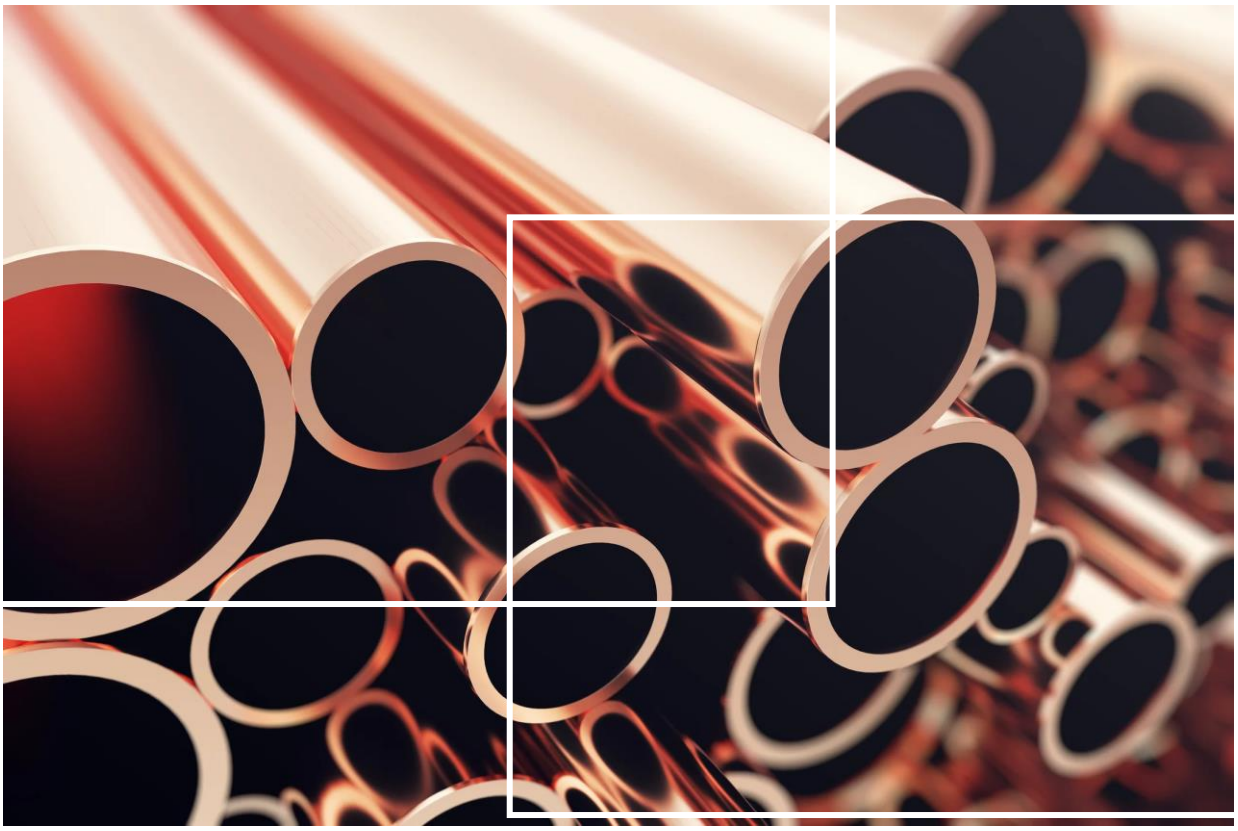

CRATON
Mining and Exploration (Pty) Ltd
Company Registration No. 2006/713

Submitted to: Craton Mining and Exploration (Pty) Ltd.
Attention: Mr Mike Stuart
P O Box 90128
Windhoek
Namibia.

REPORT:

FINAL ESIA REPORT FOR OMITIOMIRE COPPER PROJECT ON ML 197, KHOMAS REGION, NAMIBIA

PROJECT NUMBER: ECC-134-394-REP-32-A

REPORT VERSION: REV 01

DATE: 08 APRIL 2024

TITLE AND APPROVAL PAGE

Project Name:	Final ESIA report for Omitiomire Copper Project on ML 197, Khomas Region, Namibia
Client Company Name:	Craton Mining and Exploration (Pty) Ltd.
Client Name:	Mr Mike Stuart
Ministry Reference:	APP - 0010357/APP - 001107
Authors:	Samuel Shinyemba, Kelly Ochs and Jessica Bezuidenhout
Status of Report:	Final for Government submission
Project Number:	ECC-134-394-REP-32-A
Date of issue:	08 April 2024
Review Period	N/A

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DISCLAIMER

The report has been prepared by Environmental Compliance Consultancy (Pty) Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent. Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the information's accuracy, completeness, or currency cannot be guaranteed.

EXECUTIVE SUMMARY

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been appointed as the environmental assessment practitioner (EAP) by Craton Mining and Exploration (Pty) Ltd (referred to as the Proponent or Craton herein) to conduct an environmental and social impact assessment (ESIA) for the construction and operation of an open pit copper mine and related electrowinning facilities to produce cathode copper on ML 197, Khomas Region.

Omico Mining Corp (Omico) " as referred to as Craton Mining and Exploration Pty Ltd" is a Namibian copper exploration and development company which holds ML 197. Omico Mining is jointly owned by International Base Metals Limited (IBML) (46.3%) and Greenstone (53.7%). A 5% interest in Craton is held by a Namibian ESG trust (Craton Foundation).

The Project is planned as a single-pit mining operation with six pushbacks designed into the main pit design. Ore will be processed using primary, secondary and tertiary crushing, agglomeration, stacking and heap leached with leachate undergoing solvent extraction and electrowinning to produce copper cathode. The operation will produce LME Grade A copper cathode (99.99% pure copper).

The Project is located over farm Omitiomire, located ~140 km northeast of Windhoek (by road) and ~39 km south of Hochfeld, in the Khomas Region of Namibia.

In terms of the Namibian Environmental Management Act, No. 7 of 2007 and its regulations, the Ministry of Mines and Energy (MME) is the competent authority for the proposed Project. Mining operations trigger listed activities in terms of the EMA Act, requiring an environmental clearance certificate.

SCREENING PHASE

The Environmental Management Act, No. 7 of 2007, and its associated 2012 regulations stipulate that an environmental clearance certificate is required before undertaking any of the listed activities that are identified in the Act and its regulations. A high-level desktop study, previous data and scientific reports were utilised during the screening phase to determine the potential environmental and social impacts of the Project, which are listed below:

- Biodiversity impact assessment;
- Air quality impact assessment;
- Noise impact assessment;
- Hydrology and geohydrology impact assessment;
- Water supply impact assessment;
- Archaeological impact assessment;
- Blast and vibration impact assessment;

- Climate change risk assessment; and
- Geochemical analysis of potential Acid-Forming Minerals and mine drainage assessment.

SCOPING PHASE

The objective of the scoping phase was to obtain a thorough understanding of the biophysical and socioeconomic environment in which the Project is located, using baseline and specialist studies. It also provided an opportunity for the public to have input into the scope of the assessment. The technical inputs combined with the inputs from the I&APs led to the development of the Terms of Reference (ToR) for the assessment phase.

The following were considered during the preparation of the scoping report:

- Desktop and literature research;
- Site visits by ECC and specialists;
- Environmental monitoring data;
- Specialist baseline studies, including:
    - Geotechnical analysis of the founding materials;
    - Geochemistry of ore and waste rock;
    - Surface and groundwater studies;
    - Biodiversity study;
    - Noise;
    - Blast and vibration study;
    - Air quality;
    - Road traffic study;
    - Climate change; and
    - Heritage and archaeological study.

TERM OF REFERENCE

The ToR within the scoping report was proposed for the assessment phase and covered the following;

- Surface and groundwater impact assessment;
- Noise impact assessment;
- Visual impact assessment;
- Socioeconomic impact assessment;
- Heritage impact assessment;
- Biodiversity impact assessment;
- Traffic impact assessment;
- Air quality impact assessment; and
- Mine-induced blast and vibration assessment.

The methodology used for assessing impacts was described in the scoping report and is included in chapter 6 of this report. A hierarchical decision-making process is followed, to prevent or eliminate, prevent, reduce or offset, mitigate or manage potential impacts. The draft scoping report and draft environmental management plan (EMP) was provided to the public for review for 14 days (30th of May 2023 – 13th of June 2023) before submission of the final scoping report to the competent authority, including MME and ultimately MEFT. All I&APs comments were captured and responded to by providing an explanation or further information in the response table, which was attached as an addendum report to the final scoping report which was submitted to the competent authority on 12th of July 2023.

IMPACT ASSESSEMENT PHASE

The next stage of the ESIA process was to conduct the impact assessment. The draft impact assessment report was made available for public review for 14 days (from March 20, 2024 – 03 April 2024) – an extended period of the required 7 days as per Section 32(1) of the Environmental Management Act (EMA) No.7 of 2007. The final ESIA report and appendices have been prepared and submitted formally to the MME and the MEFT as part of the application for an environmental clearance certificate for the Project. The phases of the ESIA are provided in Figure 1.

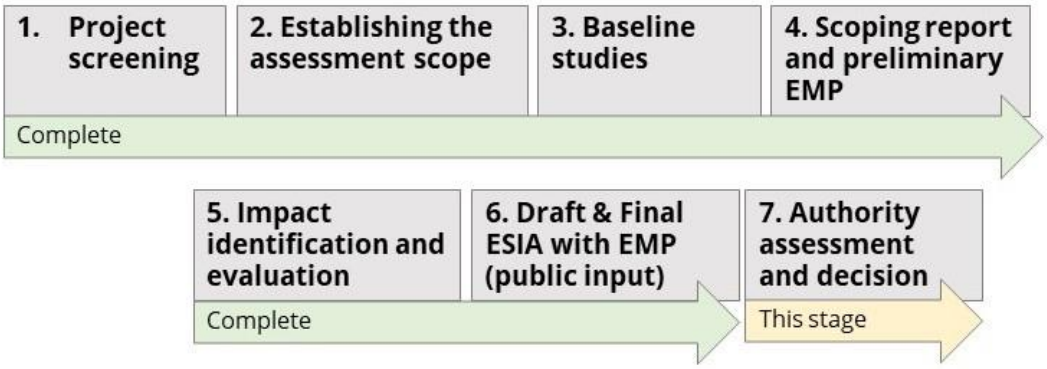

Figure 1 - Namibia ESIA process noting Omitiomire progress.

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ABBREVIATIONS

Abbreviation	Description
>	greater than
<	less than
%	percentage
%S	total sulphur
˚C	degree celsius
µm	micrometer
µS/cm	A unit of electrical conductivity expressed as microsiemens per centimeter
ABA	Acid Base Account test
ADT	Average Daily Traffic
AMD	Acid Metalliferous Drainage
ANC	acid neutralising capacity
ASTM	American Standard Testing Method
BC	before Christ
BFS	bankable feasibility study
BID	background information document
CBS	Central Bureau of Statistics
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CITES	Convention on international Trade in Endangered Species
COPD	chronic obstructive pulmonary disease
COVID-19	Coronavirus 2019
Cu	copper
dBA	decibel
dBL	linear decibels
DEA	Directorate of Environmental Affairs
EC	electrical conductivity
ECC	Environmental Compliance Consultancy (Pty) Ltd
EPL	exclusive prospecting licence
EMA	Environmental Management Act No.7 of 2007
ENE	east northeast
ESIA	environmental and social impact assessment
ESMP	environmental and social management plan
GDP	gross domestic product
GHGs	greenhouse gases
GN	government notice

Abbreviation	Description
ha	hectares
HAN	Hospitality Association of Namibia
HIV/AIDS	Human immunodeficiency virus/ acquired immune deficiency syndrome
HSE	health, safety environment
HV	heavy vehicle
H_2SO_4	sulfuric acid
IAPs	interested and affected parties
ICPS	Inductively Coupled Plasma Spectrometry
IFC	International Finance Corporation standards
IPPR	Institute for Public Policy and Research
ISO	International Organisation for Standardisation
ISSE	International Society of Explosive Engineers
IUCN	International Union for Conservation of Nature
kg	kilogram
kg H_2SO_4/t	kilogram of sulphuric acid per tonne
km	kilometres
Km/h	kilometre per hour
LDVs	light duty vehicles
LoM	life of mine
LME	London Metal Exchange
Ltd	limited
m	metre
mm	millimetre
m/s	meter per second
mm/s	millimeters per second
mg/m^2/day	milligram per meter squared per day
m/s^2	metre per second squared
Mm^3/a	Million cubic metres per annum
m^3 /h	cubic metres per hour
MPA	Maximum Potential Acidity
masl	metres above sea level
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
ML	mining licence
MME	Ministry of Mines and Energy

Abbreviation	Description
MPA	Maximum Potential Acidity
MW	megawatt
NaCl	sodium chloride
NamPol	Namibia Police
NamPower	Namibia Power Corporation
NamWater	Namibia Water Corporation Ltd
NAPP	Net Acid Producing Potential
NAU	Namibian Agricultural Union
NDP	National Development Plan
NE	northeast
NGOs	non-government organisations
NHC	National Heritage Council
NNE	north northeast
NPC	National Planning Commission
NSA	Namibia Statistics Agency
NSR	noise sensitive receptors
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PGA	Peak Ground Acceleration
pH	potential of hydrogen
PI	plasticity index
PM	particulate matter
POE	probability of exceedance
POI	point of interest
PPE	personal protective equipment
Pty	proprietary
PV	photovoltaic
RA	Road Authority
RC	reverse circulation
RH	relative humidity
RoD	record of decision
SANS	South Africa National Standards
SDGs	sustainable development goals
SLR	SLR Environmental Consulting
SX-EW	solvent extraction and electrowinning
TB	tuberculosis

Abbreviation	Description
TCFD	The Task Force on Climate-related Financial Disclosure
tpa	tonnes per annum
tCO_2e	tonnes of carbon dioxide
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Child's Emergency Fund
USMB	United States Bureau of Mines
WHO	World Health Organisation
WRF	Weather Research and Forecasting
XRF	x- ray fluorescence

1 INTRODUCTION

1.1 COMPANY BACKGROUND

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been retained by Craton Mining and Exploration (Pty) Ltd (hereinafter referred as the Proponent), to undertake an environmental and social impact assessment (ESIA) and develop an environmental and social management plan (ESMP) for the construction and operation of an open pit copper mine, heap leach and related electrowinning facilities to produce cathode copper (Project). The ESIA process and related submittals and report are compliant to the Environmental Management Act No.7 of 2007 and its regulations of 2012 and are also aligned with International Finance Corporation standards (IFC). An environmental clearance application has been submitted to the relevant competent authorities in this case, the Ministry of Mines and Energy (MME) and the Ministry of Environment, Forestry, and Tourism (MEFT) for a record of decision (RoD).

Craton Mining and Exploration (Pty) Ltd holds mining licence 197 (ML 197) over farm Omitiomire, located ~140 km northeast of Windhoek (by road) and ~39 km south of Hochfeld, in the Khomas Region, Namibia (Figure 2). Exploration undertaken since 2007 has resulted in a mineral resource of ~81.4 million tonnes at 0.60% Copper (Cu). Most of the deposit is in the form of copper sulphides, specifically chalcocite, containing high proportions of copper and minimal proportions of iron. The copper sulphides have been oxidised near the surface to ~40 m, and at a depth of over 200 m next to major fractures and fault lines. The oxidised copper ores, mainly malachite, make up ~6% of the total mineralisation. The current schedule indicates that the open pit will be mined out in ~10 years.

Figure 2 shows the location of ML 197 within the Khomas Region, Namibia.

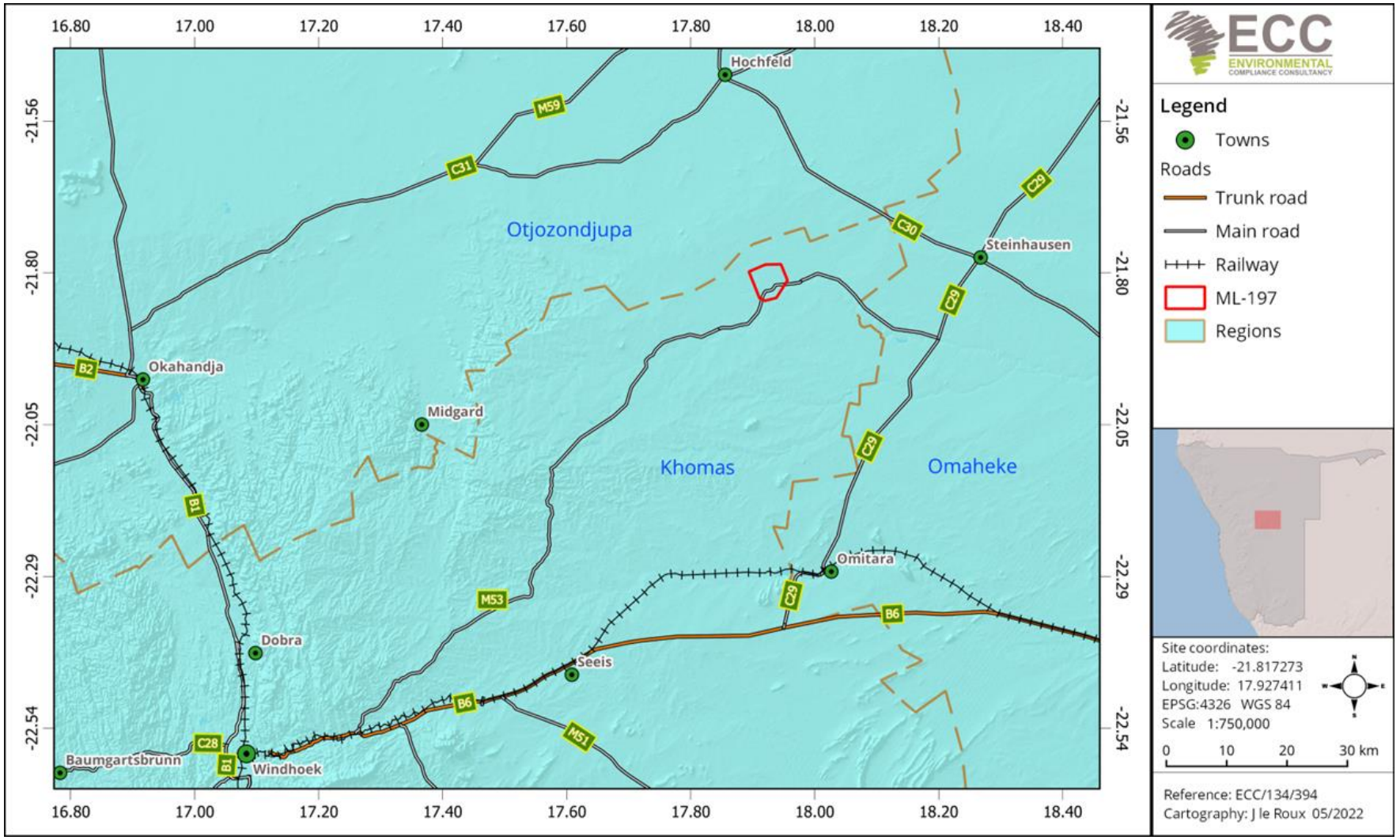

Figure 2 - Locality map of the proposed mine on ML 197, Khomas Region, Namibia.

1.2 PURPOSE OF THE ASSESSMENT REPORT

An environmental and social impact assessment (ESIA) has commenced in terms of the requirements of the Environmental Management Act, No. 7 of 2007, and its associated 2012 regulations. The purpose of this report is to present the findings of the impact assessment. In addition to describing the prescribed ESIA process, the report describes the baseline biophysical and socioeconomic environments, provides a project descriptive summary and presents the environmental and social management plan (ESMP) (Appendix A).

The scoping report was submitted for public review for interested and affected parties (IAPs) to provide inputs and comments on the impacts and related ESIA terms of reference. After the public review period the final scoping report with public inputs was submitted to the Ministry of Mines and Energy (MME) as the competent authority for the Project, and to the Ministry of Environment, Forestry and Tourism (MEFT) - Directorate of Environmental Affairs (DEA) as part of the ECC application. The ESIA scope of assessment was determined through undertaking a preliminary assessment of the proposed Project against the receiving environment, obtained through a desktop review, available site-specific literature, monitoring data, and site reports. The draft ESIA report was submitted to the public for review for 14 days. The final ESIA and ESMP reports have been prepared for submission to Government for review and record of decision.

Chapter 1 of the report is an introduction to the proposed project and ESIA. Chapter 2 provides detail about the ESIA approach, including the roles of the public and specialists. Chapter 3 provides additional details on the legal environment and requirements. Chapter 4 provides sufficient detail on the project to identify and assess potential impacts. Chapter 5 provides an overview of the screening and scoping results and related baseline information identifying all relevant biophysical and social aspects. Chapter 6 provides an overview of the methodology for identifying and evaluating impacts. Chapters 7 provides findings of the impact assessment and chapter 8 covers conclusion and bibliography, respectively.

1.3 PROPONENT DETAILS

Table 1 provides the Proponent's details.

Table 1 - The Proponent's details.

Company representative	Contact details
Mr Mike Stuart Project Manager	Craton Mining and Exploration (Pty) Ltd P O Box 90128 Windhoek, Namibia mstuart@omicomining.com

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Environmental Compliance Consultancy (Pty) Ltd (ECC) (Reg. No. CC 2013/11401) has prepared this final ESIA report and ESMP on behalf of the Proponent.

The report has been prepared by Environmental Compliance Consultancy Pty Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent. Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the accuracy, completeness, or currency of the information cannot be guaranteed.

All compliance and regulatory requirements regarding this report should be forwarded by email or posted to the following address:
Environmental Compliance Consultancy (Pty) Ltd
PO Box 91193, Klein Windhoek, Namibia
Tel: +264 81 669 7608
Email: info@eccenvironmental.com

1.5 ENVIRONMENTAL REQUIREMENTS

The Environmental Management Act, No. 7 of 2007, and its associated 2012 regulations, stipulate that an environmental clearance certificate is required before undertaking any of the listed activities that are identified in the Act and its regulations. Potential listed activities triggered by the Project are provided in Table 2.

Table 2 – Listed activities triggered by the proposed Project in terms of the Environmental Management Act , No.7 of 2007.

Listed activity	EIA screening finding
Energy generation, transmission and storage activities The construction of facilities for: (1a) The generation of electricity. (1b) The transmission and supply of electricity.	– The Omitiomire Copper Mining Project will need to generate and or transmit electricity for its operations; the Project is expected to connect to the NamPower national power grid from the Auas substation.; and – The Proponent may consider developing a renewable energy plant (i.e., solar) for the generation of supplementary power.
Waste management, treatment, handling, and disposal activities (2.1) The construction of facilities for waste sites, treatment of waste and disposal of waste. (2.2) Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976. (2.3) The import, processing, use and recycling, temporary storage, transit or export of waste.	– Facilities for the disposal of mine and domestic waste will need to be designed and constructed; and – In terms of the Atmospheric Pollution Prevention Ordinance, the bulk storage and handling of mineralised or metallic ore on waste dumps designed to hold 100 000 metric tonnes or more, is defined as a scheduled activity.
Mining and quarrying activities (3.1) The construction of facilities for any process or activities which requires a license, right or another form of authorization, and the renewal of a license, right or another form of authorization, in terms of the Minerals (Prospecting and Mining Act), 1992. (3.2) Other forms of mining or extraction of any natural resources whether regulated by law or not. (3.3) Resource extraction, manipulation, conservation and related activities.	– This listed activity infers the provisions of the Minerals (Prospecting and Mining) Act 33 of 1992. The very nature of the Project is mining, which therefore triggers this listed activity.

Listed activity	EIA screening finding
Forestry activities (4.) The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.	– Vegetation clearing will be required for site construction and infrastructure establishment; and – During operations, vegetation clearing will be required as the Project develops. The necessary permits will be acquired as required.
Hazardous substance treatment, handling and storage (9.1) The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974. (9.2) Any process or activity which requires a permit, licence or other form of authorization, or the modification of or changes to existing facilities for any process or activity which requires amendment of an existing permit, licence or authorization or which requires a new permit, licence or authorization in terms of a governing the generation or release of emissions, pollution, effluent or waste. (9.4) The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.	– The proposed mining operations and process method triggers this activity, as both fuel and hazardous substances are required for mining and processing activities; – Bulk fuel may be for supplementary onsite generation of electricity and for refuelling the mining fleet; – Consumer installation certificates are required for bulk fuel storage and dispensing; – Hazardous reagents will be used within the copper extraction and processing plant; – The Project may make use of portable toilets, chemical toilets as well as septic/conservancy tanks used during pre- mining activities; – Permanent sewage waste treatment systems and handling facilities will be constructed on-site for use during the operational phase of the Project; and – A laboratory will be constructed within the footprint of the ML.
Water resource development 8.1 The abstraction of ground or surface water for industrial or commercial purposes. 8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of the law relating to water	– The project requires bulk water supply not available locally and will source water from the Summerdown Kalahari Aquifer; – A river diversion is proposed as the open pit cuts across the Black Nossob River; – The design of stormwater management infrastructure in the mine

Listed activity	EIA screening finding
resources. 8.4 Construction of canals and channels, including the diversion of the normal flow of water in a riverbed, and water transfer schemes between water catchments and impoundments. 8.5 Construction of dams, reservoirs, levees, and weirs. 8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems. 8.8 Construction and other activities in watercourses within flood lines. 8.9 Construction and other activities within a catchment area.	footprint; – Dewatering of the pit may be required to ensure safe mining operations; and – Ground and surface water may be abstracted during construction.
Infrastructure 10.1 The construction of: (j) Masts of any material or type, and of any height, including those used for telecommunication broadcasting and radio transmission. (10.2) The route determination of roads and design of associated physical infrastructure where – (a) It is a public road.	– The M53 district road will be diverted around the southern edge of the proposed open pit; and – The construction and connection of the mine powerline to the national power grid supplied by NamPower.

2 APPROACH TO THE ASSESSMENT

2.1 PURPOSE AND SCOPE OF THE ASSESSMENT

The ESIA aims to determine which impacts are likely to be significant. Available data is evaluated identify any gaps that need to be filled, enabling a determination of the extent of the assessment, and identification of an appropriate methodology.

2.2 THE ASSESSMENT PROCESS

The ESIA methodology applied to this assessment has been developed using the International Finance Corporation (IFC) standards and models, in particular, Performance Standard 1: '*Assessment and management of environmental and social risks and impacts* (International Finance Corporation, 2012 and 2017); Namibian legislation and *Draft Procedures and Guidance for EIA and EMP* (the Republic of Namibia, 2008); international and national best practice guidelines; and ECC's combined relevant ESIA experience.

This assessment is a formal process. The potential impacts of the Project on the biophysical, social, and economic environments are identified, assessed, and publicly reported for consideration by authorities for their record of decision for the proposed Project.

Final mitigation measures and recommendations are based on the cumulative experience of the consulting team and the Proponent, taking into consideration the potential environmental and social impacts. The process followed, through the assessment, is illustrated in Figure 3, and is detailed further in the following sections.

It is important to note at this juncture that the assessment has been carried out in accordance with the plans received from the Proponent. After completing the assessment, some aspects of the Proponent's plans may need to change in order to comply with the mitigations.

1. Project screening

Complete

The first stages in the ESIA process are to undertake a screening exercise to determine whether the Project triggers listed activities under the Environmental Management Act, 2007, and its regulations.

The screening phase of the Project is a preliminary analysis, in order to determine ways in which the Project might interact with the biophysical, social, and economic environments.

Stakeholder engagement:
- Registration of the project
- Preparation of the BID

2. Establishing the assessment scope

Complete

Where an ESIA is required, the second stage is to scope the assessment. The main aim of this stage is to determine which impacts are likely to be significant; to scope the available data and any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.

The scope of this assessment was determined through undertaking a preliminary assessment of the proposed Project against the receiving environment. Feedback from consultation with the public and the Proponent informs this process. The following environmental and social topics were scoped into the assessment, as there was the potential for significant impacts to occur. Impacts that are identified as potentially significant during the screening and scoping phase are taken forward for further assessment in the ESIA process. These are:

BIOPHYSICAL ENVIRONMENT
- Biodiversity:
  - Fauna
  - Flora
- Hydrology and geohydrology
- Ambient air quality

SOCIAL ENVIRONMENT
- Socio-economic
  - Noise effects on sensitive receptors
  - Cultural heritage and archaeology
  - Blasting effects on sensitive receptors
  - Traffic effects
  - Visual impacts
  - Community/occupational health and safety

3. Baseline studies

Complete

A robust baseline is required, in order to provide a reference point against which any future changes associated with a Project can be assessed, and to allow suitable mitigation and monitoring to be identified.

The region and general area have been studied for various projects and assessments. This literature was available to be referenced. The Project site-specific area has been studied as part of the ESIA process, and the following has been conducted as part of this assessment:
- Desktop studies
- Consultation with stakeholders
- Specialist field visits and monitoring data

The environmental and social baselines are provided in the scoping study and are thoroughly discussed in this impact assessment study.

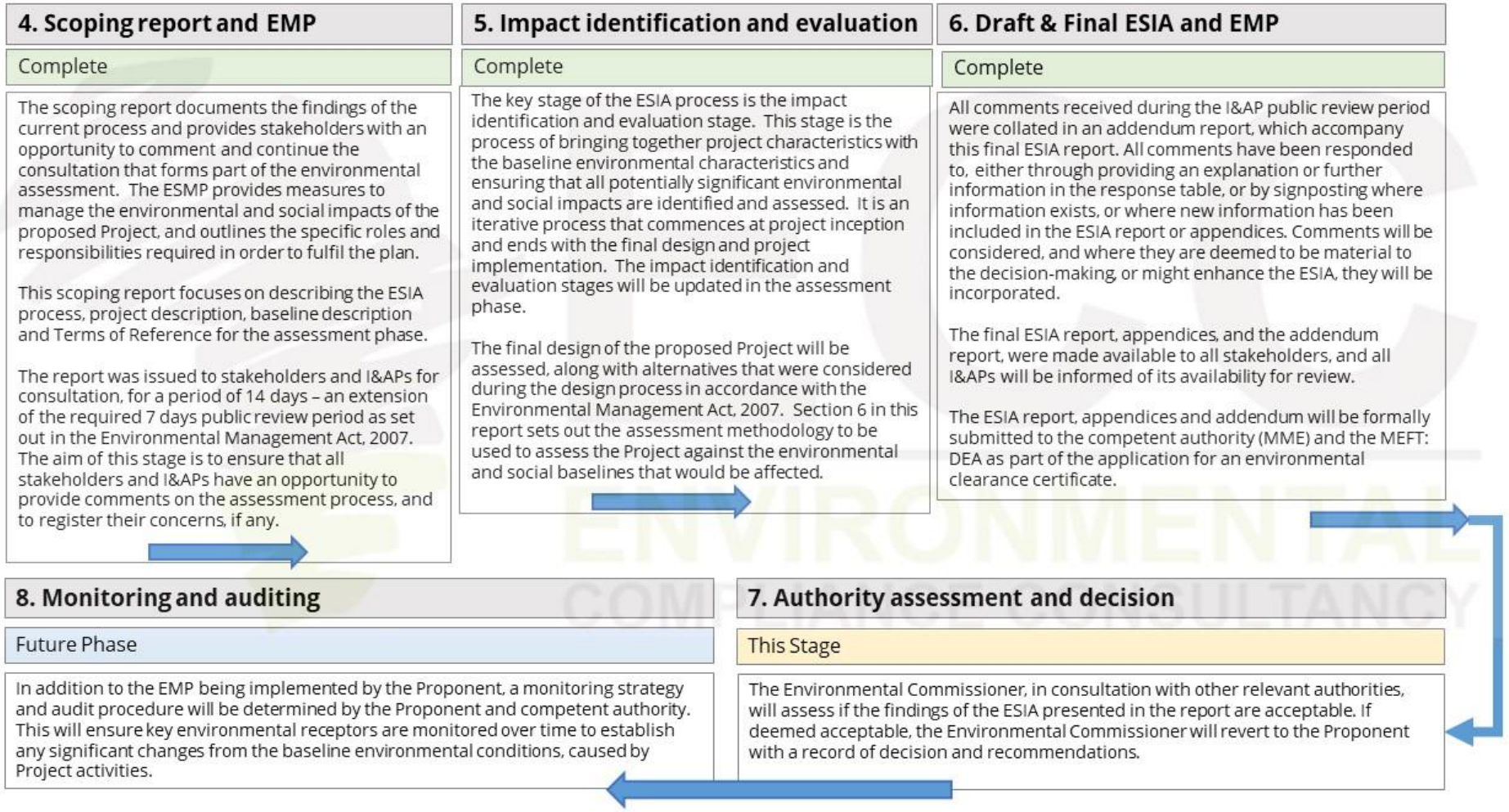

Figure 3 - ESIA process and Project progress status.

2.3 STUDY AREA

The ESIA study area has been defined according to the geographic scope of the receiving environment in and around ML 197 and potential impacts of the proposed Project. The receiving environment is a summary term for the biophysical and socioeconomic environment that is described in the baseline chapter (chapter 5 of this report). The study area is presented in Figure 4.

2.4 PUBLIC CONSULTATION

Public participation and consultation are a requirement stipulated in Section 21 of the Environmental Management Act, 2007, and its regulations, for a project that requires an environmental clearance certificate. Consultation is a compulsory and critical component of the ESIA process for achieving transparent and inclusive decision-making and can provide many benefits. Consultation continues throughout the ESIA process.

The objectives of the public participation and consultation process are to:

- Provide information on the project, and introduce the overall project concept and plan in the form of a background information document (BID) (presented in Appendix B);
- Identify the relevant government, regional, and local regulating authorities;
- Engage with community, NGO, and tourism-related issues, record questions and concerns, and integrate the issues and aspects in the process;
- Explain the process of the ESIA and the timeframes involved; and
- Establish a platform for ongoing consultation.

Public consultation for the Project commenced on the 1st of February 2023. Adverts were published in the newspaper announcing the dates of the public meetings and encouraging members of the public to sign up as an IAP for the Project.

The adverts for these public meetings were published in newspapers and the notification of the assessment in terms Regulation 21 of the Act was placed in the following newspapers on 1st February 2023 and 8 February 2023:

- The Republikein;
- The Namibian Sun; and
- Allgemeine Zeitung.

Public meetings were then subsequently held in Windhoek at the Namibian Scientific Society on the 8th of February 2023 and on farm Groot Korasie at the Otjere Hunting Lodge on the 10th of February 2023. Farmers forum meetings are currently being held with the landowners on an ad hoc basis.

All the relevant government departments and local authorities have been consulted, particularly in Steinhausen, Seeis, Hochfeld and the Omitara Farmers Association that represent the respective landowners in the area. The public consultation process expanded the list of known stakeholders.

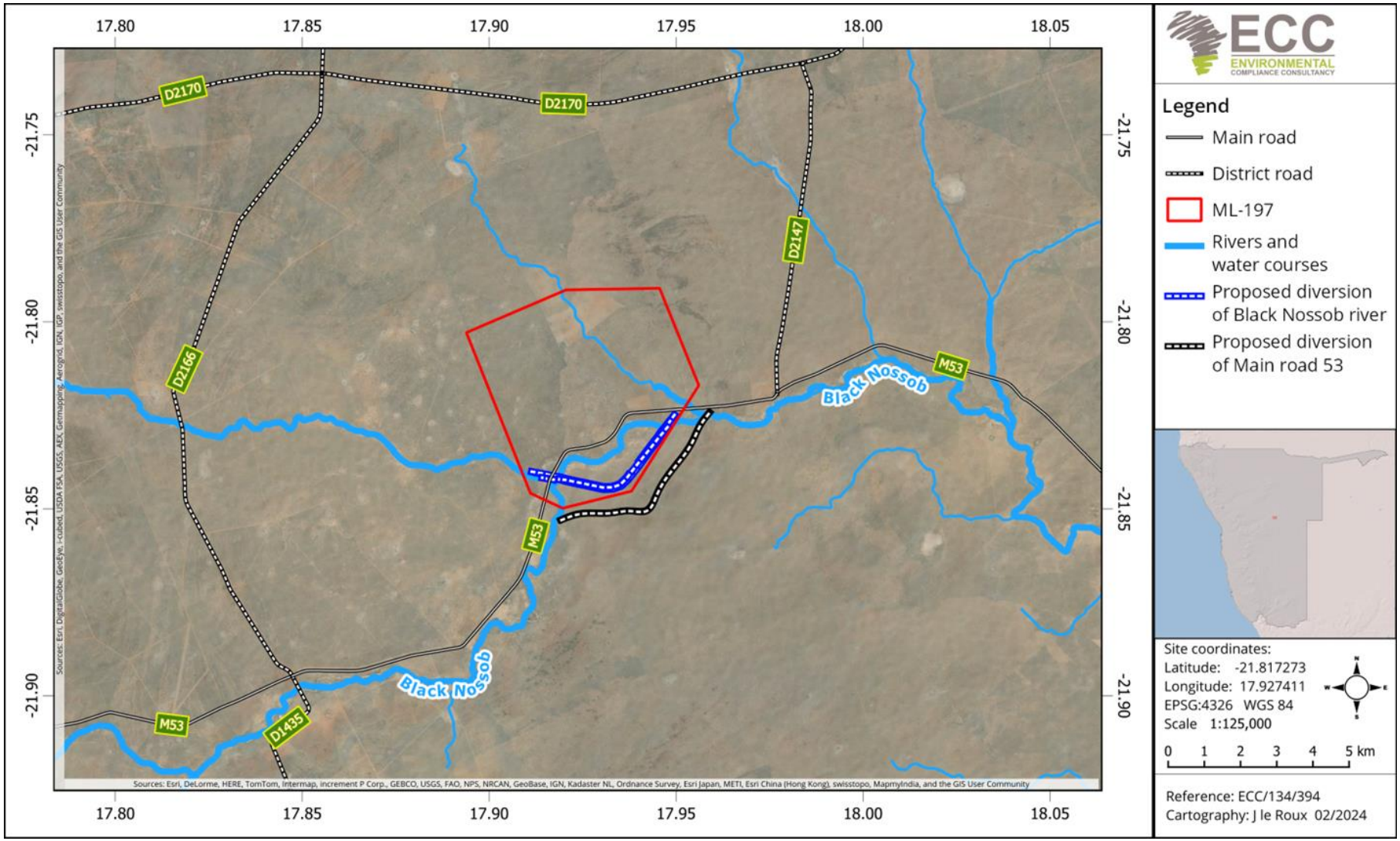

Figure 4 - ESIA study area.

2.5 IDENTIFICATION OF KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES

A stakeholder mapping exercise was undertaken to identify individuals or groups of stakeholders and the method in which they will be engaged during the ESIA process. Stakeholders were approached through direct communication (letters and phone calls), the national press, site notices, or directly by email. Figure 5 shows neighbouring farms surrounding ML 197 and Figure 6 shows the EAP level of consultation with the farmers.

A summarised list of stakeholders that were engaged during the public consultation process is given below:

- The general public with interest in the Project;
- Regional and local authorities;
- Agricultural associations;
- Tourism and hunting associations;
- The National Heritage Council;
- Roads Authority;
- Relevant line Ministries (MEFT, MAWLR and MME); and
- Neighbouring farming community.

All public consultation records are collated in a summary report provided in Appendix C. The summary report provides the current list of IAPs, evidence of consultation, including minutes of the farmers forum meeting and public meetings, advertisements in national newspapers, and a summary of comments or questions raised by the public. A summary of the key concerns raised during the consultation process is provided in section 2.6.

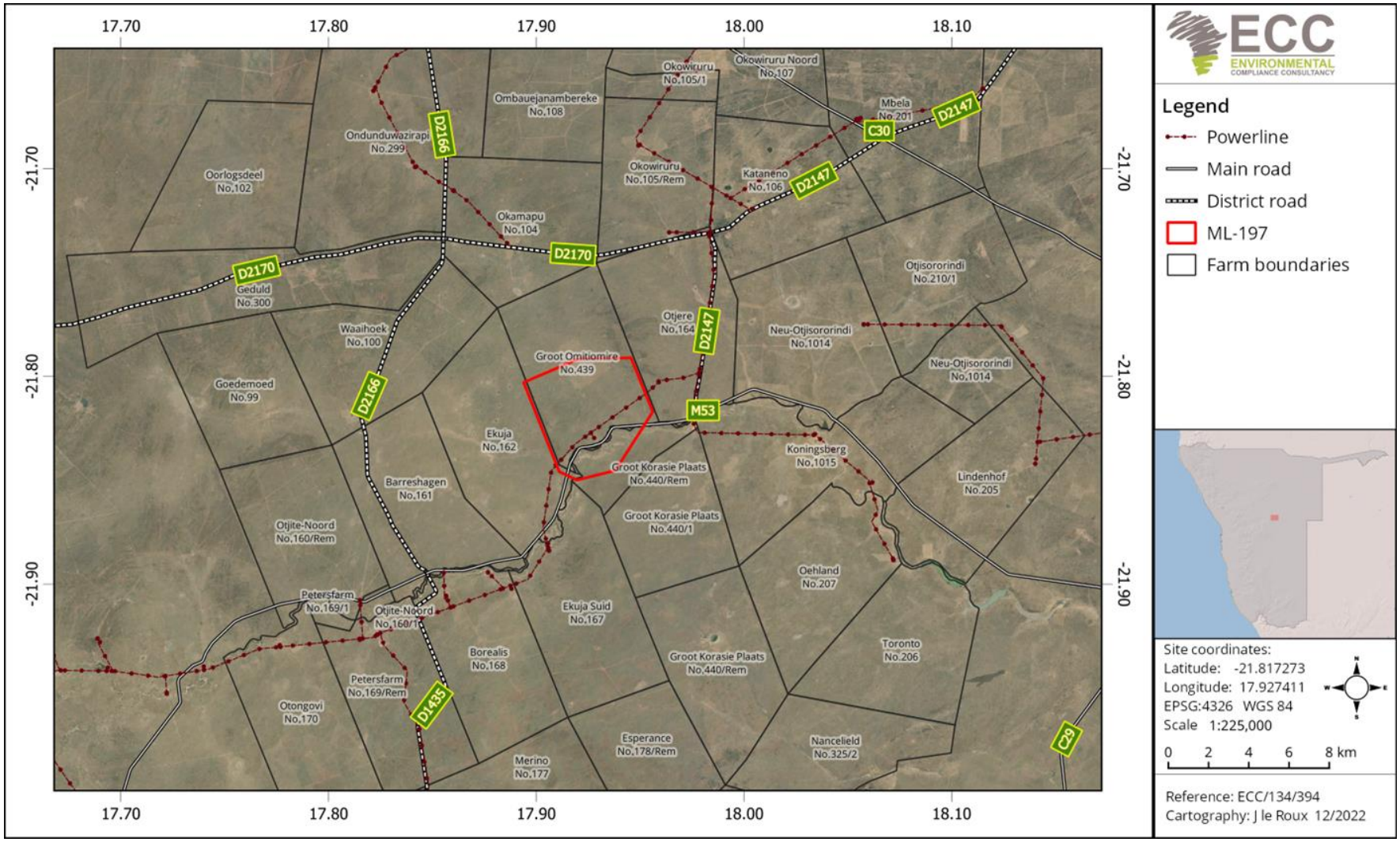

Figure 5 - Neighbouring farms surrounding the mining licence area.

