p>The Proponent should renew the ECC (if granted) every three years.</p>
<p>Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)</p>	<p>Details requirements for public consultation within a given environmental assessment process (Rs21-24).</p> <p>Details the requirements for what should be included in a Scoping Report (R8) and an Assessment Report (R15).</p>	<p>The EIA Regulations should inform and guide this EA process.</p>
<p>National Sectoral Legislation (Including Approvals/ Permits)</p>		
<p>Minerals (Prospecting and Mining) Act (No. 33 of 1992)</p>	<p>Section 52 requires mineral license holders to enter into a written agreement with affected land owners before exercising rights conferred upon the license holder.</p> <p>Section 54 requires written notice to be submitted to the Mining Commissioner in the event that the holder of a mineral license (which includes and EPL) intends to abandon the mineral license area.</p>	<p>The Proponent should enter into a written agreement with land owners before carrying out exploration on their land.</p> <p>The Proponent should carry out an assessment of the impact on the receiving environment.</p> <p>The Proponent should include as part of their</p>

Statute	Provisions	Project Implications
	<p>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken in order to prevent or minimize any such effect.</p> <p>Section 91 requires that rehabilitation measures should be included in an application for a mineral license.</p>	<p>application for this EPL measures by which they will rehabilitate the areas where they intend to carry out mining exploration activities.</p>
<p>Mine Health & Safety Regulations, 10th Draft</p>	<p>Makes provision for the health and safety of persons employed or otherwise present in mineral license areas. These deal with among other matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance.</p>	<p>The Proponent should comply with all these regulations with respect to their employees.</p>
<p>Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)</p>	<p>Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”</p>	<p>The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.</p>
<p>Water Act (No. 54 of 1956)</p>	<p>Makes provision for a number of functions pertaining to the management, control and use of water resources, water supply and the protection of water resources.</p>	<p>The Proponent should prevent any potential pollution of groundwater. Water should be used in a sustainable way.</p>

Statute	Provisions	Project Implications
Water Resources Management Act No. 11 of 2013	<p>Provides for the management, development, protection, conservation, and use of water resources.</p> <p>Part XIII of the Act requires that efficient water management practises be applied by each and every person or organisation and organ of state.</p> <p>This Act has not yet been brought into force.</p>	
Forestry Act (No. 12 of 2001)	<p>Part IV of this Act provides for the general protection of the environment.</p> <p>Permits are required for the removal of protected plants species.</p>	Permits should be obtained if there will be any removal of or damage to protected plant species.
Nature Conservation Ordinance No. 4 of 1975 (as amended)	<p>Makes provision for the protection of indigenous flora and fauna.</p> <p>Permits are required for the removal of protected plants species.</p>	
Soil Conservation Act No. 76 of 1969	<p>Provides for the prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources.</p>	Removal of vegetation cover and contamination of soil must be minimised as far as practicable.
Draft Pollution Control and Waste Management Bill (September 2003) (not yet enforced as an Act)	<p>Promotes sustainable development and relates to preventing and regulating the discharge of pollutants to the air (Part 2), water and land (Part 3); integrated pollution control (Part 4) and to regulating noise, dust and odour pollution (Part 5); and to establishing a system of waste planning and management (Part 6)</p>	<p>Pollution to the air and water should be avoided.</p> <p>Dust pollution should be prevented.</p> <p>Waste management should be applied.</p>
Atmospheric Pollution Prevention Ordinance No. 11 of 1976 (as amended)	<p>Provides for the prevention of pollution of the atmosphere. Part IV of the Ordinance deals with control of dust and provides for the proclamation of dust control areas.</p>	A general obligation not to contribute or cause dust pollution.

Statute	Provisions	Project Implications
Public Health Act No. 36 of 1919 (as amended)	Provides for the prevention of pollution of public water supplies. Section 119 of this Act prohibits the existence of a 'nuisance' on any land owned or occupied by any person.	A general obligation not to pollute the water bodies in the area. Care should be taken to limit dust and noise pollution.
Labour Act (No. 11 of 2007)	The Labour Act of 1992 (Act 6), the New Labour Act of 2007 (Act 11) and Government Notice 156 of 1997: Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work, governs working conditions of employees. These regulations are prescribed for among others safety relating to hazardous substances, exposure limits and physical hazards. Special consideration must be given to: Chapter 3: Welfare and Facilities at Work-Places Chapter 4: Safety of Machinery Chapter 5: Hazardous Substances Chapter 6: Physical Hazards and general provision	The Proponent should comply with health and safety regulations pertaining to the health and safety of their employees.
Regulations relating to the health and safety of employees at work (GN 156/1997 (GG 1617))	Details conditions, pertaining to occupational health and safety applicable to manual labour.	Work conditions during exploration should comply with these regulations.
National Heritage Act (Act 27 of 2004)	Provides for the protection of cultural and archaeological sites.	Any protected heritage resources discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.
Road Ordinance 1972 (Ordinance 17 of 1972)	Width of proclaimed roads and road reserve boundaries (S3.1)	The conditions applicable to RA proclaimed roads and

Statute	Provisions	Project Implications
	Control of traffic on urban trunk and main roads (S27.1) Infringements and obstructions on and interference with proclaimed roads. (S37.1)	road accesses should be adhered to.

4.2 International Treaties and Conventions

The international treaties and conventions applicable to the project are listed below in Table 4-2 below.

Table 4-2: International Treaties and Conventions applicable to the Project

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
The United Nations Convention to Combat Desertification (UNCCD)	Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.	Activities should not be such that they contribute to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use. Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: “a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

5 Description of the Receiving Environment

5.1 Biophysical Environment

5.1.1 Climate

The study area is situated in the eastern part of Namibia in the Omaheke Region which is characterised by semi-arid climatic conditions – i.e. hot and dry summers and moderate dry winters.

Rainfall is erratic and unpredictable within the project area, with the highest rainfall months being January to March. Most rainfall takes place as thunderstorms. The average annual rainfall for the project area and surroundings is approximately 350 - 400 mm.

Due to its location, temperatures are moderate during summer (average maximum 30°C – 32°C) and cold (average minimum 2°C – 4°C) during winter.

The characteristic thunderstorms, a low per annum rainfall and high temperatures during the rainy season results in high run-off and evaporation, restricting aquifer recharge and increasing the potential for erosion.

Easterly winds occur (22%) throughout the year, followed by westerly (12%) winds and north-easterly (10%) winds (Mendelsohn, et al., 2003).

5.1.2 Topography

The study area and larger surrounding area forms mostly part of the Kalahari Sandveld (Mendelsohn, et al., 2003). The topography of Kalahari Sandveld is made up of sandy, mostly flat plains with some low undulations at an altitude ranging from 1,200m to 1,400m above sea level.

The proposed project is situated to the east of the major watershed forming a roughly north-south divide in central Namibia. The project area is located within the catchment area of the Epukiro River (and some smaller tributaries), which are ephemeral and drain in an easterly direction contributing towards the Kalahari drainage system.

5.1.3 Geology and Soil

The dominant geology of the area is largely unknown owing to the relatively thick layer of sand cover over what is known as the Kalahari Group (Figure 5-1). Smaller portions of the project area are comprised of Witvlei Group limestones and shales rock types of the Damara Supergroup and Gariiep Complex Kalahari Group (Mendelsohn, et al., 2003).

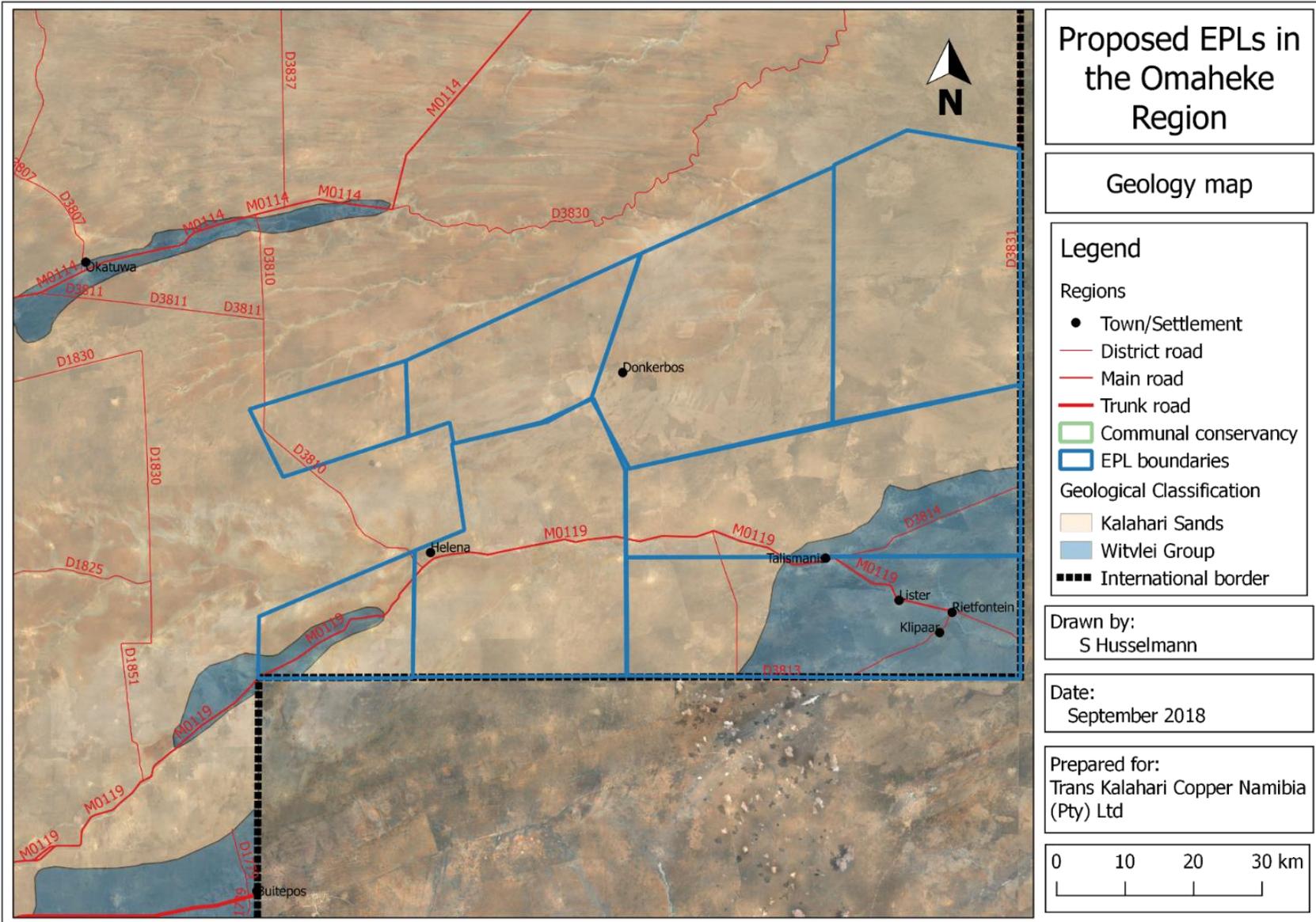


Figure 5-1: Map displaying geology of the project area

5.1.4 Hydrogeology

Water resources within the Omaheke Region and the project area in particular are scarce. Groundwater is the primary source of water utilised in the project area. Boreholes in the area are mostly drilled into rock aquifers. The groundwater potential in most of the project area is classified as generally low potential, locally moderate potential (southern parts) and very low and limited (northern and north-eastern parts) (Christelis & Struckmeier, 2001). Water potential in the area surrounding the Rietfontein settlement is classified as moderate, evidenced by the groundwater scheme located near the settlement (Figure 5-3), which supplies a few farming communities along the Rietfontein River (Christelis & Struckmeier, 2001). Groundwater vulnerability is expected to be highest within the south-eastern corner of the project area (Christelis & Struckmeier, 2001).

5.1.5 Biodiversity

5.1.5.1 Biomes and Vegetation Types

The project area is located within the Central Kalahari vegetation type, which forms part of the Acacia Tree-and-Shrub Savanna biome (Mendelsohn, et al., 2003). The dominant tree species within the Central Kalahari are the *Acacia erioloba* (Camelthorn tree) and *Terminalia sericea* (silver terminalia), this was verified during a site visit (August 2018). Other common trees and shrubs may include blackthorn (*Acacia mellifera*), candle-pod acacia (*A. hebeclada*), camphorbush (*Tarchonanthus camphoratus*) and raisin-bush (*Grewia flava*). Although several protected plant species (as listed in the Forest Act (2001) and the Nature Conservation Ordinance (1975)) occur within the project area, none of these are expected to be range restricted or endemic to the project area, but rather occur throughout the wider biome area. Dense bush encroachment was observed for much of the areas along the M119 main road. The reasons for bush encroachment include heavy stocking practices and reduced fire frequency (O'Connor, et al., 2014; Mendelsohn & el Obeid, 2005).