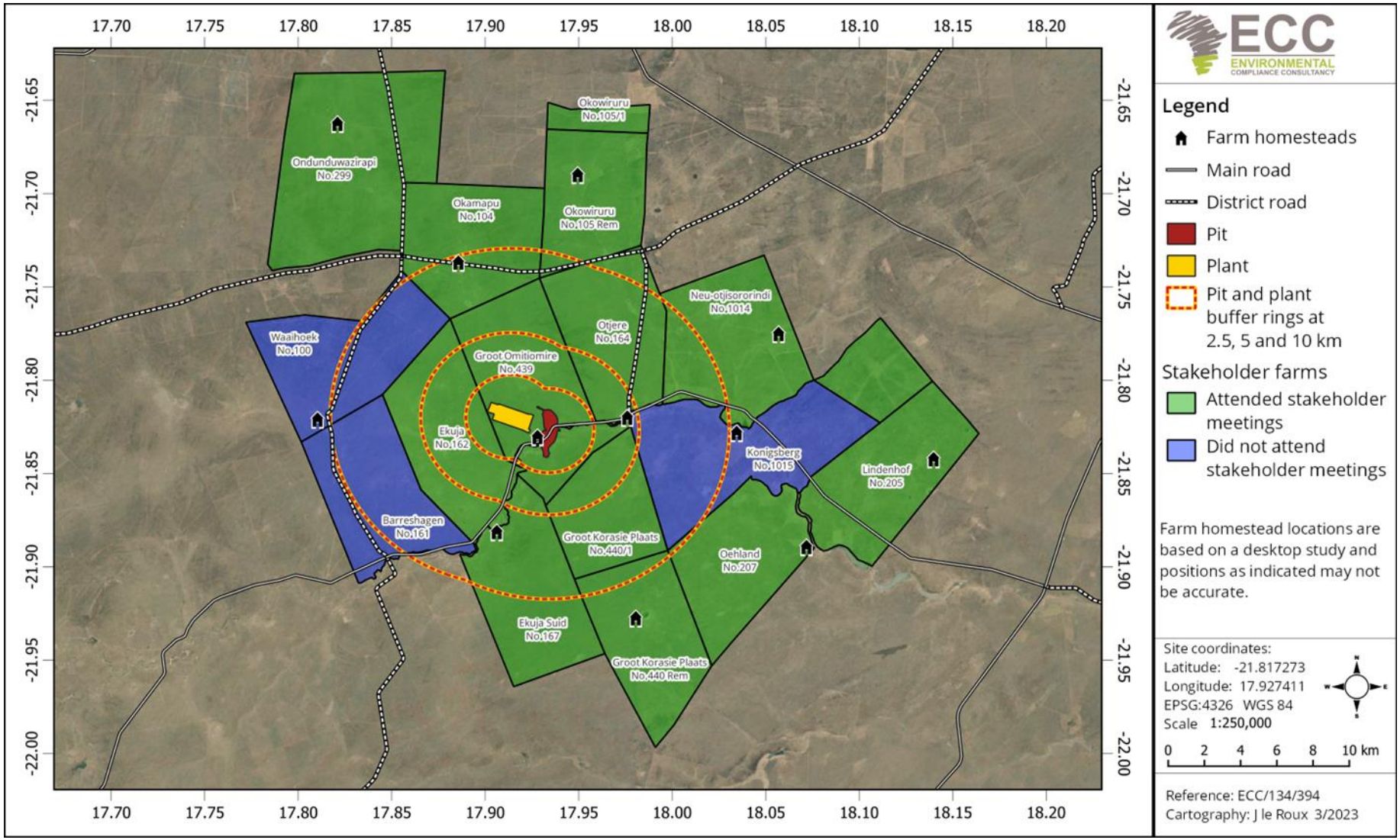

Figure 6 - Level of farmers consultation during the ESIA consultation process.

2.6 SUMMARY OF RAISED ISSUES

Matters raised by registered IAPs in relevant stakeholder consultations and the public meeting held in Windhoek and at Otjere Lodge include the following, which are typical for the nature, location and scale of this project namely:

- The Black Nossob River diversion;
- Increase in poaching, stock theft and crime;
- Concerns related to dust and air quality;
- Water use and possible contamination from use of chemicals;
- Workers camp;
- Road and transport corridors;
- Noise, visual and light impact;
- Community benefits from the Project; and
- Mine closure.

To ensure that IAPs can comment and provide feedback on the assessment, the scoping report was circulated to potentially interested and or affected parties and stakeholders for a 14- day review period from 30th of May 2023 to the 13th of June 2023. Should stakeholders have comments or questions, or areas that concern them that they feel require further assessment after submission of the final ESIA submission to government, ECC will address these through an addendum report which will be submitted to the competent authorities.

The abovementioned concerns were taken into account during the assessment period and are discussed thoroughly in chapter 7 of this report and management mitigation measures are provided in the ESMP.

3 REVIEW OF THE LEGAL ENVIRONMENT

3.1 RELEVANT LEGISLATION

As stated in Chapter 1, an environmental clearance certificate is required for any activity listed in the Government Notice No. 29 of 2012 of the EMA. Mine construction and operation are listed activities.

The Project area is located outside of any national parks or communal conservancy. The Project area is not located within a groundwater-controlled area, as regulated under the Water Resources Act No, 11 of 2013 promulgated on 29 August 2023.

This chapter outlines the regulatory framework applicable to the proposed Project. Therefore, the proposed Project has conducted a thorough review of relevant legislation. Table 3 identifies relevant legal requirements specific to the Project. Table 4 provides the national policies and plans and Table 5 outlines specific permits relevant to the Project.

3.2 RELEVANT NATIONAL POLICIES AND PLANS

Table 3 - Details of the regulatory framework as it applies to the Project.

National regulatory framework	Summary	Applicability to the project
Constitution of the Republic of Namibia (1990)	The constitution defines the country's position in relation to sustainable development and environmental management. The constitution refers that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at the following: "*Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia, and the utilisation of living, natural resources on a sustainable basis for the benefit of all Namibians, both present, and future*."	The Project is committed to the sustainable use of the environment, and has aligned its corporate mission, vision, and objectives with the Constitution of the Republic of Namibia (1990).
Minerals (Prospecting and Mining) Act No. 33 of 1992	The Act provides for the granting of various licences related to mining and exploration. Section 50 (i) requires: "An environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out, and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations." The Act sets out the requirements associated with licence terms and conditions, such that the holder of a mineral licence shall comply with.	This ESIA report documents the findings of the scoping phase of the environmental assessment undertaken for the proposed Project. The process will be undertaken in line with the Act's requirements and regulations.

National regulatory framework	Summary	Applicability to the project
	The Act also contains relevant provisions for pollution control related to mining activities and land access agreements and provides provisions that mineral licence holders are liable for any damage to land, water, plant, or animal life, caused by spilling or pollution, and must take all such steps as may be necessary to remedy such spilling, pollution, loss, or damage, at its own costs.	
Environmental Management Act, 2007 (Act No. 7 of 2007) and its regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011)	The Act aims to promote sustainable management of the environment and use of natural resources. The Act requires certain activities to obtain an environmental clearance certificate prior to Project development. The Act states that an EIA should be undertaken and submitted as part of the environmental clearance certificate application process. The MEFT is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs, under the MEFT, is responsible for the administration of the EIA process.	This ESIA report documents the findings of the scoping phase of the environmental assessment undertaken for the proposed Project. The process has been undertaken in line with the requirements under the Act and its regulations.
Soil Conservation Act, No. 76 of 1969	This Act makes provision for the prevention and control of soil erosion, and for the protection, improvement, and conservation of soil and vegetation.	Land clearing is an unavoidable necessity for the proposed Project, as large areas will be cleared for mining infrastructure.

National regulatory framework	Summary	Applicability to the project
		Measures will be included in the ESMP to conserve soil and vegetation that will be used as part of the rehabilitation phase of the Project.
Hazardous Substances Ordinance, No. 14 of 1974	This Ordinance provides for the control of toxic substances and can be applied in conjunction with the Atmospheric Pollution Prevention Ordinance, No. 11 of 1976. This applies to the manufacture, sale, use, disposal, and dumping of hazardous substances, as well as their import and export.	The planned Project will involve the handling and storage of hazardous substances such as fuels, reagents, and industrial chemicals. The Proponent shall ensure effective handling, transfer, storage, and disposal protocols are developed, implemented, and audited throughout the Project. The Proponent is obliged to ensure that all permits under this Ordinance are obtained prior to Project commencement.
Water Resources Management Act No.11 of 2013	The Act was newly promulgated in August 2023 and supersedes the Water Act, No.54 of 1956. This Act provide for the management, protection ,development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.	The Act stipulates obligations to prevent the pollution of water. The ESMP sets out measures to avoid polluting the environment. The Project requires diverting a section of the Black Nossob River south of the proposed open pit area, the activities of

National regulatory framework	Summary	Applicability to the project
	Section 13 of the Act makes provides for surface and groundwater pollution control measures. The Ministry of Agriculture, Water and Land Reform (MAWLR); Department of Water Affairs is responsible for the administration of the Water Act.	which will comply with this Act. The Act sets out obligations to avoid surface and groundwater pollution. These have been incorporated into the ESMP to minimise pollution from project-related activities.
National Heritage Act No.27 of 2004	The Act provides provisions for the protection and conservation of places and objects with heritage significance. Section 55 compels mining companies to report any archaeological findings to the National Heritage Council. Subsection 9 allows the NHC to issue a consent, subject to any conditions that the Council deems necessary.	There is the potential for heritage-related objects to be found and potentially be disturbed in the mining licence area. Therefore, the relevant stipulations in the Act will be taken into consideration and incorporated into the ESMP. In cases where heritage sites are discovered, the 'chance find procedure' will be used.
Labour Act No.11 of 2007	The Labour Act, No. 11 of 2007 (Regulations relating to the Occupational Health & Safety provisions of Employees at work, promulgated in terms of Section 101 of the Labour Act, No. 6 of 1992 - GN156, GG 1617 of 1 August 1997)	The Project shall comply to all labour provisions and guidelines, as enshrined in the Labour Act. The Project shall also develop and implement a comprehensive occupational health and safety plan to ensure adequate protection for its personnel throughout the Project lifecycle.
Petroleum Products and Energy Amendment Act, No.3 of 2000	Provides provision for the Minister to regulate the cleaning up of petroleum product spills, leaks and	Mining operations have the potential to cause petroleum product spills or related

National regulatory framework	Summary	Applicability to the project
	related incidents. The Proponent is required to carry all costs associated with such incidents.	incidents. The Proponent shall ensure that all necessary hazard management mitigation, and recovery procedures as well as any relevant environmental insurance provisions are in place and maintained throughout operations.
Road Traffic and Transport Act, No. 22 of 1999	This Act makes provision for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, and the control and regulation of road transport users across Namibia.	The Project will involve transportation activities in support of mining activities and the rerouting of a public road around the mining area. The employees and supporting businesses shall adhere to national road regulations on public roads.
The Atmospheric Pollution Prevention Ordinance, No. 11 of 1976	The ordinance pertains to the prevention of air pollution, with a particular focus on public health, and contains detailed provisions on air pollution matters, including the control of noxious or offensive gases, atmospheric pollution by smoke, dust control, motor vehicle emissions, and other general provisions.	The ESMP contains measures to prevent and control emissions (dust) from project activities.
The Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005	Section 22 deals with the protection of natural vegetation that is not part of the surveyed erven of a local authority area as defined. Section 21 states that no person shall cut, destroy, or remove vegetation that is growing within 100 metres of a	The Project activities will require vegetation clearing. The Proponent will ensure that all required permits are in place before vegetation removal commences.

National regulatory framework	Summary	Applicability to the project
	river, stream, or watercourse. Section 23 requires a permit from the Director for the clearance of vegetation on more than 15ha on any piece of land or several pieces of land situated in the same locality as that which has predominantly woody vegetation; or cut or remove more than 500 cubic metres of forest produce from any piece of land in a period of one year.	

3.3 National Policies and plans

Table 4 - Namibian national policies and plans applicable to the Project.

Policy or plan	Description	Relevance to the Project
Vision 2030	Vision 2030 sets out the nation's development targets and strategies to achieve its national objectives. Vision 2030 states that the overall goal is to improve the quality of life of the Namibian people aligned with the developed world.	The proposed Project shall aim to meet the objectives of Vision 2030 and shall contribute to the overall development of the country through continued employment opportunities and ongoing contributions to the gross domestic product (GDP).
Fifth National Development Plan (NDP5)	The NDP5 is the fifth in a series of seven five-year national development plans that outline the objectives and aspiration of Namibia's long-term vision. The NDP5 pillars are economic progression, social transformation, environmental sustainability, and good governance.	The planned Project supports meeting the objectives of the NDP5 through creating opportunities for continued employment.
The Harambee Prosperity Plan ii (2021 – 2025)	Second Pillar: Economic advancement – ensuring increasing productivity of priority key sectors (including mining) and the development of additional engines of growth, such as new employment opportunities.	The Project will contribute to the continued advancement of the mining industry and create an additional employment generation engine within the regional and national landscape.
Namibia's Green Plan, 1992	Namibian has developed a 12-point plan for integrated sustainable environmental management to ensure a safe and healthy environment and to maintain a viable economy. Clause 2 (f) makes specific mention of	Guidelines as best practice adhered to during operational activities.

Policy or plan	Description	Relevance to the Project
	guidelines related to Mining and Sustainable Development.	
Pollution Control and Waste Management Bill (draft), 1992	This draft Act aims to promote sustainable development by regulating the discharge of pollutants into the air, land and sea. Additionally, to ensure Namibia has an integrated waste management approach and complies with international legislation.	The Proponent is to take note of the draft bill and ensure that the requirements regarding the containment of pollutants from ore processing activities, refuse and effluents are complied with. A waste management system is to be developed in line with the ESMP for operational activities.
Minerals Policy	The Minerals Policy was adopted in 2002 and sets guiding principles and direction for the development of the Namibian mining sector, while communicating the values of the Namibian people. The policy strives to create an enabling environment for local and foreign investments in the mining sector and seeks to maximise the benefits for the Namibian people from the mining sector, while encouraging local participation. The objectives of the Minerals Policy are in line with the objectives of the Fifth National Development Plan that includes the reduction of poverty, employment creation, and economic empowerment in Namibia.	The Project conforms to the Policy, which has been considered through the ESIA process and the production of this report. The Proponent intends to continue to support local spending and procurement. The Project will comply with the general guidelines of the Policy through the adoption of various legal mechanisms to manage all aspects of the environment effectively and sustainably from the start. The ESIA is one such mechanism to ensure environmental integrity

Policy or plan	Description	Relevance to the Project
		throughout the planned Project's lifecycle.
Intergovernmental Forum	The mining policy framework sets out the best practices required for good environmental, social and economic governance of the mining sector and the generation and equitable sharing of benefits in a manner that will contribute to sustainable development	The project will follow the best practices set out in this framework to ensure good environmental, social and economic governance to contribute to sustainable development.

3.4 NATIONAL PERMITS AND LICENCES

Table 5 - Specific permits and licences required for the Project.

Permit or licence	Act / Regulation	Related activities requiring permits	Relevant Authority
Environmental clearance certificate	Environmental Management Act, No. 7 of 2007.	Required for all listed activities shown in Chapter 1,Table 2.	Ministry of Environment, Forestry and Tourism (MEFT)
Mining licence	Section 90 (2) (A) of the Minerals Act, No. 33 of 1992.	Written permission from the mining commissioner.	Ministry of Mines and Energy (MME)
Power generation licence	Section 17 (1) of the Electricity Act No,4 of 2007.	Required for the generation of electricity by means of a generation plant.	Electricity Control Board (ECN)
Permit for construction of river diversion	A permit is issued under the Water Resources Management Act No.11 of 2013.	Construction of a waterwork (canal, dam or channel) including the diversion of the normal flow of water in a riverbed.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Accessory work permit	Section 90(3) of the Minerals Act, No. 33 of 1992	Written permission from the Mining Commissioner before construction of any accessory works – as defined in the Act.	Ministry of Mines and Energy (MME)
Wastewater discharge permit	A permit is issued under Section 72 (1) of the Water Resources Management Act No.11 of 2013.	Required for discharge of sewage and/or excess industrial or mine wastewater.	Ministry of Agriculture, Water and Land Reform (MAWLR)
Permit for the clearing of land	The Forest Act, 2001 (Act No. 12 of 2001)	This Act governs the removal of vegetation within 100 m of a water course, or removal of more than 15 ha of woody vegetation, or the removal of any protected plant species.	Ministry of Environment, Forestry and Tourism (MEFT)

Permit or licence	Act / Regulation	Related activities requiring permits	Relevant Authority
Consumer installation certificate for bulk fuel storage	Petroleum Products Regulations	A consumer installation certificate is required for bulk fuel storage and dispensing.	Ministry of Mines and Energy (MME)
Road Authority approval for the road deviation	Road Ordinance No.17 of 1972	Approval from Road Authority is required for the deviation of the district road.	Road Authority (RA)
Permit for the storage and use of explosives, and the burning of packaging	Minerals (Prospecting and Mining) Act, No. 33 of 1992; Mine Safety Regulations	Explosives and blasting	Ministry of Mines and Energy (MME)

4 PROJECT DESCRIPTION

4.1 NEED FOR THE PROJECT

New mining activities typically contribute to the national and local economies and have a positive impact on the country's economy. Should the Project prove economically viable, the Namibian economy can expect benefits from revenues during the construction phase, royalties and taxes during the life of mine (LoM), and a positive contribution towards employment and skills training.

The Proponent acquired mining licence (ML 197) in 2016. The licence is valid until 6 March 2036. Prospecting and drilling on the Project have delineated a large, mainly copper sulphide-bearing deposit that contains copper (Cu), mainly in the form of copper sulphides with some oxides, which contain high proportions of copper and low proportions of iron. This deposit is ~4 km along its north-south axis and about 0.8 km along the east-west axis. The copper sulphides have been oxidised near surface, and next to faults and major fractures at depth. Approximately 6% of the total Omitiomire deposit's copper, including the copper oxides, is in the form of the oxidised copper ores.

4.2 EMPLOYMENT

Based on current mine plans, ~700 people will be employed during the construction phase for 18 months, and ~1,000 permanent employees will be employed during the operational phase for an expected minimum duration of 10 years. The Project through its development, construction, operation and decommissioning phases will create various indirect employment opportunities to 3rd parties.

The labour complement for the operation comprises the following:

- Management;
- Mining technical services;
- Mine production (including drill and blast, load and haul, support services, etc);
- Processing (including crushing and agglomeration, stacking, SX-EW, etc); and
- Support/ancillary services (camp, security, etc).

4.3 PROJECT BACKGROUND AND EXPLORATION HISTORY AND PROCESS

The Proponent acquired the exclusive prospecting licence (EPL 3589) in 2007. Subsequently, EPL 3589 has been converted to EPL 8550. ML 197 was granted in 2016. Table 6 shows the results of the drill campaigns undertaken on the Omitiomire copper deposit. Currently, Craton holds the mineral rights to both the EPL and ML with approved environmental clearance certificates for continued mineral exploration activities.

Table 6 - Drilling campaign from 1976 to 2023.

Year	Drilling Campaign/ Description	DD (m)	RC (m)	RAB (m)	PERC (m)	Total (m)
1976	Pre-Craton				889	889
1992	Pre-Craton	1 336			755	2 091
1993	Pre-Craton	224			986	1 210
1998	Pre-Craton		991			991
2007	Craton: Pre-financial Crisis	737	9 485			10 222
2008	Craton: Pre-financial Crisis	2 063	21 258			23 321
2009	Craton	1 484	6 868	832		9 184
2010	Craton:2010 Oxide Infill		2 094			2 094
2011	Craton: 2010 Prospectus		4 294			4 294
2011	Craton: Resource Extension	5 753	6 114		1 676	13 543
2012	Craton: Resource Extension	4 478	4 729			9 207
2012	Craton: Metallurgical	1 117	1 058			2 175
2013	Craton: Resource Oxide		4 449			4 339
2014	Craton: Resource and Extension		12 102			12 102
2022	Omico: Resource Infill		7 192			7 192
2023	Omico: Geotechnical	1 410				1 410
2023	Omico Exploration		2 138			2 138
	GRAND TOTAL	**18 602**	**82 772**	**832**	**4 306**	**106 512**

4.4 DESIGN APPROACH

The design approach for the open pit considered all related issues systematically during the whole life of the proposed mining operations from the pre-feasibility stage through to closure and rehabilitation. The goal for the mine planning and design team is to develop an integrated mine system design whereby copper minerals are extracted and processed to 99.99% pure copper cathodes at a minimum unit cost within the accepted environmental, social, and legal constraints. The open pit design is illustrated in section 4.10.

4.5 GEOTECHNICAL CONSIDERATIONS

Geotechnical considerations are essential to the development of an efficient and safe mine. Adequate consideration has been given to the mine area geological structures and the potential influence on the pit wall stability. An analysis of pit water inflow, surface drainage patterns, groundwater regime, mine dewatering procedures and their influence on overall pit wall stability informed the geotechnical analysis for the mine plan. Sound geotechnical information informed the most appropriate pit design, planning and excavation geometry, excavation methods and monitoring strategies. Middindi Consulting (Pty) Ltd was commissioned to conduct a geotechnical

characterisation, geotechnical analysis and slope engineering design aspect for the project. The geotechnical report can be found in Appendix E.

4.6 OREBODY

The Omitiomire Mineral Resource has been estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Best Practice Guidelines and is reported in accordance with the 2014 CIM Definition Standards, using a cut-off of 0.25% Cu (Table 7).

Table 7 - Mineral Resource estimate as of May 31, 2022, with the Measured and indicated Resources constituting 91% of the deposit.

Class	Tonnes (Mt)	Grade (Cu%)	Cont. Metal (Cu Kt)
Measured	15.4	0.61	94.4
Indicated	80.4	0.58	468.9
Total M and I	95.8	0.59	563.3
Inferred	9.7	0.57	55.1

1. *All tabulated data have been rounded and as a result minor computational error may occur.*
2. *Mineral Resource, which are not Mineral Reserves have no demonstrated economic viability.*
3. *The Mineral Resource is reported at 100% of the Mineral Resource for the project.*
4. *The Mineral Resource is reported for mineralisation contained within a Whittle optimized pit shell above a cut-off grade of 0.25% Cu, which is based on a copper price of USD4.0/lb, mining costs of USD 2.25/t ore and USD2.05/t waste at pit rim (escalated USD0.03 with each 10m bench), treatment costs to cathode of USD13 /t ROM ore (including G&A), 3% royalty, 1.25% sales cost, pit slope 37o oxide and 50o fresh, mining dilution 5%, mining recovery 95%, copper recovery 85%.*

Further resource drilling (RC drilling) was undertaken on the Omitiomire deposit in late 2022, under an approved exploration environmental clearance certificate number APP3535 for ML 197, to ascertain the scale of mineralisation beyond the current resource estimate. The resource and reserve will be updated in the future bankable feasibility study (BFS).

RC chips were sampled per meter, weighed, and split with rifflers, producing one sample for analysis ("A-Sample"), and another for permanent storage and geological chip logging ("B-Sample"). The A-Sample was then analysed by x- ray Fluorescence (XRF) on site and all intervals containing greater than 0.1% copper were dispatched for multi -element analysis by Inductively Coupled Plasma (ICP) Spectrometry[1]. Drill data , recovery, geology , collar positions, down-hole surveys, and assays are stored in an access database.

[1] ICP (Inductively Coupled Plasma) Spectroscopy is an analytical technique used to measure and identify elements within a sample matrix based on the ionization of the elements withing the sample. Source: https://www.ohsu.edu/elemental-analysis-core/icp-ms-technique

4.7 GEOLOGY AND MINERALISATION

The dominant geological feature of the Omitiomire project area is the Ekuja Dome, a basement inlier consisting of felsic and mafic gneisses. The Ekuja Dome contains the Omitiomire copper deposit and other copper prospects.

Historical drilling has defined a broadly tabular copper deposit, striking north - south and dipping at a shallow angle (around 20 to 30º) to the east. The deposit forms a sub–outcrop, beneath the shallow sand cover, over several hundred meters. At depth, drilling has shown a strike length of almost 4,000 m. The deposit is about 10 m thick near the surface but thickens to the east, where some drill holes have intersected over 100 m of copper mineralisation. The deposit consists of stacked parallel tabular bodies ("lenses") that partly merge shown in Figure 7.

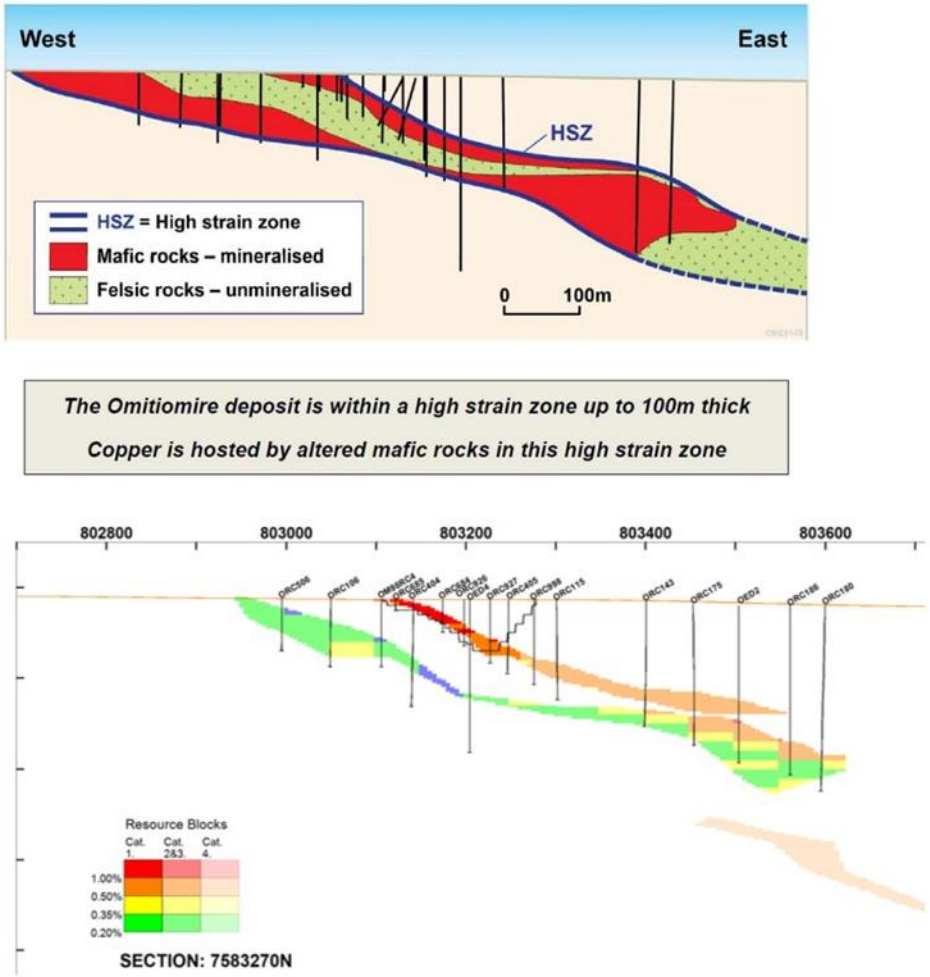

Figure 7 - Cross section of the copper resource.

Copper occurs mainly in disseminated chalcocite (Cu_2S) with minor bornite (Cu_5FeS_4), hosted by dark amphibole-biotite-rich (mafic) rock types. The highest copper grades are associated with bands of strongly deformed schist containing chrome-epidote and biotite shown in Figure 9.

Barren white to light grey quartz-feldspar rich (felsic) gneiss is common in the hanging wall and is also inter-banded with mafic layers in the copper-bearing zone shown in Figure 10. Banding is on a scale of centimetres to meters in thickness.

Figure 8 - Sawn NQ Drill Core showing the banded nature of the Omitiomire Ore.

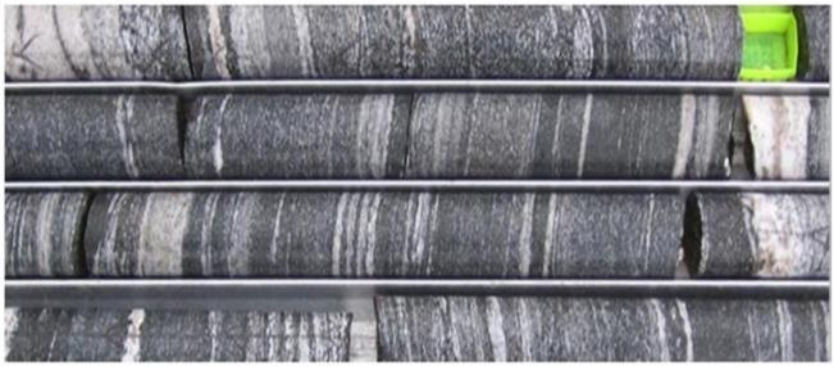

Figure 9 - Ore zone, mafic schist (chalcocite in biotite- hornblende- plagioclase schist.

Figure 10 - Waste: Felsic Gneiss.

The copper mineralisation at Omitiomire is unusual in that chalcocite dominates, commonly with associated magnetite and only very local bornite. Chalcocite is largely disseminated in the mafic volcanic rocks. Zones of higher grade contain coarse blebs which postdate and overprint foliation in biotite-amphibole schist. The fact that chalcocite overprints foliation implies remobilisation or emplacement of copper during the late Damaran orogeny.

Exploration undertaken since 2007 had resulted in a mineral resource discovery of ~81.4 million tonnes at 0.60% copper (Cu). Most of the deposit is in a form of copper sulphides specifically chalcocite, containing high proportions of copper and low portions of iron. The copper sulphides have been oxidised near the surface to ~40 m, and at a depth of next to major fractures and fault lines. The oxidised copper ores, mainly malachite make up ~6% of the total mineralisation.

4.8 SITE LAYOUT

The Project is planned as a single-pit mining operation with six pushbacks designed into the main pit design, to be mined in consecutive phases throughout the life of mine (10 years).

The site layout site is constrained by the diversion of the Black Nossob River and the M53 gravel road as both cross the deposit and proposed open pit area. The Project hydrogeologists proposed a road diversion route that is steered clear of the mine area and activities, accommodates the river diversion, geometrically align with RA design materials requirements and crosses the Black Nossob River in the most cost-effective position.

The ore body position is fixed, and the proposed pit is bisected by the Black Nossob River. The Black Nossob River will be diverted away from the pit to prevent periodic flooding and for equipment and personnel safety reasons. The river diversion will also have the most significant environmental impacts for the project and careful planning is required to mitigate them. The river diversion has been deemed necessary and five conceptual river diversion routes were investigated along with potential intake structures to mitigate risks to open pit operations and convey the river flow to downstream users. Criteria considered by the Project hydrogeologists included: minimising the excavation quantities, respecting the 300 m blast radius from the pit outline and keeping a distance of ~100 m from the proposed WRD location.

From an ecological perspective, the ephemeral pans in the project area are considered the most environmentally sensitive areas because of the richer biodiversity associated with them during the rainy seasons. The indigenous riparian vegetation alongside the Black Nossob River is also considered important habitat for several faunal and avifaunal species. Infrastructure layout alternatives should thus preferentially avoid these areas.

The project will be a full-scale open pit mine comprised of waste rock dumps, heap leach pad, processing plant, internal power lines, water pipelines and road networks. Figure 11 presents the project infrastructure layout.

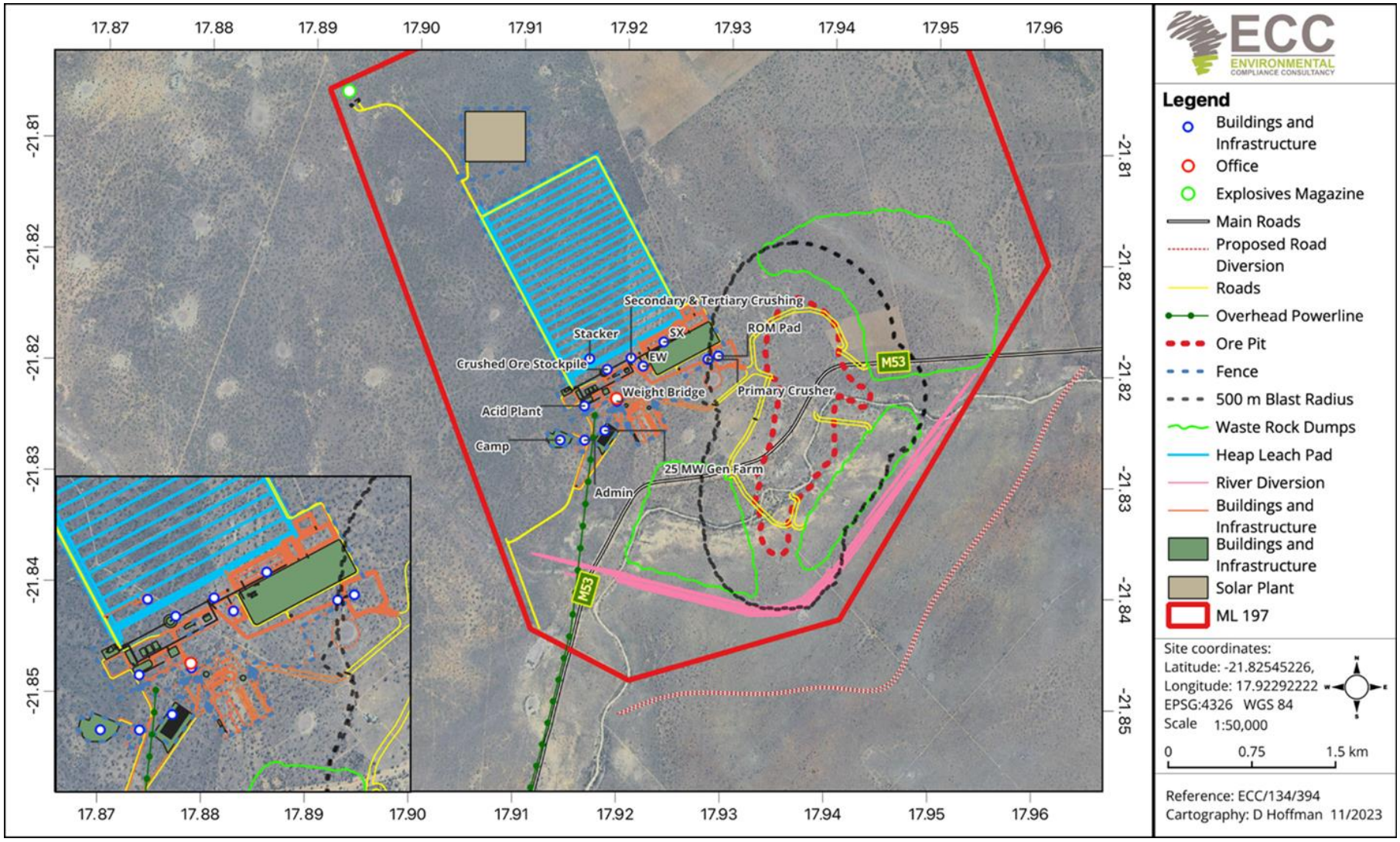

Figure 11 - Omitiomire Copper Project infrastructure layout.

The mine and related infrastructure will comprise the following:

- Workshop;
- Open-pit mining;
- Heap leach pads;
- Waste rock dumps;
- Process plant including Solvent extraction and Electrowinning (SXEW) facility producing pure copper cathode;
- Water management infrastructure;
- Support services and facilities (offices, communications structures, etc.);
- Accommodation, with a canteen and recreation facilities; and fencing around the entire site, with security fencing around the mine and accommodation facilities.

The proposed area surrounding the open pit area has a relatively flat topography and towards the south is intersected by the Black Nossob River. Therefore, the placement of infrastructure will be positioned for optimal efficiency with the leach pads located in the north of the mining licence, away from the river catchment area.

The copper processing methodology does not require a typical dam-type tailings storage facility. However, a few elevated engineered structures will affect the natural horizons of the project area, for example, waste rock dumps, building infrastructure, and heap leach pads.

The proposed heap leach plant site location is situated to north of the open pit, an area of red Kalahari sand. This open space for the proposed plant site is situated on an elevation of between 1710 masl to 1695 masl, a relatively flat gradient.

4.9 MINING INFRASTRUCTURE AND SERVICES

4.9.1 MINING METHOD AND EQUIPMENT

The whole mining operation will be undertaken by the Proponent. All other mine technical services that include management, planning, and grade control will also be the responsibility of the Proponent.

The following high-level mining methodology is proposed by the Proponent:

- Conventional drill & blast;
- Load and haul activities utilizing a diesel -powered fleet; and
- Dumping of ore directly into crusher or on to stockpiles.

Ore will be processed using primary, secondary and tertiary crushing, agglomeration, stacking and heap leached with leachate undergoing solvent extraction and electrowinning to produce copper cathode.

The ore and waste zones will be drilled and blasted at 10 m benches, with ore material being loaded selectively. Ore and waste will be loaded with hydraulic excavators and hauled by diesel powered haul trucks to the primary crusher and low-grade stockpiles. The ore will be crushed, agglomerated and stacked and leached on heap leach pads, and copper recovered in solvent extraction and electrowinning circuits. The operation will produce LME Grade A copper cathode (99.99% pure copper).

The Project is planned as a single-pit mining operation with six pushbacks designed into the main pit design, to be mined in consecutive phases throughout the life of mine (LoM). Initial equipment size trade-offs have been performed and currently it is assumed that 100-tonne and 150-tonne class haul trucks and suitably sized loading equipment will be used. The medium-sized equipment gives increased flexibility and allows selective loading. The primary equipment will be supported by an array of secondary and support equipment.

The initial management team will include an experienced team, to ensure that operation start-up is safe and efficient and that ramp-up targets are met. The bulk of the equipment operators will be skilled. All unskilled labour absorbed into the workforce will require training from a basic level. The start-up strategy for mining operations takes account of this requirement.

The mine will operate 365 days per annum on a 24-hour basis with two shifts rotating on a 12-hour duration, 1 week (7 days) on and 1 week (7 days) off cycle for each year.

4.9.2 BLASTING OPERATIONS

Rock fragmentation will be undertaken by drill and blast. The weathered zones require blasting with lower powder factors as the Omitiomire weathering profile is irregular and varies according to fracture intensity and rock type. Weathering has resulted in clay minerals, mainly from the breakdown of feldspars, biotite, and amphibole. Blasting can substantially modify and control material flow within the mining operation, including the feed size to the primary crusher. Blast performance must be assessed in terms of the following outcomes:

- Fragmentation, relating to the feed size supplied to the primary crusher, as well as oversize material and the requirement for rehandling of material, and secondary breakage,
- Shovel productivity, including wear and maintenance costs,
- Use of track dozers to condition the bench floor and rip high bottoms,
- Grade control,
- Primary crusher power consumption, throughput, maintenance costs, and
- Disruption to material flow during digging and crushing that affects truck efficiency.

Effective blasting is an important factor influencing a mine's production costs. Related to this is the overall pushback design of the open pit to access the ore body.

4.10 PIT DESIGN PROPOSED FOR OMITIOMIRE : PUSHBACKS

The pit design was developed from the pit optimisation study to produce a practical pit with ramps, bench, and berm configurations. The Project is planned as a single-pit mining operation with six pushbacks in the main Omitiomire pit design, to be mined in different phases throughout the life of mine (LoM). A good set of pushbacks will assist the Proponent to manage the financial risk that is associated with external global factors and ensure the mining operation remains feasible. Craton proposes a pushback design as illustrated in Figure 12, Figure 13 and Figure 14. The ramp positioning within the overall pit design is a parallel and integral component of mine design because it influences the stripping ratio of the overall design, the performance of the equipment, as well as the operating costs. Benches are expected to be 10 m high, with ore mining taking place on 5 m flitches.

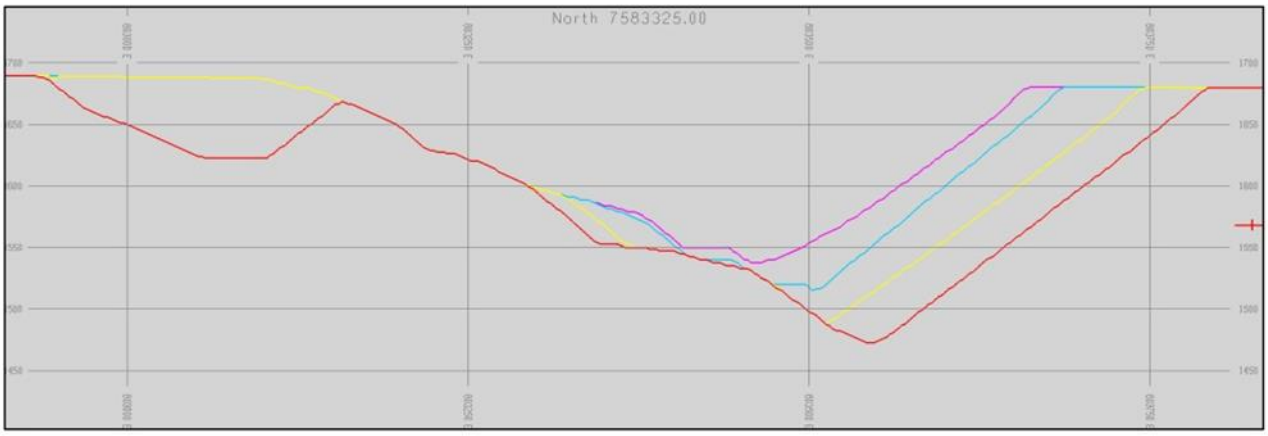

Figure 12 - Pushback scenario from a northern cross- section of the open pit.

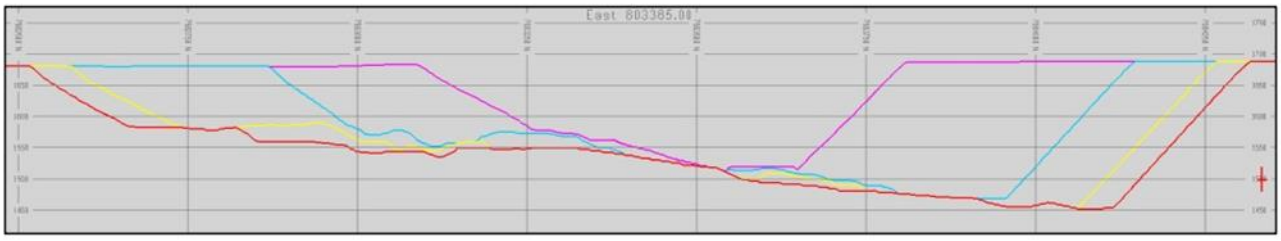

Figure 13 - Pushback scenario from an eastern cross section of the pit.

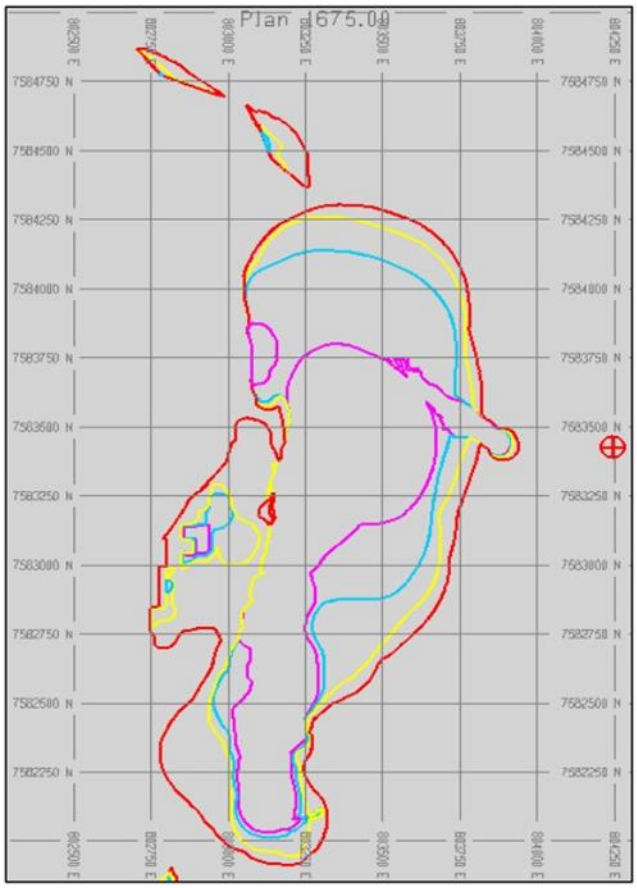

Figure 14 - Top-view of the overall pushback design proposed for the Omitiomire Project.

4.10.1 LOAD AND HAUL OPERATIONS

Sufficient room for manoeuvring is required to promote safety and maintain continuity in the haulage cycle. The haul road design parameters will be established taking into consideration the type and size of hauling equipment that will be used during operations using global standards of good practice. Haul roads may be constructed using crushed waste from the mining operation and water will be used for dust suppression. A product such as Dust-a-Side will be considered to seal the main haul roads and reduce water use. An optimal haul road gradient will be selected based on the best practice for the type of trucks that will be utilised.

The design, construction and maintenance of haul roads have a considerable impact on haulage cost. It is therefore important that appropriate, detailed sets of designs for haul road construction are compiled for the site. Haulage is the largest mining cost.

The benefits of a good haul road design are the efficiency of haulage through the reduction in cycle time, reduced fuel burn, reduced truck component wear and reduced dust from the unpaved surfaces. It is therefore desirable to generate a minimum site-wide construction standard for haul roads. The minimum bench operating width for the pit is limited by the size of the equipment.

4.10.2 ANCILLARY EQUIPMENT

Ancillary equipment that is required for functions that fall outside of the primary production equipment's scope, is also necessary for mining operations. Primary production costs are directly impacted by several aspects related to ancillary equipment. Support equipment is the lifeline of reliable and cost-effective mine production, and is required for the following functions or activities:

- Keeping the loading, tipping and haul road areas clean, thus prolonging tyre life and ensuring the operation is safe;
- Contributing to the mitigation and reduction of mobile equipment noise (via good road maintenance);
- Maintaining haul road conditions, thus prolonging tyre life and making the operation safe;
- Suppressing dust emissions from health, safety, environmental, and financial perspectives;
- Supporting the full equipment maintenance and diesel requirements for remote, track propelled equipment, and breakdowns;
- Bench preparation and levelling;
- Fuelling of track-mounted equipment, and dump trucks; and
- Rehabilitation.

The tertiary support equipment fleet consists of units that assist in tasks that are required, in order to make primary and secondary fleets' work easier and safer. Other functions they complete are not production-related and have no direct impact on production. The tertiary equipment fleet may consist of:

- Small trucks used for maintenance activities;
- Light vehicles used to transport management, technical services, and maintenance personnel around the mine;
- Buses used to transport operators from the change houses to the equipment in the field, and back;
- Lighting plant to increase visibility around the excavators during night-time; and
- Pumping equipment for pit dewatering.

4.10.3 OTHER MINING ACTIVITIES AND INFRASTRUCTURE

Haul road dust suppression should be considered for the Project and handled through a comprehensive dust management system. A bitumen-based product may be applied during haul road construction and maintained on a customised maintenance programme.

In-pit water management will mainly consist of run-off control around the pit perimeter and temporary sumps at the lowest elevation in the pit. Pit dewatering pumps will pump excess water to a suitable holding dam ready for use as dust suppression, or release to an ephemeral water course if of compliant quality and in line with permit conditions.

4.10.4 METALLURGY AND PROCESSING

The ore processing procedure is presented by the flowchart in Figure 15 and the mine production throughput is summarised in Table 8.

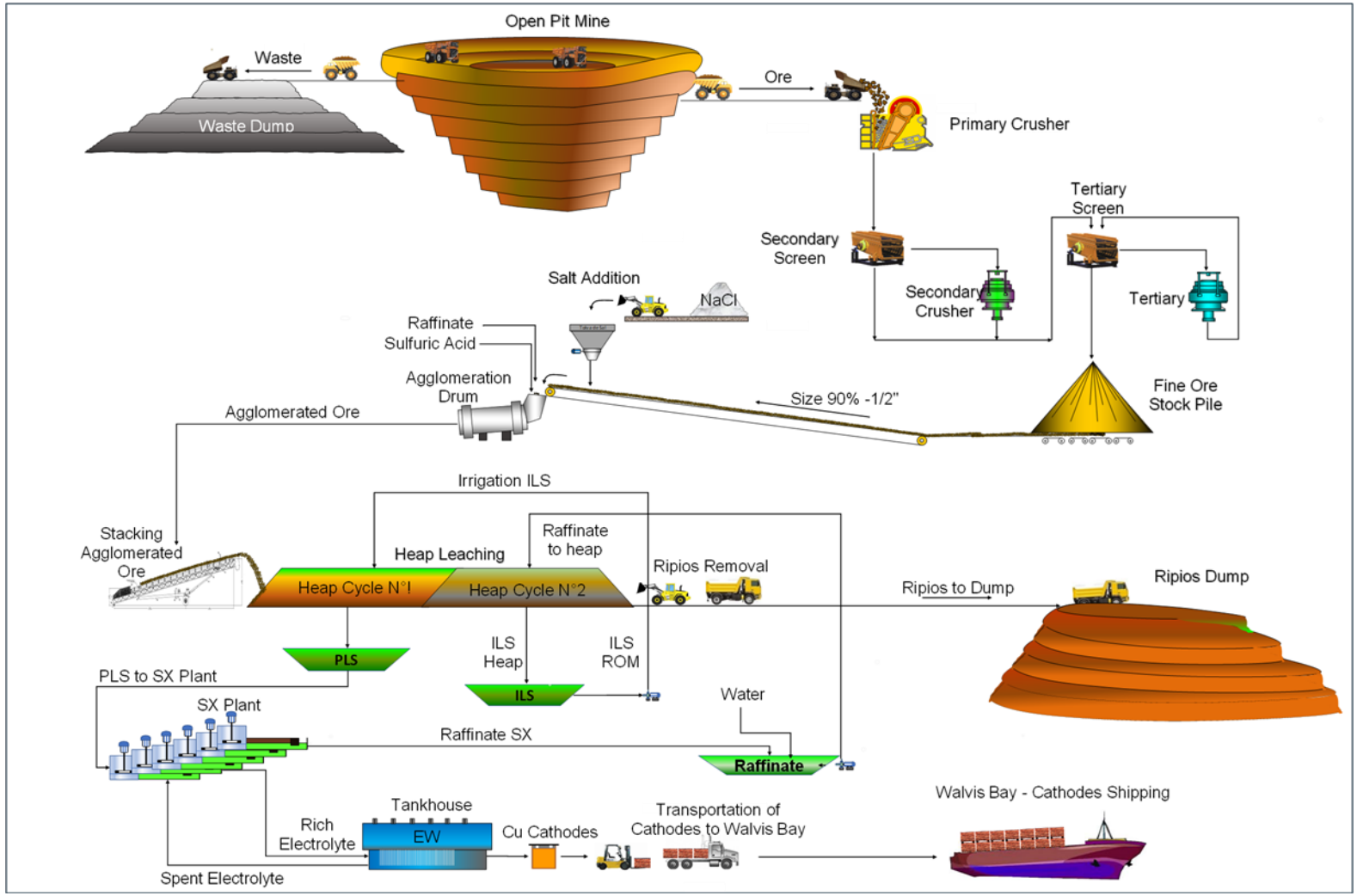

Figure 15 - Ore processing procedure.

The following operational methodology is proposed by the Proponent:

1. Primary and secondary crushing:
    - The ore is crushed to an optimum size to allow copper ions to easily leach from the ore. Too small-sized fines tend to move through the system until they start blocking the macro pores, which are the gaps between the rocks, inhibiting flow and restricting leaching. There's an optimum rock size that balances kinetic flow through the heap and leach rates, which is derived from test work and experience during operations.

2. Agglomeration (NaCl & H_2SO_4):
    - Mixes the crushed ore with sulphuric acid and salt brine to form agglomerate.

3. Stacking:
    - Stacking the ore in lifts – the height of each lift depends on the ore type.

4. Leach:
    - The process of dosing the heaps with acid from the surface. The two main factors influencing the generation of copper sulphate leachate are (a) regenerating the ferric iron in the heap considering temperature, hydrology, and kinetic rates, and (b) acid balance should be maintained.

5. Solvent extraction:
    - This is the process of collecting the copper-rich solution at the bottom of the heap pad and converting it to electrolyte.

6. Electro-winning to produce copper cathode:
    - This process uses electricity to recover dissolved copper from solution as copper plates (cathodes) of 99.99% copper.

Table 8 - List of the overall mine plan parameters for the indicative 10-year LoM.

Item	Units	Value
Average Annual Mining Rate (Ore)	Mt	5.6
Average Annual Mining Rate (Waste)	Mt	26.8
Average Annual Mining Rate (Total)	Mt	32.5
Strip Ratio (ore : waste)		4.8
Life of Mine (MI resource only)	years	11
Annual Cathode Production	tpa	25, 000 to 30, 000

4.10.5 ON-SITE SUPPORT INFRASTRUCTURE AND SERVICES

4.10.5.1 Mining office block

Prefabricated offices will be used. The buildings will provide office space to the mining personnel, including the mine manager and the technical services manager, geology personnel, surveyors, maintenance engineers, and mining support staff.

4.10.5.2 Warehouse

A warehouse will be required to hold stock of spares. The warehouse shall be used for the storage of all critical and operational spares, as well as office and other consumables. Goods will be received by the store's personnel and access to the stores building is limited to stores personnel, and dispatch will either take place over a goods issue counter or through a fenced dispatch bay.

4.10.5.3 Heavy mobile equipment workshop

Diesel for mine operations will be delivered by trucks to a designated and designed site fuel facility. A site-based service provider will erect infrastructure and facilities for the storage and handling of fuel. The service provider will also be responsible for the supply, delivery, and management of stock for the life of mine. The Proponent will ensure the facility has the required installation certificates prior to commissioning the fuel facility.

4.10.5.4 Explosive magazine

An isolated facility for storage of detonators will be constructed.

4.10.5.5 Communication

Radio, telephone, and internet connections will be required for the mining operation. Infrastructure required to boost reception in the project area will be installed by the relevant service providers.

4.10.5.6 Single status accommodation facilities

Single status camp accommodation facilities will be built to house mine employees between shifts. The mine will operate on a one week and one week off cycle, therefore at the end of each week, employees will be transferred off-site by bus to either Windhoek or Okahandja.

4.11 UTILITIES

This section describes the required utilities needed by the mining and processing operations.

4.11.1 POWER SUPPLY

Power to the processing operations will be supplied via a NamPower grid connection, supplemented by solar power on site (estimated to account for 30% of the electricity demand). The operation will have diesel power generation as backup for the electro-winning plant. A total power supply capacity of at least 20 MW will be required to sustain all operations. NamPower grid connection will require a new line from the Auas substation to site.

4.11.2 WATER SUPPLY

Water supply in the project area is from underground resources, mainly to meet the demand for game and cattle farming. The project requires bulk water supply not available locally, therefore the Project will source water from the Summerdown kalahari aquifer.

Anticipated water demand for the proposed mine, when in full production, will be 2.2 million cubic meter per year. Existing data and information on the Summerdown Kalahari Aquifer show that, although borehole yields are generally low, there are zones in which relatively high yields have facilitated the successful establishment of several centre-pivot irrigation schemes. Evaluation of surface conditions and drainage in these higher yielding areas, as well as extensive drilling and test pumping conducted by Craton, has led to the identification of sufficient groundwater to sustainably meet the anticipated OCP bulk water demands.

4.12 MINERAL AND NON-MINERAL WASTE

4.12.1 WASTE ROCK

Three waste rock dumps will be designed as close to the pit exits as possible, to optimise productivity and minimise waste mining costs. Rehabilitation requirements are considered in dump location and design, and all dumping areas will undergo an ore sterilisation campaign prior to waste dumping. Waste rock dump benches will be ~20 m high, with a face angle of 34 – degrees and a 26-degree final slope during operations. The WRDs will be dumped up to 60 m high and at least 60 m away from the pit edges. The waste rock dumping strategy employed is aimed at reducing the hauling distance and similarly enable progressive rehabilitation of the waste dumps wherever possible. The angle of the In-pit dumping will also be deployed, where possible.

An overview of the operational WRD design is presented in Figure 16 below.

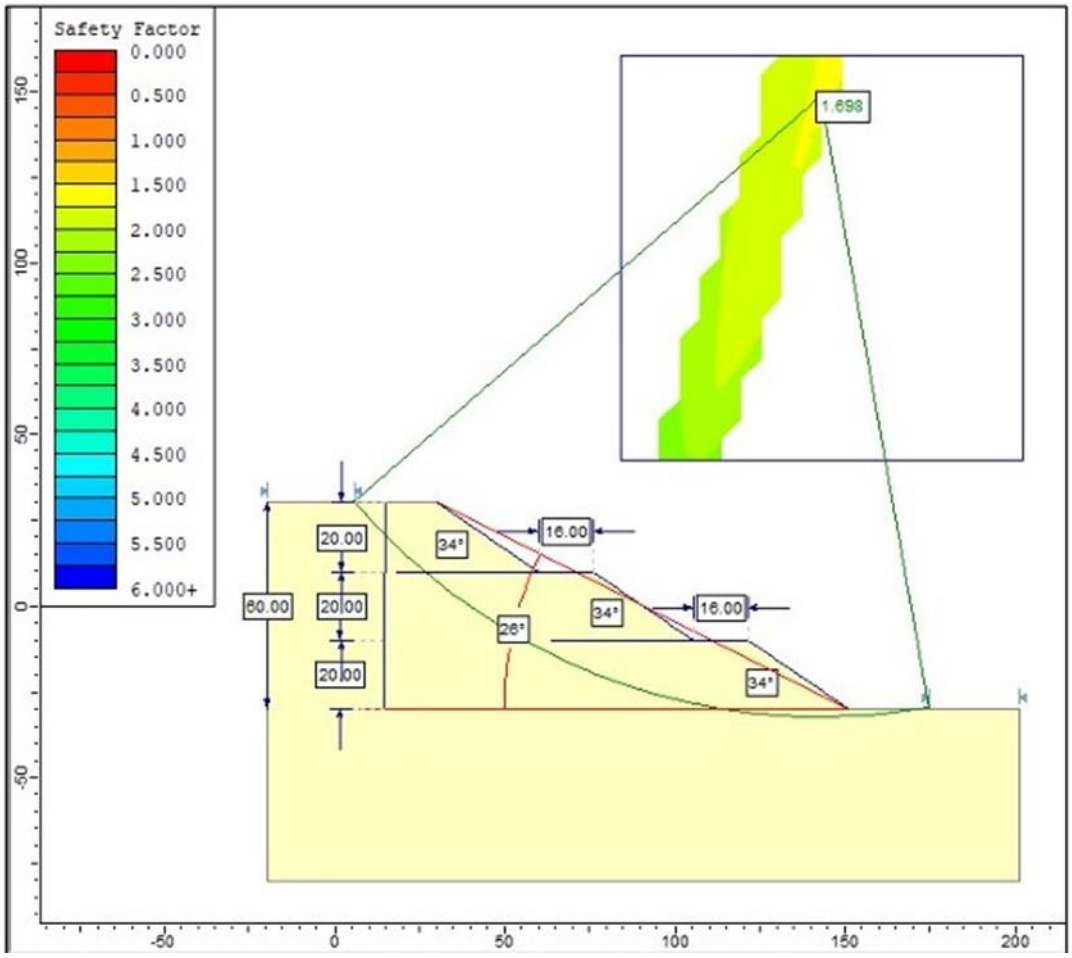

Figure 16 - Operational WRD design (Source: Middindi Consulting, 2023).

4.12.2 GENERAL WASTE

Waste will be separated at the source, stored in a manner that there can be no discharge of contaminates to the environment, and either recycled or reused where possible. On-site facilities will be provided at a dedicated waste storage facility for sorting and temporary storage prior to removal and disposal to appropriate recycling or disposal facilities off-site (Windhoek for both general waste and for hazardous waste), or at a possible future approved on-site facility.

Industrial waste will be sorted on-site and disposed of at appropriate facilities. Hazardous waste includes, but is not limited to, the following: fuels, chemicals, lubricating oils, hydraulic and brake fluid, paints, solvents, acids, detergents, resins, brine, solids from sewage, and sludge. Waste management systems for the site are discussed in detail in the ESMP.

4.12.3 EFFLUENT AND WASTEWATER

Sewage will be collected and will use gravity reticulation via buried sewer pipes to be transported to the treatment facility. Sewage will be treated in a purpose-built sewage treatment plant. The plant will have the capacity to treat the sewage generated on-site. The water output from the plant will be suitable for use in dust suppression, vehicle washing, irrigation, fire water, and

process water after verifying the effluent water quality. The wastewater treatment plant will also produce a small quantity of sludge, which will be dried in a sludge-drying bed located at a point lower than the plant. Dried sludge can be used as fertiliser for the rehabilitation of mining landforms after verifying its quality standard.

4.13 ALTERNATIVES CONSIDERED

The primary alternatives to be assessed, in addition to the mining landform positions, will be the proposed diversion of the Black Nossob River and the M53 district road, which both traverse the planned open pit.

Alternative mine designs, processing plant options, and the types of waste disposal methods were all considered during the pre-feasibility and feasibility study stages of the Project. The availability of water, potential for acid mine drainage, long-term slope stability, safety, and climate change have all be considered in the assessment of economic, technical, and environmental and social suitability of an alternative. For every alternative option there is a trade-off or an impact on another aspect of the Project. The baseline environmental and social studies, summarised in the baseline chapter, provide further information to the decision-making process.

4.13.1 WATER SUPPLY OPTION(S)

The main water supply sources for the project are discussed in section 4.11.2. The alternative bulk water supply source considered was the provision of water from Otavi mountain lands via the NamWater canal system.

4.13.2 ROAD DIVERSION

The M53 currently passes through the mining licence area and across the future mine pit area. This same road continues and branches into another district road, the D2102 east of ML 197. The alternative that is proposed is the construction of a new gravel - Class B - Single carriageway secondary road around the southern boundary of the mine pit area that will re-join the exiting M53 route east of the mining licence area, thereby allowing a throughfare for district road users.

Three possible routes for the road diversion were identified and investigated. The major determining factors for the best diversion route were such as:

- The road diversion was planned to steer clear of the mine area and activities as far as economically possible;
- The road diversion was planned around the accommodation of the river diversion;
- The optimization of the geometrical design, vertical and horizontal alignment, taking into consideration the design criteria of the RA and the terrain;
- Crossing the Black Nossob River twice in the most cost-effective position; and
- The road diversion was limited to the farm Groot Omitiomire to minimise the impact of the road diversion on neighboring farms.

A typical road cross section is shown in Figure 17 below.

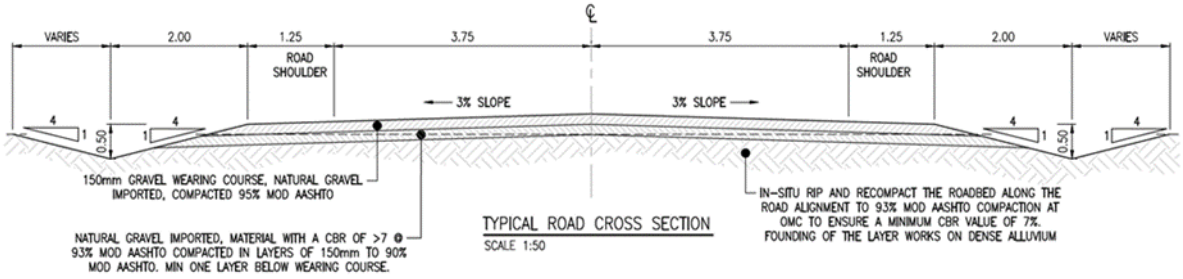

Figure 17 - A typical road cross section.

The diversion route crosses the Black Nossob River twice, referred to as the Western and Eastern crossings. Causeways will therefore be constructed to meet RA requirements.

4.13.3 RIVER DIVERSION

The proposed pit is bisected by the Black Nossob River which subsequently will have to be diverted away from the pit to prevent periodic flooding of the mine pit and infrastructure. The primary function of the diversion berm-channel system will be to redirect the flow of the Black Nossob river and the upstream western tributary river, around the southeastern boundary of the mine before reconnecting to the Black Nossob river downstream of the mining activity.

Knight Piesold (2023) was commissioned to conduct a geotechnical investigation based on characterizing foundation conditions, assessing soil and bedrock characteristics, determining excavation classes, examining areas of seepage and potential source of construction materials and provide recommendations for foundation treatment and earthwork designs. The environmental baseline chapter describes the options for diverting the Black Nossob River.

4.13.4 REHABILITATION AND CLOSURE

The Proponent will develop a mine rehabilitation plan as part of the mine closure plan that is consistent with the Namibian Mine Closure Framework and ICMM Integrated Mine Closure Good Practice Guide. These plans will include estimated costs and are consistent with Namibian legislation and the draft Namibia Mine Closure Framework.

5 ENVIRONMENTAL AND SOCIAL BASELINE

5.1 BASELINE DATA

This section provides an overview of the existing biophysical, social and economic environments through the analysis of the available baseline data of and on the receiving environments. Desktop studies were undertaken, followed by site verification as part of the scoping process to obtain information about the status of the receiving environment. This provides a baseline, so that where changes occur because of the proposed Project, the impact of these changes can be measured and assessed.

This section sets out the biophysical and socioeconomic environments in which the Project is situated. It is an important part of the scoping component of the assessment, as it determines if there are any knowledge gaps that require additional information prior to the assessment phase being completed.

5.1.1 SPECIALIST STUDIES

Specialists were commissioned in 2017 to undertake studies for a reduced mining rate (from 40 000 tpm to 10 000 tpm for a shorter LoM (i.e. 3.5 years). Craton proposed a different mining approach with an increase in annual cathode production ~ 25, 000 to 30, 000 tonnes for a duration of 10 years. Specialist studies were subsequently undertaken for the Project and are presented in Table 9. The recent specialist studies do not supersede the initial reports and findings, but on the contrary build up a comprehensive environmental and social baseline for the impact assessment phase.

All specialist reports are available as appendices in this report.

Table 9 - Specialist studies conducted for the Project.

Specialist study	Purpose	Specialist commissioned
Air quality assessment	- Provide emission standards and dust suppression requirements. - Assess prevailing wind directions and possible effects of emissions on the process and/or personnel. - Model potential air quality impacts.	Airshed (2017 & 2023)
Terrestrial ecology	- Biodiversity, habitat and ecosystem services. - Identification of species of concern and sensitive areas. - Ascertain impacts of mine construction and operations on habitats and biodiversity.	Peter Cunningham (2023) and African Wilderness Restoration (2017)

Specialist study	Purpose	Specialist commissioned
Hydrology and hydrogeology: Geotechnical report Phase 2	-Characterise the site hydrogeological conditions, assess the groundwater impacts on the river diversion/open pit operations. - Characterise the geotechnical conditions along the proposed river diversion berm and channel alignment. -Optimise the alignment and design of the river diversion system in consideration of environmental conditions, foundation conditions, earthworks and mine developments. - Investigate road diversion conceptual design. -Investigate and propose mitigations to address project risks.	Knight Piesold (2023 a&b)
Hydrogeology report	-Provide the site hydrogeological conditions. -Provide groundwater inflows to the pit and potential groundwater stresses. -Identify risks and opportunities with mitigation to minimise risks.	Knight Piesold (2024)
Geotechnical report: Open pit slope design	-Conduct the geotechnical characterisation, geotechnical analysis and slope engineering design for the Project.	Middindi Consulting (2023)
Geotechnical report: Soil profile characterisation	- Characterise the foundation conditions, determine the nature and distribution of soils and bedrock across various project developmental areas.	Knight Piesold (2023)
Noise quality assessment	- Identification of possible receptors and assess potential noise levels during construction and operations. -Recommend suitable management and mitigation measures.	Airshed (2017 and 2023)
Water supply assessment	- To investigate the groundwater potential of the Summerdown Kalahari Aquifer to meet project bulk water requirements throughout LoM.	Namib Hydrosearch (2023)
Hydrogeology	- Provide a model to determine impacts of drawdown and plume mobility.	Knight Piesold (2023) and SLR (2017)
Heritage assessment	- A heritage impact assessment is required in order to comply with Namibian national	SLR (2013) and ESM Archaeological and

Specialist study	Purpose	Specialist commissioned
	legislature and gain approval from the National Heritage Council.	Cultural Heritage Consultants (2023)
Traffic assessment	- To quantify the expected traffic flows and impacts on the immediate surrounding and receptors. - Recommend the most feasible road access route for the Project. - Assess the capacity and condition of transport routes to support heavy vehicle traffic. - Identify and propose practical and feasible mitigation measures to maintain acceptable traffic flow and road conditions.	Zutari Namibia (Pty) Ltd (2023)
Visual and tourism	- Assessing the potential visual impacts of a proposed Project on the receiving environment.	ECC (2023)
Social and economic	- Assess the impacts on the local economies in the project area.	ECC (2023) and SLR (2017)
Blast and ground vibration assessment	- Assessing the impact of blasting on receptors in the area.	Blast Management & Consulting (2023)
Climate change risk assessment	-Assess the Project's footprint and assess climate change risks.	RDJ Consulting Services (2023)
Geochemical analysis of potential acid-forming minerals and mine drainage assessment	- Conduct the geochemical analysis of waste rock and high, low and medium ores to assess the mineralogical composition, acid mine drainage potential, and metal concentration of the leachate of waste rock.	ECC-RGS (2023)

5.1.2 LOCATION

The Omitiomire Copper Project (ML 197) is located ~140 km northeast of Windhoek and ~39 km south of Hochfeld in the Khomas Region. The Project encompass over a footprint area of ~30, 000 ha (Knight Piesold, 2023). The project lies within the privately owned farmland. Smaller settlements near the project area include: Steinhausen situated ~30 km to the east and Omitara ~50 km to the south. The project site can be accessed via the M53 road either through the D1535/D1435 or the C31/D2166 gravel roads.

Khomas Region is the most urbanized area in Namibia however, commercial farms, guest farms and other tourism-related establishments contribute to the local economic in the region.
The regional towns such as Okahandja and Gobabis are located 110 km to the west and 130 km southeast of the project site. Okahandja and Windhoek are the closest major towns.

A sizeable portion of ML 197 is located on the Groot Omitiomire No.439 and further cut across the M53 dirt road and the Black Nossob River to the south on the Groot Korasie Plaats No.440 portion (Figure 18).

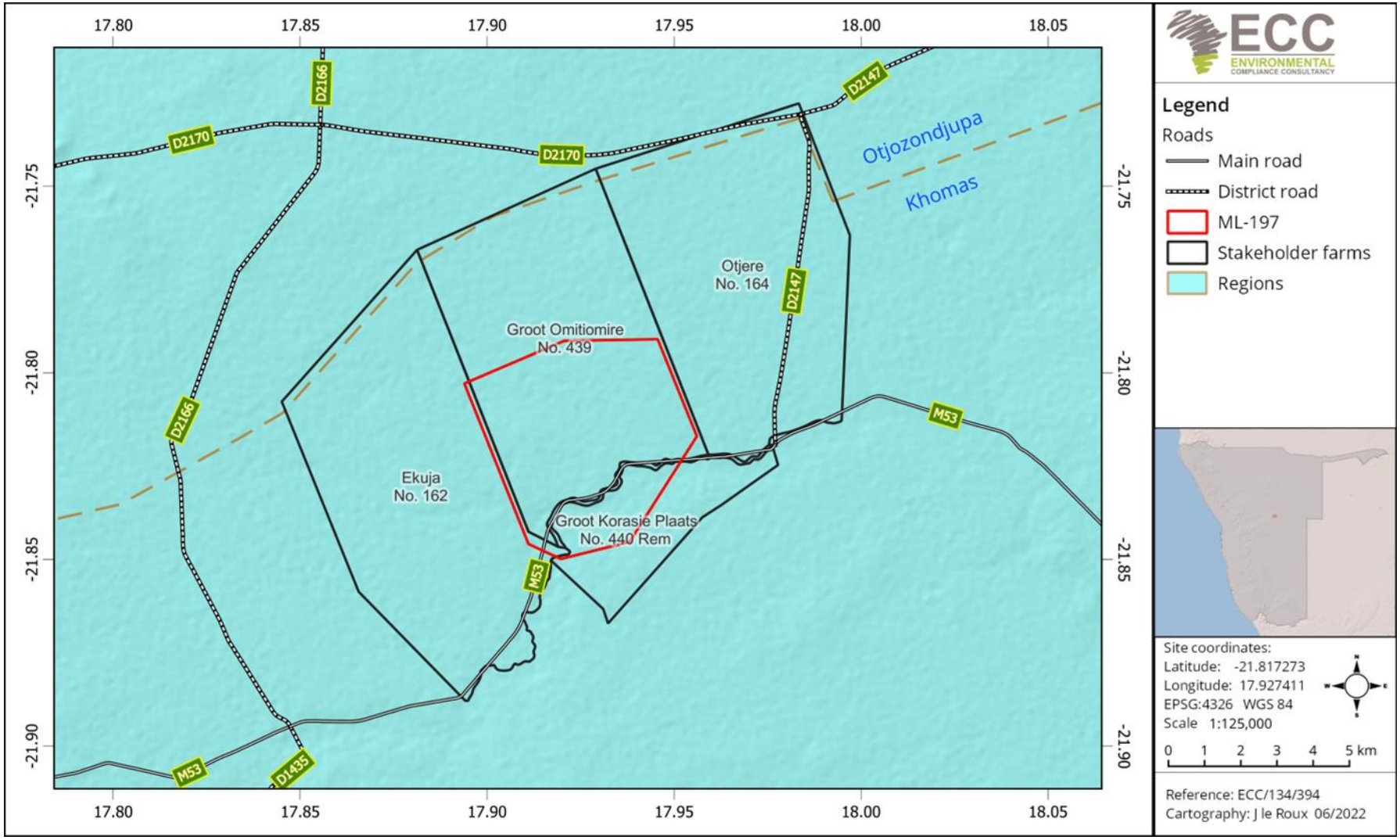

Figure 18 - Farms surrounding the project (ML 197).

5.1.3 LAND USE

The Project is widely known with a history dating back to the 1970's. ML 197 is located on farm Groot Omitiomire No. 439, which is privately owned. Land use in the area is dominated by commercial game hunting, cattle farming and other tourism related activities. Currently, Omitiomire farm is used for light cattle farming. The area surrounding the project does not include commercial-scaled agriculture businesses, however, the Steinhausen area does practice commercial agriculture predominantly.

Nearby farms are used for commercial hunting and cattle farming. Farms Ekuja, Groot Korasieplaats and Otjere receive local and international guests for trophy hunting activities, thereby characterising the general project area as a known tourism destination. Most of the tourist attractions along the route consists of hunting farms and guest lodges comprised mostly of multiple chalets, main building and staff accommodations.

Four farmers' associations are active in the wider project area – Steinhausen, Hochfeld, Seeis, and the Omitara Farmers Associations that represent the respective landowners in the area. The Namibian Agricultural Union (NAU) in turn represents these smaller regional associations at the national level.

The Project area is not part of a communal or freehold conservancy. The closest areas are Daan Viljoen Game Reserve which is located ~20 km to the west of Windhoek, Ovitoto Conservancy and Von Bach Nature Reserve which are located to the east and south of Okahandja, ~140 km away from farm Omitiomire.

Portions of the farm will no longer be available for farming practises, however farming activities on surrounding properties will be able to continue relatively undisturbed or with a quantifiable degree of disturbance. These impacts are discussed in detail in chapter 7.

5.1.4 INFRASTRUCTURE AND BULK SERVICES

The transitional D1435 and D2166 routes provides access function and connect the Project site with the B6 and B2 trunk roads. The B6 and B2 are major trunk roads and connect the project site with the port in Walvis Bay. These roads are designed to carry heavy transport vehicles and are well maintained by the Roads Authority (RA). The wide tarred B2 road west of the project area, also known as the Trans Kalahari Highway, carries large traffic volumes between Okahandja, Windhoek and Walvis Bay, and is considered the regional trade route. The recommended Project access route is via the B1 national route north of Okahandja and the C31, D2166/M53 routes.

The TransNamib Railway line lies parallel to the B1 and B6 corridor routes from Windhoek (Figure 19). The railway line connects with Windhoek with settlements such as Seeis, Omitara and the regional town of Gobabis to the southeast. In Okahandja, the railway branch towards the Kranzberg railway station which splits west towards Swakopmund and Walvis Bay and the other line continues north-east towards Omaruru, Otjiwarongo and onto Tsumeb.

Water supply in the project area is from underground resources, mainly to meet the demand for game and cattle farming. The project requires a bulk water supply not available locally, therefore bulk water supply will be sourced from the Summerdown Kalahari Aquifer.

Power for the processing operations will be supplied via a NamPower grid connection, supplemented by solar power on site. The operation will have diesel power generation as backup for the electro-winning plant. A total power supply capacity of at least 20 MW will be required to sustain all operations. NamPower grid connection will be required from the Auas substation to site. Connection to the powerline will require a separate EIA study, therefore the impacts associated with the construction and operation of the powerline are not discussed in detail in this report.

The M53 gravel road and the ephemeral Black Nossob River traverse the proposed open pit area and will be diverted to the south of the mine.

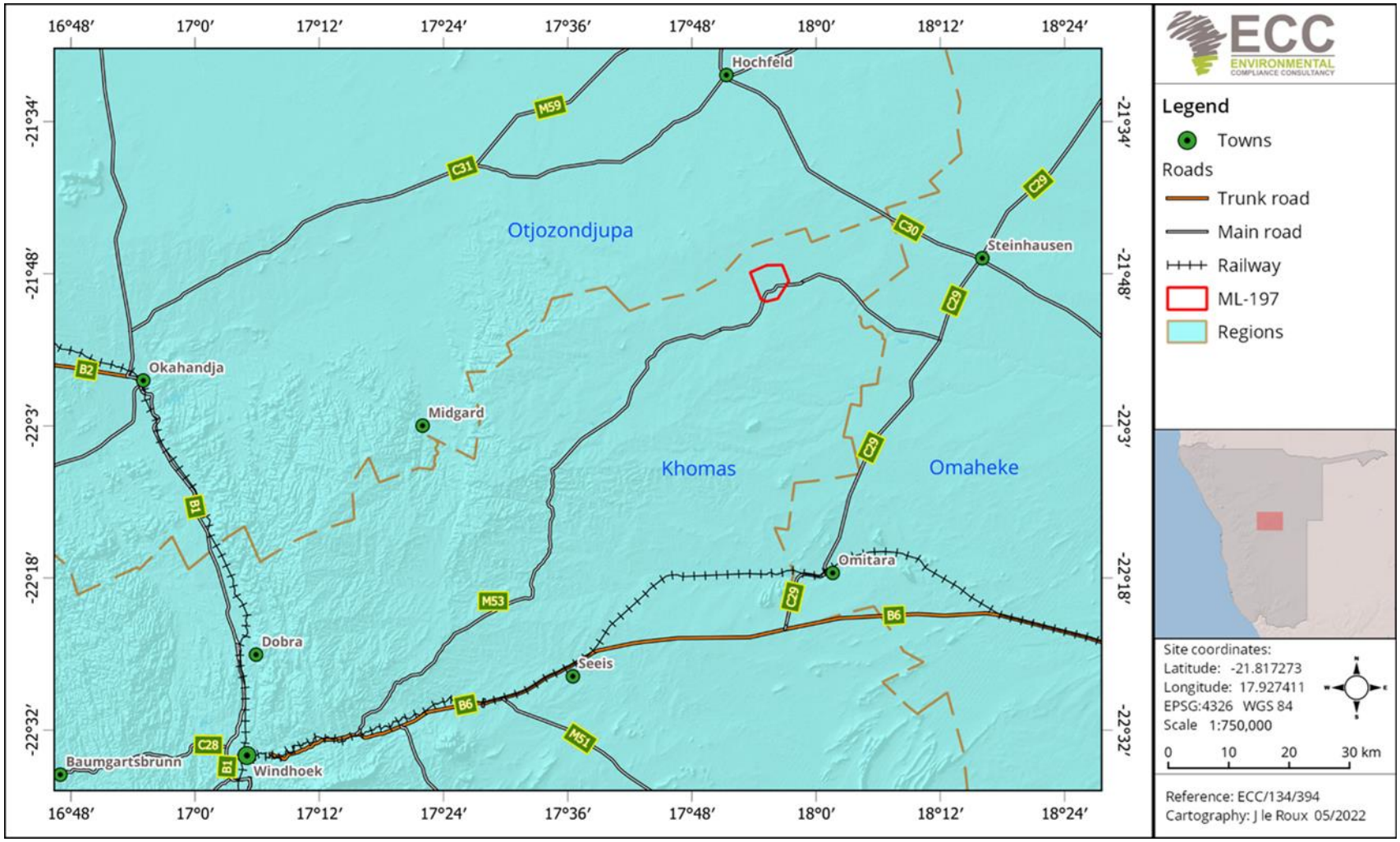

Figure 19 - Major regional roadways and railways within Khomas Region.

5.2 BIOPHYSICAL ENVIRONMENT BASELINE

5.2.1 CLIMATE AND METEOROLOGY

The Omitiomire Copper Project is located within the central region of Namibia that is generally characterised by hot daytime temperatures throughout the year, while the nights are mild to cool in winter.

The climatic conditions in the project area are mild summers and cold winters with mean temperatures between 19˚C and 21˚C, mean maximum temperatures ranging between 21˚C and 31˚C and mean minimum temperatures ranging between 6˚C to 19˚C (Figure 20). The hottest months of the year are between October and December and the coolest months are between May and September as shown in Figure 21 (Bubenzer, 2002 & meteoblue, 2023). Extremely cold temperatures associated with southerly winds are a common phenomenon during the winter months and is derived primarily from natural sources (Airshed, 2023).

The most humid months of the year have a humidity of ~70% relative humidity (RH), and the driest months have a humidity of ~10% RH. According to Bubenzer (2002), the average rainfall in this area during the year is between 400 to 450 mm, whilst potential evaporation is between 2800 and 3000 mm per year. Rainfall events are limited to the summer months, mainly between December and March (Figure 20) (Meteoblue, 2023).

In the general project area, wind speed ranges between >1 and 38 km/h, with months of July to November observed to have the strongest winds. Wind can occur any time of the day and the most predominant winds for this area are north-northeast (NNE), northeast (NE), and east-northeast (ENE) (meteoblue, 2023) shown in Figure 22.

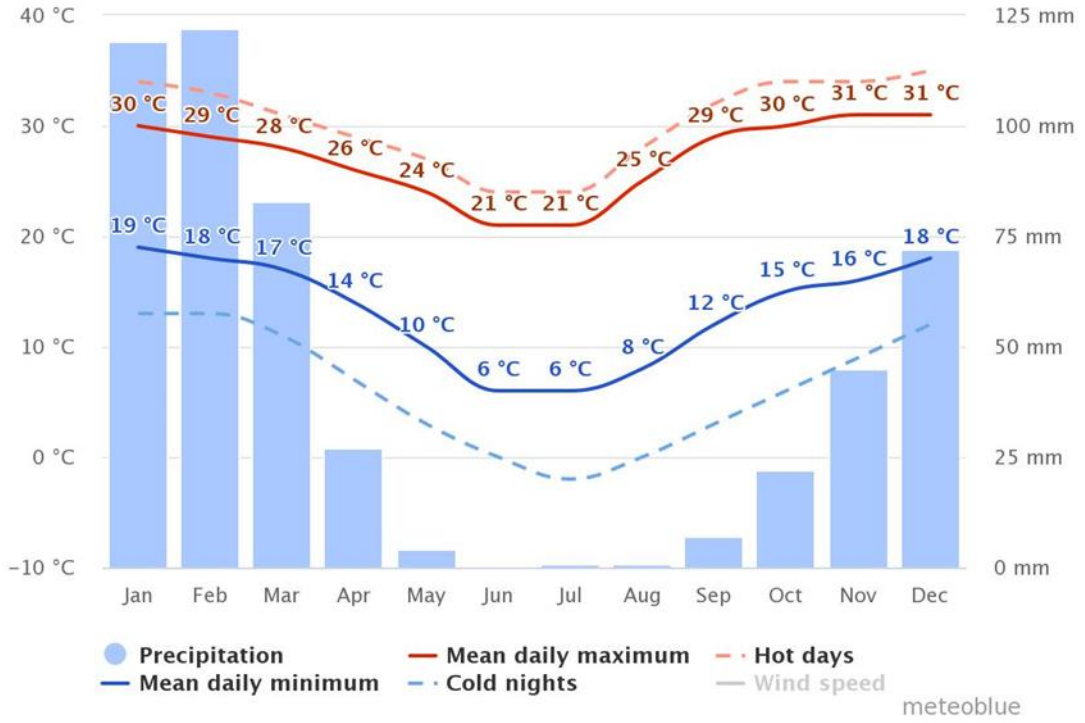

Figure 20 -Yearly expected weather conditions (Meteoblue, 2023).