Figure 5-2: View of typical vegetation occurring in project area along M119

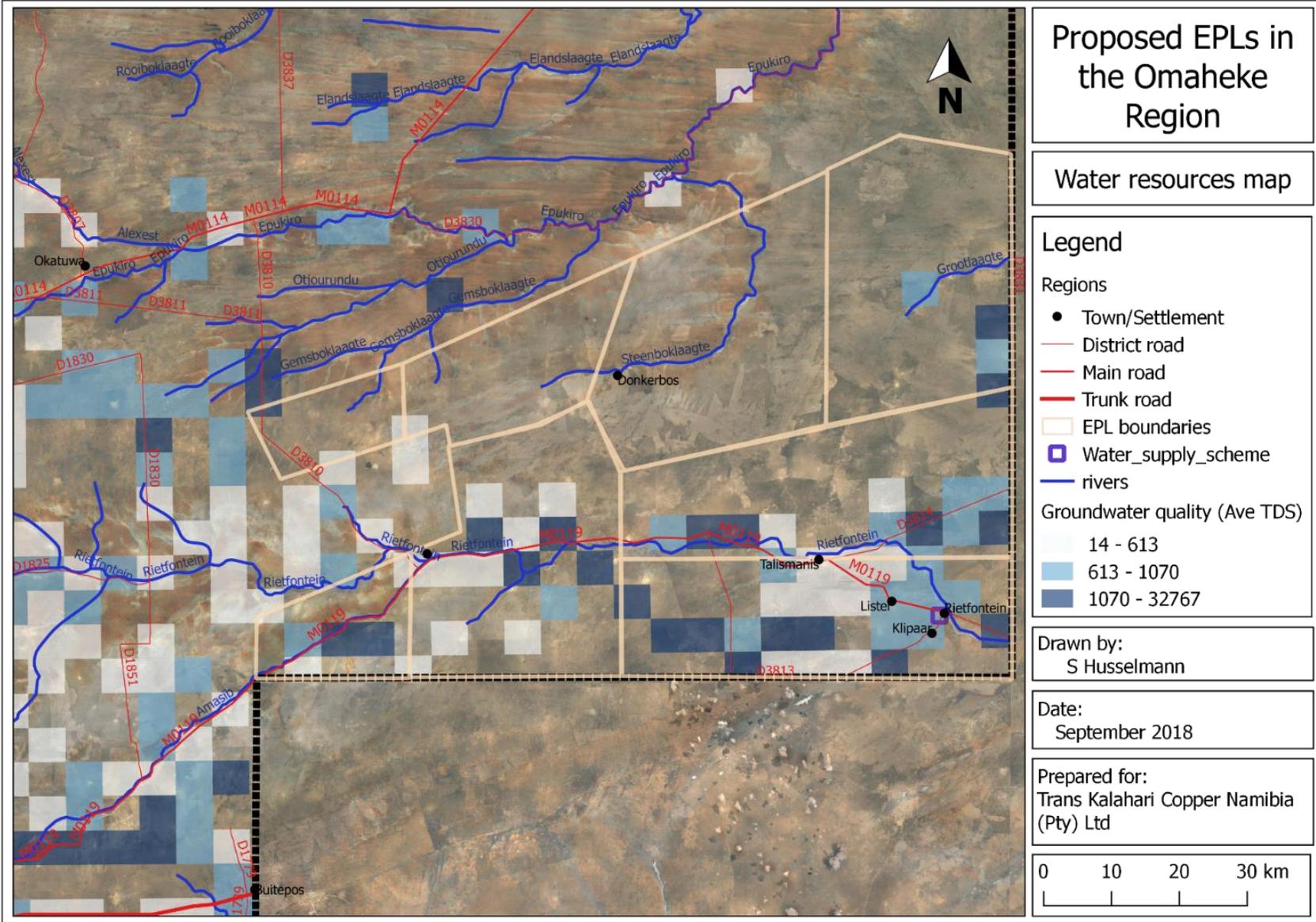


Figure 5-3: Map displaying water resources in the project area

5.1.5.2 *Fauna*

Faunal species diversity in Omaheke's Kalahari savanna is less diverse than in other parts of Namibia because of the relatively lower habitat variety and the lack of surface water. Within the project area in general, there are no outstanding landforms or unique habitats (such as specific dune forms, wetlands or rocky outcrops) that host particular endemic species. The animal life that is expected to occur in the project area is expected to be widely distributed in similar habitats within the wider biome area (SAIEA, 2016).

5.2 Socio-Economic Environment

5.2.1 Regional Demographic Overview

The 2011 Population and Housing Census shows that the Omaheke Region has a total population of 71,223, which accounted for approximately 3.4% of Namibia's estimated total population at the time. The annual population growth rate for the Omaheke Region was estimated at 0.5% for the period 2001 to 2011. 70.2% of the population live in rural areas compared to only 29.8% in urban areas (Namibia Statistics Agency (NSA), 2014).

The population density of the Omaheke Region was 0.8 people/km² (NSA, 2014), which is significantly lower than the national average of 2.6 people/km². The Omaheke Region is therefore among the most sparsely populated areas in Namibia.

The Omaheke Region has a significant percentage of its population younger than 15 years of age – 39%, which is 2% higher than the national percentage. Of those 15 years and older (i.e. the labour force) 65% are actively engaged, with 61% employed and 39% unemployed. The percentage of those unemployed is higher than the national percentage for the same, which was 37% in 2011.

Most formal employment opportunities in the region are limited to towns and other urban areas. 'Agriculture, Forestry and Fisheries' dominated as the main industry of the workforce (45 %), whereas 'Administrative and Support service activities' and 'Construction', employed 8% and 7% of the regional workforce respectively (NSA, 2014). Private employment provided jobs to the largest portion of employees (30%) in the region (NSA, 2014).

The majority of people in the Omaheke Region are Herero speaking (41.5% of households), with Nama/Damara (28.1% of households) and Afrikaans (10% of households) occupying second and third places respectively.

5.2.2 Otjombinde Constituency

5.2.2.1 Demographic Profile

The affected constituency (in which the project is located) – i.e. Otjombinde Constituency, had an estimated total population of 6,851 in 2011, which accounts for approximately 9.2% of the total regional population at the time.

Consistent with the regional population composition, the Otjombinde Constituency has a relatively young population with 42% of the population being younger than 15 years of age. Of those 15 years and older (i.e. the labour force) 49% (lower than regional percentage) are actively engaged, with 64% employed and 36% unemployed. The percentage of those unemployed is slightly higher than the regional percentage for the same, which was 32% in 2011.

5.2.2.2 Traditional Authorities

According to the Omaheke Region Integrated Regional Land Use Plan (IRLUP) there are eight formal traditional authorities that have been recognised by the Omaheke Regional Council (ORC, 2014). These are (in alphabetic order) the

- Bakgalagadi Traditional Authority
- Batswana ba Namibia Traditional Authority
- /Gobanin Traditional Authority
- #Kao-//”aesi Traditional Authority
- Maharero Traditional Authority
- Mbanderu Traditional Authority
- Ovaherero Traditional Authority
- !Xoo Traditional Authority.

According to a survey conducted in 2008, commissioned by the Ministry of Lands and Resettlement (currently Ministry of Land Reform) the main and official traditional authority at the time in the Otjombinde Constituency is the Ovambanderu Traditional Authority.

Traditional authority jurisdictions within the constituency are, however according to anecdotal evidence more complex on the ground, with several other traditional authorities (including Ovambanderu Traditional Council, Hoveka Royal House, Ovaherero Traditional Authority, Maherero Royal House and #Kao-//”aesi Traditional Authority) claiming jurisdiction for various areas.

5.2.2.3 Economic Profile

The main source of household income was stated as wages and salaries (48.8%), while ‘Farming’ accounted for 21.5% of household incomes.

Approximately 60.9% (livestock – 44.7%, crop – 8.4% and poultry – 7.8%) of households within the Otjombinde Constituency were actively engaged in some form of activity directly related to the production or processing of crops, dairy products, poultry or livestock for commercial sale or as a principal means of personal subsistence (NSA, 2014).

Results from the 2011 Population and Housing Census showed that the most commonly owned asset in the Otjombinde Constituency were radios (60%), televisions (12%) and cell phones (32.2)².

5.2.3 Land Use

The dominant land use in the Omaheke Region and the Otjombinde Constituency in particular is livestock farming (GeoCarta Namibia, 2017). According to the Omaheke Integrated Regional Land Use Plan (GeoCarta Namibia, 2017) the proposed land use for the area (2017-2027) which bounds the project area is communal farming, with potential for wildlife conservation and tourism.

5.2.3.1 *Livestock Farming*

As stated above most of the land in the Omaheke Region and the project area in particular is used for extensive livestock farming and accordingly this land use generates the most income for the region. A game fence separates the communal farming areas in the Otjombinde Constituency from the freehold farms to the west. Bush encroachment, as stated above, as well as water scarcity are two significant concerns for livestock farming in the project area.

5.2.3.2 *Conservation and Tourism*

According to GeoCarta Namibia (2017) the Omaheke Region has to date not featured as important from a natural resources and tourism perspective. The project area overlaps two registered communal conservancies – namely the Otjombinde and Omuramba ua Mbinda conservancies (both registered in 2011). To date, neither of these conservancies has been successful in implementing significant conservation and rural development measures (NACSO, 2016). According to the latest available Status Summary & Natural Resource Report for these conservancies (NACSO, 2016), these conservancies are not as yet generating any significant revenue for the conservancy population from wildlife conservation efforts and related activities.

² It should be noted that the aforementioned statistics are most probably no longer an accurate reflection of the present day situation. This is particularly true with respect to percentage of individuals from the constituency who own a cell phone – this percentage is probably much higher at present.

5.2.4 Archaeology and Heritage Resources

Probably the best-known historical event associated with the Omaheke Region is retreat of the Herero people eastward to the Kalahari Desert from the Waterberg (Otjozondjupa Region) after their military defeat by the German colonial army in 1904. Significant numbers of the Herero people died due to lack of food and water.

The Omaheke Region IRLUP identified a few sites of historical/heritage importance. Many of these sites are linked to the Herero-German War 1902-1904 and from the Namibian Liberation Struggle. The route of the historic Dorsland Trekkers extends northwards from Rietfontein to Gam in the Otjombinde Constituency. German graves are also located near the Rietfontein settlement.

6 Public Consultation

Public consultation is an important aspect of an Environmental Assessment (EA) process. During public consultation, potential impacts that the proposed project may have on the receiving environment, were identified. Consultation with Interested and Affected Parties (I&APs) (state and non-state) enables transparent decision-making.

This chapter describes the details of the public consultation process that was followed and the I&APs that were notified of the EA being undertaken. It also includes the main issues and concerns raised during the public consultation process and comments received on the Background Information Document (BID) distributed during the first round of public consultation.

Public consultation was carried out as prescribed by Regulations 21 to 24 of the Environmental Impact Assessment Regulations (GN. 30 of 2012).

6.1 First Round of Public Consultation

Engagement with I&APs as part of the first round of public consultation commenced on the 15th of August 2018 and concluded on the 5th of September 2018. During the first round of consultation, I&APs and authorities were given an opportunity to register and submit comments on the proposed project.

6.1.1 Public Consultation Activities

Activities undertaken to ensure effective and adequate I&AP involvement, are as follows:

- A list of pre-identified I&APs was compiled. A total of 38 I&APs were identified and included in the database (Appendix D1).
- A notification email (Appendix B2) with BID (Appendix B3) was distributed to all pre-identified I&APs (Appendix D1) on 16 August 2018.
- A notification letter (Appendix D4) was sent via courier (Appendix D5) to the Omaheke Regional Council (Appendix D1) on 14 August 2018.
- A notification letter (Appendix D6) was hand delivered on 15 August 2018 (Appendix D7) to national ministries and State-Owned Enterprises (Appendix D1) situated in Windhoek.
- Public notices announcing the commencement of the EA and an invitation to register as an I&AP were placed in “New Era” and “The Namibian” on 15 and 22 August 2018 (Appendix D8).
- A notice board (with the dimensions 60cm x 42cm) was placed at the Omaheke Regional Council and on-site (Appendix D9).

- A notice regarding the proposed project and associated EA and public consultation meeting in Talismanis was read over the radio (NBC Radio Otjiherero) between 11:00 and 12:00 public at least once during the week prior to the public meeting scheduled for 1 September 2018.
- Two public meetings were held as follows:
 - 31 August 2018, at 14:30 in the Council Chamber, Omaheke Regional Council, Church St, Gobabis (see Appendix D10 for meeting minutes).
 - 1 September 2018, at 11:00 in the Agricultural Hall, Ministry of Agriculture, Water and Forestry Extension Office, Talismanis (see Appendix D11 for meeting minutes).
- The meeting minutes were circulated via email to all meeting attendees (Appendix D12)
- A register was opened and maintained and included all registered I&APs who as a result of the consultation process submitted comments or raised their concerns (Appendix D13).

6.1.2 Comments Received and Responses Provided

All comments and feedback regarding significant issues received from I&APs and Authorities are summarised in Table 6-1 below, while a copy of all the original email and written correspondence (including feedback that does not raise significant issues) is attached as Appendix D14.

Table 6-1: Comments received and responses provided during the first round of public consultation

No.	Name	Comment	Name	Response
1.	E. de Paauw (Roads Authority) 16-Aug-18, email	Kindly note that should the proponent wish to carry out any activities within the road reserve of a proclaimed road under the jurisdiction of the Roads Authority, prior permission will need to be obtained from the Authority.	S. Husselmann (IEC) 16-Aug-18, email	Good day Mr de Paauw Thank you for your email. I have registered the Roads Authority as an I&AP for this project. We take note of your comments. Kind regards Sheldon Husselmann
2.	N. P. du Plessis (NamWater) 29-Aug-18, email	Please investigate the following concerns: 1. Waste management and disposal. 2. Ground and surface water pollution. 3. Liaison with farmers and agreements. 4. Impact on game when doing airborne geophysics. 5. Production of dust and accumulation of dust on nearby vegetation. 6. Risk of oil/fuel spills. 7. Water demand.	S. Husselmann (IEC) 30-Aug-18, email	Good day NP Thank you for your comments. We take note of them and will address as part of the process. We will let you know when the draft scoping report is available for review and comments. Kind regards Sheldon Husselmann
3.	K. Tjijenda (Omaheke Regional Council) 31-Aug-18, public meeting	Will the boreholes that are drilled, be available for water use by the communities?	D. Catterall (Kopore Metals Ltd) 31-Aug-18, public meeting	Kopore's main philosophy is to work with the local communities and with the government. Exactly what happens with any water that we find in this exploration work, will depend on government regulations.

No.	Name	Comment	Name	Response
	O. Kahere (Affected Otjombinde Constituency resident) 1-Sept-18, public meeting			In Botswana, Kopore has followed this procedure: If we find water, we ask the local communities if they want to use it and refer them to Department of Water Affairs to seek the relevant permissions. Under Botswana law, Kopore keeps the right to the borehole and the water for use in exploration, but Government Departments and Agencies can allow the community to use the water if Kopore has no objections. This permission has been given to communities by Kopore in Botswana and talks are underway with the Department of Water Affairs.
4.	K. Tjijenda (Omaheke Regional Council) 31-Aug-18, public meeting	We know water resources are deep in this area. Will the information on water that is gathered from the drilling, be shared with Water Affairs to benefit their understanding of the aquifers?	D. Catterall (Kopore Metals Ltd) 31-Aug-18, public meeting	Airborne geophysical data provides information on the underground structures. This information will have cost Kopore a lot of money, so it is not freely available to others. In Botswana, some aspects of the information from electro-magnetic (EM) surveys is shared with the landowners and local authorities including Department of Water Affairs. However the data is retained by the company and remains confidential for the duration of the licences. This can give a good indication of likelihood of water in certain types of structure.

No.	Name	Comment	Name	Response
				<p>In Botswana, Kopore has followed this procedure: Kopore is obliged to ‘plug’ the top of any boreholes that it drills. If water is discovered during drilling, Kopore tells the relevant farmer and informs Department of Water Affairs. Kopore caps the hole, but then the farmer is welcome to go back after drilling is completed, open the hole, and use the water providing it has sought permission from Department of Water Affairs and Water Utilities as per the relevant local legislation.</p>
5.	<p>K. Tjijenda (Omaheke Regional Council) 31-Aug-18, public meeting</p>	<p>Relatively wealthier farmers might be able to approach Kopore to get access to the water information that Kopore discovers. Other poorer communities might not be able to afford this, but they should also be able to benefit from such finds.</p>	<p>D. Catterall (Kopore Metals Ltd) 31-Aug-18, public meeting</p> <p>S. Husselmann (IEC) 31-Aug-18, public meeting</p>	<p>In Botswana, Kopore employs what they call Community Liaison Officers to give briefings on Kopore activities to the local Village Development Councils, the kgotlas, and local people. In this way, information is shared with the local communities. Kopore will follow a similar procedure here in Namibia. Kopore would like to work with local people, and be on good terms.</p> <p>IEC is trying to find out from MLR and the Regional Council who are the correct Traditional Authorities to work with, so that Kopore will be able to liaise with them before exploration work starts.</p>

No.	Name	Comment	Name	Response
6.	B. Thanises (Desert Research Foundation Namibia (DRFN)) 1-Sept-18, public meeting	Can women be employed for the exploration work?	D. Catterall (Kopore Metals Ltd) 1-Sept-18, public meeting	The Namibian company that is contracted will be responsible for who they employ. This will be negotiated with the local Traditional Authority.
7.	D. Sakoe (Ao//Aosi Traditional Authority) 1-Sept-18, public meeting	People who make up the work teams should be rotated so that income generation is spread across the local communities.	D. Catterall (Kopore Metals Ltd) 1-Sept-18, public meeting	<p>The technical team from Windhoek will decide on this. Unskilled posts will be filled from local communities as far as possible.</p> <p>Before work starts, Kopore will contract a 'Community Liaison Officer' (CLO) who will assist with all community concerns. He will discuss such employment matters with the local communities and advise Kopore.</p> <p>The CLO will be responsible for sharing all information between the communities and Kopore staff. It will be his task to keep everyone informed, such as the Traditional Authorities, police, farmers associations, veterinary and wildlife departments, and so on. It is also his task to ensure that the conditions that are specified for monitoring are complied with.</p>
8.	B. Thanises (DRFN) 1-Sept-18, public meeting	People in this area are very poor, and water is very precious. How can pollution of water be prevented?	D. Catterall (Kopore Metals Ltd)	Kopore first finds out from local communities and from the Department of Water Affairs (DWA) about any local boreholes and the depth of the water table,