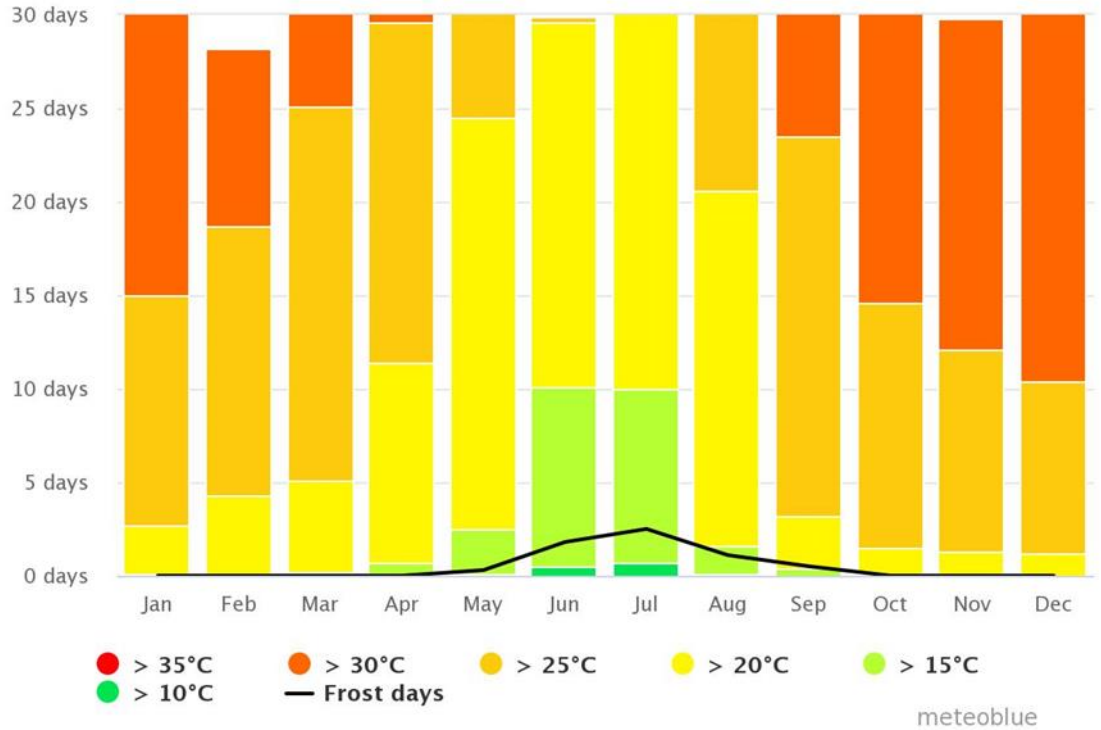

Figure 21 - Temperature and frost information for Khomas Region (Meteoblue, 2023).

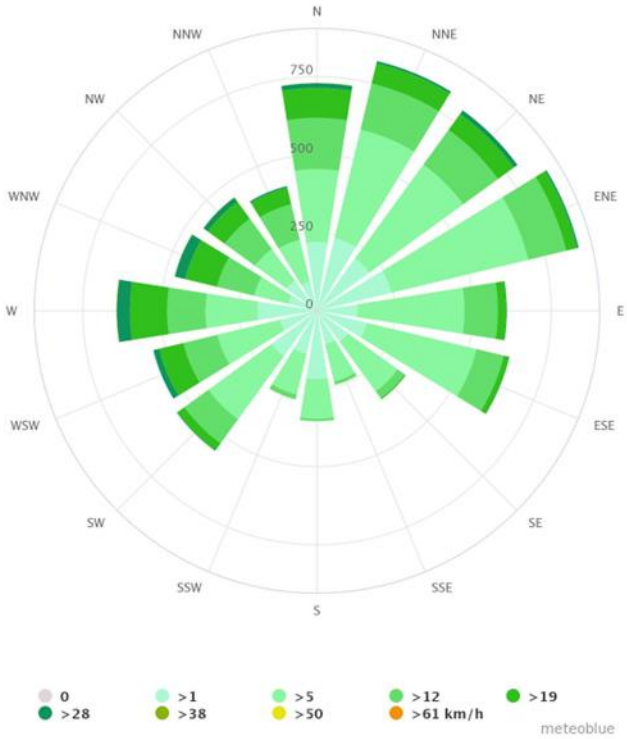

Figure 22 - Average wind direction and speed for Khomas Region (Meteoblue, 2023).

5.2.2 GEOLOGICAL SETTING

The Project is situated within the Epupa, Huab and Abbabis Metamorphic Complexes and a small section of the area (southeast) falls within the Khomas Group (Damara Supergroup and Gariep Complex). The Omitiomire project is hosted by the Ekuja Dome which is one of the three gneiss domes in the north-eastern Southern Zone accretionary prism. The Ekuja Dome is underlain by the Pan African Damara Belt of central Namibia and is wedged between Congo Craton and the Kalahari Craton (Figure 23). To the east northeast of the Pan African Damara Belt is the Khomas Sea ocean basin whilst the Southern zone is underlain by sequences of meta-turbiditic Kuiseb Formation, situated in Mesoproterozoic gneisses and amphibolites of the Ekuja Dome.

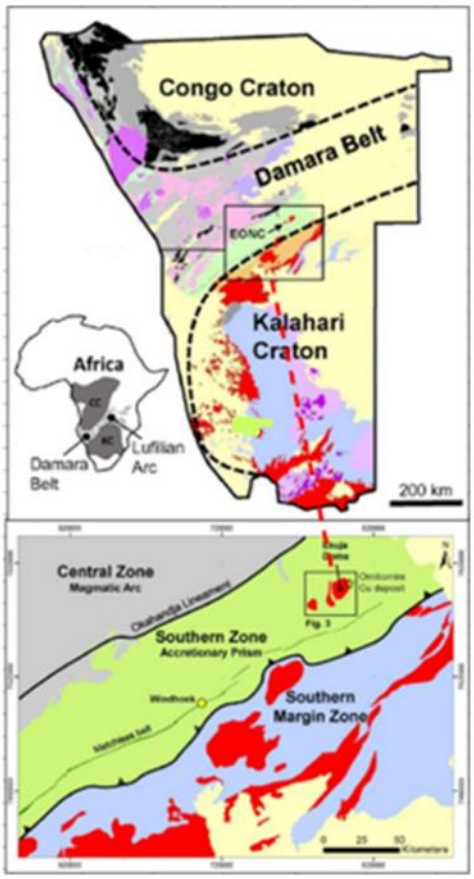

Figure 23 - Regional geology of Omitiomire Copper Project.

The rock types for the Omitiomire area are composed white gneiss, pink gneiss, grey gneiss, mafic gneiss and banded gneiss with minor amounts of biotite schist and pegmatite. The project area had undergone historical complex deformation, which were dominated by southeast and east-south thrust faults. The rocks in the Project area have a shallow to gentle dips with mineralization dipped at ~20° to the east. Figure 24 shows the major faults structures in the Project area.

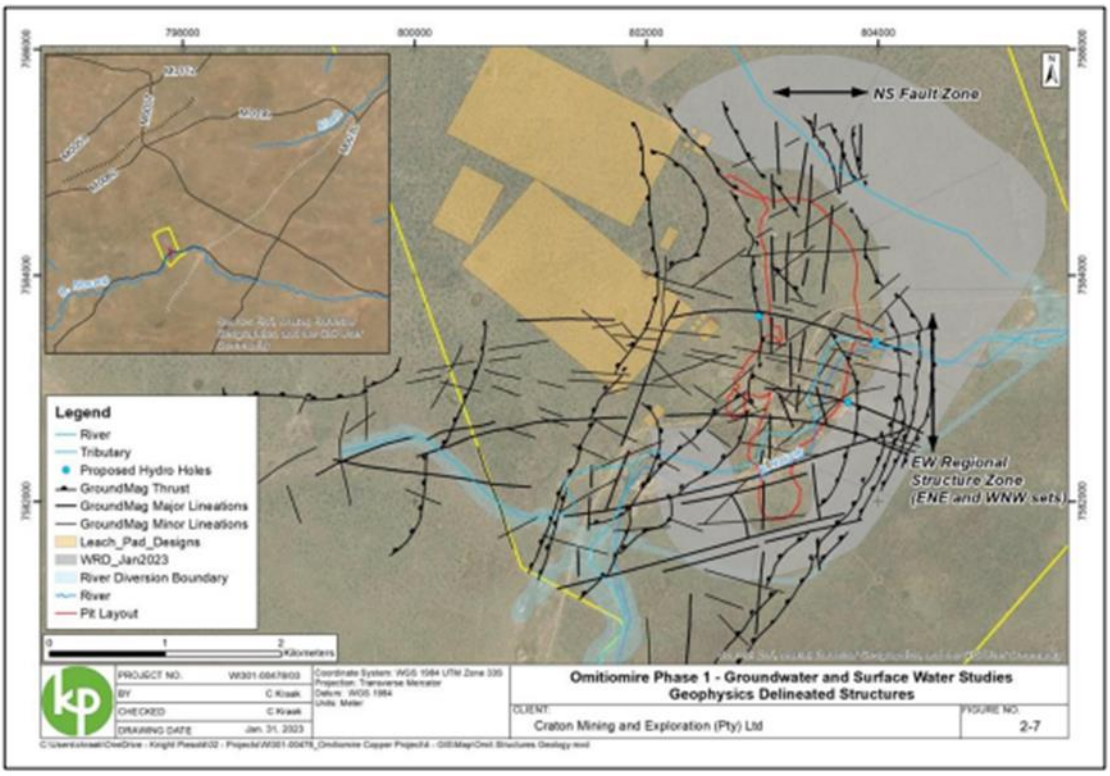

Figure 24 - Major structural faults in the ML 197 area.

The regional, local and structural geology of the project area is summarised in the geotechnical characterisation and analysis report by Middindi Consulting (2023) presented in Appendix E.

5.2.3 SEISMICITY

The project area is located in a zone where peak ground acceleration range between 0.2 m/s^2 to 0.4 m/s^2 (Middindi, 2023). This range represents a low seismic hazard, suggesting that the project area lies within a region of low seismic activity, therefore strong ground motion is not anticipated in the project area. Furthermore, models by Knight Piesold (2023) of the global distribution of the Peak Ground Acceleration with a 10% probability of exceedance (POE) in 50 years indicate a relatively low PGA value of ~0.0188227 g for the central region of Namibia. Omitiomire is situated on a low seismic hazard zone Figure 25.

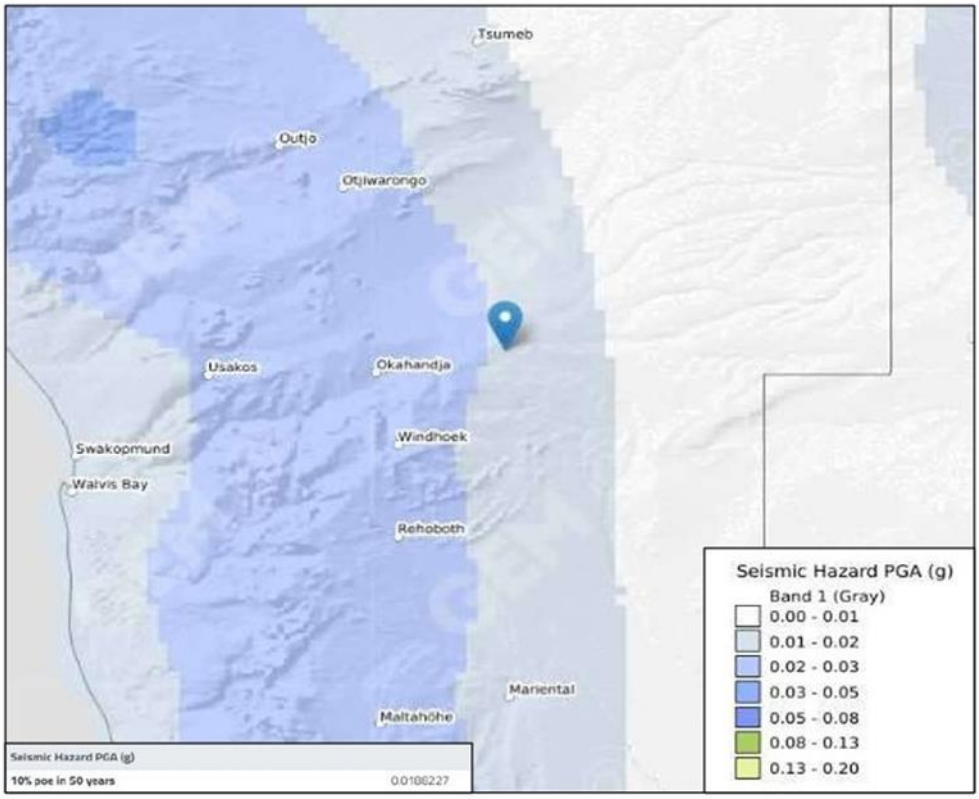

Figure 25 - Seismic hazard map for the project area (Source: Knight Piesold, 2023).

5.2.4 DEPOSIT GEOLOGY

The main rock types found in the project area are metamorphic sedimentary rocks with granitic intrusions (Bubenzer, 2002). The Omitiomire copper deposit is hosted in leuco-gneiss with inter-bedded dark biotite schist and amphibolite. These rocks occur in an inlier known as the Ekuja Dome which covers an area of ~15 by 12 km. The copper mineralisation at Omitiomire is unusual in that primary chalcocite dominates, commonly with associated magnetite and only very local bornite, see Figure 26.

Figure 26 - Close up of mineralisation exposed in open pit showing isoclinal folding and partial oxidation of primary chalcocite (Source: Omico Mining Corp, 2022).

Chalcocite is largely disseminated in the mafic schist and amphibolite. Inter-banded felsic gneisses are barren. Drilling has shown about 10% of the copper occurs as oxides, predominantly in the upper parts of the deposit (Omico Mining Corp, 2022).

5.2.5 AIR QUALITY

Since June 2022, Environmental Compliance Consultancy (Pty) Ltd (ECC) has been conducting environmental baseline monitoring for the Omitiomire Copper Project. The purpose is to report on depositional dust fall out across a network of eleven (11) dust monitoring stations. The air quality monitoring program aims to fulfill the following objectives:

- To develop a robust air quality baseline dataset for the Project;
- To analyse trends, identify early indications or markers of potential contamination;
- To guide management to ensure potential impacts to the environment and community are mitigated at the earliest phase of the Project; and
- To provide historical point of reference where Project induced changes will be measured against.

The potential expected sources of dust particulate matter resulting from the operational activities include but are not limited to construction activities; mineral material handling and processing; and mining activities like drilling, blasting and hauling. Therefore, depositional

dust monitoring station locations were based on the proposed infrastructure locations likely to generate dust, taking into account meteorological conditions such as prevailing wind.

The monitoring program is set up in line with the requirements of the Standard Test Method for Collection and Measurement of dust fall (ASTM D1739-98) and South African National Standards (SANS) standards and target actions. Dust fall out will be complemented with baseline particulate matter (PM) 10/2.5 measurements as the Project progresses. This will be conducted in terms of the World Health Organisation (WHO) interim targets (IT3) for particulate matter.

Natural environments are complex systems that can be affected by anthropogenic interference such as mining activities, including mineral exploration. To understand the confounding factors and interpret the findings based on the baseline of the receiving environment, deductive and inductive approaches can be used. The wind vectors, topography (e.g. mountains and valleys), seasonal rainfall, and drought are identified as the potential factors that are likely to influence air quality. Wind direction and speed are the primary factors determining the distance of travel of a dust particle and the distribution of particles falling out. An on-site weather station was erected in January 2023 to provide atmospheric meteorological data specific for the site and further guide the analysis and interpretation of the fall out dust results.

Figure 27 shows the location of the dust fall sampling locations.

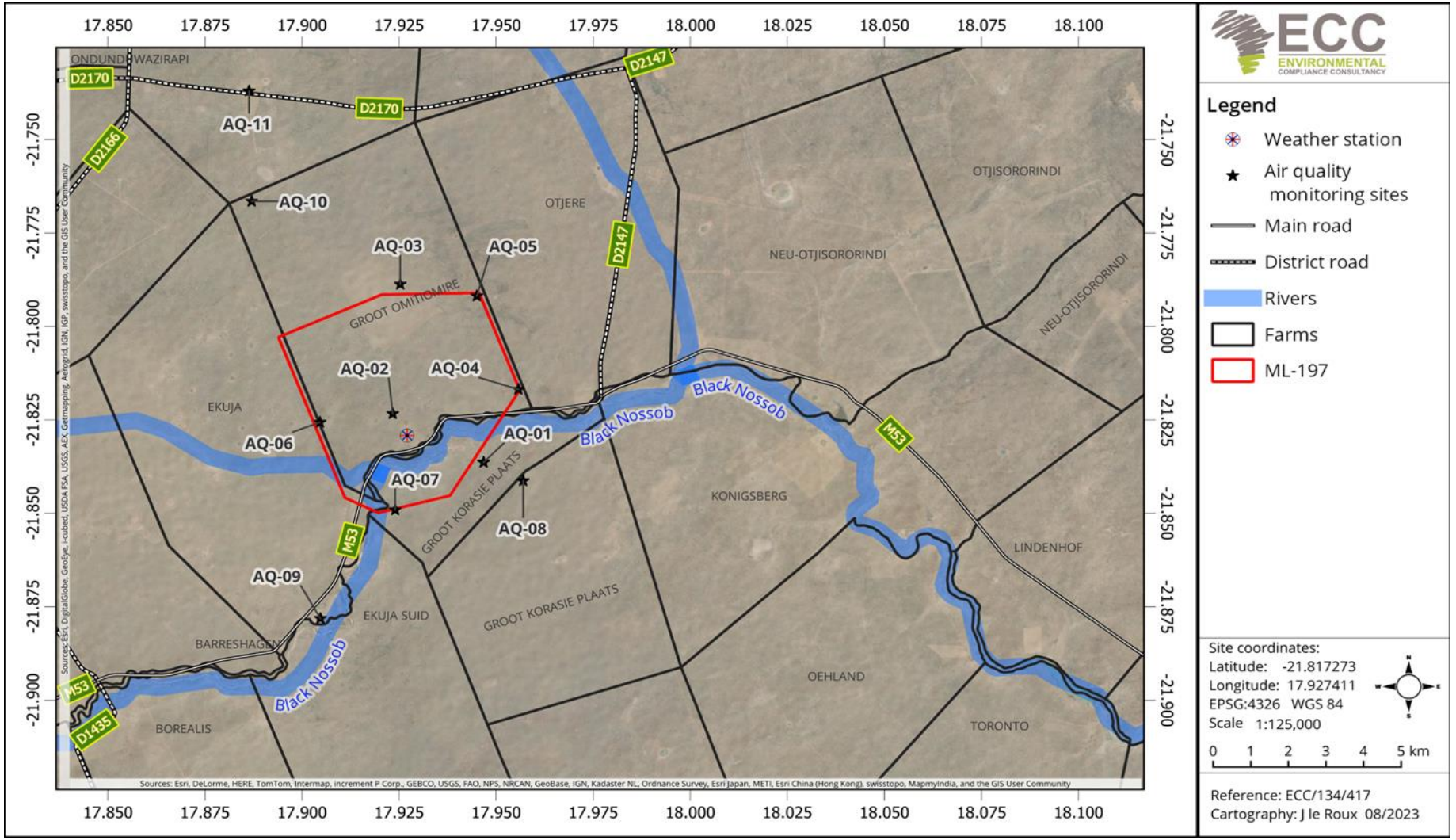

Figure 27 - Dust fall monitoring network for the Omitiomire Copper Project.

During the project screening and scoping phase, an air specialist study was deemed necessary to determine the potential impact of atmospheric pollution for this Project. Airshed Planning Professionals were engaged in 2023 to review the air quality baseline study conducted in 2017 and model a technical air quality baseline report that will be used in the assessment of potential air quality impacts. The main purpose of the investigation was to quantify and assess the potential impacts resulting from the proposed project activities on the surrounding environment and air quality sensitive receptors. A good understanding of the regional meteorological conditions, legal requirements pertaining to air quality in Namibia ambient air quality standards and local dispersion potential is necessary to ensure impacts are assessed thoroughly. The assessment included an estimation of atmospheric emissions, the simulations of pollutant concentrations (TSP, PM 2.5/10), gaseous emission (i.e., SO_2, NO_x, CO and VOCs) and determination of significance of impacts.

The main findings from the revised baseline study are summarised below (Airshed, 2023):

- Modelled Weather Research and Forecasting (WRF) meteorological data for the period January 2020 to December 2022 was used for the assessment. The Data from the on-site weather station was deemed insufficient for modelling and assessment as the weather station was recently installed in January 2023;

- The wind field is dominated by strong winds from the northeast (NE) direction during both day and night -time periods. Daytimes are dominated by strong northeast winds (< 10 m/s) and nighttime are dominated by less frequent south and southeast winds. During the period under review, calm conditions (i.e., windspeed of less than 1 m/s) occurred for 2.09% during the reviewed period. Short term on-site weather data indicate dominant east (daytime) south southwest (nighttime) winds (Figure 28 and Figure 29);

- Temperatures increase in the late afternoons around 16:00. Maximum temperature ranged between 20.5 °C and 30.9 °C. Ambient air temperature decreases to reach minimum between 06:00 and 07:00. Minimum temperature ranged between 1.8 °C and 16.2 °C. Average monthly temperatures ranged between 11°C and 23.8°C; and

- The closest communities are located more than 30 km from the Project. The closest potential air quality sensitive receptors (AQSRs) to the project are farmsteads ~2.5 km to the east and ~3.5 km to the south of the mine boundary (Figure 30).

According to Airshed (2023), sources of atmospheric emissions in the vicinity of the Omitiomire Copper Project include:

- Windblown dust: Windblown particulates from natural exposed surfaces, mine waste facilities, and product stockpiles can result in significant dust emissions with high particulate concentrations near the source locations, potentially affecting both the environment and human health. Windblown dust from natural exposed surfaces in and at the project is only likely to result in PM emissions under high wind speed conditions (>10 m/s), and since recorded wind speeds did not exceed 10 m/s, this source is likely to be of low significance;

- Vehicles entrainment on paved and unpaved roads; and

- Regional transport of pollutants: regional-scale transport of mineral dust and ozone (due to vegetation burning) from the north of Namibia is a significant contributing source to background PM concentrations.

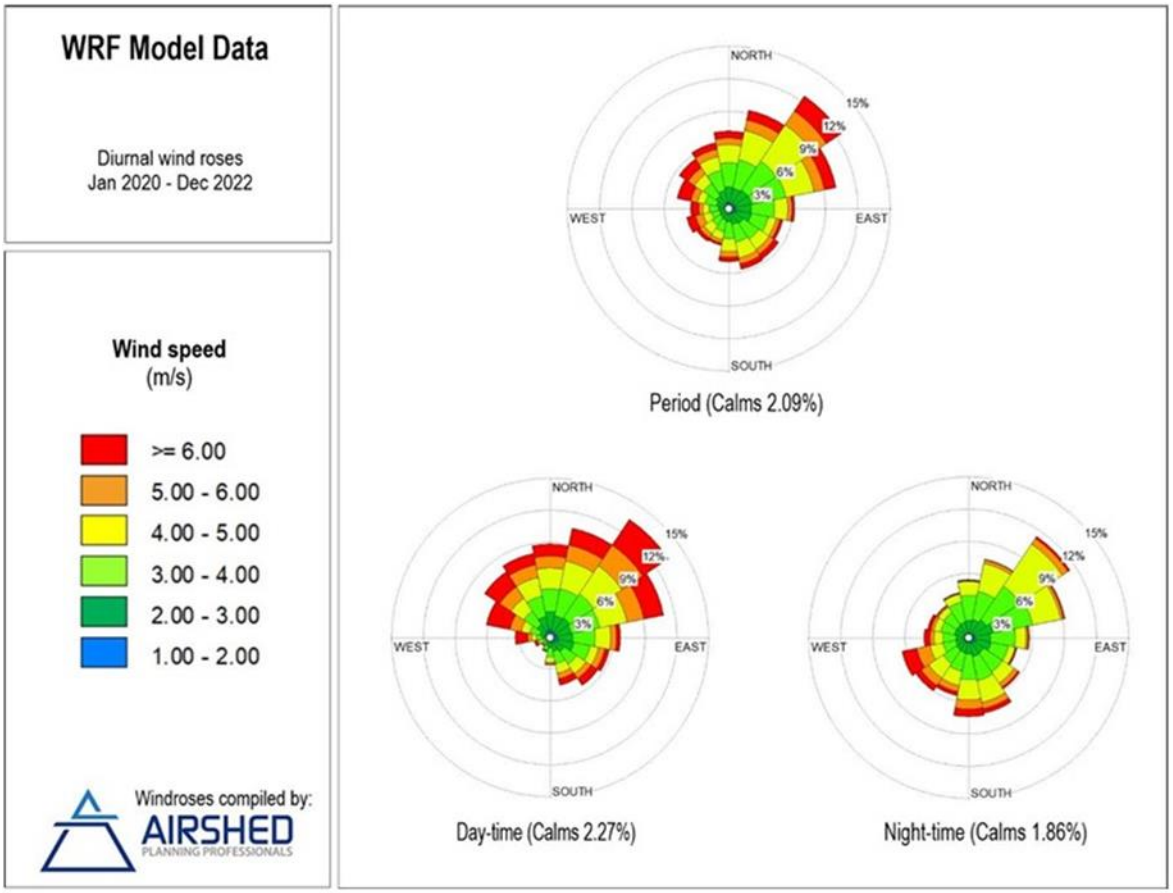

Figure 28 - Period, day and night-time windrose based on modelled WRF from 1 January 2020 - 31 December 2022 (Airshed, 2023).

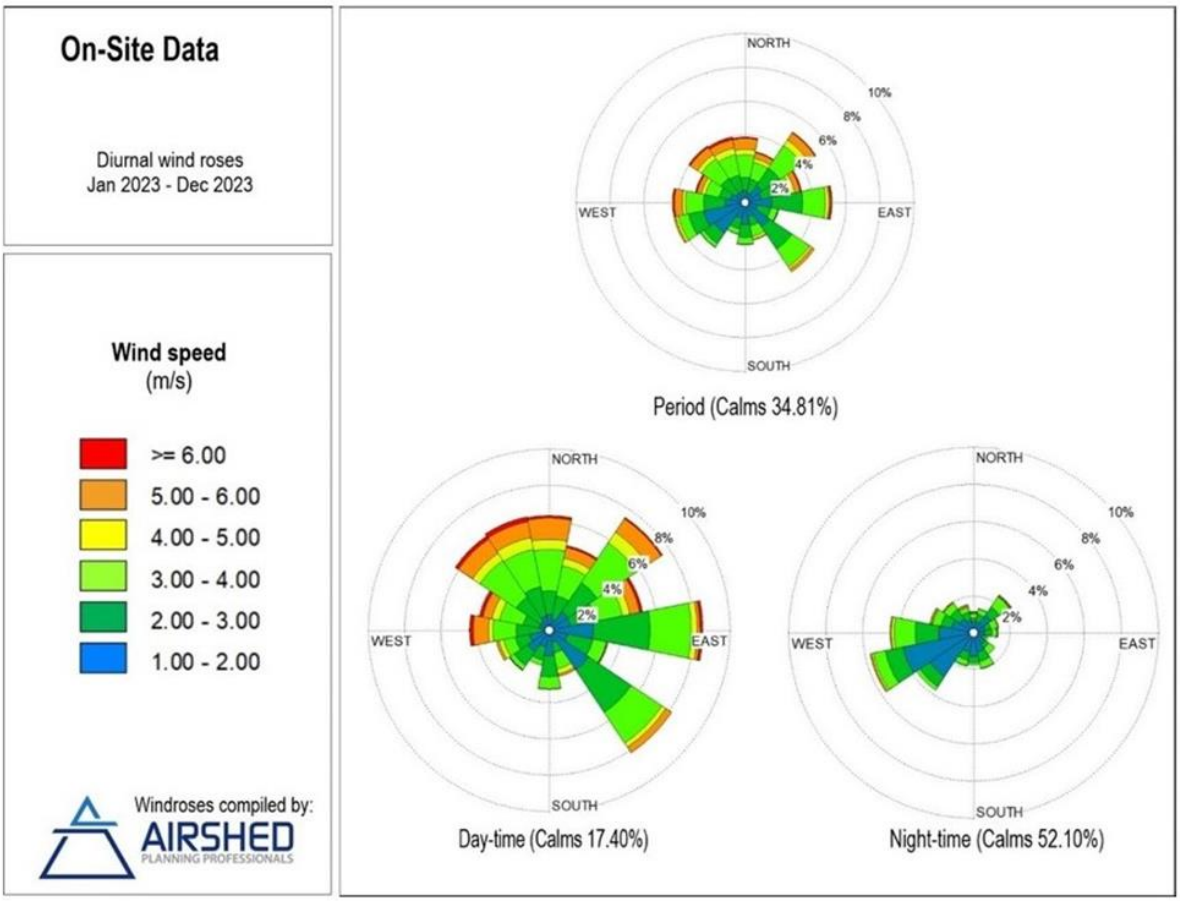

Figure 29 - Period, day and nighttime windrose for the period 2023 modelled with on-site meteorological data.

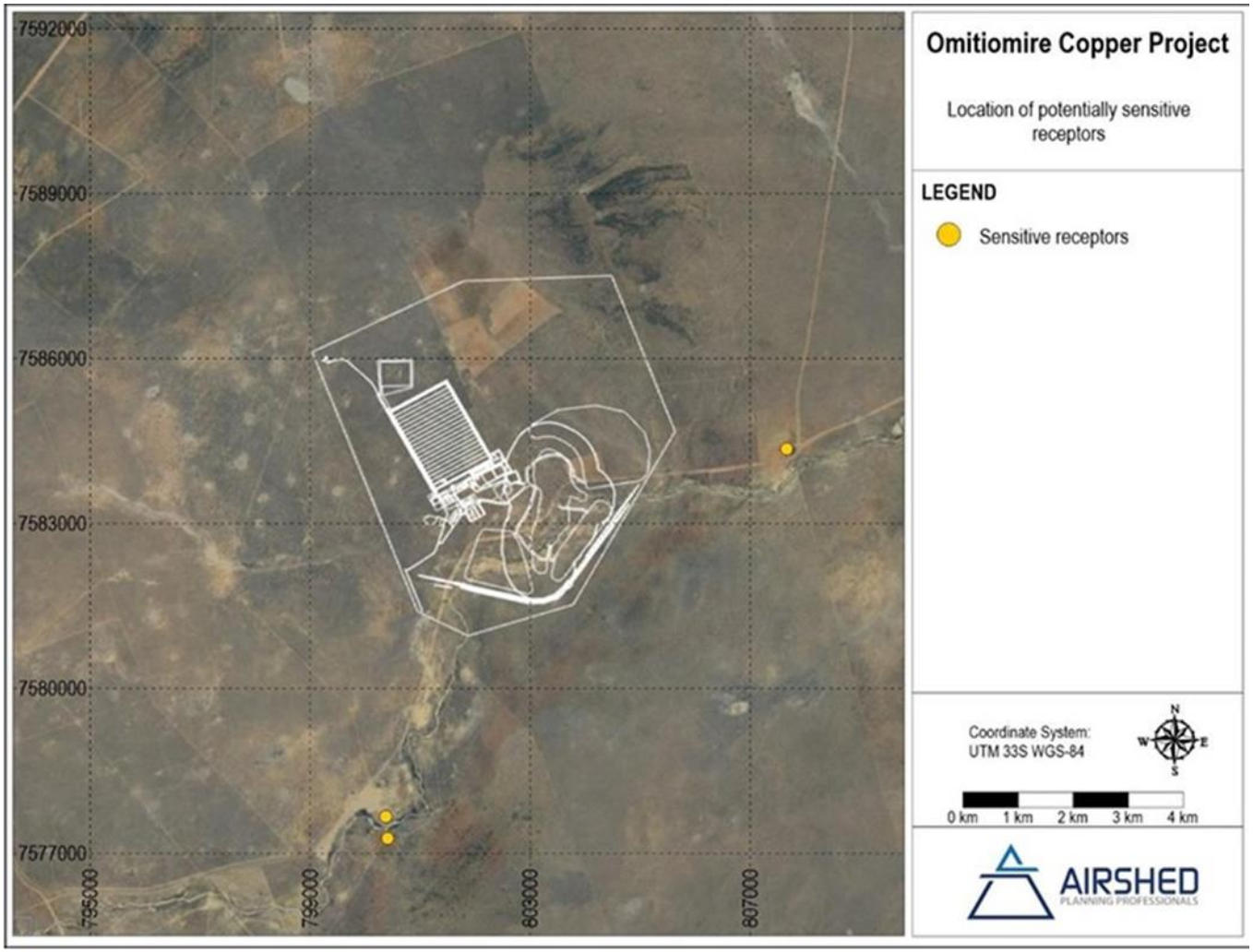

Figure 30 - Identified air quality sensitive receptors within the Project area (Airshed, 2023).

The measured dust fallout results from the on-set of the ambient air quality monitoring program (July 2022 to September 2023) is provided in Figure 31. Dust fall rates were low on average (70 mg/m²/day) across all sites over the project area, and well below the residential (600 mg/m^2/day adopted for residential areas) and industrial (1 200 mg/m^2/day adopted for industrial areas). Baseline particulate matter (PM) 2.5/10 measurements have not commenced and are therefore not reported on.

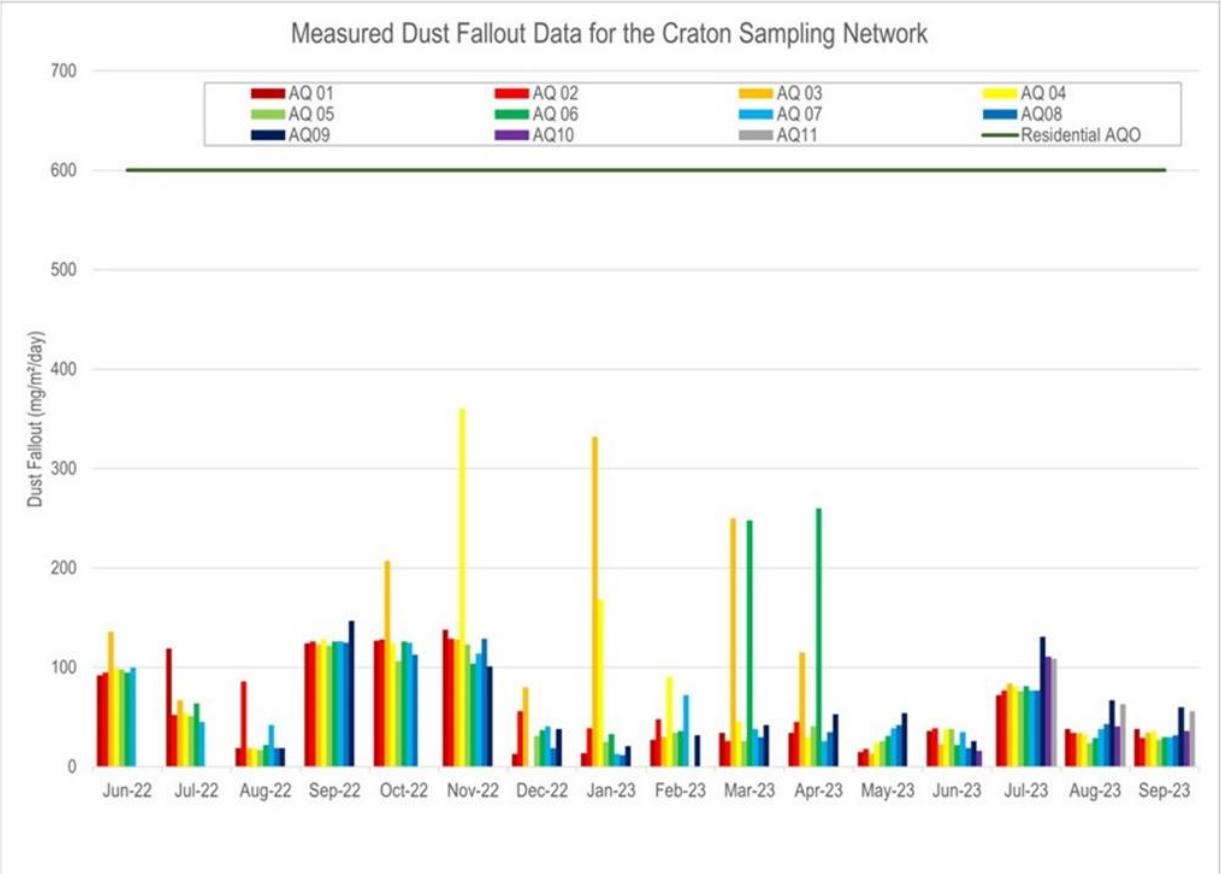

Figure 31 - Measured dust fall out for the Project site for the period July 2022 to September 2023 (Airshed, 2023).

The air quality specialist report can be found in Appendix F. Air quality assessment impacts are further discussed in the assessment chapter (chapter 7) of this report and mitigation measures are included in the ESMP (Appendix A).

5.2.6 TOPOGRAPHY

The terrain of the Omitiomire Copper Project areas is relatively flat, with flood plains and sporadic occurrences of low laying pans (Figure 32). The dominant feature is the Black Nossob River running through the southern portion of the area. The elevation of the area gently ranges from 1600 to 1650 masl (Figure 33).

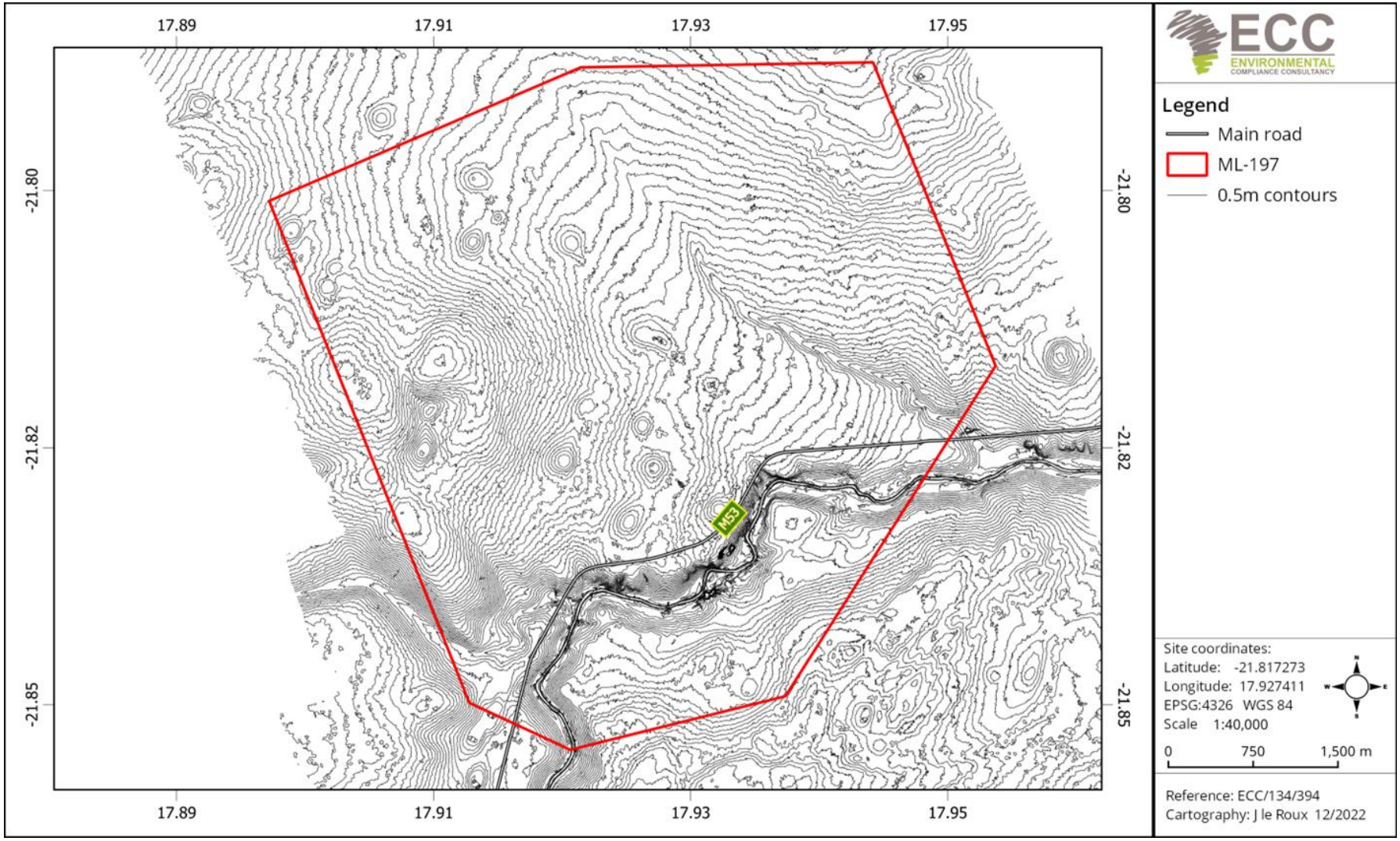

Figure 32 - Topographical map of ML 197.