No.	Name	Comment	Name	Response
			1-Sept-18, public meeting	so that risks to the water resources are avoided. Kopore also cases the boreholes while drilling is in progress so that there can be no contamination from possible pollutants, and to prevent mixing of saline and fresh water. Secondly, Kopore follows standard measures to prevent any pollution. When drilling, we use chemicals that are organic, biodegradable and certified to be safe so that there is no risk to local people. After drilling the holes are backfilled and maybe plugged if there is a potential water contamination issue.
9.	B. Thanises (DRFN) 1-Sept-18, public meeting	The San people in this area harvest traditional foods from the veld. How will future mining activities the [and minerals exploration activities] ensure that the veld foods are not damaged or that people’s access to them is still ensured?	D. Catterall (Kopore Metals Ltd) 1-Sept-18, public meeting	Mining is potentially 7 years away, if it happens at all. We cannot give any definite answers now, because the work is only starting. Before we get to that stage, there will be a more thorough EIA to assess whether this would be an issue, and an EMP to ensure mitigations are put in place. This will include social studies and opinions of other experts. The mining licence is only granted to a company if the government is satisfied that such impacts are properly minimised. Also, the area that might be cut out for mining will be much smaller than the large area that is presently marked for exploration, so the impact, if there is any, would be on a much smaller area.

No.	Name	Comment	Name	Response
				During minerals exploration, Kopore would not want to restrict any access. Kopore will use the Community Liaison Officer to help inform us if people will be active in a certain area, so that any interference would be minimised.

6.1.3 Outcome of First Round of Public Consultation

No critical issues, with the potential to stop the proposed exploration activities, were raised during the first round of public consultation.

The following is a summary of the issues raised by I&APs during the first round of public consultation:

- Impact on road infrastructure (negative).
- Waste management impacts (negative).
- Impact on water demand (negative).
- Impacts on water quality (negative).
- Impacts on fauna and flora (negative).
- Potential opportunities for water use by affected community from holes drilled by the Proponent (positive).
- Impact on traditional foraging (negative).

Engagement with I&APs as part of the first round of public consultation commenced on the 15th of August 2018 and concluded on the 5th of September 2018. During the first round of consultation, I&APs and authorities were given an opportunity to register and submit comments on the proposed project.

6.2 Second Round of Public Consultation

Engagement with I&APs as part of the second round of public consultation commenced on the 1st of October 2018 and concluded on the 12th of October 2018. During the second round of consultation, I&APs (including affected authorities) were given an opportunity to review the draft scoping report and submit comments.

6.2.1 Public Consultation Activities

Activities undertaken to facilitate adequate I&AP involvement, are as follows:

- A notification email (Appendix D15) was distributed to all pre-identified and registered I&APs (Appendix D1) on 1 October 2018.
- A notice regarding the public feedback meeting in Talismanis was read over the radio (NBC Radio Otjiherero) between 11:00 and 12:00 public at least once during the week prior to the public meeting scheduled for 2 October 2018.
- An invitation to attend the public feedback meeting in Talismanis was sent via email (Appendix D16) to those who attended meetings during the first round of public consultation, who provided email addresses on 26 September 2018.
 - A public feedback meeting was held on 2 October 2018, at 11:00 in the Agricultural Hall, Ministry of Agriculture, Water and Forestry Extension Office, Talismanis (see Appendix D17 for meeting minutes).

- The meeting minutes were circulated via email to all meeting attendees (Appendix D18).

6.2.2 Comments Received and Responses Provided

During the public feedback meeting no new issues or impacts were raised. Furthermore, no comments on the presentation of the findings of draft scoping report were made.

No comments on the content of the draft scoping report were received (via email or post) from I&APs (including authorities) during the second round of public consultation.

7 Impact Assessment

The proposed project is expected to have varied impacts on the immediate and surrounding receiving socio-economic and biophysical environment. An understanding of these impacts together with effective mitigation measures can however minimise such impacts, and even avoid impacts in certain instances.

The purpose of this chapter is to identify potential impacts that the project is expected to have on the receiving environment and determine their significance. Some impacts might be insignificant while others might need special attention or even further investigation.

This chapter provides a description and assessment of potential impacts associated with the project. Mitigation measures relevant to the operational phase of the project as appropriate are recommended. These measures are aimed at avoiding, minimising or mitigating negative impacts or enhancing potential benefits. The significance of potential impacts without and with mitigation is also provided.

7.1 Assessment Method

Each of the potential impacts identified by Interested and Affected Parties (I&APs) during public consultation and by the EAP based on professional experience was screened according to a set of questions (Figure 7-1), which resulted in highlighting the key impacts requiring further detailed assessment.

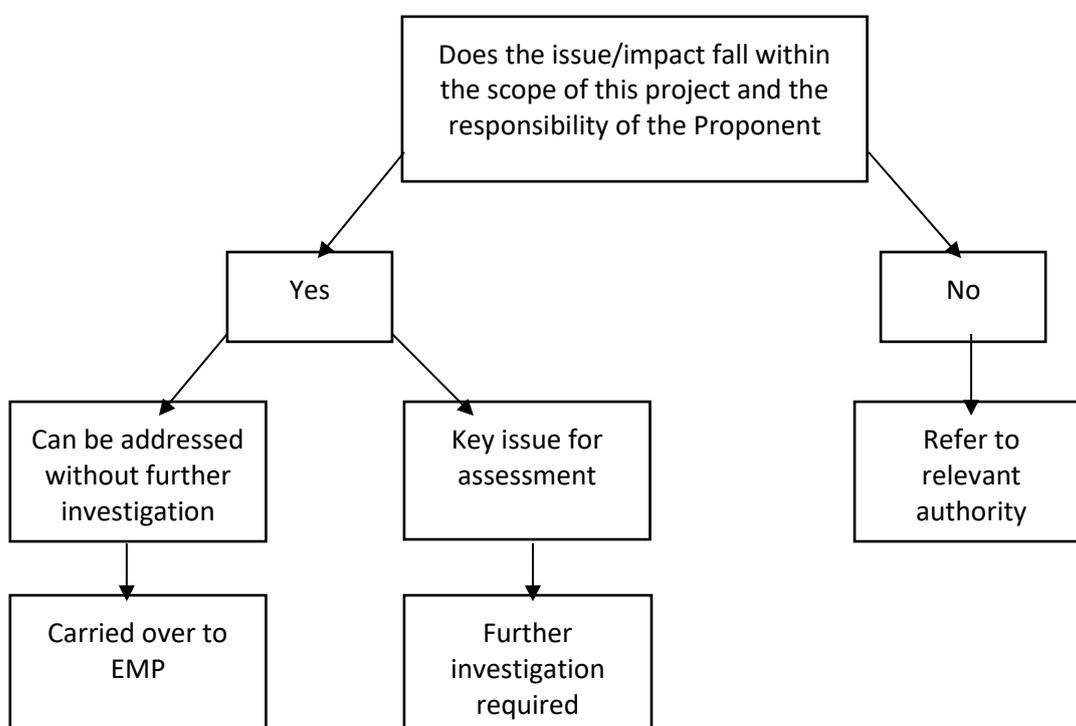


Figure 7-1: Screening process for determining key impacts

This list of impacts that were subjected to a detailed assessment is presented in Table 7-2, below, as per the evaluation criteria presented in Table 7-1.

7.2 Comprehensive Assessment

The identified impacts are assessed according to a synthesis of criteria required by the integrated environmental management procedure. This entails the establishment of the expected impact’s duration (time scale), extent (spatial scale), magnitude (intensity), probability, and status, in combination providing the expected significance (see Table 7-1).

Table 7-1: Criteria applied to each potential impact

Criteria	Category
Impact	This is a description of the expected impact.
Nature Describe the type of impact.	<p><i>Positive:</i> The activity will have an environmental (social or biophysical) benefit.</p> <p><i>Neutral:</i> The activity will have no effect.</p> <p><i>Negative:</i> The activity will have an environmentally (social or biophysical) harmful effect.</p>
Extent The area affected by the impact.	<p><i>Site Specific:</i> Expanding only as far as the activity itself (<i>on-site</i>)</p> <p><i>Small:</i> Restricted to the site’s immediate environment within 1 km of the site (<i>limited</i>)</p> <p><i>Medium:</i> Within 5 km of the site</p> <p><i>Large:</i> Beyond 5 km of the site (<i>regional</i>)</p>
Duration Predicts the lifetime of the impact.	<p><i>Temporary:</i> < 1 year</p> <p><i>Short-term:</i> 1 – 5 years</p> <p><i>Medium term:</i> 5 – 15 years</p> <p><i>Long-term:</i> >15 years (impact will stop after the operational or running life of the activity, either due to natural causes or by human interference)</p> <p><i>Permanent:</i> Impact will be where mitigation or moderation by natural causes or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary.</p>

Criteria	Category
<p>Magnitude Describe the scale/size of the Impact.</p>	<p><i>Very low:</i> Affects the environment in such a way that natural and/or social functions/processes are not affected.</p> <p><i>Low:</i> Natural and/or social functions/processes are slightly altered.</p> <p><i>Medium:</i> Natural and/or social functions/processes are notably altered in a modified way.</p> <p><i>High:</i> Natural and/or social functions/processes are severely altered and may temporarily or permanently cease.</p>
<p>Probability of Occurrence Describe the probability of the Impact actually occurring.</p>	<p><i>Improbable:</i> Not at all likely.</p> <p><i>Probable:</i> Distinctive possibility.</p> <p><i>Highly probable:</i> Most likely to happen.</p> <p><i>Definite:</i> Impact will occur regardless of any prevention measures.</p>
<p>Degree of Confidence in Predictions State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p><i>Unsure/Low:</i> Little confidence regarding information available.</p> <p><i>Probable/Med:</i> Moderate confidence regarding information available.</p> <p><i>Definite/High:</i> High confidence regarding information available.</p>
<p>Significance The impact on each component is determined by a combination of the above criteria.</p>	<p><i>No change:</i> A potential concern which was found to have no impact when evaluated.</p> <p><i>Very low:</i> Impacts will be site-specific and temporary with no mitigation necessary.</p> <p><i>Low:</i> The impacts will have a minor influence on the project and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures.</p> <p><i>Moderate:</i> Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures.</p> <p><i>High:</i> Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be</p>

Criteria	Category
	irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.

Significance is determined through a synthesis of impact characteristics as described in Table 7-1 above. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance will be rated on the following scale:

- **No significance:** The impact is not substantial and does not require any mitigation action;
- **Low:** The impact is of little importance, but may require limited mitigation;
- **Medium:** The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and
- **High:** The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire project proposal unacceptable. Mitigation is therefore essential.

7.3 Key Impacts Identified

It should be noted that no construction of new infrastructure is envisaged as part of this project, therefore mitigation measures for the operational phase have been provided below. Section 7.3.1 gives a broad overview of each potential impact expected during the operational phase, while a comprehensive assessment outcome with mitigations is presented for each potential impact.

7.3.1 Operation Phase

The operational activities which have been considered include those activities based on the information provided by the Proponent.

Details with respect to the potential impacts expected during the operational phase are discussed below. Detailed mitigation measures are presented in the tables below and Environmental Management Plan (Appendix B).

Table 7-2 below presents the potential impacts expected to occur during the operational phase of the project, while Table 7-3 to Table 7-12 present the detailed assessment and outcome of each of the key impacts listed in Table 7-2.

Table 7-2: Key potential impacts expected during the operational phase

Aspect	Potential Impacts
Socio-economic environment	Employment creation and skills transfer (Positive)
	Improved geological understanding (Positive)
	Improved Access to groundwater (Positive)
	Traffic safety impacts
	Dust impacts
	Health and safety impacts
	Impact on heritage/archaeological resources
Biophysical environment	Disturbance of fauna and flora
	Soil, ground and surface water pollution
	Impact on water availability

7.3.1.1 Employment and Skills Transfer

The exploration mining activity will provide a few temporary skilled employment opportunities and a few individuals from the project area with temporary semi- and unskilled jobs. The income generated will benefit the individuals' households. Furthermore, the proposed activity will result in the improvement in skills and therefore improved employability for the staff employed.

Table 7-3 below presents an assessment of the impact associated with employment maintenance and income generation.

Table 7-3: Assessment of impact associated with employment creation

Criteria	Description
Potential impact	Employment creation (a few temporary skilled and unskilled opportunities) Potential for tertiary and secondary industrial growth if mining commences.

Criteria	Description
Nature	Employment opportunities will be created enabling a potential reduction, though limited in number and duration, in unemployment. Potential tertiary and secondary industrial growth if mining commences.
Status (+ or -)	Positive
Extent	Large
Duration	Short-term
Magnitude	Low
Probability	Probable
Significance (no mitigation)	Low
Mitigation	Namibian citizens from the locally affected area should be employed for the unskilled labour preferentially to foreigners where possible. Equal opportunity should be provided for both men and women.
Significance (with mitigation)	Low-medium
Confidence level	High

7.3.1.2 Improved Geological Understanding

As stated in Section 1.2 – Project Need and Desirability, Insufficient geological information of the project area has been generated with respect to base and precious metals deposits. Furthermore, some of the geological information gathered during the exploration process will be made available to the Ministry of Mines and Energy and thus placed within the public domain for use in future.

Table 7-4 below presents an assessment of the impact associated with an improved geological understanding.

Table 7-4: Assessment of impact associated with improved geological understanding

CRITERIA	DESCRIPTION
Potential impact	Improved geological understanding
Nature	Geological information gathered during the exploration process will be made available to the Ministry of Mines and Energy and thus placed within the public domain for use in future.
Status (+ or -)	Positive
Extent	Large
Duration	Long-term
Magnitude	Medium
Probability	Probable
Significance (no mitigation)	Medium
Mitigation	N/A
Significance (with mitigation)	Medium
Confidence level	High

7.3.1.3 Improved Access to Groundwater

Water resources are scarce in the project area (see Section 5.1.4 – Hydrogeology) and essential for the main economic activity within the area – i.e. livestock farming.

Minerals exploration reveals valuable information for groundwater investigations. Geological drilling has the potential to strike groundwater. In the event that the Proponent has no objection and the relevant authorisations are obtained from the Ministry of Agriculture Water and Forestry (MAWF) access might be provided to farming communities within the project area.

Table 7-5 below presents the detailed assessment of the impact on occupational air quality.

Table 7-5: Assessment of impact associated with improved access to groundwater

CRITERIA	DESCRIPTION
Potential impact	Improved access to groundwater.
Nature of Impact	Minerals exploration reveals valuable groundwater information.

CRITERIA	DESCRIPTION
	Geological drilling might strike groundwater which might be accessible by local communities.
Status (+ or -)	Positive
Extent	Small
Duration	Medium-term
Magnitude	Medium
Probability	Probable
Significance (no mitigation)	Low-medium
Mitigation	Legal procedures should be adhered to by both the Proponent and the affected community members when abstracting water from potential water yielding boreholes
Significance (with mitigation)	Medium
Confidence level	Moderate

7.3.1.4 Traffic Safety

The M119 is the main transportation route for all vehicular movement between Gobabis and Talismanis. Heavy vehicles associated with the project will obtain access to the M119 from the B2 (Trans-Kalahari Highway) road connecting the EPLs to minerals exploration service provides inland.

Operational activities associated with the project increases slow moving heavy vehicular traffic along the M119.

Table 7-6 below presents an assessment of the potential traffic safety impact.

Table 7-6: Assessment of potential traffic safety impact

CRITERIA	DESCRIPTION
Potential impact	Traffic safety impacts
Nature	The road access to the B2 will be utilised by slow moving heavy vehicles associated with the mining exploration activity. The C13 is the main road between Gobabis and Talismanis. The movement of slow-moving heavy vehicles might negatively impact road traffic safety along the M119.