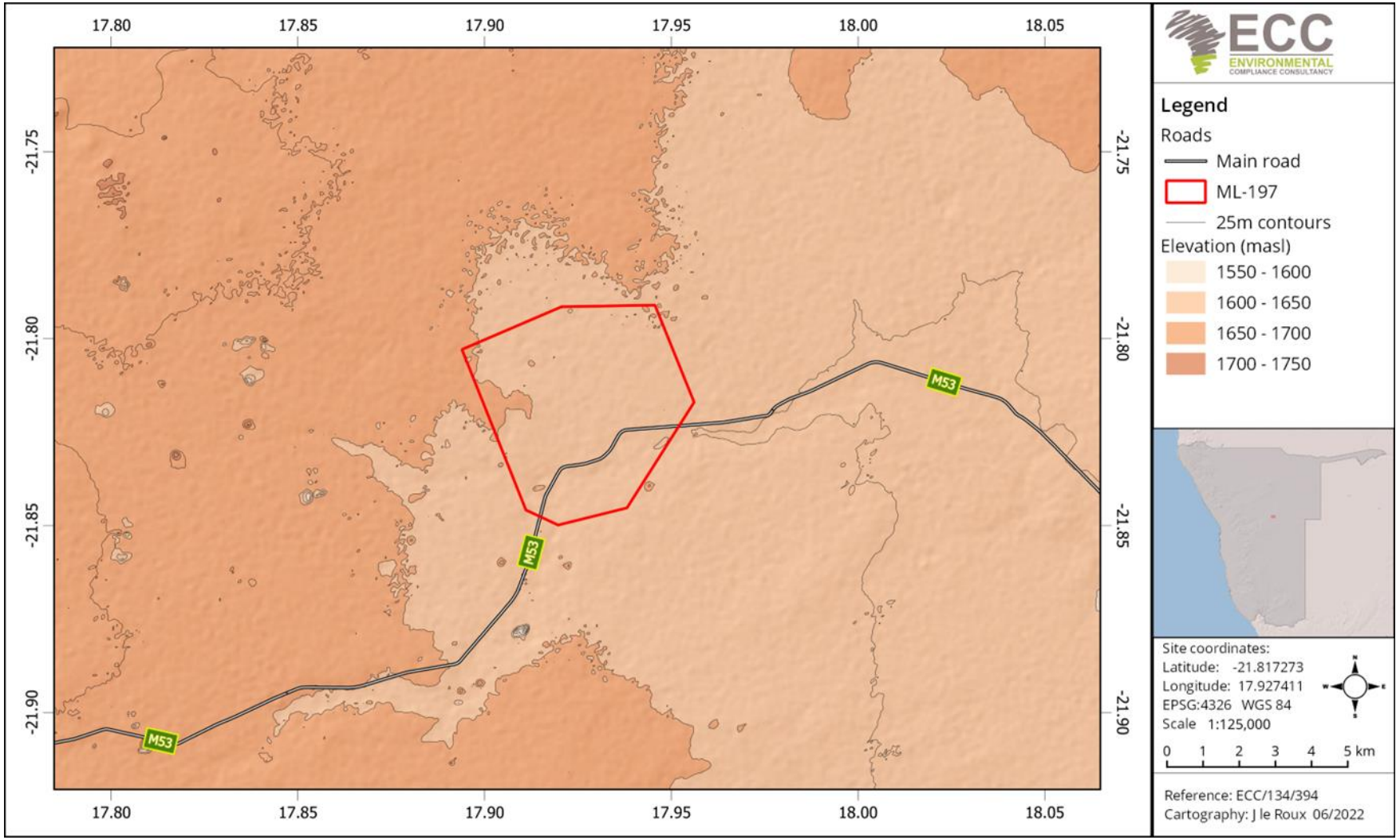

Figure 33 - Elevation of ML 197 and the surrounding area.

5.2.7 SOILS

The ML area is covered by chromic Cambisols (Bubenzer, 2002). The first part of the soil name denotes soil properties. Therefore, chromic refers to soils with a beginning of soil formation that may be brightly coloured, which is evident in the topsoil layer over the project area. The second name reflects the conditions and processes which have led to the formation of the soils. Cambisols are developed in medium and fine-textured materials derived from a wide range of rocks mostly in alluvial, colluvial, and aeolian deposits (Mendelsohn et al., 2002).

Cambisols are soils that usually have medium to high fertility but are also characterised by the absence of significant quantities of organic material, clay, iron, or aluminum. Considering geological time Cambisols were formed quite recently mainly from medium to fine-textured parent material weathering (Mendelsohn et al., 2002).

5.2.8 OVERBURDEN CHARACTERISTICS

The sand, soil, and gravel cover over the ML averages 1 – 2 m in thickness, but varies in terms of placement, from a few decimetres near the northern banks of the Black Nossob River to several meters, particularly on the southern side. The Red Kalahari sand of wind-blown origin comprises most of the cover and occurs mainly away from the Black Nossob River. These sands are generally poorly graded; the average grain size of 0.3 mm contains significant fines and hence drains poorly.

Soils of alluvial origin cover the southern regions of the site near the Black Nossob River and can be described as fine to medium sands with minor to abundant gravel. The flood plain contains some clay to silt-sized fractions. The sand in the centre of the Black Nossob River is well-sorted, has an average grain size of 0.6 mm, and drains easily. Pans and tributary riverbeds contain the finest overburden material and a significant clay proportion. Calcrete material occurs mainly near secondary drainages and pans and a gravel or boulder stone line frequently occurs at the base of the overburden.

Knight Piesold (2023) undertook a geotechnical and materials investigation across project areas envisioned for development to characterise the foundation conditions, determine the nature, distribution of the soils and bedrock, assess excavatability, and provide recommendations for the design of the foundation and earthworks required. A total of one-hundred and twenty-seven test pits were excavated (to a maximum depth of 5 m) across the following areas:

- Heap leach pad;
- Processing plant;
- Stormwater diversion channel;
- New road;
- Waste rock dump; and

- Potential borrow areas (potential materials to be used for construction).

The specialist geotechnical recommendations for any earthwork activities can be found in Appendix G.

5.2.9 GEOCHEMICAL

Environmental Compliance Consultancy (Pty) Ltd (ECC) and RGS Environmental Consultants Pty Ltd (RGS) were engaged to undertake a geochemistry assessment for mine materials (waste rock, low- grade and high- grade ore) for the Omitiomire Copper Project.

The geochemistry assessment was completed in accordance with mining industry technical guidelines (INAP, 2023) and focuses on the sampling and geochemical testing of representative samples of various mining and mineral processing materials. Associated leachate quality data will be interpreted and used to support water quality assessments completed by the contracted project hydrogeologists in relation to site geochemical risk assessments and planning for operations and future site closure. ECC and RGS worked closely with Craton personnel to develop a strategy to collect and geochemically characterise representative samples of mine materials representing waste rock, low-grade, medium-grade and high-grade ore materials. The sampling and testing strategy was developed to align with Australian (AMIRA, 2002, COA, 2016) and international (INAP, 2023) technical guidelines for the geochemical assessment of mine waste materials.

A total of 96 samples were collected and included in the geochemistry assessment. The sample list included 86 waste rock samples from 53 drill holes and 10 ore samples from 5 drill holes. The samples were crushed (where required) and a sub-sample taken and pulverised to pass 75 µm sieve size. The samples were bagged, labelled, sealed, and then transferred to an accredited commercial laboratory (Aquatico Scientific Laboratories in South Africa) for static geochemical testing as shown in Table 10.

This standard laboratory sample preparation procedure provides a homogenous sample, but also generates a large sample surface area in contact with the resultant assay solution, thereby providing greater potential for dissolution and reaction, and represents an assumed initial 'worst case' scenario for these sample materials.

Table 10 - Sample materials used for geochemical testing.

Lithology	Material type	Min. depth (m)	Max. depth (m)	Number of samples
CAL	Waste rock	1.00	10.00	5
CBG	Waste rock	7.00	165.00	22
MGN	Waste rock	10.00	117.86	17
PEG	Waste rock	1.00	123.00	12
PGN	Waste rock	7.00	170.00	15

Lithology	Material type	Min. depth (m)	Max. depth (m)	Number of samples
QV	Waste rock	3.00	9.00	3
WGN	Waste rock	7.00	148.00	12
MGN/PEG/WGN	High-Grade Ore	70.13	182.86	4
BAS/MGN/WGN	Low-Grade Ore	81.41	185.33	4
MGN	Medium-Grade Ore	189.42	195.00	2

The geochemical test program was designed to assess the degree of risk from the presence of potential oxidation of sulphides, acid generation and the presence of /leaching of soluble metals/metalloids and salts. The Acid-Base Account (ABA) test results for the 86-waste rock and 10 ore samples and data trends are discussed in the sections below.

pH: The pH of the samples tested ranges from 8.1 to 10.2 (i.e., in the slight to moderately alkaline range) and has a median value of 9.5 (Figure 34). The majority of the samples have moderately alkaline pH values greater than the deionised water used in the tests, suggesting that at least initially, addition of alkalinity to water in contact with these materials is likely.

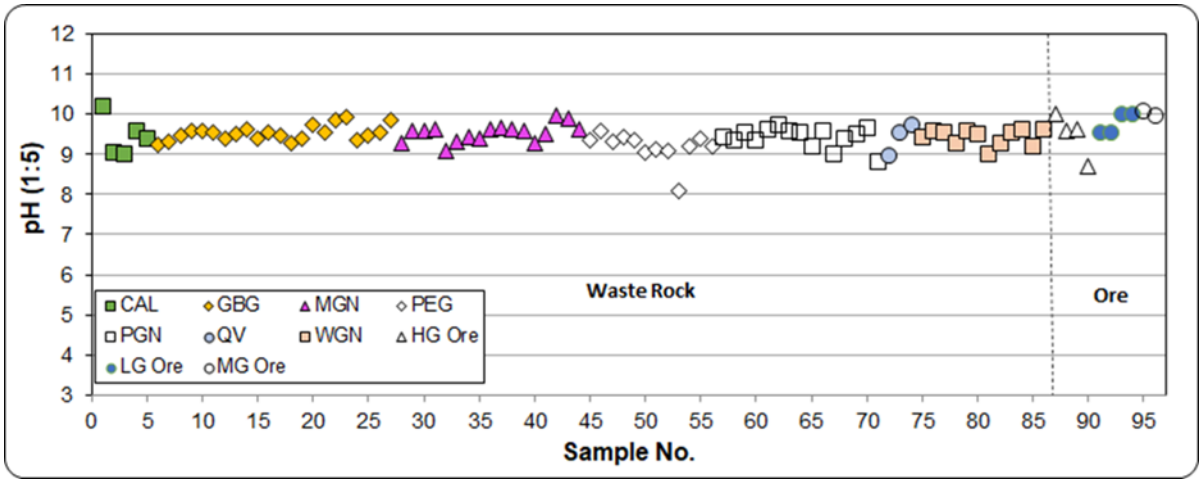

Figure 34 - pH values for mine materials.

Electrical conductivity (EC): The EC value of the samples ranges from 50 to 520 µS/cm and is generally low for most samples (median 100 µS/cm) (Figure 35). Hence, initial contact water with most mine materials are likely to remain relatively fresh and have a low salinity value.

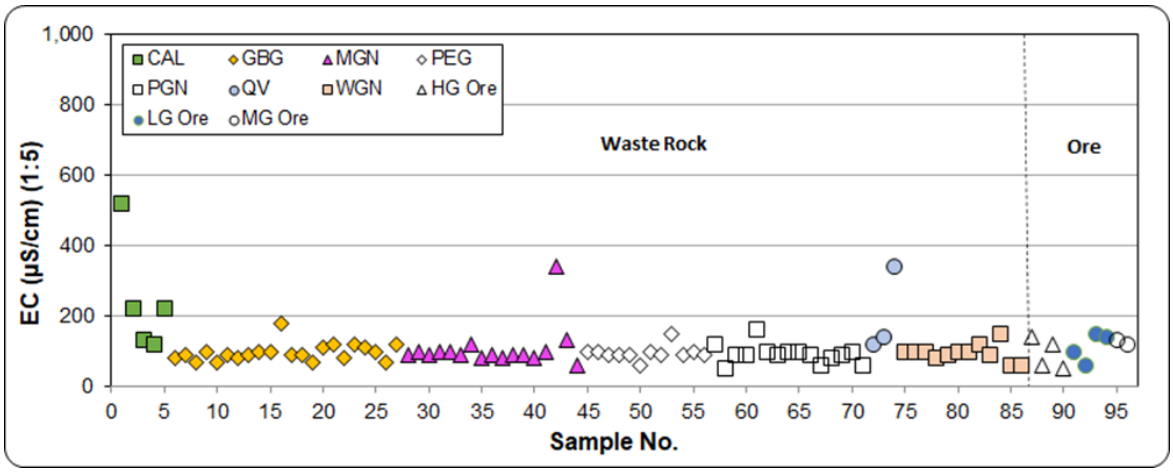

Figure 35 - EC values for mine materials.

Total sulfur: The total sulfur (S) content of the mine material samples ranges from 0.01 to 0.6 %S and has a low median value of 0.01 %S (Figure 36). Most of the waste rock and ore samples have a low total sulfur concentration well below the median crustal abundance (0.1 %S) for this element in unmineralised soils (RGS, 2023). Materials with a total sulfur content less than or equal to 0.1 %S are essentially barren of sulfur, generally represent background concentrations, and have negligible capacity to generate acidity (INAP, 2023). The total sulfur content of 5 of the 96 samples is greater than 0.1 %S for a single MGN waste rock sample and four high-grade ore samples.

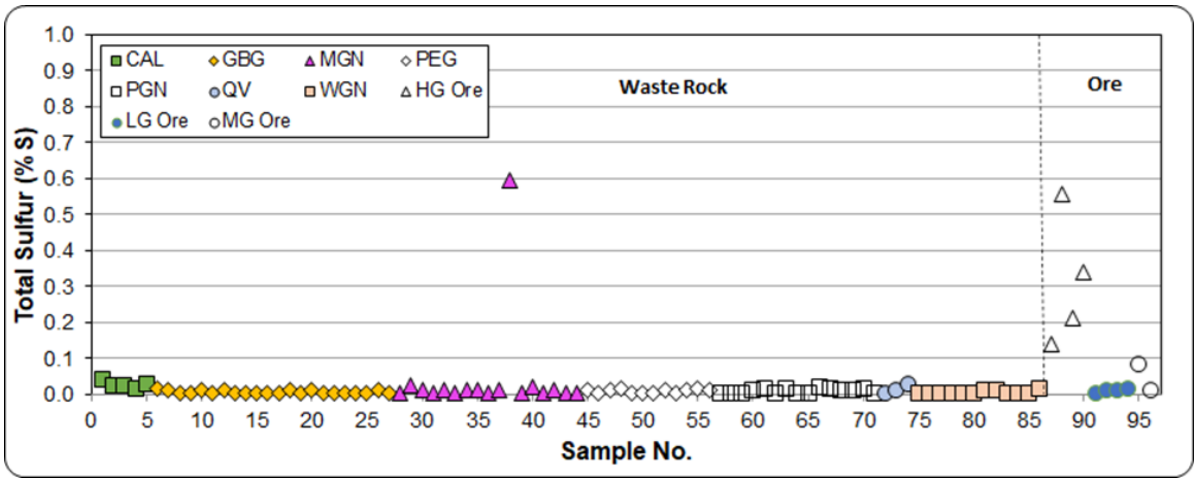

Figure 36 - Total sulfur concentration for mine materials.

Maximum Potential Acidity (MPA): Based on the total sulfur content, the MPA that could be generated by the mine material samples ranges from 0.2 to 18.3 kg H_2SO_4/t (median 0.3 kg H_2SO_4/t.).

Acid Neutralising Capacity (ANC): The ANC value for the samples ranges from 2.6 kg H_2SO_4/t to 678.0 kg H_2SO_4/t (median 9.3 kg H_2SO_4/t). The highest ANC values are recorded for the CAL waste rock samples and, the median ANC is more than an order of magnitude greater than the median MPA.

Net Acid Producing Potential (NAPP): The NAPP is the balance between the capacity of a sample to generate acidity (MPA) minus its capacity to neutralise acidity (ANC). The calculated NAPP values for the samples of mine materials range from -676.7 to +7.1 kg H_2SO_4/t and have a negative median value of -8.9 kg H_2SO_4/t (Figure 37). Only one sample (a high-grade ore sample) has a positive NAPP value. The remainder of the samples have a NAPP value that is negative or close to zero.

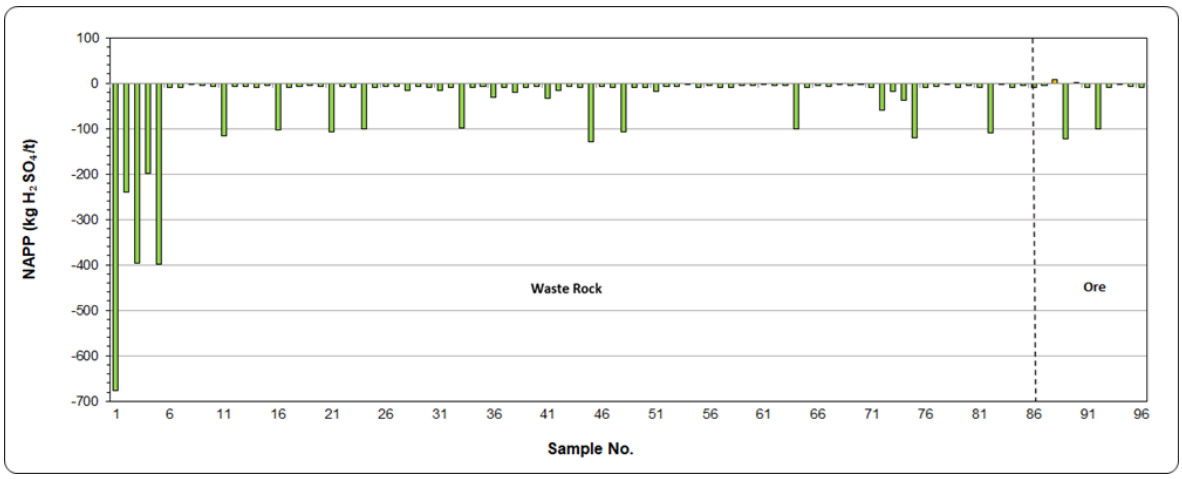

Figure 37 - NAPP value for mine materials.

ANC:MPA: Figure 38 presents ANC versus MPA data for the 96 samples of mine materials. ANC:MPA ratio lines are plotted on the figure to illustrate the factor of safety associated with the samples. Generally, those samples with an ANC:MPA ratio greater than 2 (and/or with a sulfur content ≤ 0.1 %) are considered to have a low to negligible risk of acid generation and a high factor of safety in terms of potential for AMD (COA, 2016; INAP, 2023).

The results indicate that most of the samples of mine materials plot in the low to negligible risk domains and represent materials with a very low risk of acid generation and a high factor of safety with respect to potential acid generation. Some (17) of the 96 sample materials have an ANC value more than 100 kg H_2SO_4/t and are considered to have some capacity to consume acid.

Two of the high-grade ore samples plot in the increased risk domain in the figure and represent material that may have a reduced factor of safety with respect to potential acid generation.

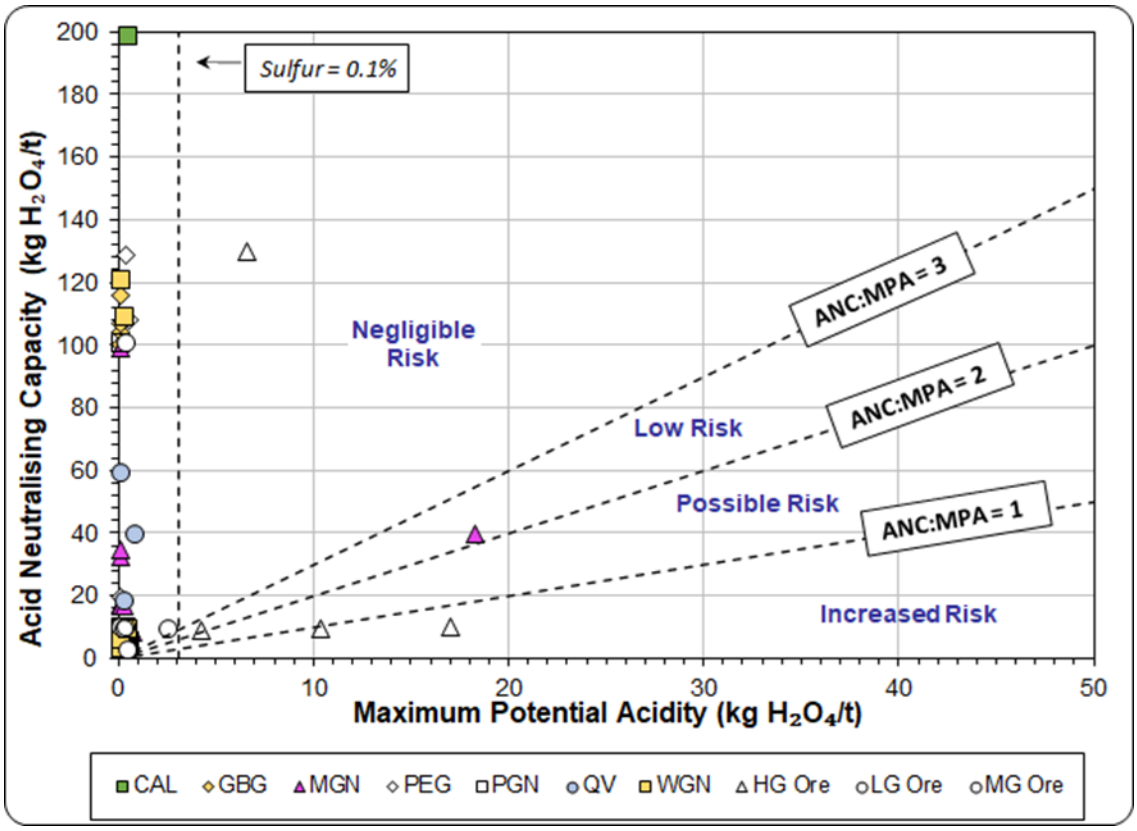

Figure 38 - ANC v MPA for mine materials.

The ABA test data has been used to classify the acid forming nature of the mine materials represented by the 96 samples. These classification criteria reflect Australian (COA, 2016) and international (INAP, 2023) guideline criteria for classification of mine materials. Table 11 provides a summary of the criteria used by ECC and RGS to classify the acid forming nature of the samples and a breakdown of the number of samples in each classification category by material type.

The data presented in Table 11 shows that the overwhelming majority of the mine materials as represented by the samples tested have low sulfur content, excess ANC and are classified as Non-Acid Forming (Barren). One MGN waste rock sample has an elevated sulfur content (0.6 %S) that is more than balanced by the ANC and this sample is classified as Non-Acid Forming.

The six low-grade and medium-grade ore samples are classified as Non-Acid Forming (Barren). One of the high-grade ore samples is classified as Non-Acid forming, two samples are classified as Uncertain, and one sample is classified as Potentially Acid Forming (Low Capacity).

Table 11 - Geochemical classification criteria for mine materials.

Geochemical Classification	Total Sulfur[1] (%)	NAPP (kg H_2SO_4/t)	ANC: MPA Ratio	Waste Rock (n = 86)	Ore (n = 10)
Non-Acid Forming (Barren)[2]	≤ 0.1	-	-	85	6
Non-Acid Forming	> 0.1	< -5	-	1	1
Uncertain[3]	> 0.1	> -5 and ≤ 5	≤ 2	0	2
Potentially Acid Forming (Low Capacity	> 0.1	> 5	< 2	0	1
Potentially Acid Forming	> 0.1	> 10	< 2	0	0

Notes:
1. If total sulfur is less than or equal to 0.1 %, the NAPP and ANC:MPA ratio are not required for material classification as the sample is essentially barren of oxidisable sulfur.
2. A sample classified as NAF can be further described as 'barren' if the total sulfur and/or sulfide sulfur content is less than or equal to 0.1 per cent, as the sample essentially has negligible acid generating capacity.
3. Samples that fall outside the stated classification categories based on the criteria provided are also classified as Uncertain.

The results of the information review and static geochemical test program to date have been used to provide preliminary conclusions as to the characteristics of the various mine materials at the Project and whether these characteristics will present any environmental risks that will need to be managed.

The geochemical assessment to date has found that:

- The overwhelming majority of the mine materials as represented by the samples tested have low sulfur content, excess ANC and are classified as NAF (Barren). Some of the high-grade ore samples have elevated sulfur content and limited ANC and are classified as Uncertain or PAF-LC, although sulfur will become depleted during leaching;

- The mine materials typically have low total metal and metalloid concentrations in waste rock compared to global median crustal abundance in unmineralised soils. The main exceptions are slight enrichments with cadmium, copper and molybdenum. Notwithstanding, the nature of a metalliferous copper mining deposit means some metals/metalloids are expected to be slightly elevated compared to background soil levels in some materials;

- Surface runoff and seepage from mine materials is expected to be slightly alkaline, have low salinity and generate low concentrations of dissolved solids. Soluble major ion concentrations are expected to be relatively low in initial contact water with waste rock and ore materials; and

- The concentration of trace metals/metalloids in surface runoff and seepage from mine materials is expected to be low and the risk of potential impact on the quality of surface and groundwater resources from initial contact with mine materials at the Project is also expected to be low. However, it is recommended that dissolved boron, cadmium and molybdenum are included in the water quality monitoring program for the site to verify that this is the case.

Craton made a decision not to proceed with the recommendation of conducting (stage 3)KLC geochemical assessment as they have determined this to be a low risk. The geochemical assessment report is provided in Appendix H.

5.2.10 HYDROLOGY

The Omitiomire Project area is located in the upper catchment of the ephemeral Black Nossob River, which drains in a generally eastern direction towards Gobabis. The ephemeral Black Nossob River runs through the southern part of the project area (Figure 44). The major east flowing tributary (Ekuja drainage) joins the Black Nossob ~2 km west of the proposed site and another south-east flowing tributary (Omitiomire drainage) ~3 km west of it. The Black Nossob catchment area upstream of the proposed infrastructure was calculated as 880 km^2 based on DEM data (Knight Piesold 2023).

The Black Nossob River is sloping in a south-to-south easterly direction, however, runoffs during extreme rainfall events collects at several ephemeral pans within the project site. For this reason, volumes and durations of flood runoffs towards the Black Nossob River are fairly and relatively small.

The project ecologist determined that ephemeral pans within the project area are pristine habitants for various fauna species and would significantly be impacted by the proposed project activities.

5.2.10.1 Stormwater management

Runoffs generated within the planned mining area, processing plant, handling, haul, and waste management areas should be managed by adding stormwater infrastructure, consisting of diversion channels, silt traps, berm gutters and pollution control reservoirs. The structures are required for the retention and management of mine-related pollutants from flowing into surrounding areas.

The southern part of the open pit plunges to a maximum depth of 250 m and intersects the ephemeral Black Nossob River which flows during flash flood events in a west-easterly direction. Without the implementation of a diversion system, flood events may significantly impact mining operations and may pose safety hazards to employees operating on the mine. Therefore, a diversion channel system is proposed to redirect the flow of the Black Nossob River and upstream western tributary river around the southeastern boundary of

the mine before reconnecting to the Black Nossob River downstream of the mining activity (refer to Figure 39 below). The river diversion design for the Project was designed based on the characteristics of the catchment, historical rainfall data and estimated flood peaks. A summary of the projected flood peaks for the river diversion systems are shown in Table 12.

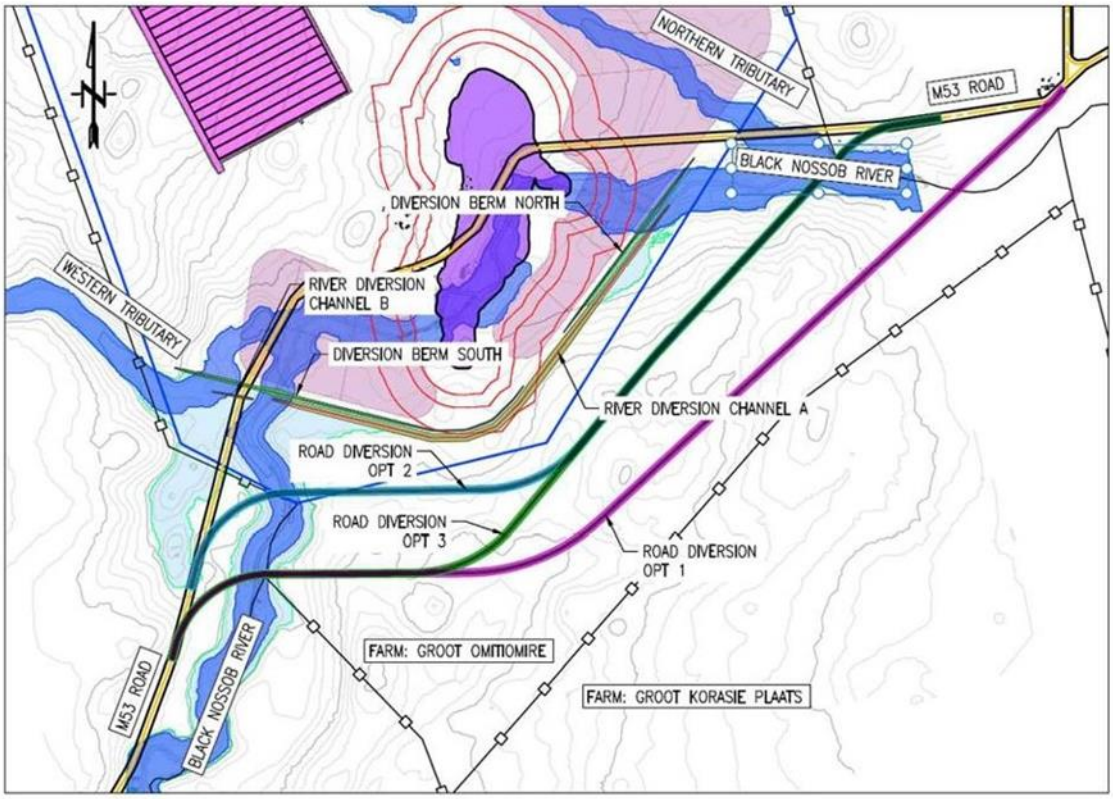

Figure 39 - Proposed diversion canal and diversion beam alignment.

The river diversion design criteria considered the 300 m blast radius and will be constructed ~100 m from the waste rock dump (WRD), thereby ensuring early warning systems are in place to safeguard both mining employees and mining operations during sever floods.

A 5 km long durable diversion canal will be designed to capture up to 1:200 years flood event while providing an additional 1.6 m freeboard, adequate to also divert 1:10, 000-year flood events. The river diversion system comprises of a smaller inlet channel (shown as river diversion channel B in Figure 39) between the western tributary and the Black Nossob River with a base width of 7 m and a 10 m width at diversion channel A). The river diversion berm will be designed in a trapezoidal shape, featuring a 5 m wide crest and slide slopes with a ration of 1V:3H (upstream and downstream). The berm will also have a 500 mm thick blanket drain composed of coarse alluvial materials to enhance its stability and performance overtime. A cross section of the proposed river diversion berm with key design parameters is shown in Figure 40.

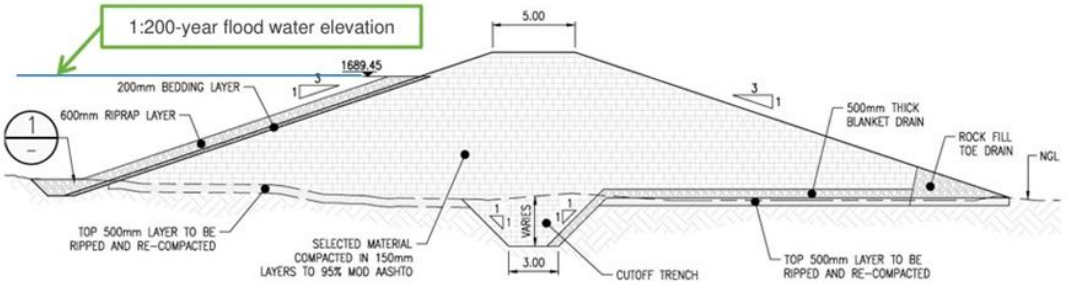

Figure 40 - Cross section of the river diversion berm.

Table 12 - Projected flood peaks along the river diversion system.

Return period	2	5	10	20	50	100	200	500	100
Flood peaks (m^3/s)	126	196	256	332	485	654	724	818	892

The project site is underlain by five sub-catchments as shown in Figure 41.The catchment characteristics are summarised in Table 13.

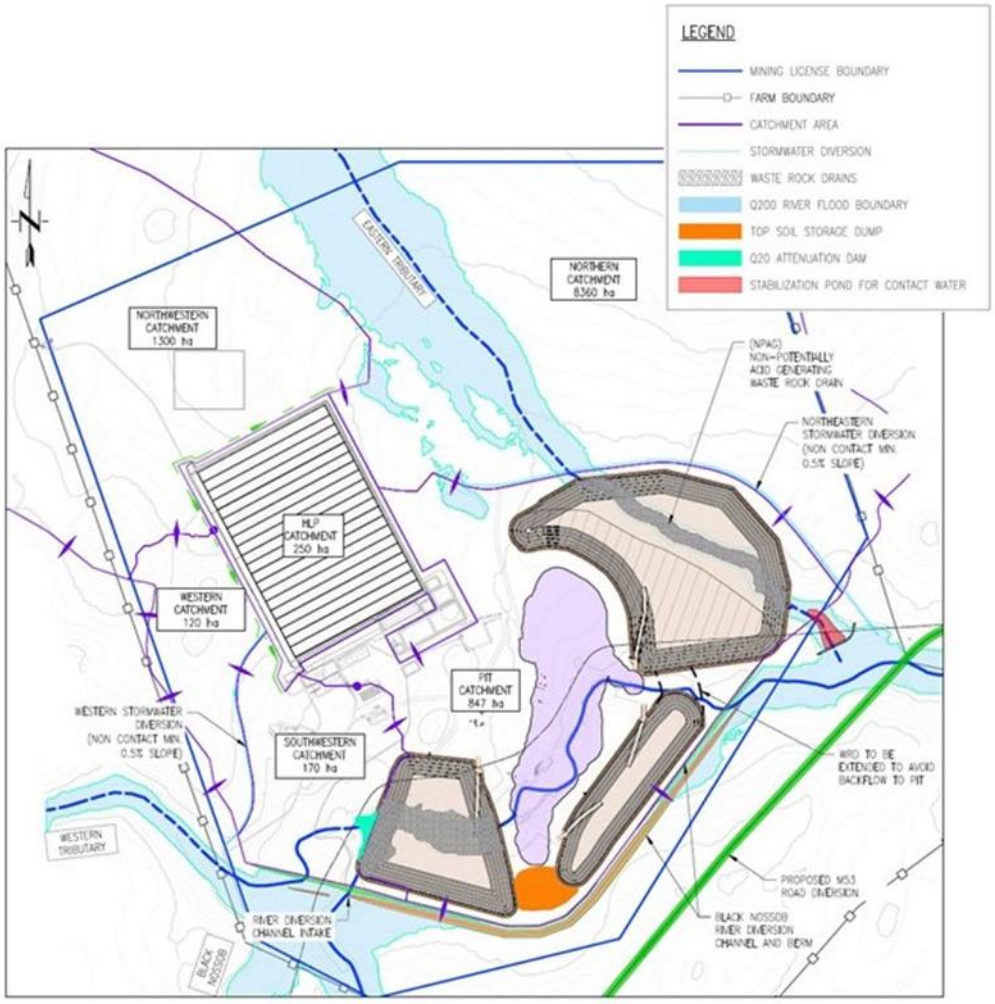

Figure 41 - Sub- catchments at Omitiomire (Knight Piesold, 2023).

Table 13 – Characteristics of the sub- catchments in the area.

Parameter	Area (km^2)	Longest flow (km)	Longest watercourse slope 10-85 (m/m)	Definedd watercourse time concentration (hrs)
Northwestern + northern catchment	96.6	22.8	0.0023	7.4
Western catchment (berm + diverted)	1.24	2.0	0.0056	0.8
Southern catchment	1.72	1.8	0.0056	0.8
Pit catchment	8.47	1.2	0.0056	0.6

The surface runoffs associated with the sub-catchments shown in Figure 41 will be managed through the following site stormwater management measures:

- Non-contact water from the northwestern and northern sub-catchment will be diverted around the northeastern waste rock dump (WRD) during normal operation, and extreme events will be allowed to seep through the waste rock drain to offer free flowing conditions for extreme events above the 1 in 200 years storm and post closure conditions. This diversion will be constructed once the WRD encroaches on the eastern tributary.
- Contact water from the northeastern WRD will be retained in a stabilisation pond for the settlement of sediment and overflow into the eastern tributary.
- The western sub-catchment floods will be diverted into the western tributary and managed as part of the diversion channel. This diversion will be constructed at the start of the Project to minimise stormwater flow to the pit area.
- The stormwater management around the HLP, within the HLP and the surrounding plant area (western and southern catchment) will be accommodated in stormwater attenuation dams.
- Flood from the pit sub-catchment will be attenuated with a pit ring berm and left to infiltrate/evaporate.
- The pit flow will be accommodated in the open pit lake and managed through dewatering system.

5.2.10.2 Site water balance

The Project will source water from the Summerdown Kalahari Aquifer. Namib Hydrocensus was commissioned to undertake a series of exploration and test pumping in the Summerdown Kalahari Aquifer area to ascertain its potential to supply water for the Project. The report compiled by Namib Hydrocensus can be found in Appendix I.

The Summerdown Kalahari Aquifer is characterised by thin saturated sediments sloping in the west to east direction for ~80 to 90 km. In the north-south direction, the aquifer is lies between the large east flowing rivers - Eiseb and Epukiro River (Figure 42). aquifer currently supplies bulk water to irrigation projects within the greater Summerdown area. Water consumption from the aquifer through irrigation schemes is estimated to be ~4 Mm^3/a (Namib Hydrocensus, 2023).

A series of exploratory drilling and pump tests from high yielding boreholes conducted across selected farms (Lawriesdale, Meyerville, Kismet and Ettick) in the Summerdown area indicated that the aquifer resource has potential to sustainably meet the Project water demand. The current mine design indicates a daily requirement of ~306 m^3/h (2.23 Mm^3/a) is required to sustain mining operations and related activities for the estimated 30, 000 tpa cathode throughput production. The mine design indicates that for the initial four (4) months of the Project, water demand is expected to be higher at 350 m^3/h. The Project waste requirement throughout the LoM is summarised in Table 14 below.

Table 14 - The Project bulk water requirements.

Description	Units	Quantity
Dry season peak demand	m^3/h	306
Non- dry peak period	m^3/h	198
Average demand	m^3/h	252
Bulk annual consumption	Mm^3/a	2,235,515
Life of mine	Years	11

Constant rate test results indicated that sixteen boreholes can be utilised for production, with a cumulative production yield of 7, 635 m^3/d (382 m^3/h, pumping 20 hours per day). This meets the water requirements for the mine. The recommended production boreholes are illustrated in Figure 43.

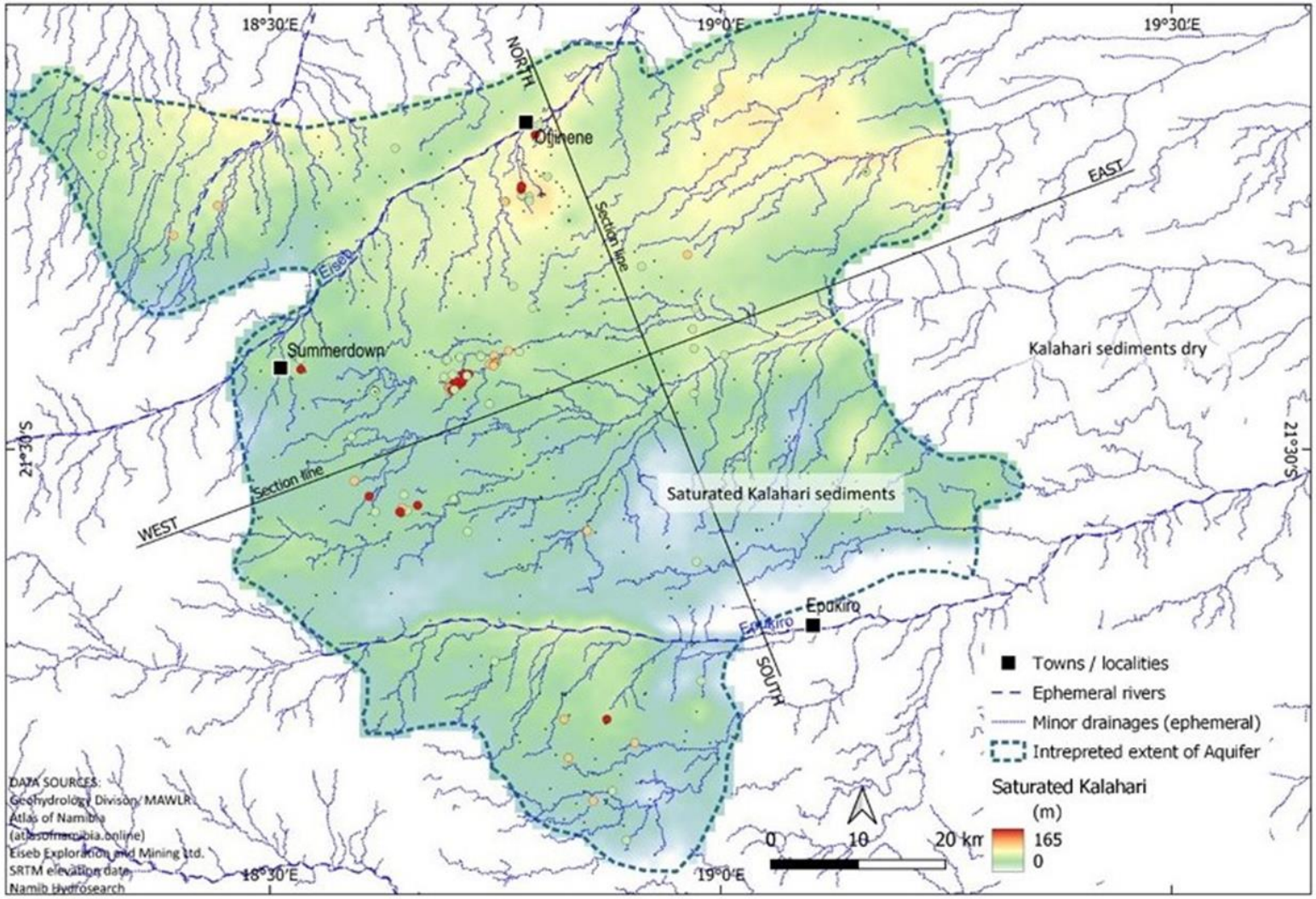

Figure 42 - Summerdown Kalahari Aquifer extend and saturation (Source: Namib Hydrocensus, 2023).