CRITERIA	DESCRIPTION
Status (+ or -)	Negative
Extent	Site-specific
Duration	Medium-term
Magnitude	Low
Probability	Improbable
Significance (no mitigation)	Low-medium
Mitigation	All personnel operating vehicles and all vehicles used should be appropriately licensed and adhere to road traffic regulations/signs.
Significance (with mitigation)	Low
Confidence level	High

7.3.1.5 Dust Impacts

Generation of dust from the operation of geological drill rigs could result in the production of respirable dust (particulate matter smaller than 50 µm or even 10 µm in size), which could impact the respiratory health of the drill rig operators. The dust produced might also settle on nearby vegetation and may affect rates of photosynthesis and transpiration.

The main respiratory diseases related to inhaled mineral dusts include, pneumoconiosis (which includes silicosis, asbestosis and coal miner’s pneumoconiosis), and cancer (including bronchogenic carcinoma and malignant mesothelioma) (Fubini & Arean, 1999). It should be noted however that the scale and nature of the operation (i.e. drilling for exploration purposes only) is such that prolonged and continuous exposure to mineral dust (as experienced during a full production mining operation) is not expected. Furthermore, the work environment – i.e. open air, is of such a nature that particulate matter is freely dispersed, as opposed to mineral dust generation within a confined space.

Considering the scale and nature of the operation (i.e. drilling for exploration purposes only) the impact on the rates of photosynthesis and transpiration of nearby plants are expected to be limited in extent and duration and therefore negligible. Furthermore, no range restricted species plant species are expected within the project area.

Table 7-7 below presents an assessment of dust impacts.

Table 7-7: Assessment of dust impacts

CRITERIA	DESCRIPTION
Potential impact	Dust impacts
Nature	Respirable dust may be generated during geological drilling and pose an occupational (i.e. for exploration staff) respiratory health risk. Dust which settles on nearby vegetation might affect rates of photosynthesis and transpiration.
Status (+ or -)	Negative
Extent	Site-specific
Duration	Temporary
Magnitude	Low
Probability	Improbable
Significance (no mitigation)	Low
Mitigation	Personnel should be provided with dust masks. Drill equipment should be regular maintained to ensure drilling efficiency and so reduce dust generation. Dry dust suppression methods should be employed to minimise dust generation.
Significance (with mitigation)	Low
Confidence level	Moderate

7.3.1.6 Health and Safety Impacts

Activities associated with the operational phase have the potential to cause accidental injury, owing to either minor (i.e. superficial physical injury) or major (i.e. involving heavy machinery or vehicles) accidents, to the Proponent’s personnel. On-site safety of all personnel is the responsibility of the Proponent and should be adhered to as per the requirements of the Labour Act (No 11 of 2007) and the Public Health Act (No. 36 of 1919). The heavy vehicle, equipment and fuel storage area should be properly secured in order to prevent any harm or injury to the Proponent’s personnel or animals.

Table 7-8 below presents an assessment of the potential health and safety impacts.

Table 7-8: Assessment of potential health and safety impacts

CRITERIA	DESCRIPTION
Potential impact	Health and safety impacts
Nature	Injury during operational activities. Explosion of fuel storage and associated injury to Proponent's personnel or animals.
Status (+ or -)	Negative
Extent	Site specific
Duration	Short to long-term
Magnitude	Medium
Probability	Improbable
Significance (no mitigation)	Medium
Mitigation	The Labour Act's Health and Safety Regulations should be complied with. All personnel should be trained in/sensitised to the potential health and safety risks associated with their respective jobs. Provide appropriate personal protective equipment to personnel. Heavy vehicle, equipment and fuel storage site should be properly secured and appropriate warning signage placed where visible. An emergency preparedness plan should be compiled and all personnel appropriately trained.
Significance (with mitigation)	Low
Confidence level	High

7.3.1.7 Heritage/Archaeological Remains

No known heritage sites or proclaimed national monuments are located within the footprint of the proposed project. If any heritage or cultural significant artefacts are however found during mining exploration activities operations must stop and the National Heritage Council of Namibia immediately notified.

In the event that any archaeological materials/ heritage resources, such as human remains, burial sites and other artefacts, are uncovered during exploration, works in the area are to be

stopped immediately, and the chance-find immediately reported to the worksite manager and the National Heritage Council.

Table 7-9 below presents the comprehensive assessment outcome.

Table 7-9: Impact assessment pertaining to heritage/archaeological remains

CRITERIA	DESCRIPTION
Risk event	Disturbance/destruction of heritage/archaeological remains
Nature	Destruction of archaeological remains might occur during excavations/ exploration site preparation.
Status (+ or -)	Negative
Extent	Small
Duration	Permanent
Magnitude	Medium
Probability	Improbable
Significance (no mitigation)	Low
Mitigation	<p>Caution should be exercised when carrying out excavations associated with the exploration activities in the event that archaeological/heritage remains are discovered.</p> <p>The worksite manager should receive training by a suitably qualified archaeologist with respect to the identification of archaeological/heritage remains and the procedures to follow in the event that such remains are discovered during construction.</p> <p>If any archaeological materials are found, the National Heritage Council’s Chance Find Procedures should be followed. Furthermore, the worksite manager should be notified and all on-site activities stopped immediately.</p>
Significance (with mitigation)	Low-none
Confidence level	High

7.3.1.8 Disturbance of Fauna and Flora

Some of the minerals exploration activity (i.e. airborne geophysics, setting up drill rigs and line cuttings for ground geophysics) will result in the disturbance of plants (in some cases

clearance) and animals. Secondary habitat disturbance effects include the generation of noise and dust.

It is established that low flying aircraft disturb animal activity (Churchill & Holland, 2003). However, as stated in Section 5.1.5.2 – Fauna, the animal life that is expected to occur in the project area is expected to be widely distributed in similar habitats within the wider biome area. As such the significance of any disturbance is expected to be low.

Table 7-10 below presents a detailed assessment of the impact associated with the disturbance of fauna and flora.

Table 7-10: Assessment of impact associated with disturbance of flora and fauna

CRITERIA	DESCRIPTION
Potential impact	Disturbance of fauna and flora
Nature	Minerals exploration activity (i.e. airborne geophysics, setting up drill rigs and line cuttings for ground geophysics) will disturb plant and animal habitat.
Status (+ or -)	Negative
Extent	Site-specific
Duration	Temporary
Magnitude	Low-medium
Probability	Probable
Significance (no mitigation)	Low
Mitigation	All owners and occupiers of land where helicopter surveys (airborne geophysics) will be carried out should be notified at least one week in advance. All areas of interest to be clearly marked to prevent damage to areas unintended for exploration. Where clearing and/or damage is unavoidable, permits for clearing protected plant species should be obtained from the nearest forestry office. Areas where exploration activities have ceased should be rehabilitated, as far as practicable, to their original state.
Significance (with mitigation)	Low
Confidence level	High

7.3.1.9 Soil, Ground and Surface Water Pollution

The proposed exploration activities are associated with a variety of potential pollution sources (i.e. lubricants, fuel and wastewater) that may contaminate/pollute groundwater, surface water or soil. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small.

Hydrogeology in the project area is characterised by mostly very low and low groundwater potential, with moderate potential in certain local areas. The south-east portion of the project area has moderate groundwater potential and is sensitive to groundwater pollution. Groundwater is the only source of water available to farm owners in the surrounding areas.

Table 7-11 below presents the detailed assessment of impact associated with soil, surface and groundwater contamination.