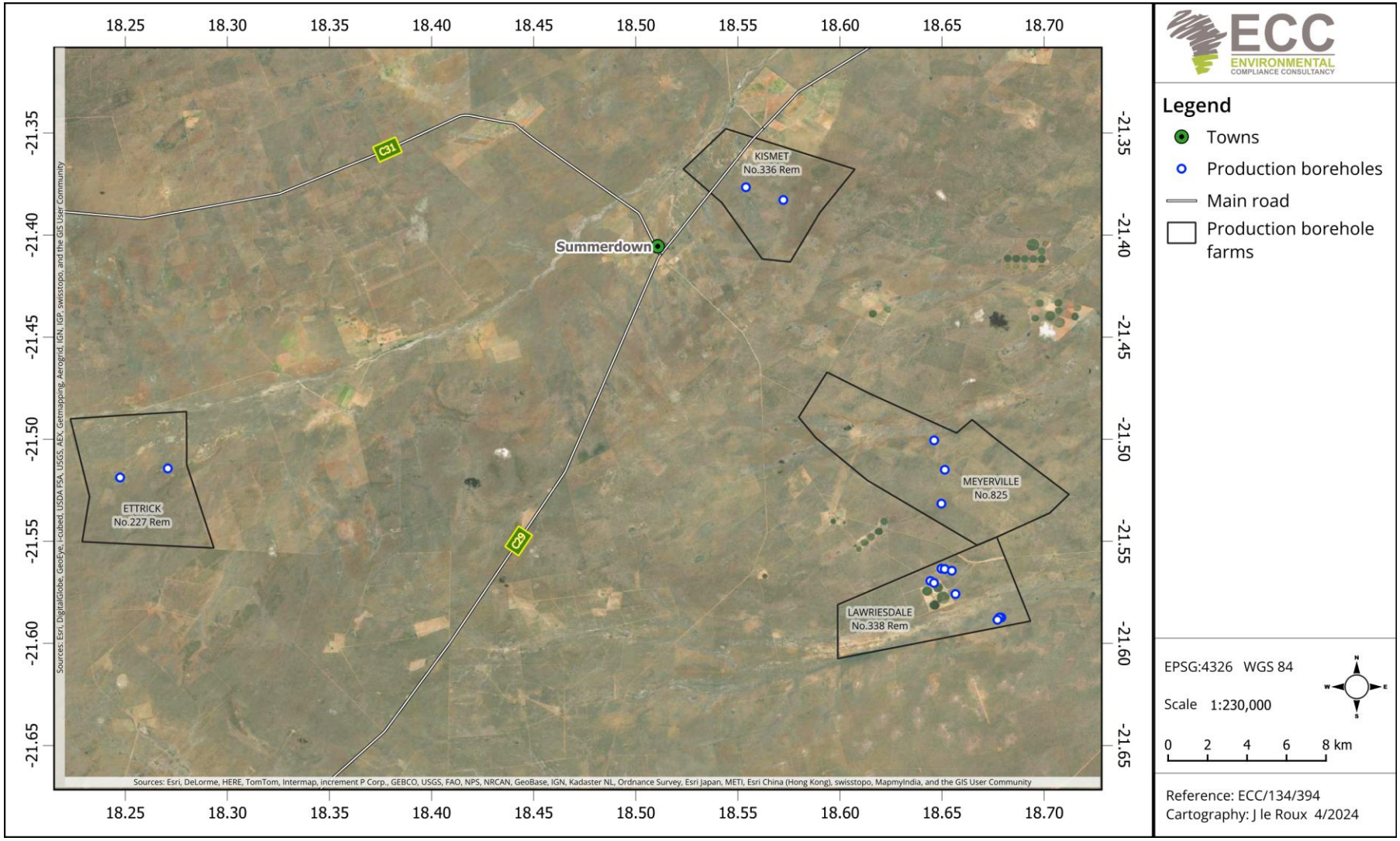

Figure 43 - The project water supply sources

5.2.11 HYDROGEOLOGY

The project area overlaps the South-eastern Kalahari groundwater basin within the Nossob catchment area. The hydrogeology of the general area is dominated by fractured aquifers and aquitards of the Ekuja Dome comprising mainly gneiss interbedded with biotite schist and amphibolite. The groundwater flow within the Black Nossob River alluvial deposit is of local importance to the local farming community as groundwater is the main source of water supply and is supplied from local boreholes. Groundwater in this area is generally of excellent quality (Group A) and can thus be recommended for human consumption.

The local groundwater table is relatively shallow, comprised of shallow and regional aquifers flowing in the in an eastern direction along the Black Nossob River. Shallow aquifers (≤15 mbgl) are in the vicinity of the Black Nossob River and its tributaries whereas regional aquifers (≥ 15 mbgl) are linked to linear structures such as faults and fractures (SLR, 2017). Rises in water levels after flood events are delayed, usually not exceeding 5 m, however, some boreholes may have immediate rises in groundwater levels after recharge whereas in others there is little or no change, depending on the proximity to the Black Nossob River.

Groundwater levels are monitored monthly by ECC to observe variability of an aquifer over time. The changes in water level, when they occur, could be induced by recharge (the water level is rising) following good rain events under the Namibian climate. When the water level trend is going downward, this can be due to seasonal variation or depletion of the aquifer if there is over-abstraction. The baseline rest water level database will serve as a historical reference point to compare with measured figures during the mine operations.

A combined hydrology and hydrogeology map for the Project is shown in Figure 44. An overview of the monitored boreholes in the project area is shown in Figure 45. The hydrogeology report by Knight Piesolds is provided in Appendix P.

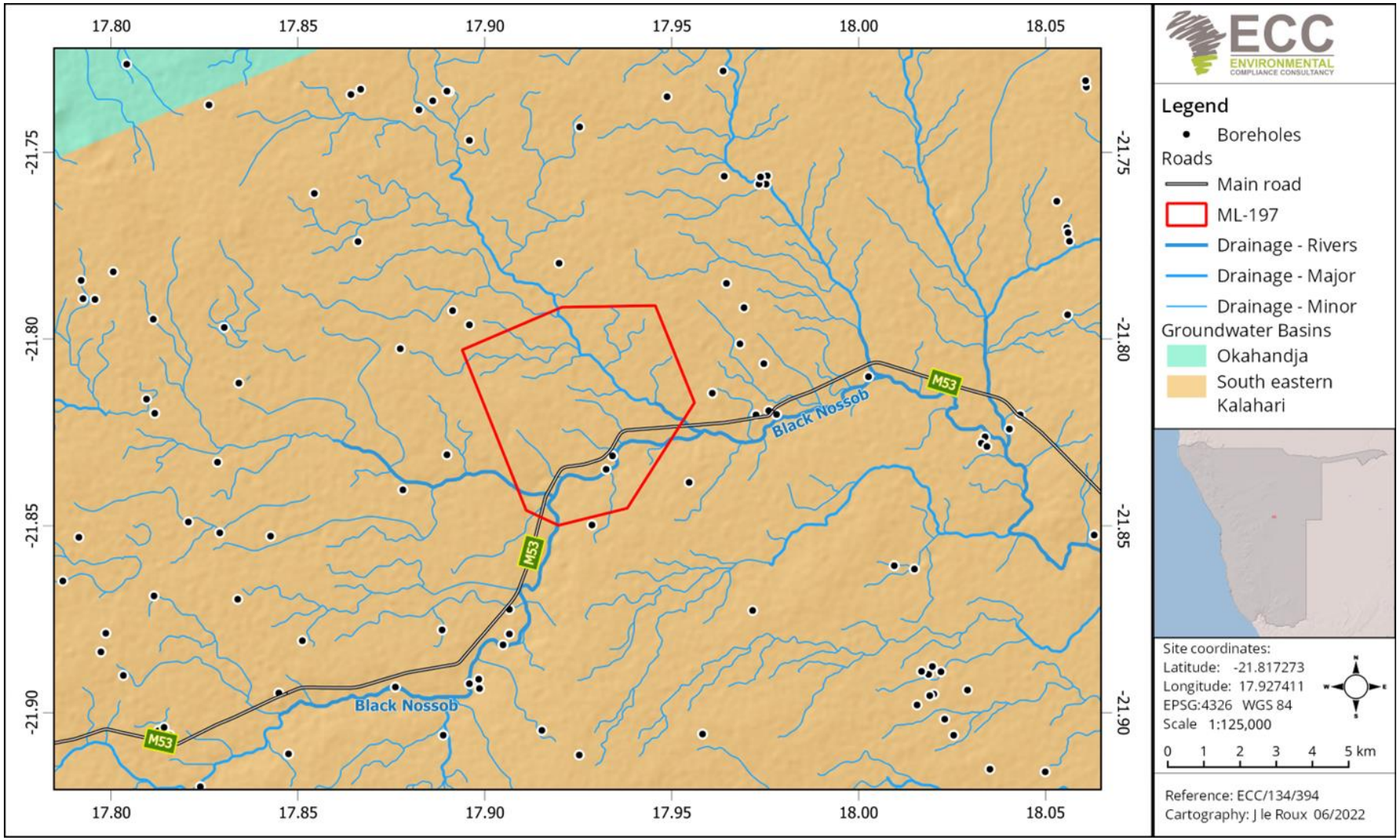

Figure 44 - Combined hydrogeology and hydrology map of ML 197.

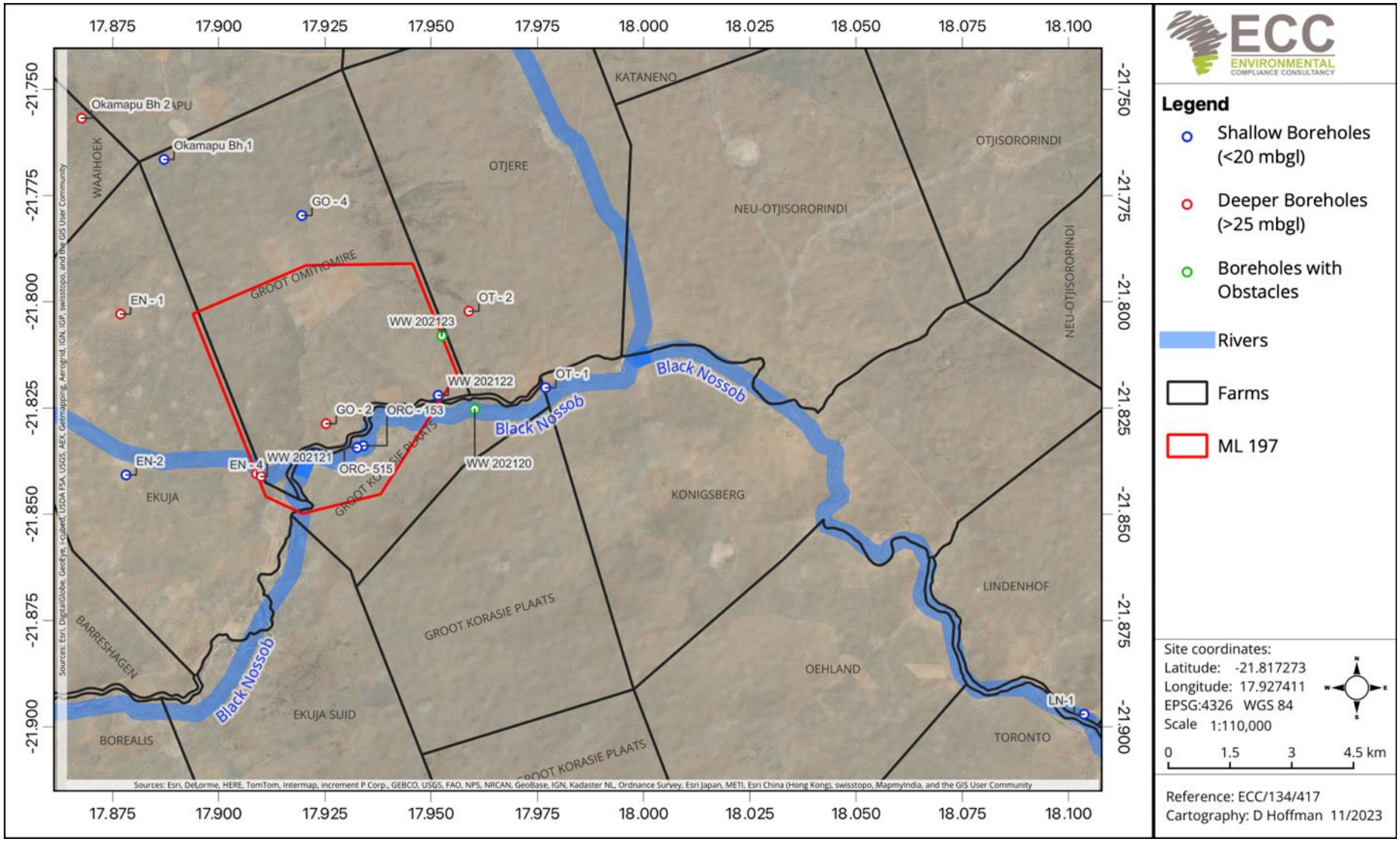

Figure 45 - Groundwater monitoring network for Omitiomire Copper Project.

5.3 BIODIVERSITY BASELINE

5.3.1 FLORA

Vegetation is strongly influenced by rainfall. Plant diversity and tall trees are more prominent in the north-eastern parts of the country whilst sparse and shorter vegetations are more to the west and south of the country. This distribution patterns are generally influenced by factors such as soil types, landscape, rainfall patterns and human impacts.

According to Mendelsohn (2022), the study area falls within the tree- and shrub savannah biome, which is a sub-group of the Central Kalahari vegetation (Figure 46). The plant diversity (100 to 300 species) for this area is characterised as low to moderate.

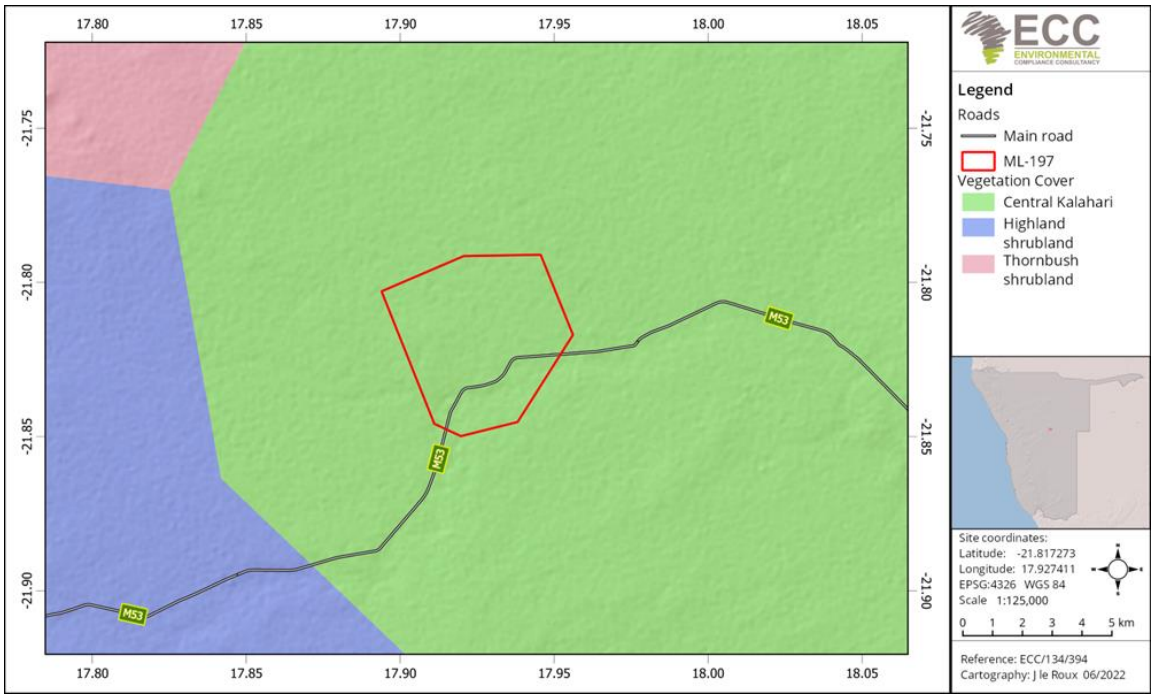

Figure 46 - Vegetation cover within and surrounding the ML 197 boundary.

A biodiversity baseline study was conducted in the project area in quarter one of 2023. Cunningham (2023) determined that at least 60- 81 large trees and shrubs species occur in the general ML 197 area. Grass endemism in the ML 197 area has been classified as low as it characterised mainly by species such as *Eragrostis omahekensis, Eragrostis scopelophila, Pennisetum foermeranum and Setaria finite* (Cunningham, 2023).

The following forestry protected, and large endemic woody species were confirmed to occur in the ML 197 area during the specialist field study:

- *Vachellia erioloba* (Forestry protected);
- *Albizia anthelmintica* (Forestry protected);
- *Erythrina decora* (Endemic and Forestry protected);
- *Faidherbia albida* (Forestry protected);
- *Ficus cordata* (Forestry protected);
- *Maerua schinzii* (Forestry protected);
- *Searsia lancea* (Forestry protected); and
- *Ziziphus mucronata (*Forestry protected*)*.

As large trees and shrubs provide habitat and food for a range of faunal species found in the project area, the ecologist identified the following distinct flora environments with unique habitats:

- Black Nossob River area: Riparian vegetations (seven large trees and shrubs species) were identified along the Black Nossob River; predominated by *Vachellia Karoo* and *Ziziphus mucronata* species (Figure 47). These species do not only stabilize the riparian riverbanks but are a source of food to a variety of browsers, perching/roosting birds.
- River & road diversion area: Eight larger trees and shrubs species were identified along various transects conducted in the proposed river and road diversion area (south of the Black Nossob River). These areas constitute of species such as *Acacia hebeclada*,*Tarchonanthus camphoratus* and *Leucosphaera bainesii* (Figure 48).
- Heap leach, open pit and processing plant area: Thirteen large species and shrubs were encountered along the heap leach, open pit and processing plant area. Species surveyed across these areas mostly include *Tarchonanthus camphoratus*, *Vachellia hebeclada*, *Vachellia erioloba*, and *Ziziphus mucronata* (Figure 49).

Alien invasive species mainly in the vicinity of the old farmstead ruins, which potentially could have been brought by past farming activities were also reported by the ecologist. These species include:

- *Cereus jamacaru* located at the old farmstead which may have been introduced to the area as an ornamental plant;
- *Datura innoxia* located at the old cattle kraal; and
- *Eucalyptus species, Melia azedarach* and *Schinus mole*, all located at the old farmhouse ruin.

Figure 47 - Riparian vegetation along the Black Nossob River (Source: Cunningham, 2023).

Figure 48 – Shrub composition in the proposed river and road diversion area.

Figure 49 - Trees/shrubs composition in the heap leach, pit and processing plant areas (Source: Cunningham, 2023).

5.3.2 FAUNA

The overall terrestrial diversity for the area is low compared to other parts of the country. The project area does not fall within a communal conservancy. Freehold conservancies found in the general area are such as Hochfeld, Omitara and Seeis (Cunningham, 2023). The faunal diversities in the general Hochfeld, Steinhausen area and the overall ML 197 area are discussed in the sections below.

5.3.2.1 Reptile diversity

The overall reptile diversity and endemism in the local project area is moderate to high with close to 61-70 species expected to occur in the general Hochfeld/Steinhausen area. According to Cunningham (2023), at least two tortoise species (vulnerable and list as protected game), 29 snakes' species (6 endemic) and 8 geckos' species (6 endemic) may occur within the ML footprint. Slow mobility reptiles such as *Stigmochelys pardalis*, *Psammobates oculiferus, Naja anchietae, Leptotyphlops scutifrons* and *Pedioplanis namaquensis* species were spotted during the specialist field survey. Other reptile species expected to occur in the project area with some form of conservation concerns are such as *Python natalensis* (protected, vulnerable and listed as least concern), *Varanus albigularis* (vulnerable), *Aspidelaps scutatus scutatus*, *Naya nigricincta, Dendroaspis polylepis, Bitis arietans* and *Bitis caudalis* which are all listed as least concern in the IUCN red list (Cunningham, 2023).

5.3.2.2 Amphibian diversity

The project area has a frog diversity of between 8 and 11 species (Bubenzer, 2002 & Mendelsohn et al., 2002). The Black Nossob River, its tributaries and the ephemeral pans in the project area are viewed as pristine habitats for amphibian. Other potential amphibian habitats include the farm reservoirs and earth dams found within the project area. The most important amphibian species of conservation concern that is likely to be found in the project area is Pyxicephalus adspersus which is nearly threatened. Phrynomantis annectens are endemic and may also be encountered. The amphibian species may be associated with the various ephemeral pans in the project area; therefore, the pans are recognised as pristine and unique habitats for amphibian's species, particularly wet seasons.

5.3.2.3 Mammal diversity

The overall mammal diversity is classified as "average" in the general project area, with ~61-75 species expected to occur in the project area. According to the biodiversity specialist study by Cunningham (2023) , the most important endemic species likely to be found in the general area or potentially within the mining licence footprint are such as *Atelerix frontalis angolae* and *Felis nigripes* and species classified as vulnerable *(Galago moholi, Smutsia temminckii, Proteles cristatus, Parahyaena brunnea, Acinonyx jubatus, Felis silvestris, Otocyon megalotis* and *Vulpes chama).* Furthermore, endangered carnivore species likely to occur in the general area include species such as *Panthera pardus, Felis nigripes and Parahyaena (Hyaena) brunnea*.

Game farms in the project area operate as game hunting units with most of the wildlife species translocated from elsewhere (Cunningham, 2023). Game species confined within game proofed farms around the project area include species such as: Blue wildebeest, Black wildebeest, Blesbuck, Common impala, Giraffe, Lechwe, Burchel's, Waterbuck, Kudu, Steenboks and Warthogs. Small mammals such as *Saccostomus campestris* (pouched mouse) and *Tatera leucogaster* (bushveld gerbil) species were captured on site through pit traps (Cunningham, 2023).

5.3.2.4 Avifauna diversity

According to Cunningham (2023), bird diversity and endemism in the general Hochfeld and Steinhausen is classified as "high" with close to 141-170 bird species and 5-7 endemic species expected to occur in these areas. The mining licence is estimated to have population of at least 213 terrestrial birds (Cunningham, 2023). Considering the fact that a great number of bird species are highly migratory and pass-through Namibia sporadically, some of the species might be very rare to identify during the year or/and some may have been missed during the field study.

In the central part of Namibia, numerous bird species are either protected under the regulations of the Exploitation of Marine Resources Act No. 241 of 2001, section 18, or listed

within the CITES appendices. The following bird species that may occur in the project area (either resident or migratory) are categorised under the IUCN 2022 red list as follows:

- White- backed vulture (critically endangered);
- Ludwig's bustard (endangered);
- Lappet-faced vulture (endangered);
- Bateleur (endangered);
- Black harrier (endangered);
- Martial eagle (endangered);
- Secretarybird (endangered);
- Marabou stork (near threatened);
- Tawny eagle (vulnerable); and
- Kori bustard (near threatened).

Other important bird species of significance value expected to occur in the project area are such as *Poicephalus rueppellii* (Rűppel's parrot) and *Phoeniculus damarensis* (Violet woodhoopoe) which are considered to have the lowest population size (±2,000 individuals) of all Namibia endemic species (Cunningham, 2023).

The biodiversity study is provided in Appendix J.

5.4 BUILT ENVIRONMENT BASELINE

5.4.1 TRAFFIC AND TRANSPORT

The traffic baseline study for the Project was undertaken by Zutari Namibia (Pty) Ltd to assess the conditions of the various project access roadways, to compile traffic baseline information for the Project and recommend the feasible mine access route to connect the Project site with the port in Walvis Bay. The traffic baseline study was completed in August 2023 and can be found in Appendix K.

The project can be accessed via two district routes. The physical properties of the two project roadways are discussed below:

Route 1: C31/D2166/M53

- C31 – The first 20 km of this road has a low volume sealed surface, and the remaining 44 km is a gravelled and has pavement failures i.e. numerous potholes, exposed water pipes and extreme rutting. From the intersection with the B1 route, three significant streams cross the sealed section. This consist of a 55 m long bridge (with a width of 5.4 m) at 2.8 km, concrete drifts at 7.1 km and another one crossing the 40 m wide Swakop River at 10 km. Due to pavement failures, Zutari traffic engineers have recommended that the road will need to be upgraded. The gravel

section of the road is 41km and is relatively in good condition, with minor corrugation, improper roadside drainage and potholes at some road sections.

- D2166 and Main Road 53 (M53) – Both roads are earth graded and have a high plasticity index (PI).

Route 2: D1535/D1435/M53

- D1535 – The gravel road and is in relatively good condition with no major failures.
- D1435 – The road is earth graded with isolated gravelled sections and the pavement is in ridable condition with minor failures. There are no drainage structures, and the road crosses a railway near the intersection with the D1535.

The abovementioned district road networks connect the Project site to the port in Walvis Bay via the B1 and B2 routes. The B- routes are major trunk roads which are designed to carry heavy transport vehicles and are regularly maintained by the Road Authority (RA).

5.4.1.1 Traffic volumes on the project roadways

Traffic data from Road Authority's permanent traffic count stations pertaining to the period of 2016 to 2022 was used to determine the average daily and annual traffic volumes along the project's roadways. The traffic data was simulated in term of traffic volumes related to trips required to transport personnel, equipment and supplies to the site during both construction and operations. The RA's baseline Average Daily Traffic counts (ADT) from 2016 - 2022 and the 2023 traffic count data (conducted infield) are presented in Table 15 below.

Table 15 - Average daily traffic volume per route.

Description	ADT Light	ADT Heavy	ADT Total
C31 low volume seal:			
ECC station 1	259	18	263
RA station 061 (2016-2022)	91	29	120
Moving traffic counts	82	21	103
C31 gravel:			
ECC station 2	46	19	65
RA station 117 (21 days, 2016)	52	17	69
Moving traffic counts	24	0	24
D2166:			
ECC station 2	9	8	17
Moving traffic counts	0	0	0
M53:			
Moving traffic counts	32	0	32
RA Counts (40 days, 2022)	30	3	33
D1435:			
Moving traffic count	19	0	19
D1535:			

Description	ADT Light	ADT Heavy	ADT Total
ECC Station 3	37	5	42
Moving traffic counts	24	0	24

Zutari (2023) concluded that since the project area is not bounded by any towns or major settlements, slow traffic growth has been observed over the years (i.e. between 2016 to 2023). Annual traffic growth rate in the project area is estimated at 2% in light of the following traffic volume estimates during mine operations:

- 15x 32t trucks a day supplying bulk salt, sulphur or diesel;
- 10x LDVs per day; and
- 6x buses per week to transport workers to either Okahandja or Windhoek as per the Project work cycle.

Table 16 below shows the forecasted average daily traffic calculated with an annual 2% traffic growth rate over a period of 15 years.

Table 16 - Forecasted average daily traffic at 2% annual traffic growth rate.

Road	Base year (2023)			5 Year			10 Years		
	ADT Light	ADT Heavy	ADT Total	ADT Light	ADT Heavy	ADT Total	ADT Light	ADT Heavy	ADT Total
C31	93	29	122	102	32	134	113	35	148
C31 Gravel	60	20	79	66	22	88	73	24	97
D2166	9	8	17	10	9	19	11	10	21
M53	31	3	34	34	3	37	37	4	41
D1435	19	0	19	21	0	21	23	0	23
D1535	37	5	42	41	6	46	45	6	51

The district roads have currently low traffic volumes and nearly no heavy vehicles. The C31 road currently carry 60 to 90 light vehicle per day and 20 to 30 heavy vehicles. The Omitiomire Copper Project will increase the light traffic volume by 12% and the heavy vehicles by 30% during operations (Zutari, 2023). The potential impacts related to the increase in traffic volume along roadways are discussed in chapter 7.

5.4.1.2 Noise and dust receptors

The traffic field survey identified noise and dust sensitive receptors that are residing along the project access routes. Local residents living along unpaved roads are susceptible to airborne dust from the routes and can penetrate their homes causing nuisance and health problems (e.g. hay fever and allergies). The most identified noise and dust receptors are

hunting farms along the roadways consisting of multiple chalets and farmhouses with added workers houses. A summary of the farmsteads identified within 100-500 m of the roads centre are presented in Table 17.

Table 17 - Number of farmsteads located near roads (Source: Zutari, 2023).

Road	No of farmstead: 0-100 m	No of farmstead: 100-300 m	No farmstead 300-500 m
Route 1: C31/D2166/M53			
C31	1	2	
C31 gravel	1	1	
D2166		2	
M53			1
Route 2: C31/D2166/M53			
D1535	1	1	
D1435	4	1	1
Total	7	7	2

Traffic, noise and dust impacts towards these receptors are discussed in detail in chapter 7.

5.4.1.3 Site access

Two site access roadway networks were assessed to recommend the best, feasible route that will connect the project site with the port in Walvis Bay. The C31/D2166 access route is ~491 km at length and is the recommended access route for the following reasons:

- The C31/D2166 route is shorter than the D1535/D1435 (~541 km at length) by 50 km which reduce travel between the two routes by about 45 minutes;
- Eight receptors are located along the route compared to nine that are along the D1535/D1435 route, (i.e. less receptors may be impacted by traffic induced noise and dust);
- The C31 road will be upgraded to support the estimated increase in traffic volume; and
- The road alignment of route 1 is of higher design standards which subsequently reduce road risks.

5.5 SOCIO-ECONOMIC BASELINE

5.5.1 SOCIO-ECONOMIC

The socio-economic baseline study has collated information from a variety of resources, including the 2011 Census, the 2018 Labour Force Survey and Namibia demographic and Health Survey, amongst others.

The Regional Indicator Demographic Survey conducted by Namibia Statistics Agency in 2016 indicated that the population in Khomas Region stood at 415,780 persons, whilst the

region's population density and population growth was observed at 11.3 persons per km2 and 3.9%, respectively (NSA, 2017). The report further postulate that 95% of the Khomas Region population live in Windhoek or nearby districts whilst the remainder of the population reside in the rural settlements (NSA, 2017). Khomas Region has a high average literacy rate of 97% and diverse ethnic groups, although Oshiwambo is the most spoken language (47%) (NSA, 2017). The dominance of Windhoek as a place of residence in the Khomas Region is apparent and living in an urban environment implies better living conditions. In the Khomas Region 100% of all households have access to safe water drinking water and 64% of the households are electrified. On the contrary, 25% have no ablution facilities and 7% of the population depend on open fires to prepare food (NSA, 2017).

Windhoek is governed by a local authority in the form of a City Council. The country's capital, Windhoek hosts many of the national head offices as well as the head offices of the Khomas Regional Council. All other urban places in the Khomas Region are classified as settlements- the lowest order of governed populated places in Namibia. An overview of the closest settlements within a 200 km radius from the proposed Omitiomire Copper Project is presented Table 18 below.

Table 18 - Settlements surrounding the Project site (ML 197).

Settlement	Distance to Project	Population size	Services
Steinhausen	40 km	No settlement; private farmland	None
Hochfeld	50 km	Few, some people live on surrounding farmland	Hotel, shop and police station
Seeis	70 km	Few	Limited Agro industry
Omitara (proclaimed village)	85 km	+/- 1200 (Source: Omaheke Regional Council Survey of 2006) This number may have increased since.	Clinic, primary school, post office, police, NamWater office and local shops.
Windhoek	140 km	461 000	Many
Okahandja	160 km	24 100	Full basic services
Gobabis	150 km	14 000	Full basic services

5.5.2 GOVERNANCE

Since the country's independence in 1990, Namibia has enjoyed a constitutional democracy and political stability which provided a conducive environment for programming and for children to thrive (UNICEF, 2022). The country ranked fifth out of 54 African countries in the Ibrahim Index of African Governance in 2015 for its good quality of governance, the government's ability to support human development, the governments commitments to boost sustainable economic opportunity, its stewardship rule towards law and human rights and development of smart information and communication technology to access information for socio-economic growth (NSA, 2019). As a result of sound governance and stable macroeconomic management, Namibia has experienced rapid socio-economic development and achieved medium level human development and was therefore ranked 145th of 188 countries in 2023 on the Human Development Index (World Data Atlas, 2023). The country's governance is guided by the long-term strategic/sustainable development objectives such as Vision 2030, Harambee Prosperity Plan and the 5th National Development Plan (NDP5) (NPC, 2020).

Namibia is divided into 14 regions, subdivided into 121 constituencies. The Khomas Region is governed by the Khomas Regional Council as a statutory body promulgated under the Regional Act, Act No. 22 of 1992 and led by the governor, Honourable Laura McLeod-Katjirua. The Governor of Khomas Region is appointed by the President of the Republic of Namibia under section 2 of the Special Advisors and Regional Governors Appointment Act No.6 of 1990. The Khomas Regional Council is responsible for planning, governing, coordinating and implementing socio-economic development activities, ensuring environmental protection and sustainable natural resource utilisation.

5.5.3 DEMOGRAPHIC PROFILE

Namibia is ranked amongst some of the least densely populated countries in the world with a population density of 3,13 persons per km^2 (NSA, 2019). Vast areas are without people, in contrast to some densely populated areas in the north and north central regions of the country. The urban population pyramid for Namibia is greatly dominated by the middle age working groups (age group 20 – 35) and infants (0 – 4 years of age) (NSA, 2019. Khomas Region occupies 4.5% of the land surface area of Namibia and accommodate the largest percentage (18%) of the national population, with male to female sex ratio of 49: 50 (NSA, 2019).

The national population growth rate is estimated at less than 2%, which is lower than that of most African countries. Namibia's population is young – although 57% falls into the age group 15 to 59, 37% of the total population is younger than 15 (NSA, 2017). Since 2005, there has been a steady improvement in life expectancy, which is currently estimated at 65 years. In 2018, it was estimated that 50% of all Namibians are urbanised, i.e., living in an urban settlement (retrieved from www.worldpopulationreview.com). An intercensal

demographic survey was conducted in 2016 and estimated the total population at 2.3 million (NSA, 2017). The fourth national population and housing census led by the National Statistics Agency was recently conducted in 2023 and preliminary figures indicate that Namibia's population increased to 3 million. The findings will provide a snapshot of the population size, pyramid and demographics . Census information will be used to assess the Namibia Development Plans (NDPs) and Sustainable Development Plans (SDGs), set indicators for development such as the reduction in maternal mortality, child mortality and measure levels of poverty among Namibian people.

According to the 2011 census results the Khomas region's population size increased from 250 262 in 2001 to 342 141 in 2011 which is over 16% of the total population compared to 12% 20 years ago. Hence the annual growth rate is at 3.1% (Khomas Regional Council, 2015). The 2016 intercensal data estimated population size for the Khomas Region as ~415 780 with a higher growth rate of 3.9% (Knoema, 2022) (Figure 50). It is predicted that urbanisation will continue, with an increase from 43% of the population living in urban areas in 2011, to 67% in 2041.

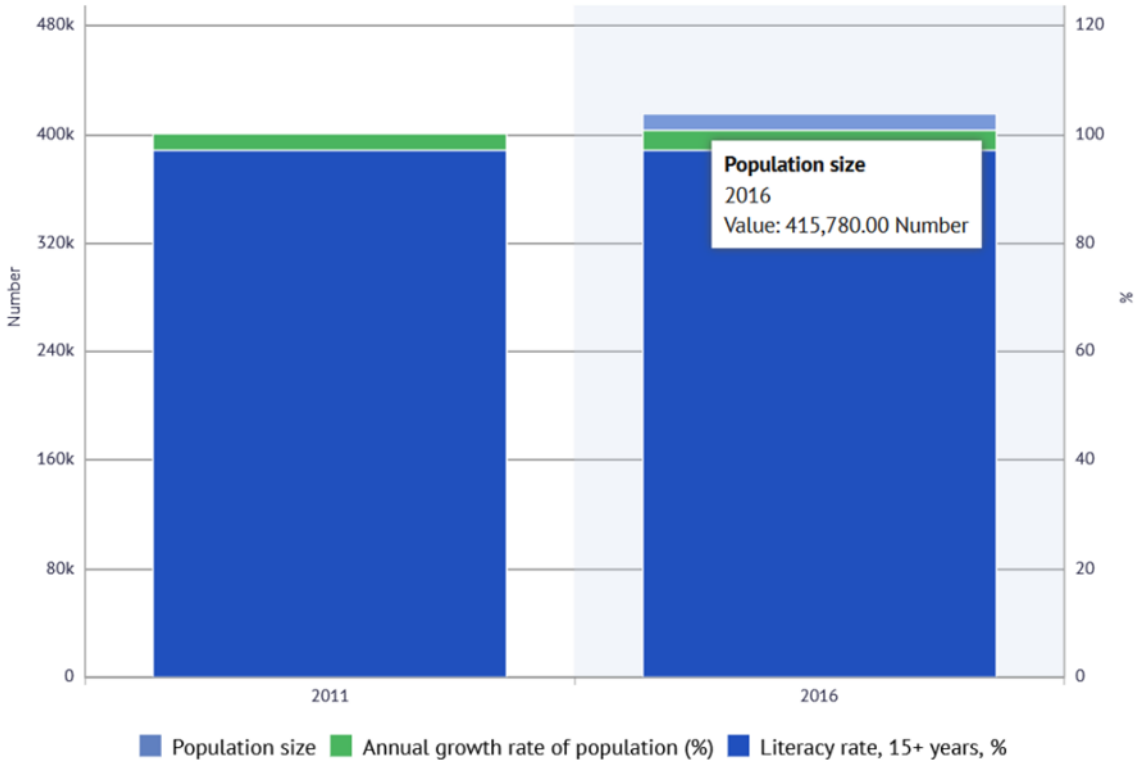

Figure 50 - Estimated population size of Khomas Region, 2016 (Kneoma, 2022).

5.5.4 EMPLOYMENT

According to the Labour Force Market Survey of 2018 conducted by the Namibia Statistics Agency, of all working populations in Namibia, 53.4% are employed in the private sector, 21.5% by the state, 16.6% by private households and 7.6% are by enterprises and

parastatals (NSA, 2019). The employment rate increased steadily between 2016 and 2018 in both urban and rural settings by 4.8% and 8.3%, respectively (NSA, 2019). Agriculture combined with the forestry and the fishing sector employs the most across all sectors (23%), followed by the accommodation and food service industry sector with 11.4% and thirdly the wholesale and retail sector with 11.1% (NSA, 2019). Additionally, agriculture employs the most informal workers in Namibia, estimated at 87.6% (NSA, 2019).

Khomas Region is ranked second after Erongo Region with a 76.8% labour force, although 42.9% are informally employed (NSA, 2019). The 2018 Labour Force Survey report further indicate that the employment absorption rate increases with higher level of education, thus low education levels impact employability and prevent many households from earning decent incomes. Out of the employed populations, the largest portion are employed in the elementary occupations (29.1%), followed by skilled agriculture occupations (15.2%), service workers (14.6%) and craft or related trades (12.5%) (NSA, 2019).

Unemployment is a national concern. The unemployment rate in Namibia has been estimated at 33.4%, with the highest regional unemployment rate observed in the Kavango East Region (48.2%), Omaheke Region (38.7%), while Khomas Region is ranked 10th with 31.5% (NSA, 2019). The unemployment rate in rural and urban areas is almost the same – 33.4% in urban areas and 33.5% in rural areas and is highly observed across persons with education levels lower than junior secondary (NSA, 2019). The unemployment rate of persons with no formal education is 28.6%, with primary education is 34.6% and with junior secondary education is 32.7% (NSA, 2019).

The COVID-19 socio economic impact assessment report conducted in 2020 by the Institute for Public Policy and Research (IPPR) indicated that there had been redundancies (retrenchments) across all sectors in the country (IPPR, 2020). The Ministry of Labour, Industrial Relations and Employment Creation reported in 2020 that during the Covid-19 pandemic, 388 employers had retrenched 5 748 employees (IPPR, 2020). The tourism and construction sectors retrenched 2,728 workers while mines and the wholesale and retail sector retrenched 1,184 workers and 584 employees, respectively (IPPR, 2020). Subsequent to the Covid-19 socioeconomic implications, the World Health Organisation projected that unemployment rate increased by 1.1 % whilst poverty rate increased by 2.3% (WHO, 2020). A report on the socio-economic impacts of COVID-19 in Namibia by the United Nations Namibia (2020) estimated that domestic GDP dropped and increased from 17.2% to 19.5% in 2020.

5.5.5 ECONOMIC ENVIRONMENT

In the Khomas Region, 74.5% of all households depend on salaries and wages as their main income source, 0.2% of the household derive their incomes from subsistence farming and 9.7% of the households get their main income from non-farming business activities (NSA,

2019). Khomas Region is urbanised, hence the agriculture industry is less prominent as majority of people are urbanized and concentrated in the Windhoek node.

Guest farms and other tourism-related economic activities are also common in the Khomas Region and the specific project area, mainly as a result of its strategic location close to Windhoek and the Hosea Kutako International Airport, and favourable natural conditions that support game farming and hunting activities. According to the Hospitality Association of Namibia, the Khomas Region filled a total of 74,850 bed occupations for the 2021 calendar year in contrast to the 371,736 beds sold in 2019, only second to the northern regions with a total bed occupancy of 331,439 for the same year (HAN, 2022).

Mining plays a pivotal role in the economy of Namibia. Since independence, it has consistently been the biggest contributor to Namibia's economy in terms of revenue and accounts for 25% of the country's income. Mining is one of the main contributors to GDP, and one of the largest economic sectors of Namibia, which contributed 9.1% to GDP in 2021 (Chamber of Mines, 2021). GDP from mining in Namibia increased by 4.1% (6357.40 USD to 6618.70 USD) between the first and second quarter of 2023 (CBS, 2023). The Khomas Region has two non-producing copper mines currently, these are, the Matchless Mine and the Otjihase Mine. The Lodestone Dordabis Iron Ore Mine is currently in production (Chamber of Mines, 2021).

Since 2016, Namibia has recorded slow economic growth, registering an estimated growth of only 1.1% in 2016. The primary and secondary industries contracted by 2.0 and 7.8%, respectively. During 2017 the economy contracted by 1.7, 0.7 and 1.9% in the first, second and third quarters respectively (NSA, 2019). Despite the more positive expectations, the economy retracted to an average growth of not more than 1% annually since 2017.

During the second quarter of 2020, the domestic economy contracted by 11.1%, which is the largest contraction observed since 2013 due to the impact of Covid-19. It is estimated that during the same timeframe, 96.5% of tourism businesses were affected by Covid-19 in 2020, the manufacturing and construction sectors contracted by 9.2% and 5.7% respectively and net exports declined by 2% to 3% (United Nations Namibia, 2020). Regardless, Namibian GDP expanded by 1.9% year-on-year in the fourth quarter of 2022, slowing from a downwardly revised 3.9% rise in the previous three-month period. It marks the seventh consecutive quarter of growth since the Covid-19 pandemic (CBS, 2023).

5.5.6 HEALTH AND DISEASES

The health status of Namibia has increased steadily with a remarkable improvement in access to primary health facilities and medical infrastructure since its independence in 1990. Despite the progress, the World Health Organization (WHO) in 2015 recommended strategic priorities of the health system in Namibia which include improved governance, an improved health information system, emergency preparedness, risk reduction and response,

preventative health care and the combating of HIV/AIDS and TB (World Health Organisation, 2016). The Khomas Region has 44 registered health facilities spread throughout its constituencies. The closest health service provider (clinic) from the project site is 85km away in Omitara in the Omaheke Region. This facility provides primary health care only.

HIV/AIDS remains a major cause of death in Namibia and the leading cause of low life expectancy (PEPFAR, 2022). According to the PEPFAR 2022 report, 8.4% of the general population are living with HIV. Since the 2002 peak HIV infection rate which recorded close to 15,000 new HIV infection cases and close to 10,000 HIV deaths (UNICEF, 2011). New HIV infections have stabilized however since 2004 and currently HIV/AIDS related deaths stand at 3 160 yearly (PEPFAR, 2022). Female children under 15 years of age account for 3.2% of new infections per year, while male children similarly account for 3.3%. According to the World Health Organisation (2016), 97% of people living with HIV/AIDS in Namibia are on Antiretroviral therapy (ARV).

Namibia has one of the highest incidences of TB per capita and is ranked by the World Health Organization (WHO) among the top 30 high TB and TB/HIV burden countries in the world. The health survey conducted in 2018 indicated that Namibia reported a probability of 465 TB cases per 100,000 persons (PEPFAR, 2022). In 2020, the country recorded 6,537 TB cases (57% adult male, 33% adult females, and 10% children) (PEPFAR, 2022).

The World Health Organisation in the 2021 annual report described the COVID-19 crisis as " unprecedented". The COVID-19 was declared as a state of emergency in March 2020 by the Head of State and thereon, a total 4, 098 COVID-19 deaths were reported in Namibia between March 2020 to August 2023 (World Health Organisation, 2023). Most of these deaths relate to the Delta and Omicron variants. A total of 874 033 Namibians were successfully tested for COVID-19 contributing to a recovery of 132 596 out of the 149 478 confirmed cases and 495 254 people vaccinated thus far with the 1st dose of COVID-19 vaccines (Felicita, 2022). Following the aftermath of the COVID-19 pandemic, interventions from development partners, public and private sectors were required to set explore and revive the fragile economy (NSA, 2019).

In the past decade, significant death toll in the country were observed to have been caused by stroke (13.1%), ischemic heart diseases (16.2%), diabetes (21.2%) and neonatal disorders (16.2%) (retrieved from http://www.healthdata.org/namibia). Risk factors such as premature mortality, and social ills remain the leading factor for death – particularly unsafe sex, alcohol and drug abuse (NSA, 2020).

5.5.7 CULTURAL HERITAGE

The 2013 field survey undertaken by SLR located a total of thirteen archaeological sites on farm Groot Omitiomire representing the sporadic human occupation of the area from the late Pleistocene (probably 150 000BC) until the recent Holocene period and represent evidence of early occupation in the area in the immediate pre- colonial period (Figure 51). A descriptive summary of the thirteen identified archaeological sites is provided in Table 19.

Figure 51 - Quartzite core of late Pleistocene in surface associated with suspected Holocene quartz artefact debris (Source: SLR, 2013).

Table 19 - Site Gazetteer (SLR, 2013)

Reference number	Description
QRS 99/1	Extensive low density stone artifact scatter >0.5 km^2
QRS 99/2	Isolated finds of flaked hydrothermal quartz
QRS 99/3	Minor occurrences of flaked quartz in pebble bed
QRS 99/4	Isolated find of quartz polyhedral
QRS 99/5	Isolated quartz flaking debris
QRS 99/6	Localized scatter flaked quartz
QRS 99/7	Depression ~25 m in diameter with marginal spoil heaps
QRS 99/8	Isolated quartz artifact debris

Reference number	Description
QRS 99/9	Pebble horizon with late Pleistocene artifacts in chert and quartzite
QRS 99/10	General scatter of quartz polyhedral cores and artifact flaking debris
QRS 99/11	Isolated microlithic core, quartz
QRS 99/12	Extensive and fairly dense surface scatter ca 20 000 m^2 , >50 objects /m^2
QRS 99/13	Isolated quartz polyhedral

**Most of the artefacts are isolated in undisturbed primary contexts.*

The study determined that twelve of the thirteen archaeological sites identified were localised surface scatters of stone artefact debris, varying in extent, density and age. The site denoted "QRS 99/7" is exception of the twelve archaeological site and is considered the youngest of a pre- colonial Herero well, with a round depression ~25 m in diameter and large spoil heaps that indicate that the site earthworks is of more decent date.

SLR further determined that site QRS 99/12 could be of archaeological significance and depicts a river terrace site due to the terrace patchy, discontinuous distribution of mixed late Pleistocene to recent Holocene surface scatters of ~50 objects /m^2 concentrated along a 20 000 m^2 area south bank of the Black Nossob River (Figure 52). The terrace of archaeological sites in the project area have been exposed subsequently by extensive sheet erosion (SLR, 2013). The study further concluded that terrace of archaeological sites extends over sites QRS 99/1,10, 11, and 13 and thus could be related.

Most sites will be disturbed during excavation and earthwork activities (Figure 53).

Figure 52 - Sheet of eroded surface of river terrace site QRD 99/12 (Source: SLR, 2013).

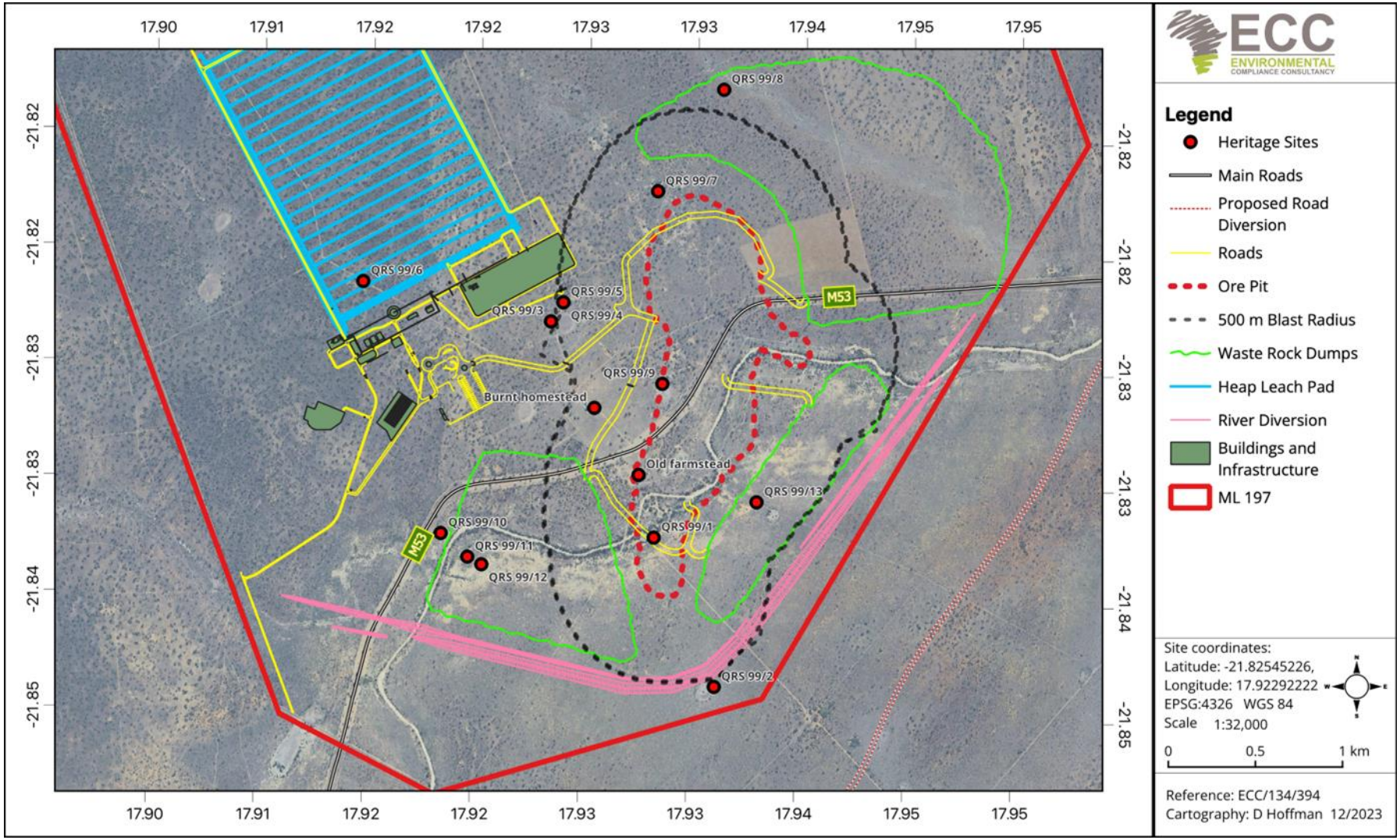

Figure 53 - Distribution of archaeological sites within ML 197.

Surface mapping and series of shovel tests exercises were conducted during the field study to ascertain possible archaeological mitigation measures in light of the canalisation and diversion of the Black Nossob River. The shovel tests field exercise discovered four relatively large, superficial recent Holocene artefacts scatters associated with the south bank terraces of the Black Nossob River (Figure 54). Theoretical concepts of possible foci of activities which could be attributed to specific natural features have been drawn and are discussed below.

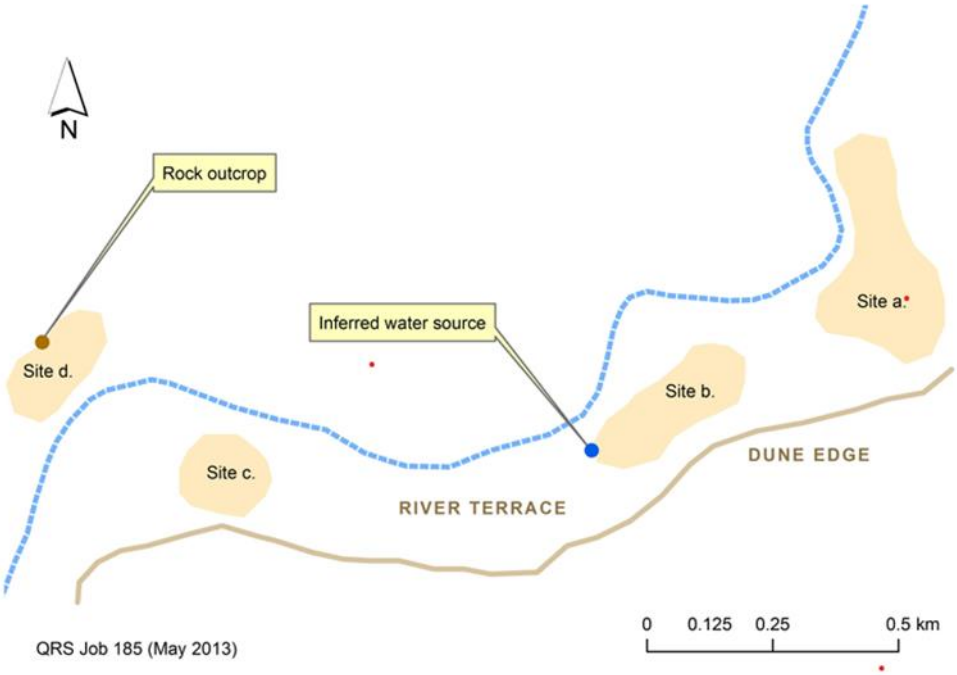

Figure 54 - Inferred positions of archaeological sites on Black Nossob River (Source: SLR, 2013).

The inferred positions of archaeological sites on the Black Nossob River are described below:

- Site a: Suggest a sheet of eroded scatter associated with the southern edge of the river terrace;
- Site b: Suggest a small dense scatter associated with a pocket of vegetation (possibly a reedbed) at a water source;
- Site c: Depict similar characteristics as site b, and located on the edge of the river terrace; and
- Site d: Suggest a focus of activity between the river and a small gneiss outcrop.

SLR (2013) concluded that none of the abovementioned sites showed any evidence of stratification but are rather deflation surfaces with little archaeological materials. However, all thirteen (13) listed sites will be impacted upon by the current mining concept. The impacts are discussed in detail in chapter 7.

ESM Archaeological and Cultural Heritage undertook a complementary baseline heritage survey for the Project in November 2023.

The study located old farmstead buildings and structures of no heritage significance in the ML area. The freestanding farmstead in Figure 55 is unoccupied and in ruins and the second structure in Figure 56 is located close to the old open pit area and consist of a pile of bricks, concrete water storage tank and associated installations.

Figure 55 - Old farmstead ruin building on farm Omitiomire (Source: ESM, 2023).

Figure 56 - Ruins and concrete water tank within ML 197 (Source: ESM, 2023).

The ruined buildings will be demolished, cleaned up along with the pile of bricks prior to construction, therefore no major impacts are foreseen. The heritage specialist reports are provided in Appendix L (a and b).

5.5.8 VISUAL – SENSE OF PLACE

The proposed Omitiomire Copper Project is situated in a sparsely populated area, with nearby farms used as hunting and cattle farms. Neighbouring farms such as Ekuja and Otjere receive local and international guests for hunting activities. The areas surrounding the Project do not include commercial-scale agriculture businesses, however, the Steinhausen area does practice commercial agriculture predominantly. No other tourist sites are known in the immediate vicinity of the project area.

The sense of place , particularly on farm Groot Omitiomire had already been disturbed due to past mining activities (e.g., prospecting pits and old farm ruin). Project construction and operational processes may lead to excessive dust and the waste rock dump, open cast pit and heap leach pad will alter the landscape in perpetuity. Other receptors could be motorist driving on the D1435, M53 and D2166 district roads.

Visual impacts towards receptors living in the local area and motorists on the D1435 , D2166 and M53 are discussed and assessed in detail in chapter 7.

5.5.9 NOISE

Noise is generally defined as unwanted sound transmitted through a compressible medium such as air. Sound in turn, is defined as any pressure variation that the ear can detect. Human response to noise is complex and highly variable as it is subjective rather than objective. The IFC General Environmental Health and Safety Guidelines on noise address impacts of noise beyond the property boundary of the facility under consideration and provides noise level guidelines.

The IFC states that noise impacts should not exceed levels or result in a maximum increase above background levels of 3 dBA (or the noise level guidelines presented in Table 20) at the nearest receptor location off-site (IFC, 2007). For a person with average hearing acuity, an increase of less than 3 dBA in the general ambient noise level is not detectable. 3 dBA is, therefore, a useful significance indicator for a noise impact.

Table 20 - IFC noise level guidelines.

Area	One Hour L_{Aeq} (Dba) 07:00 to 22:00	One Hour L_{Aeq} (Dba) 22:00 to 07:00
Industrial receptors	70	70
Residential, institutional, and educational receptors	55	45

The project area is classified as within a rural setting, therefore the residential day and night-time IDC noise guideline of 55 dBA and 45 dBA were applied in the assessment study.

A noise baseline survey was conducted on 30th September 2023 and 1st October 2023 to determine the current baseline noise levels at designated points within the Project's footprint as shown in Figure 57. Airshed Planning Professional (Pty) Ltd , a firm that specialise in all aspects of air quality and noise impacts, ranging from nearby neighbourhood concerns to regional impact assessment was commissioned to undertake, model and conduct an assessment process for the Project. The noise baseline report can be viewed in Appendix M.

Airshed identified three sites that were monitored for day and night-time noise level measurements (Figure 57). Survey sites were selected after careful consideration of future mining activities and the location of noise sensitive receptors (NSRs). Whereas noise sensitive receptors include places of residence, community buildings such as schools, hospitals and publicly accessible areas where member of the public may be affected by noise generated by mining, processing and transport, Airshed determined that the closest communities include Hochfeld and Seeis, both of which are located more than 30 km from the project area. The general project area is characterised by commercial hunting and cattle farms, the Otjere farmstead located ~2.5 km to the east of the mine boundary has been identified as the most noise sensitive receptor, as shown in Figure 58. The ability of the environment to attenuate noise as it travels through the air was studied by considering land use and terrain.

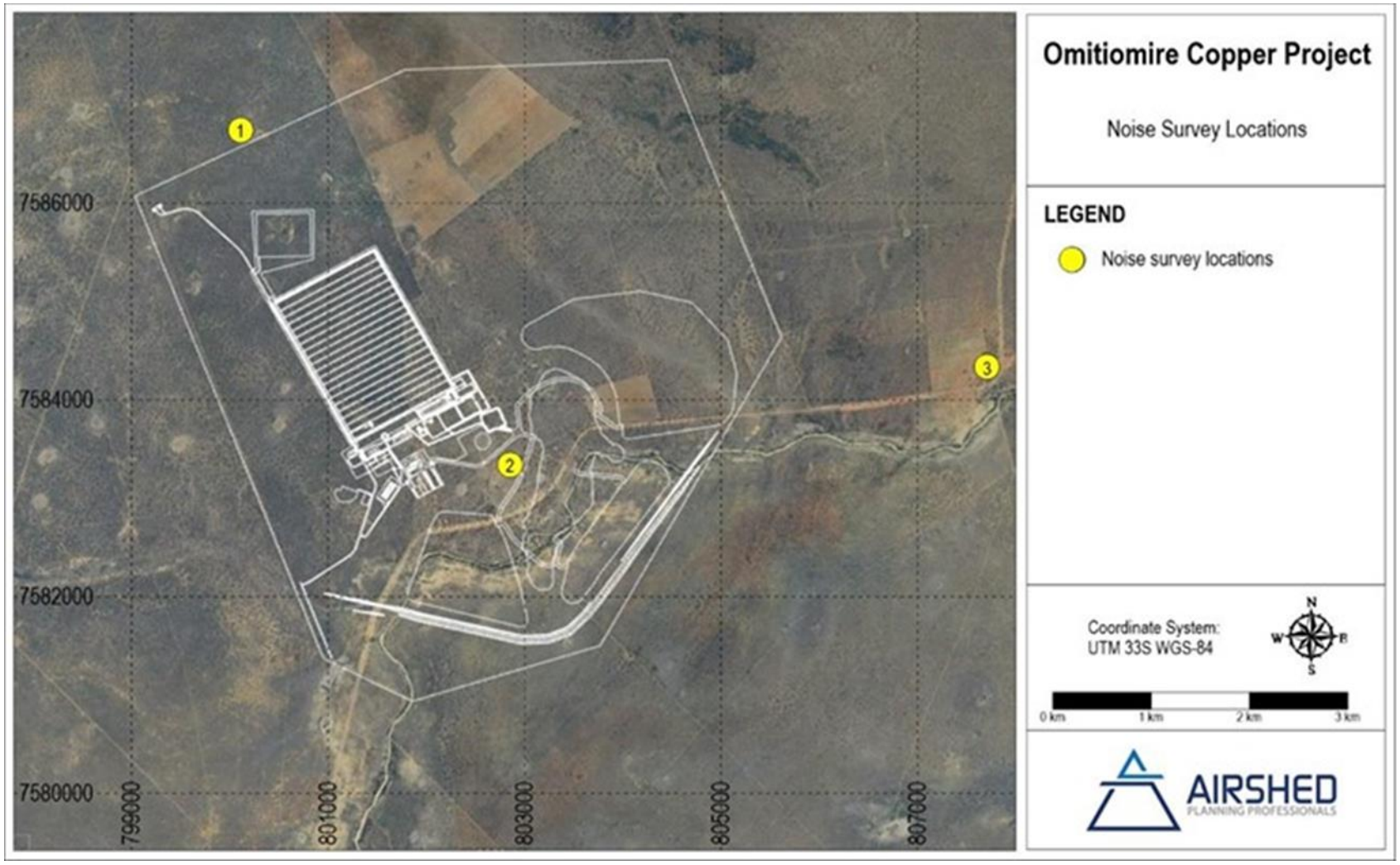

Figure 57 - Location of the noise survey sites (Source: Airshed, 2023).

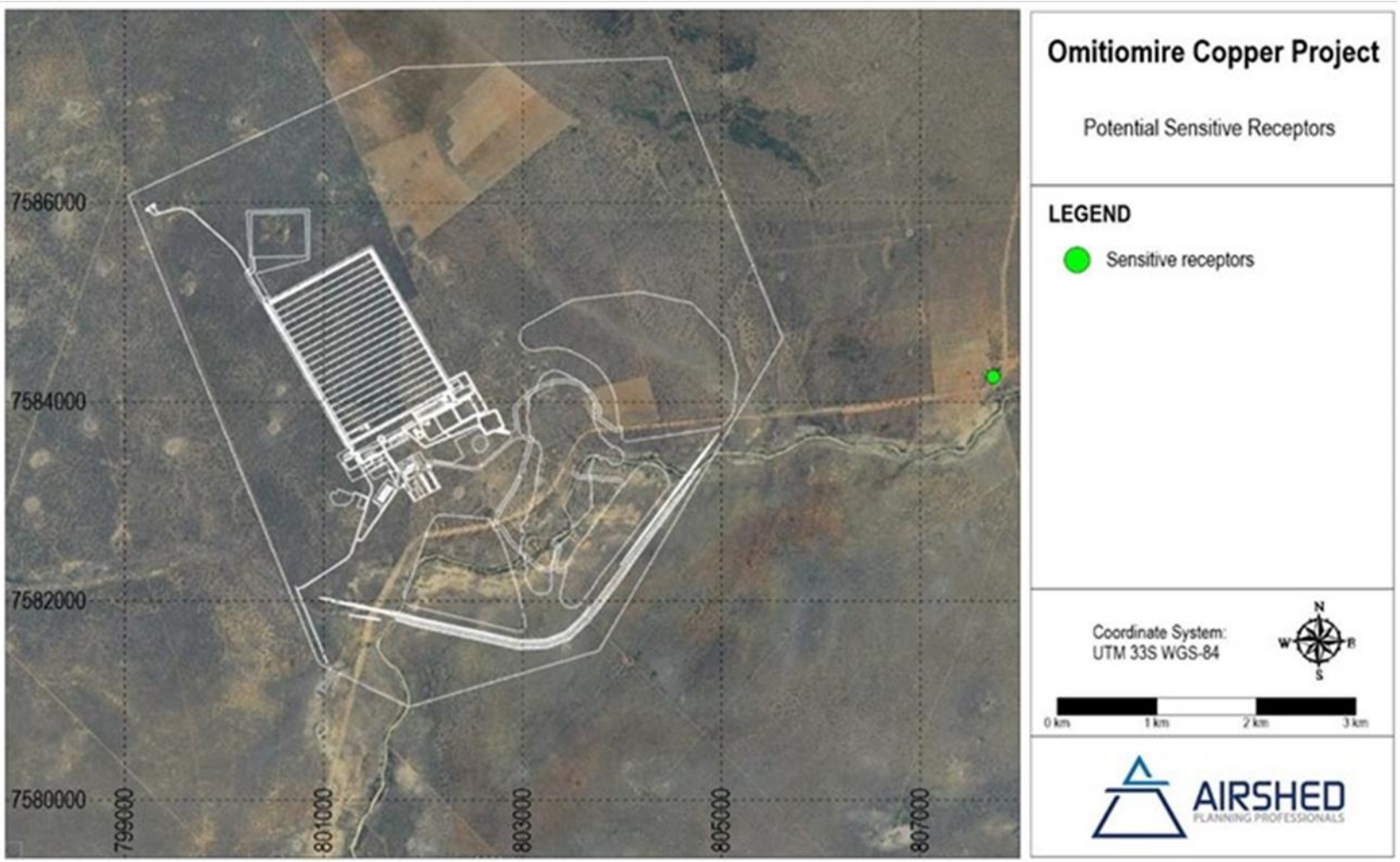

Figure 58 - Potential noise sensitive receptors within the project area Source: Airshed, 2023).

Noise emissions from mobile and non -mobile equipment were estimated using L_w predictions for industrial machinery, where L_w estimates are a function of the power rating of the equipment engine. Crushing and conveyor noise source L_w's for the project was obtained from a database for similar operations, of which the values are based on source measurements carried out in accordance with the procedures specified in the Soth African National Standards (SANS) 10103. Moreover, source inventory, local meteorological conditions and information on local land use were used to populate the noise propagation model.

The noise sources of the proposed Project are typical of the mining operations and include the following:

- Ore and waste handling (loading, unloading) on waste dumps and crusher/plant area;
- Haul truck traffic;
- Diesel mobile equipment use (including reverse warning); and
- Ore processing activities such as crushing and screening.

5.5.9.1 Noise survey results

The main findings from the 2023 baseline noise study were as follows:

- The baseline noise levels (LA_{eq}) across three surveyed sites range between 33 to 37 dBA for daytime and 27 to 32 dBA for night-time, as shown in Figure 59 and Figure 60;
- The baseline noise survey results are within the 45 dBA day and 55 dBA night- time standard IFC threshold bands for residential receptors; and
- The Project is in a rural setting, therefore farm Otjere located ~2.5 km to the east of the mine boundary has been identified as the most sensitive noise receptor.

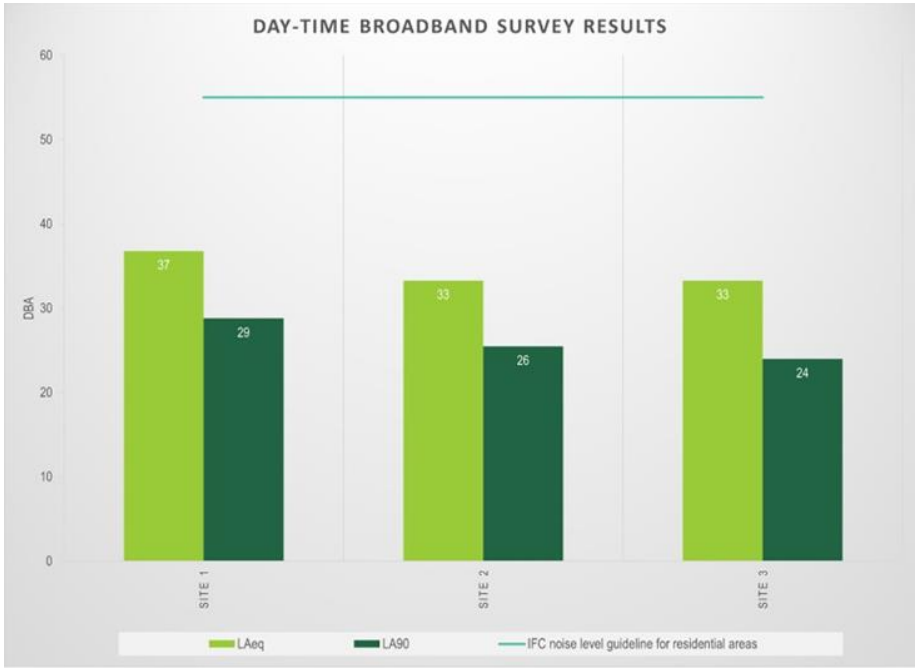

Figure 59 - Day time broadband survey results.

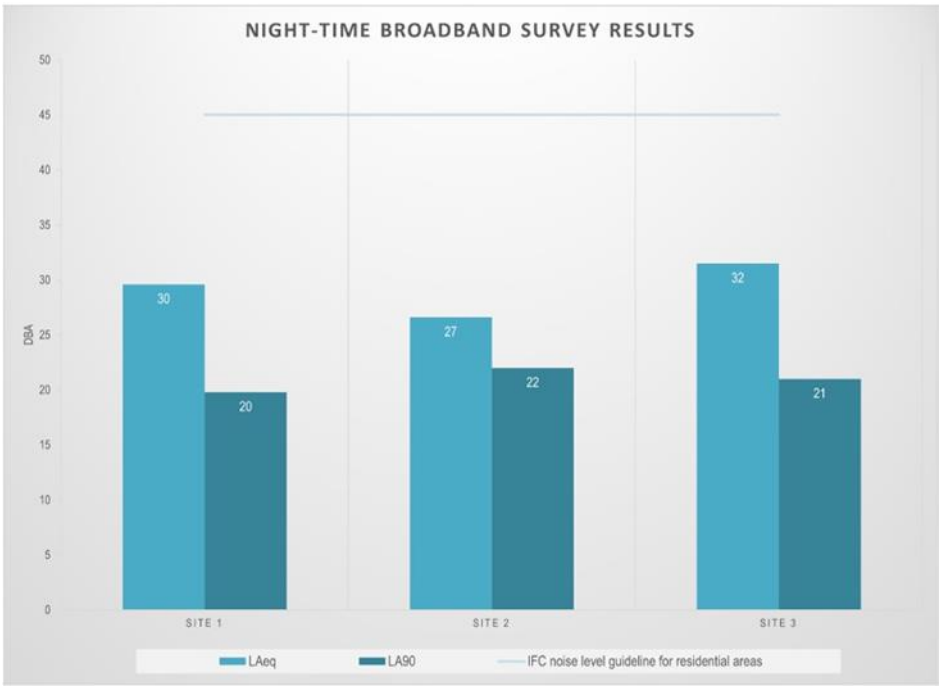

Figure 60 - Night-time broadband survey results.

The noise impacts are discussed in detail in chapter 7.

5.5.10 GROUND VIBRATIONS, AIR BLAST AND FLY ROCK

Blast Management and Consulting (BMC) was commissioned in 2023 to conduct a baseline assessment of the Omitiomire project site layout against potential ground vibration, air blast and fly rock impacts in relation to proposed opencast blasting operations. The evaluation of effects yielded by blasting operations was evaluated over an area as wide as 3500 m from the pit edge, specified distances and minimum and maximum charge output. The specialist report can be viewed in Appendix N.

5.5.10.1 Points of interest (sensitive receptors)

A 3500 m radius sensitivity map (shown in Figure 61) was created by BMC (2023), based on distances normally where potential impacts are expected to be very high to none in relation of identified point of interest (POI) from the pit. Three different areas were identified and are discussed below:

- A highly sensitive area of 500 m around the mining area (red shaded area in Figure 61). This typical area is considered an area that should be cleared of all people and animals prior to blasting. Levels of ground vibration and air blast are also expected to be higher closer to the pit area;
- A medium sensitive area that is 500 to 1500 m from the pit area (orange shaded area in Figure 61). The possibility of impact is expected, although could be lower. The expected level of influence may be low, but there may still be reason for concern as levels could be low enough not to cause structural damage but still upset people; and
- A low sensitive area greater than 1500 m (green shaded area in Figure 61). It is almost certain that impacts will be low, with low possibility of damages and limited complaints from the public/people.

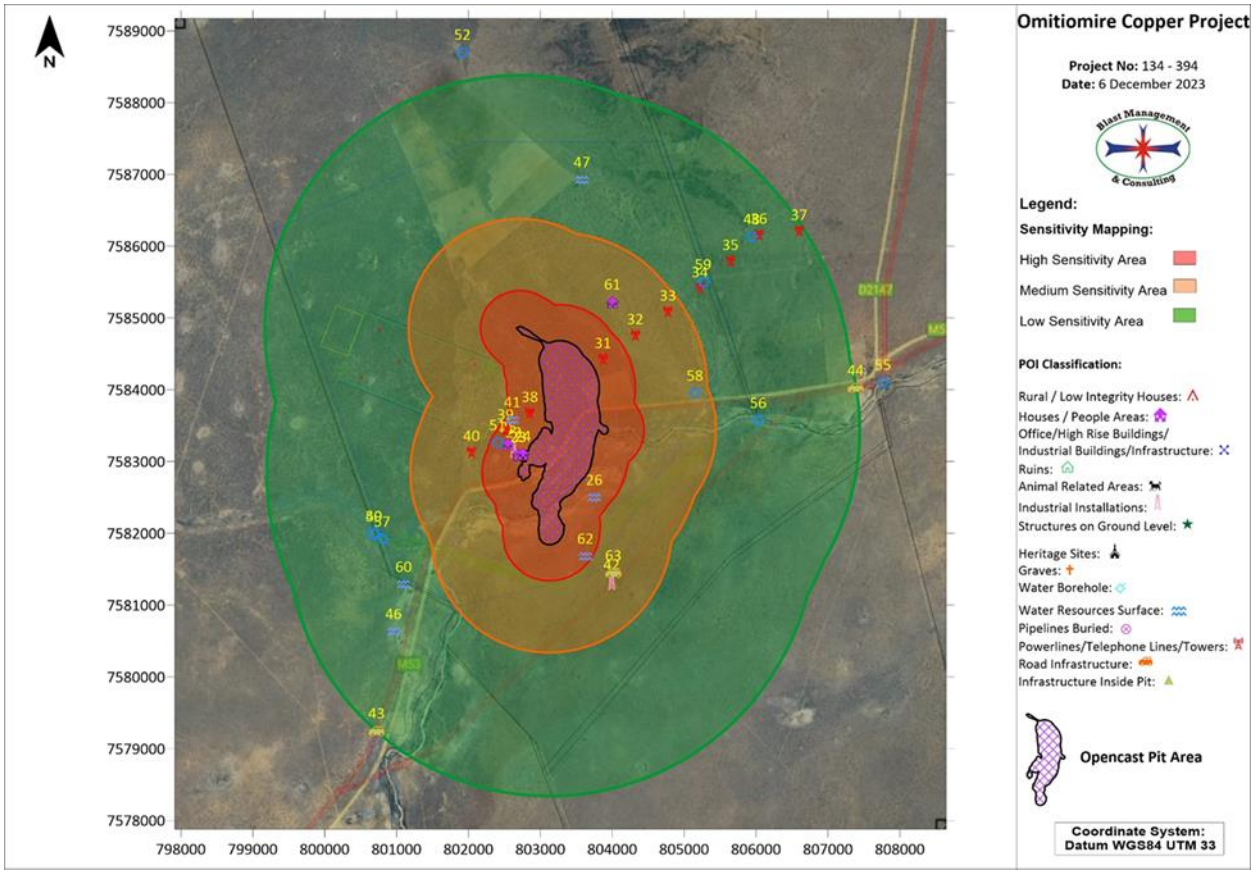

Figure 61 - Sensitivity map showing the points of interest in relation to the pit edge.

The range of structures observed include gravel roads, low-cost houses, industrial buildings, corrugated iron structures, bricks and mortar houses and powerlines/pylons.

5.5.10.2 General impacts from blasting activities

General impacts that could occur due to blasting activities are discussed below:

- **Impacts on provisional and national roads**: Ther is no record of influence on gravel roads due to ground vibration. Damage can be induced when blasting occurs next to the road and there is movement of ground. Fly rock will have greater influence on the road as damage from falling debris may impact on the road surface if no control on fly rock is considered. Regardless, a section of the M53 road that currently transverses the mine site across the open pit area will be diverted to the south of the mine.

- **Public complaints**: The effects of ground vibration and air blast will have an influence on people. These effects tend to create noises on structures in various forms and people react to these occurrences even at low levels. Initiatives are required to promote good neighborhood with the affected farming community.

- **Cracking of houses and consequent devaluation**: Houses in general have cracks, which is mainly influenced from construction related materials and workmanship,

however, is also influenced from environmental factors such as temperature, wind, water etc. Ground vibration will be mostly responsible for cracks in structures if high enough and at continued high levels. Visual results of actual damage due to blasting operations are limited. There are cases where it has occurred, and a result is shown in below, a typical X crack formation is observed as a result (Figure 62) (BMC, 2023).

Figure 62 - Example of a typical blast induced damage to a building marked with an X (BMC, 2023).

The presence of general vertical cracks or horizontal cracks that are found in all structures does not need to indicate devaluation due to blasting operations but rather devaluation due to construction, building material, age, standards of building applied. Proper building standards are not always applied, and the general existence of cracks may be due to materials used. Thus, damage in the form of cracks will be present. Exact costing of devaluation for normal cracks observed is difficult to estimate. A property valuator will be required for this work. BMC (2023) concluded that mining operations may not have influence to change the status quo of any property.

5.5.11 CLIMATE CHANGE

RDJ Consulting was contracted in 2023 to conduct a predictive carbon footprint analysis for the Omitiomire Copper Project. The specialist report can be viewed in Appendix O.

Namibia has a vibrant mining industry and is a signatory to various UN conventions and protocols such as the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention on Biological Diversity (UNCBD) and United Nations

Convention to Combat Desertification (UNCCD), hence these regulatory frameworks guide the country's commitments towards climate change. Companies strive to reduce their carbon footprint by integrating renewable energy sources into their operations. Setting emissions reduction targets and implementing carbon pricing and trading mechanisms are also key strategies plans,

Climate change is associated with likely impacts such as temperature fluctuations, varying levels of rainfall patterns, flooding as well as prolonged drought periods. Therefore, decarbonisation strategies are integrated and adopted by mining companies with their respective scope of operations to ensure sustainable mining practises, energy efficiency, careful water management, improved community engagement and resilience actions.

5.5.11.1 Climate change study findings

Although Namibia is not a designated country under the Equator Principles which support the assessment of projects yearly scope 1 and scope 2 emissions above the 100,000 tCO_2e threshold, as a good leading practise, the Project is committed to reduce its carbon footprint and therefore the 100,000 tCO_2e threshold has been applied in the assessment.

Projections are that scope 1 and scope 2 emissions from operational activities may surpass the 100,000 tCO_2e threshold from year 2 to year 7 of operations (Figure 63). Peak emission value before mitigation measures is estimated at 150, 725 tCO_2e in 2030 (year 7) and the life of mine operations (inclusive of scope 3 emissions) are estimated at 1, 299, 919 tCO_2e. The Proponent propose to mitigate emissions, particularly scope 2 emissions with a solar photovoltaic system to provide supplementary energy required for various project activities. Projected emissions post this mitigation measure are shown in Figure 64.

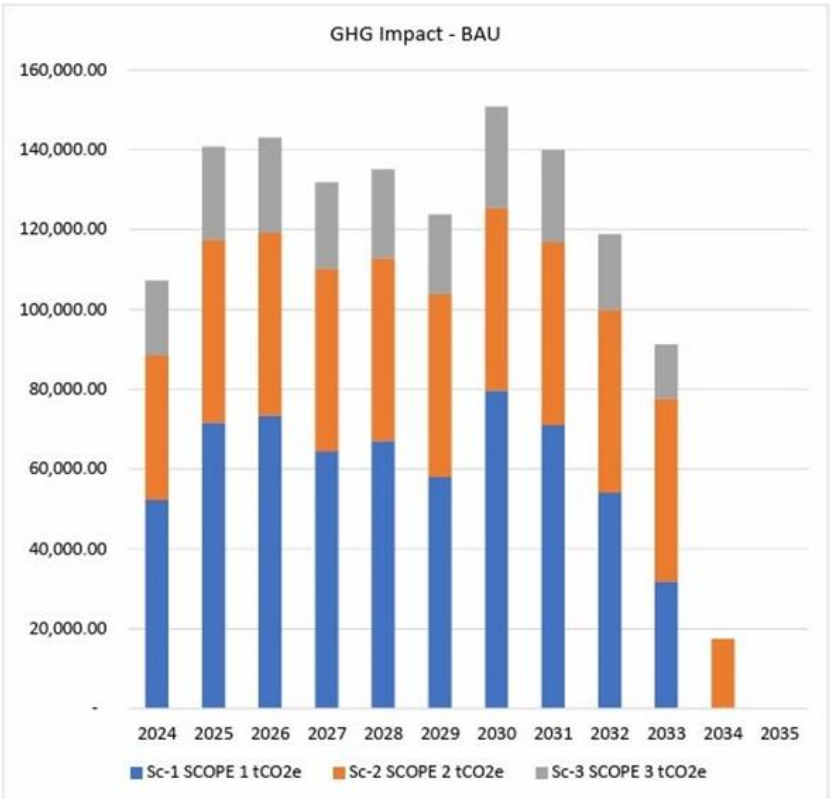

Figure 63 - Projected GHG emission projections over LoM.

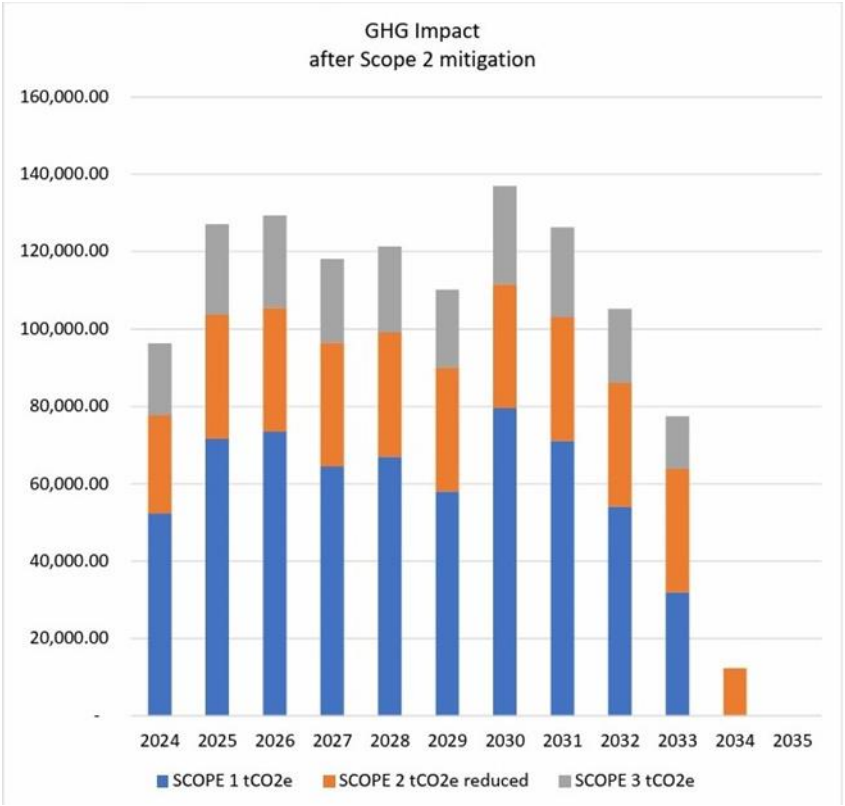

Figure 64 - Projected GHG emissions (post mitigation) over LoM.

Namibia is a net carbon sink in comparison to other major global carbon and GHG emitters. The strategic integration of the solar PV system will significantly lessen the Project's carbon footprint. The climate change impacts are discussed in detail in chapter 7.

6 IMPACT IDENTIFICATION AND EVALUATION METHODOLOGY

6.1 INTRODUCTION

Chapter 2 provides an overview of the approach used in this ESIA process, and details each of the steps undertaken to date. Prediction and evaluation of impacts is a key step in the ESIA process. This chapter outlines the methods that will be followed, in order to identify and evaluate the impacts arising from the proposed Project. The findings of the assessment will be presented in chapter 7.

This chapter provides comprehensive details of the following:

- The assessment guidance that will be used to assess impacts.
- The limitations, uncertainties, and assumptions with regards to the assessment methodology.
- How impacts will be identified and evaluated, and how the level of significance will be derived.
- How mitigation will be applied in the assessment, and how additional mitigation will be identified.
- The cumulative impact assessment (CIA) method that will be used.

The aims of this assessment will be to determine which impacts are likely to be significant; to scope the available data and identify any gaps that need to be filled; to determine the spatial and temporal scope; and to identify the assessment methodology.

The scope of the assessment was determined by undertaking a preliminary assessment of the proposed Project against the receiving environment and was obtained through a desktop review, available site-specific literature, monitoring data, and site reports, as set out in the scoping report and this ESIA report.

6.2 ASSESSMENT GUIDANCE

The following principal documents will be used to inform the assessment method:

- International Finance Corporation standards and models, in particular performance standard 1: 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2012 and 2017);
- International Finance Corporation Cumulative Impact Assessment (CIA) and Management Good Practice Handbook (International Finance Corporation, 2013);
- Requirements encapsulated in IFC Performance Standard 3 (PS 3)
- Equator Principles 4 (ep 4) - Guidance on environmental and social impact assessment; and

- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

6.3 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

The following limitations and uncertainties associated with the assessment methodology will be considered in the assessment phase:

- Topic-specific assessment guidance has not been developed in Namibia. A generic assessment methodology will be applied to all topics using IFC guidance and professional judgement;
- Guidance for CIA has not been developed in Namibia, but a single accepted state of global practice has been established. The IFC's guidance document (International Finance Corporation, 2013) will be used for the CIA; and

The climate change methodology was determined by an external specialist in this field in order to comply with international, national and lender reporting requirements.