Table 7-11: Assessment of impacts associated with surface water, groundwater and soil contamination/pollution

CRITERIA	DESCRIPTION
Potential impact	Soil, surface and groundwater contamination/pollution
Nature	Groundwater is the only source of water for farmers in the area. Hazardous substances stored, handled and utilised on-site might leach into groundwater sources at sites where spills occur. Hazardous substances (i.e. wastewater, fuel and lubricants) are stored, handled and used during the operational phase. Leakages from heavy vehicles, accidental spills of fuel, wastewater and lubricants might occur and the associated contamination of soil and groundwater.
Status (+ or -)	Negative
Extent	Small
Duration	Medium-term
Magnitude	Low-medium
Probability	Improbable
Significance (no mitigation)	Low-medium
Mitigation	All precautions are to be taken to prevent contamination of the soil, surface and groundwater. Proper training of the Proponent's personnel would reduce the possibility of the impact occurring. Polluted soil must be collected and transported away from the site

CRITERIA	DESCRIPTION
	<p>to an approved and appropriately classified hazardous waste treatment facility.</p> <p>Wastewater from toilets and washing facilities should be treated separately:</p> <p>Toilet water should be treated using one of the following methods:</p> <ul style="list-style-type: none"> • Discharged into chemical toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility. • A type of pit latrine (where excreta in the pit is treated to prevent the waste from being a water pollution risk). <p>The fuel storage tank should be placed on a bunded and impervious surface.</p> <p>Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.</p> <p>An emergency preparedness plan should be compiled and all personnel appropriately trained.</p>
Significance (with mitigation)	Low
Confidence level	High

7.3.1.10 Impact on Water Availability

Water resources in the project area are scarce. The minerals exploration activities will utilise approximately 200 litres of water per week for domestic purposes and 10,000 litres per hole (the number of holes will depend on the results of the exploration programme) drilled by a diamond drill rig. Water for exploration activities will be sourced/bought from a nearby supplier. It should be noted that percussion drilling and reverse circulation drilling do not require any water for operation.

Table 7-12 below presents the detailed assessment of the impact associated with water demand.

Table 7-12: Assessment of impact associated with water demand

CRITERIA	DESCRIPTION
Potential impact	Reduction in availability of water resources
Nature	Farmers in and adjacent to the areas where water will be sourced from might experience a reduction in the amount of the groundwater resources available for abstraction owing to water use for exploration activities.
Status (+ or -)	Negative
Extent	Medium
Duration	Short-term
Magnitude	Low
Probability	Improbable
Significance (no mitigation)	Low
Mitigation	Water reuse/recycling methods should be implemented as far as practicable for the diamond drilling. Water used for the cooling of diamond drill rig components should be captured and used for the cleaning of equipment if possible.
Significance (with mitigation)	Low
Confidence level	Medium

7.3.2 Cumulative Impacts

Cumulative impacts are defined as “those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as “developments”) when added to other existing, planned, and/or reasonably anticipated future ones” (International Finance Corporation, 2013).

One cumulative impact to which proposed project potentially contributes is the impact on road infrastructure. The proposed exploration activity contributes cumulatively to various activities such as commuting, farming activities and travelling associated with tourism. The contribution of the proposed project to this cumulative impact is however not considered significant given the scale and extent of the minerals exploration activities.

8 Conclusions and Recommendations

This chapter presents the conclusions of the scoping phase of the EA conducted and the recommendations for consideration by the Proponent and relevant authorities. The conclusions and recommendations presented are based on the impact assessment presented in Chapter 7 above.

8.1 Conclusion

Trans Kalahari Copper Namibia (Pty) Ltd (the Proponent) has recently applied for and been issued Exclusive Prospecting Licenses (EPLs) (EPL 7049, EPL 7050, EPL 7051, EPL 7052, EPL 7053, EPL 7054, EPL 7055 and EPL 7056) by the Ministry of Mines and Energy (MME). These EPLs were issued in respect of the base and precious metals group of minerals. The Proponent intends to carry out minerals exploration within the EPLs.

More geological information within the eight EPLs is required with respect to base and precious metal deposits. Some of the geological information gathered during the exploration process will be made available to the Ministry of Mines and Energy. Furthermore, despite the current volatility within the copper market, the demand for copper in the medium to long-term (i.e. approx. 10 years) is expected to exceed supply. It is therefore both necessary and desirable to carry out minerals exploration within these EPLs.

Based on the findings of this impact assessment, the following can be concluded with respect to the social environment:

- The creation of temporary skilled and unskilled employment for Namibians is a **positive** impact of low-medium significance.
- The impact associated with an improved geological understanding regarding base and precious metals in the project area and the potential improved access groundwater are significant **positive** impacts.
- Impacts associated with traffic safety, dust, health and safety and archaeology are **negative** impacts of low or low-medium significance.

Mitigation measures and recommendations have been prescribed in this report (and the EMP – Appendix B) to reduce the significance of these key impacts (and others) to acceptable levels.

Based on the findings of the impact assessment conducted the following can be concluded with respect to the biophysical environment:

- Potential faunal and floral disturbance, owing to the relatively small extent of the exploration activities, constitutes a **negative** impact of low significance.

- Impacts associated with pollution of surface and groundwater resources and water demand, because of the relatively small scale of the proposed activity, constitutes a **negative** impact of low significance.

Mitigation measures and recommendations have been prescribed in this report (and the EMP – Appendix B) to reduce the significance of these key impacts (and others) to acceptable levels.

Based on the project information provided by the Proponent and the findings of the impact assessment conducted, it can be concluded that that the proposed project may be granted an Environmental Clearance Certificate, provided recommendations and impact mitigation measures in this report and all the provisions in the EMP are adhered to.

The findings of this scoping phase conclude that no further detailed assessments are required.

Furthermore, the implementation of the aforementioned recommendations, impact mitigation measures and EMP provisions should be monitored by the applicable Competent Authority to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed.

8.2 Recommendations

It is therefore recommended that an Environmental Clearance Certificate be issued for the proposed project, subject to the following recommendations:

- All required permits, licenses and approvals for the existing activity should be obtained as required.
- All mitigations listed in Table 7-3 to Table 7-12, and the Environmental Management Plan (Appendix B) should be implemented as stipulated.
- All the necessary traffic safety and occupational health and safety precautions as laid out in Chapter 7 – Impact Assessment should be adhered to.
- Wastewater from the toilets and washing facilities should be treated separately.
- Toilet water should be treated using one of the following methods:
 - Discharged into chemical toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.
 - A type of pit latrine (where excreta in the pit is treated to prevent the waste from being a water pollution risk).

- Where clearing is unavoidable, permits for clearing protected plant species should be obtained from the nearest forestry office.
- Areas where exploration activities have ceased should be rehabilitated, as far as practicable, to their original state.

9 References

Christelis, G. & Struckmeier, W., 2001. *Groundwater in Namibia: an explanation to the Hydrogeological Map*. Windhoek: John Meinert Printing.

Fatima, S., 2018. *Prospects good for long term copper price, despite current volatility*. [Online] Available at: <http://magazine.cim.org/en/news/2018/prospects-good-for-long-term-copper-price-despite-current-volatility/>
[Accessed September 2018].

Fubini, B. & Arean, C. O., 1999. Chemical Aspects of the Toxicity of Inhaled Mineral Dusts. *The Royal Society of Chemistry*, Volume 28, pp. 373-381.

GeoCarta Namibia, 2017. *Omaheke Region Integrated Regional Land Use Plan*, s.l.: Ministry of Land Reform.

International Finance Corporation, 2013. *Good Practice Handbook: Cumulative Impact Assessment and Management*. Washington: International Finance Corporation.

Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2003. *Atlas of Namibia*. 2nd ed. Cape Town: David Philip Publishers.

Namibia Statistics Agency, 2014. *Namibia 2011 Population & Housing Census Main Report*, s.l.: Republic of Namibia.

Namibian Association of Community Based Natural Resource Management (CBNRM) Support Organisations, 2016. *NACSO website*. [Online] Available at: <http://www.nacso.org.na>
[Accessed September 2018]. ORC, 2014. *Omaheke Regional Development Profile*, Gobabis: Unpublished draft.

Southern African Institute for Environmental Assessment, 2016. *Omaheke Strategic Environmental Assessment*, s.l.: Ministry of Land Reform.