6.4 ASSESSMENT METHODOLOGY

The ESIA methodology applied to this assessment has been developed by ECC using the International Finance Corporation (IFC) standards and models, in particular performance standard 1: 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017); Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 25 years of combined ESIA experience. The EAP CV's are provided in Appendix D. The methodology is set out in Figure 65 and Figure 66.

The evaluation and identification of the environmental and social impacts require the assessment of the Project characteristics against the baseline characteristics, ensuring that all potentially significant impacts are identified and assessed. The significance of an impact is determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the proposed Project, the nature and characteristics of the impact, and the magnitude of any potential change. The magnitude of change (the impact) are the identifiable changes to the existing environment that may be negligible, low, minor, moderate, high, or very high; temporary/short-term, long-term or permanent; and either beneficial or adverse.

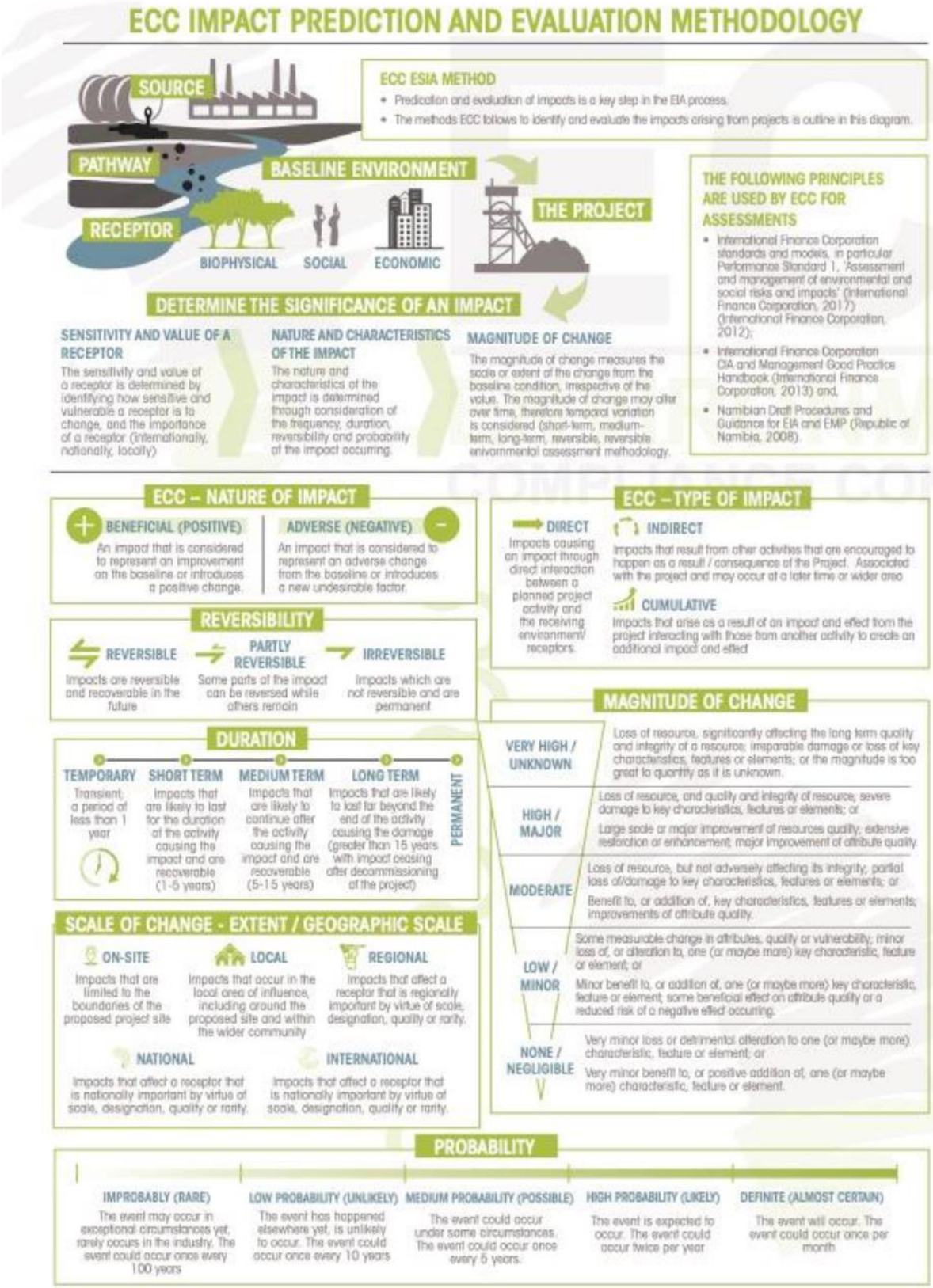

Figure 65 - ECC ESIA methodology based on IFC standards.

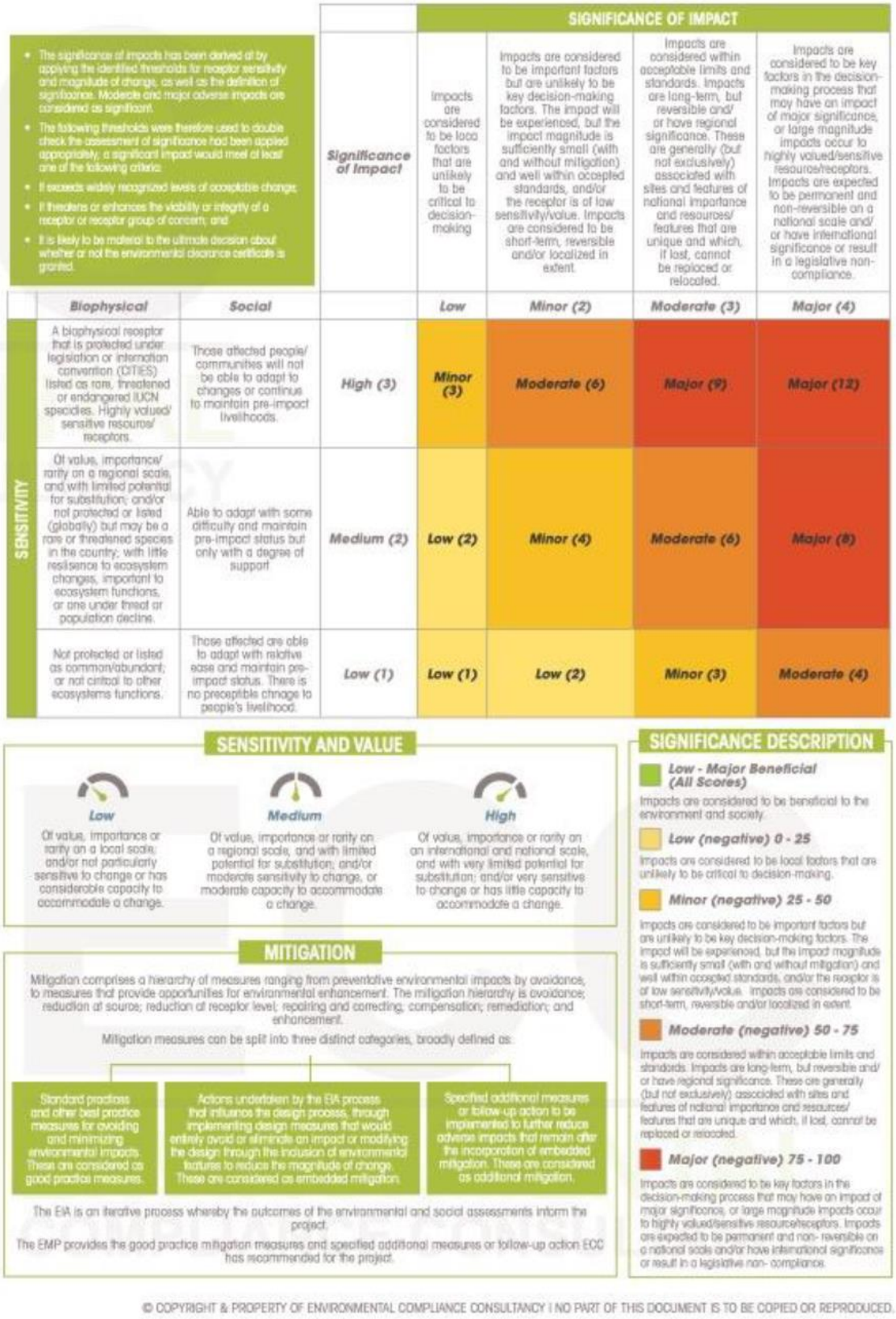

Figure 66 - ECC ESIA methodology based on IFC standards.

6.5 MITIGATION MEASURES

Mitigation comprises a hierarchy of measures ranging from preventative environmental impacts by avoidance, to measures that provide opportunities for environmental enhancement. The mitigation hierarchy is: avoidance; reduction at source; reduction at receptor level; repairing and correcting; compensation; remediation; and enhancement.

Mitigation measures can be split into three distinct categories, broadly defined as:

1. Actions undertaken by the ESIA process that influence the design process, through implementing design measures that would entirely avoid or eliminate an impact, or modifying the design through the inclusion of environmental features to reduce the magnitude of change. These are considered as embedded mitigation. Standard practices and other best practice measures for avoiding and minimising environmental impacts. These are considered as good practice measures.
2. Specified additional measures or follow-up action to be implemented, in order to further reduce adverse impacts that remain after the incorporation of embedded mitigation. These are considered as additional mitigation.
3. Specified additional measures or follow-up action to be implemented, in order to further reduce adverse impacts that remain after the incorporation of embedded mitigation. These are considered as additional mitigation.

The ESIA is an iterative process whereby the outcomes of the environmental assessments inform the Project.

The EMP (Appendix A) provides the good practice measures and specified additional measures or follow-up action.

Embedded mitigation and good practice mitigation was taken into account in the assessment. Additional mitigation measures will be identified when the significance of impact requires it and causes the impact to be further reduced. Where additional mitigation is identified, a final assessment of the significance of impacts (residual impacts) will be carried out, taking into consideration the additional mitigation.

7 IMPACT ASSESSMENT FINDINGS & MITIGATION

This impact assessment was completed taking into consideration the input received from stakeholders during the public participation phase. Specialist studies that had previously been conducted were reviewed and reassessed based on the input from the public participation phase. As part of the final impact assessment, a final environmental and social management plan (ESMP) was produced to manage residual impacts that cannot be mitigated through the project evolution process.

This chapter presents the findings of the ESIA for the proposed project as per the ESIA process, scope and methodology set out in Chapters 2 and 6. The aim of this ESIA report is to focus on the significant impacts that may arise because of the proposed project. This chapter therefore only considers the significant impacts and or those that may have specific interest to the community and stakeholders. Impacts considered non- significant are discussed in Section 7.1.

The list of high level and likely impacts that are considered significant or of interest to the community and stakeholders are as follows:

- Socio-economic: employment and employee occupational health and safety
- Socio-economic: traffic
- Socio-economic: heritage
- Environment: surface and ground water quality and quantity
- Environment: air quality, and noise impacts.

For each potential significant or sensitive impact, a summary is provided which includes the activity that would cause an impact; the potential impacts; embedded or best practice mitigation (stated where required / available); the sensitivity of receptor that would be impacted; the severity, duration, and probability of impacts; the significance of impacts before mitigation and after mitigation measures are applied.

7.1 IMPACTS NOT CONSIDERED SIGNIFICANT

The project impact assessment has been guided by an iterative project evolution, mitigations have been incorporated and embedded into the project plan, thereby designing out measures required to reduce the potential impacts and lessen their significances. The ESMP provides best practise measures, management and monitoring for identified impacts. Impacts that have been assessed as not significant are summarised in Table 21 below and are not discussed further, unless otherwise indicated.

Table 21- Non - significant impacts.

Environmental or social topic	Potential impact	Rational
Social environment		
Tourism	The general project area receives local and international guests for trophy hunting and lodging activities. Mining operations may influence the level of tourism attraction in the local farming area.	The mine operations, farming, tourism and hunting activities are expected to occur concurrently as the game farms in the project area are sparsely located.
Land ownership	Displacement of inhabitants on farm Omitiomire.	This impact is considered non-significant as the Proponent is in the process to acquire farm Omitiomire. There are no significant man-made structures on the property and there are no occupants.
Climate change - adaptation	The potential for climate change to impact the proposed project (i.e. extreme fire, heat and storm events).	The proposed project will not be significantly impacted by climate change as the design has considered emergency management measures and plans in the event of increasing temperatures, occurrence of fire and sufficient dewatering systems for managing potential water inflows into the mine working areas.
Land use	Land may no longer be used for farming and agriculture.	Post mine operation, the disturbed land will be rehabilitated and the proponent will seek suitable alternative beneficial post mining land uses, together with the landowners and key stakeholders, for post closure land use.
Temporal closure of the M53 gravel road.	Inaccessibility of the M53 gravel to the public.	The road closure period is expected to be temporal and throughflow of traffic during the road diversion.
Visual	Loss of sense of place.	Sense of place refers to the emotive bonds and attachments people develop or experience in particular locations and environments. Farm Omitiomire has been disturbed

Environmental or social topic	Potential impact	Rational
		previously by past drilling and mining activities, it is therefore not anticipated that the value and sense of place will degrade significantly.

7.2 SOCIO ECONOMIC ENVIRONMENT: ECONOMIC

The socio-economic impact assessment concept embraces both social and economic impacts. The economic impacts associated with the construction and operation of the proposed project include issues such as employment creation, skills development and revenue generation to government. The significant economic impacts that have specific interest to the community and stakeholders before mitigation are summarised in Figure 67. Each specific impact is discussed further in this section.

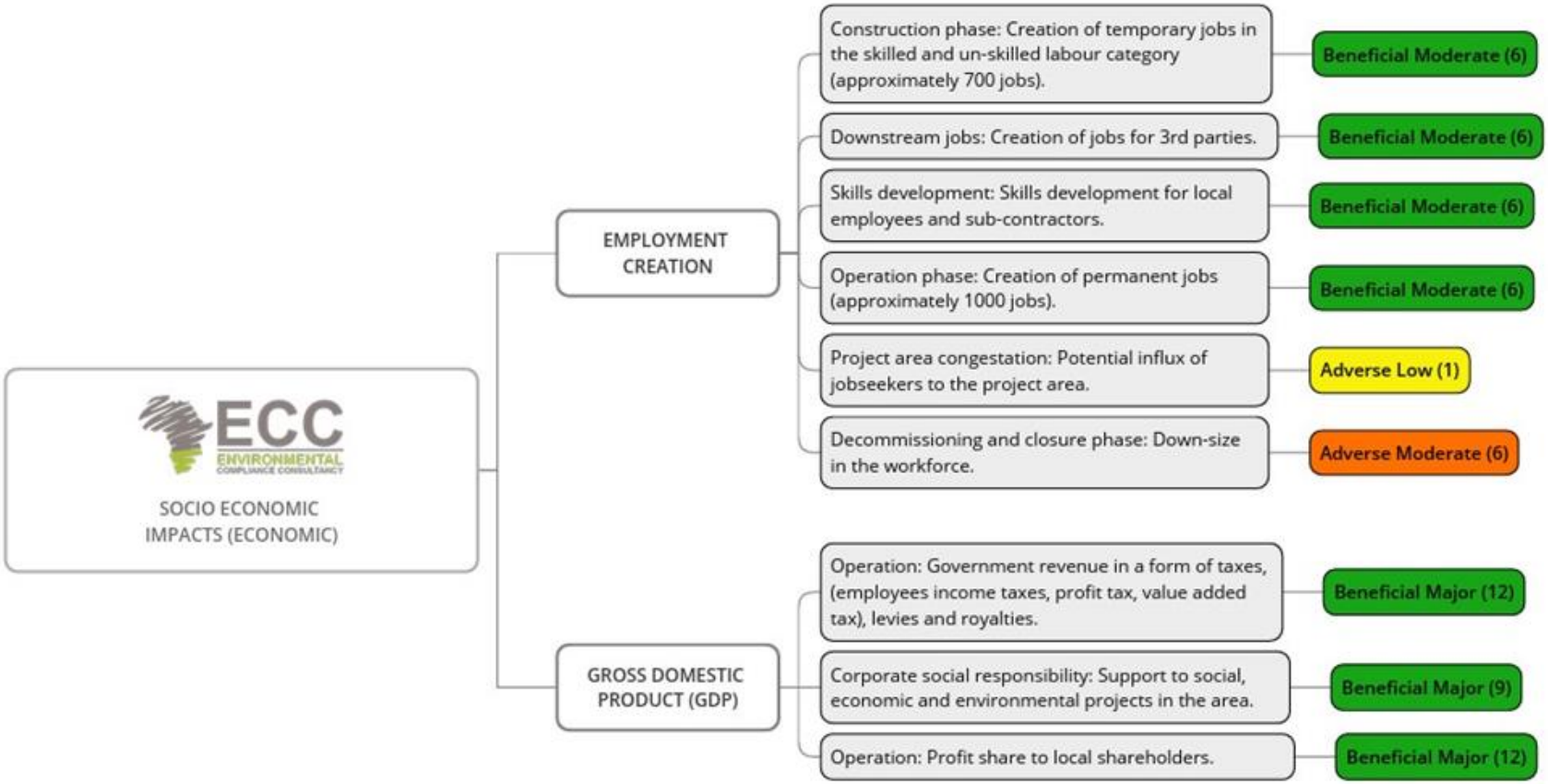

Figure 67 - Socio-economic impacts.

7.2.1 EMPLOYMENT AND SKILLS DEVELOPMENT

Namibia generally has a high unemployment rate, projected at 34.3% (Namibia Statistics Agency, 2019). However, Khomas Region stand out with an active labour force of over 70% and ranked 10th out of 14 regions with a regional unemployment rate of 31.5% (Namibia Statistics Agency, 2019). Khomas Region is also ranked highest with the employment absorption rate projected at 52.6% in 2018 (Namibia Statistics Agency, 2019). Regardless of the positive economic scores and prospects, the region's population is expected to experience the most growth due to an upward urbanisation trend.

The value and sensitivity of employment in the region is considered high as it is crucial to the country's overall development as explicitly stated as the major economic objective for regional governing bodies. Impacts ratings in relation to employment creation are presented in Table 22.

7.2.1.1 Direct employment – construction

The project will create ~700 temporary jobs during the construction phase and the Proponent will employ specialised service providers and sub-contractors as required for the development of the open pit, plant, and ancillary infrastructure. This phase of the project is likely to last ~18 months. The beneficial impact of creating ~700 temporary jobs in the development phase will result in short-term impact with a moderate magnitude for change. A moderate beneficial impact on the economy is therefore expected.

7.2.1.2 Direct employment – operations

During the operational phase, ~1,000 permanent jobs will be generated during for an expected minimum duration of 10 years (LoM). The potential beneficial impact on employment creation is direct, long term for the duration of mining (10 years) and reversible. Employees (either skilled or un-skilled) will come from different regional settlements or districts; therefore, the impact is expected to be local. The magnitude for change is major because of the project duration and frequency of spending within the local economies. Therefore, the significance of the impact is expected to be moderate-beneficial. Corporate recruitment policies are in place to ensure the sourcing of local employment as feasibly possible. No mitigation measures are required.

7.2.1.3 Indirect employment

The Omitiomire Copper Mine Project through its development, construction, operation and decommissioning phases will create various indirect employment opportunities to 3rd parties. The contracting of various service providers (subcontractors) will translate into an increase in indirect employment opportunities for local service providers within the wider region beyond district level. Gravel, sand, cement, prefabricated parts, transport and labourers will be sourced locally in Namibia. In addition, the Proponent intent to use local suppliers, although some will need to rely on imported machinery and spares for some of the supplies.

Considering the duration of the project, the beneficial impact will be direct and medium term. Local businesses will benefit at a regional scale as sourcing and economic spending on project

materials and equipment will occur mainly in Windhoek, Okahandja and any other regional towns. The probability of this impact is expected to be medium term. The sensitivity is expected to be medium and magnitude of change to be moderate since spending will take place continuously. Overall, the significance of the impact is expected to be moderate – beneficial (Table 22). No mitigation measures are required.

7.2.1.4 Skills development of local employees

Omitiomire Copper Mine is committed to developing the skills sets and enhancing capacity required to perform and meet the standards of various jobs requirements. Therefore, where skills are lacking, training will be provided by the Proponent, in addition to mandatory safety, health and environmental training. Skills development and training will be part of the employment and work. The potential beneficial impact on skills development and training is expected to be direct, permanent, and irreversible. Training will be on-site and off-site, however, the skill set developed can be used for future job opportunities in the local community at a national level, therefore the magnitude of change is expected to be high/major. The sensitivity is expected to be medium as employees and sub- contractors will acquire new skill sets. The training and skills acquired might however be for specialised jobs within the mining industry that are not readily transferable elsewhere in Namibia. The significance of impact is expected to be moderate -beneficial (Table 22). The project has training and skill development plan in place; thus, no mitigation measures are required.

7.2.1.5 Influx of workers and families

There is a potential impact regarding the influx of jobseekers to the project area, thus impacting demographic of communities surrounding the project area. The project will require a diverse workforce during the project development phase; hence the Proponent has measurable measures in place to stop any influx of jobseekers or the establishment of formal or informal settlements. This includes measures such as:

- All recruitment will be done through offices in Okahandja and Windhoek;
- Strict access control to and from the mine site;
- Transfer of all staff to/from Okahandja and Windhoek by bus; and
- No family style accommodation on site – all accommodation will be single-status rotational on a short-term basis.

The impact is expected to be adverse, direct, localised with a medium- term impact (i.e. 5-10 years) considering the mine lifespan. Some measurable alterations to community demographic could be expected, therefore the magnitude of change is expected to be minor. The sensitivity of the impact is considered low and therefore the significance of impact is expected to be minor – adverse (Table 22).

7.2.1.6 Employment during decommissioning and closure

The life of mine (LoM) is projected at 10 years, thereon the project would likely enter the decommissioning and closure stage. As part of this process, downsizing of the workforce would be anticipated, with non-essential and production personnel being made redundant sequentially. The loss of employment is considered moderate sensitive to the affected individuals, therefore the significance of this adverse impact is deemed moderate, as it would not prevent them from seeking and obtaining future employment elsewhere. The impact to the local and regional economies is of moderate significance and therefore a sensitivity rating of medium is expected. The impact is expected to be long term with little opportunity to maintain pre impact status unless a similar project is brought to the area as a replacement. An overview of this impact on the economy is provided in Table 22.

Table 22 - Impacts related to employment creation and influx of contractors.

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Construction work-general	Community Job seekers Local economy	Creation of ~700 temporary jobs.	Beneficial Direct Reversible Short term Local	Medium	Moderate	Beneficial Moderate (6)
Operation of the proposed project	Community Job seekers Local economy	Creation of ~1,000 permanent jobs	Beneficial Direct Reversible Long term Local	Medium	Major	Beneficial Moderate (6)
Downstream job creation	Community Local economy	Creation of 3rd party jobs (suppliers and secondary contractors)	Beneficial Direct Regional Reversible Long term Medium term	Medium	Moderate	Beneficial Moderate (6)
Skills transfer to the Omitiomire Copper Project workforce	Community	Transfer of hard skills to Namibian eligible people to transition into expat roles during the operational phase of the mine	Beneficial Direct Reversible Onsite Likely Permanent	Medium	High/Major	Beneficial Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Influx of employees and their families	Community	Changes to community demographics	Adverse Direct Local Reversible Unlikely Medium term	Low	None	Adverse Low (1)
Decommissioning and closure	Community	Downsize of workforce.	Adverse Direct Irreversible Regional Long term Likely	Moderate	Major	Adverse Moderate (6)

7.2.2 IMPACTS ON GROSS DOMESTIC PRODUCT (GDP)

Revenue for the Namibian government consists of income tax, corporate tax, value added tax, duties and levies, royalties and other taxes. Profits to local shareholders are also expected in the form of potential infrastructure developments and profits retained and distributed via dividends and other mechanisms. Revenue and profits are expected to improve the local economy and to contribute towards the mining sector's positive impact on the Namibian gross domestic product (GDP). The mining sector contributed 11.1% to the country's GDP in 2021 and currently has contributed 3.7% of the 5% GDP growth rate registered in the first quarter of 2023 (Namibia Statistics Agency, 2023).

7.2.3 IMPACT ON REVENUE FOR GOVERNMENT

All revenue taxes are legally required to be paid by mining companies during operations and therefore the Proponent will contribute to the GDP in this manner and the probability is definite. The beneficial impact is expected to be direct, long term for the duration of mining activities (i.e. 10 years) and irreversible. Monies are paid to local businesses, regional and national government institutions, therefore the extent of the impact is regarded national. The sensitivity is high as the revenue income will contribute positively to the country's overall GDP. The magnitude of change is high/major due to the level of contribution of the mining industry to the national GDP. The significance of the impact is assessed at major - beneficial. It is expected that this beneficial impact will cease at the decommissioning and closure phase of the project, therefore a decline of local economic activities could be expected. Table 23 provides an overview of the impacts on the national GDP.

7.2.4 IMPACT ON PROFITS TO LOCAL SHAREHOLDERS

It is expected that the Proponent will contribute to profits of local shareholders by profits retained and distributed through dividends or other financial mechanisms. This in turn contributes to the local economy. The beneficial impact therefore may be direct, long-term for the duration of mining activities (10 years) and irreversible. The probability is rated as definite. The value of sensitivity if rated as high due to the positive influence on local livelihoods. The magnitude of change is rated as high/major due to the positive impacts on the local economy. The significance of the impacts is assessed at major - beneficial. Table 23 provides a summary of the impacts related to the profits to local shareholders.

7.2.5 CORPORATE SOCIAL RESPONSIBILITY

Through the independent Craton Foundation Trust, the Proponent is committed towards meeting its corporate social responsibility; geared towards upliftment of the social status quo of vulnerable communities within the area of influence of the Omitiomire Project. The Craton Foundation Trust hold 5% of the shares of Craton Mining and Exploration (Pty) Ltd. The Proponent has engaged with the following community projects in support of corporate and social responsibility:

- The Ministry of Health & Social Services and the Johanniter Organisation for the resumption of the clinic in Summerdown;
- The Black Nossob Crime Prevention Forum; an organisation started and operated by farmers of the Steinhausen and Witvlea communities to fight crimes such as poaching and stock theft; and
- The orphanage at Drimiopsis that provide care for up to 20 children.

The beneficial economic impact is expected to be direct and irreversible as communities will be afforded with economic life upliftment opportunities and improvement of rural quality of life. The impact will be regional and long-term due to the duration of mining activities (10 years). The magnitude of change is expected to be moderate and overall significance of the impact is major- beneficial. An overview of the impacts on social responsibility is presented in Table 23.

Table 23 - Impact on national incomes and community development.

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Operations	Nationals and local government	Government revenue in the form of taxes (income tax, profit tax and value added tax), duties and levies and royalties.	Beneficial Direct National Long term Irreversible	High	High/major	Beneficial Major (12)
Operations	Local shareholders and local economy	Profits to local shareholders in the form of potential infrastructure investments and profits retained and distributed via dividends and other mechanisms	Beneficial Direct National Long term Irreversible	High	High/Major	Beneficial Major (12)
Corporate social responsibility	Community	Development support to vulnerable communities in the form of community projects and sponsorships.	Beneficial Indirect Regional Medium term Partly reversible	High	High	Beneficial Major (9)
Decommissioning and closure	Local and regional economies	Decline in local economic activities	Adverse Direct Partly Reversible Regional Long term	Medium	High	Adverse Moderate (6)

7.3 SOCIAL ECONOMIC ENVIRONMENT - SOCIAL

Social impacts include the consequences to local populations in terms of people's lives, work and interactions. The significant social impacts that have special interest to the community and stakeholders, before mitigation are summarised in Figure 68. Each specific impact is discussed in detail in the sections below.

Figure 68 - Social impacts.

7.3.1 EMPLOYEES OCCUPATIONAL HEALTH AND SAFETY

In the mining environment, employee's health and safety is priority as partial disabilities as a result of injuries incurred in the working environment could negatively limit them from future employment opportunities. In the unlikely event, injuries leading to fatalities are recorded. Occupational diseases or other communicable diseases could be transferred into family homes and the local community. The potential social impacts associated with the mine operation are further discussed in this section.

7.3.1.1 Workplace safety: Potential for on-site injuries causing partial disabilities or death

The construction and operation of the mine will certainly increase heavy traffic volumes in specific locations of the mine site. Operators will get accustomed to roads, access points and the overall architectural design of the mine. Heavy equipment and light vehicles will regularly interact, which could potentially lead to traffic collisions. There is also potential for pedestrian and vehicles interactions, leading to the potential for major road incidents particularly during shift changes and meal breaks.

The impact of traffic interactions causing injury or death would be direct, short term and irreversible in cases of serious injuries or deaths. Pedestrians' well-being and safety is a concern in this regard, therefore the probability of the event occurring is rated medium (possible). The sensitivity is assessed as medium, and magnitude of change is regarded as moderate as varying degree of injuries can be incurred. However, during operational phase the magnitude of change may decrease as employees get accustomed to mine operations. Recruitment of highly qualified and experienced workers will further mitigate the impact to acceptable levels. Health and safety requirements must be enforced in terms of the Labour Act No.6 of 1992 and the ISO 45001 standards. As shown in Table 24, the overall significance of the impact should it occur would be considered as moderate before mitigation management measures and minor post - mitigation. A detail summary on the mitigation

measures are provided in the ESMP, however the Proponent is expected to abide to the following mitigation measures:

- Comply to the safety and health requirements as stated in the Labour Act No.6 of 1992 and ISO 45001 standards;
- Enforce standard operating procedures (SOPs) related to workplace safety on-site;
- Ensuring all employees receive on-site safety induction, especially related to mobile equipment and on-site traffic;
- The health, safety and environment department (HSE) would be expected to conduct regular on- site safety training; and
- Document injury statistics, incident corrective action and lesson learned;
- Overseeing continuous communication and training to reduce and (or) prevent incidents.

Table 24 – Impacts related to occupational health and safety.

	Receptor/s	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact pre - mitigation	Likelihood of impact occurring with mitigation	Significance of impact post mitigation
Impact:	**Potential collision of construction heavy equipment causing injury or death.**						
Construction	Employees	Adverse Direct Irreversible Short term Likely On -site	Medium	Moderate	Adverse Moderate (6)	Medium probability (Possible)	Adverse Minor (4)
Impact:	**Injury/death sustained from interaction with machineries or equipment on- site.**						
Operation	Mine operator/ Employees	Adverse Direct Irreversible Short term Unlikely On-site	Medium	Moderate	Adverse Minor (4)	Low probability (Unlikely)	Adverse Low (2)

7.3.2 COMMUNITY HEALTH AND SAFETY

The local farmers have raised security concerns during the project public consultation meetings held in Windhoek and on site. The opening and operation of the mine may increase the potential of an increase in crime in the local community. The high risk is associated with any influx or increase in criminals and job seekers visiting the area.

Farm Groot Omitiomire is situated in commercial farming land that stretches across north of Khomas, south of Otjozondjupa and east of Omaheke Region. Most farms surrounding the Project area focus on cattle ranching and/or game farming for hunting and tourism.

The presence of the mine raises security concerns for all farmers as crime such as cattle theft and illegal hunting may increase. For reference, a comprehensive overview of the crime baseline statistics from Hochfeld police station, Hosea Kutako police station and Omitara police station recorded in 2012 is presented in Figure 69.

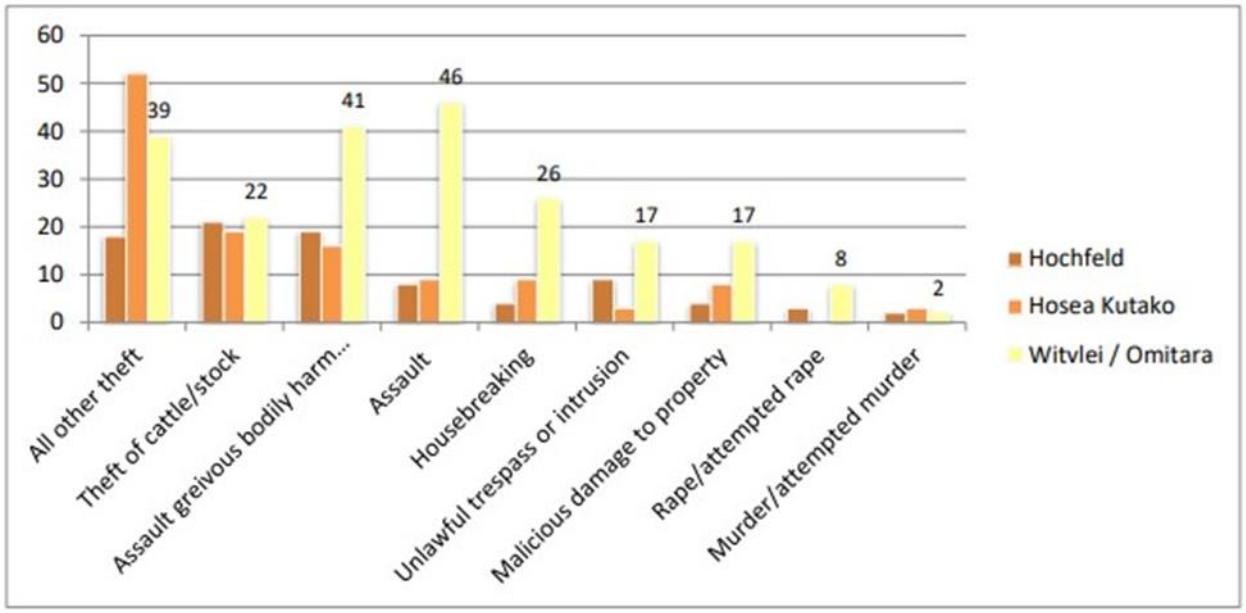

Figure 69 – Crime statistics recorded at Hochfeld, Hoseas Kutako and Omitara police stations in 2012 (SLR, 2017).

To render assistance in crime fighting and prevention, the Proponent should consider the following management mitigation measures:

- As per the Project plan, the entire project area should be secured with a security fence;
- Biometric security measures will be implemented to control the movement of personnel; both when travelling of site for roster change, and on site.
- Work closely with the local farmers, the Black Nossob Crime Prevention Forum, the NAMPOL team, the Hosea Kutako Crime Prevention Forum and community members in combating crime;
- Render support towards any anti-poaching unit deployed in the local area;
- Commit to conduct all mining operations in conformance to the IFC's Performance Standard PS-4 regarding security;
- Promote initiatives that are to the best interests of the farming communities; and
- Strengthen good relations with employees to enhance good ethical behaviours of crime reporting.

Table 25 - Community health and safety impacts.

	Receptor/s	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact pre - mitigation	Likelihood of impact occurring with mitigation	Significance of impact post mitigation
Impact	**Potential increase in criminal activities in the local project surroundings**						
Operation	Community	Adverse Direct Long term Local Irreversible	Medium	Moderate	Adverse Moderate (6)	Medium probability (Possible)	Adverse Minor (4)

7.3.3 VISUAL IMPACTS

Visual impacts are changes to the scenic attributes of the landscape brought about by introduction of visual contrasts which alters the human visual experience of the landscape. Figure 70 presents an overview of the visual impacts associated with the proposed project infrastructure. Below is a list of the proposed infrastructure likely to pose significant visual impacts and are discussed further in this section. The following receptors are associated with visual impacts:

- Open pit and dis-used borrow pit;
- Waste rock dump;
- Heap leach pad; and
- Processing plant.

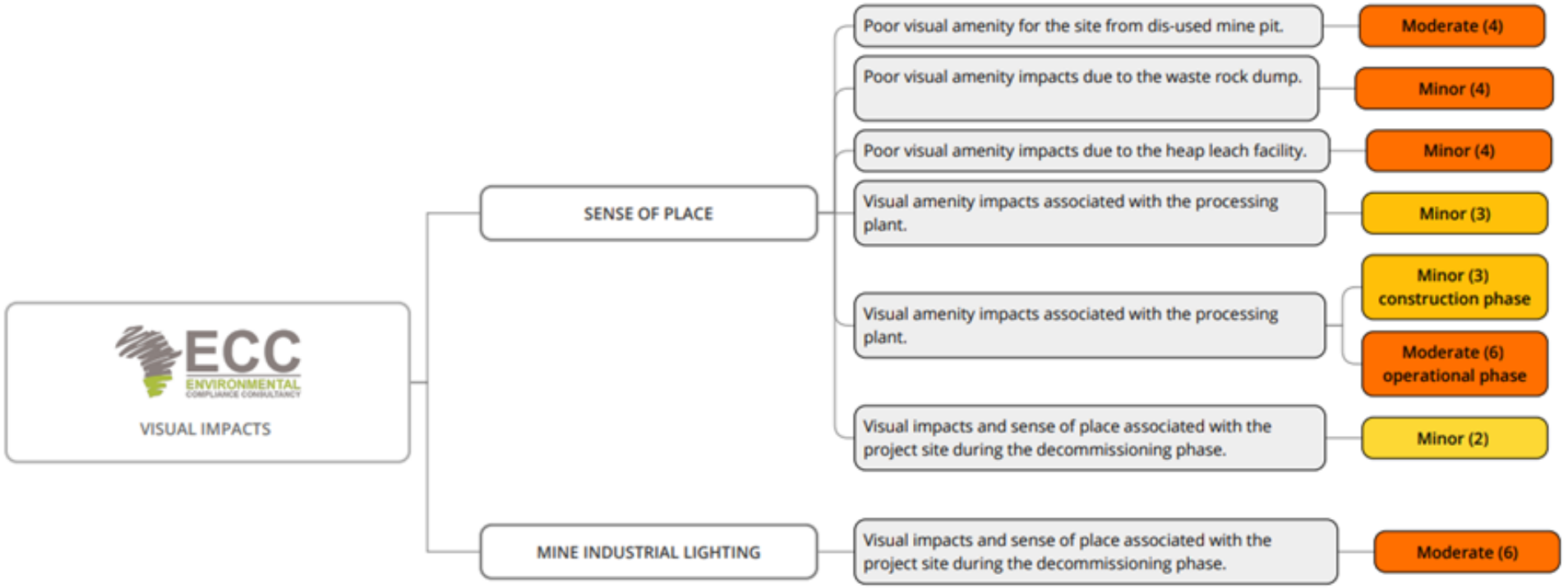

Figure 70 - Visual impacts.

The large open pit, processing plant, waste rock dump facility and heap leach pad and other associated mine infrastructure would be viewed from farms adjacent surrounding the project site and potentially by motorists driving on the M53, D1435, D2166, D2170 and D2147 district roads. The Proponent proposes to divert the M53 road as it currently passes through the mining licence area and across the future mine pit area, however mine infrastructure will be viewed by motorists driving on the diverted road. The entire project area is encircled by game and hunting farms.

Progressive rehabilitation would lessen the visual amenity impacts and ensure project related earthworks and landscaping are integrated in the complex restoration of the disturbed environment. Progressive and effective rehabilitation is the best mitigation and a critical part of the Namibia Mine Closure Framework.

7.3.3.1 Visual impacts associated with the open pit, waste rock dump, heap leach pad and processing plant

The project area has gone through some landscape modification and altercation as a result of past exploration and farming activities. The proposed project activities will permanently transform the physical landscape and character of the area. Therefore, the magnitude of change on the social environment is considered moderate and the sensitivity of the receptor is deemed low during the construction phase. However, during the operational phase of the project the magnitude of change may decrease as road users get accustomed to the new man-made features. The sensitivity of road users and distant farms may increase as the waste rock dumps height and width increases. Progressive rehabilitation on the waste rock dumps is required to lessen the impact to acceptable levels.

7.3.3.2 Visual impacts associated with the mine industrial lighting

Industrial lighting required for construction and operations could profoundly impact neighbouring farms and motorists driving at night. The adverse impact is expected to be direct, localised and will have a medium term considering LoM (10 years). The probability of the adverse impact is definite, and magnitude of change is moderate as farmers and motorists would generally get accustomed to the lighting impacts. Overall, the significance of light pollution towards farmers and motorists is expected to be moderate before mitigation and minor after mitigation measures.

Light management measures include considering altenative low intensity lighting bulbs in the overall mine architectual design to limit light pollution, whereas downward -facing lighting options should be used to limit light to areas of operations. Overall, the significance of industrial lighting is expected to be adverse moderate before mitigation as shown in Table 26.

Table 26 - Visual and sense of place impacts.

	Receptor/s	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact pre - mitigation	Likelihood of impact occurring with mitigation	Significance of impact post mitigation
Impact	**Poor visual amenity for the site from dis-used mine pit.**						
Construction and operations	Farmers Motorists Tourists	Adverse Direct Irreversible Local Permanent Definite	Low	Moderate	Adverse Moderate (4)	High probability	Adverse Minor (3)
Impact	**Poor visual amenity impacts due to the waste rock dump.**						
Construction and operation	Farmers Motorists Tourists	Adverse Direct Irreversible Permanent Local Definite	Low	Moderate	Adverse Moderate (4)	High probability	Adverse Minor (3)
Impact	**Poor visual amenity impacts due to the heap leach pad.**						
Construction and operation	Farmers Motorists Tourists	Adverse Direct Irreversible Local	Low	Moderate	Adverse Moderate (4)	High probability	Adverse Minor (3)

	Receptor/s	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact pre - mitigation	Likelihood of impact occurring with mitigation	Significance of impact post mitigation
		Permanent Define					
Impact	**Visual amenity impacts and sense of place associated with the processing plant.**						
Plant construction	Road users of the M53 Farmers Tourists	Adverse Direct Irreversible Short term Local	Low	Moderate	Adverse Minor (3)	High probability	Adverse Low (2)
Open pit mine and plant operations – operational phase	Road users of the M53 gravel road.	Adverse Direct Irreversible Local Medium term	Medium	Moderate	Adverse Moderate (6)	High probability	Adverse Minor (4)
Impact	**Light pollution impacts caused by industrial lighting during construction and operations.**						
Industrial lighting for construction and operations	Farmers Motorists	Adverse Direct Partly reversible Medium term Local Definite	Medium	Moderate	Adverse Moderate (6)	High probability	Adverse Minor (4)

	Receptor/s	Nature of impact	Value and sensitivity	Magnitude of change	Significance of impact pre - mitigation	Likelihood of impact occurring with mitigation	Significance of impact post mitigation
Impact	**Visual impacts and sense of place associated with the project site during the decommissioning phase.**						
Decommissio-ning of the mine	Road user of the M53 gravel road/ Farmers	Adverse Direct Partly reversible Local Short term	Low	Low	Adverse Minor (2)	Medium probability	Adverse Minor (1)

7.3.4 TRAFFIC IMPACTS

The traffic impacts during the project construction, operational and decommissioning phase are presented in Figure 71 for illustrative purposes only. The impacts are discussed in detail in the sections below.

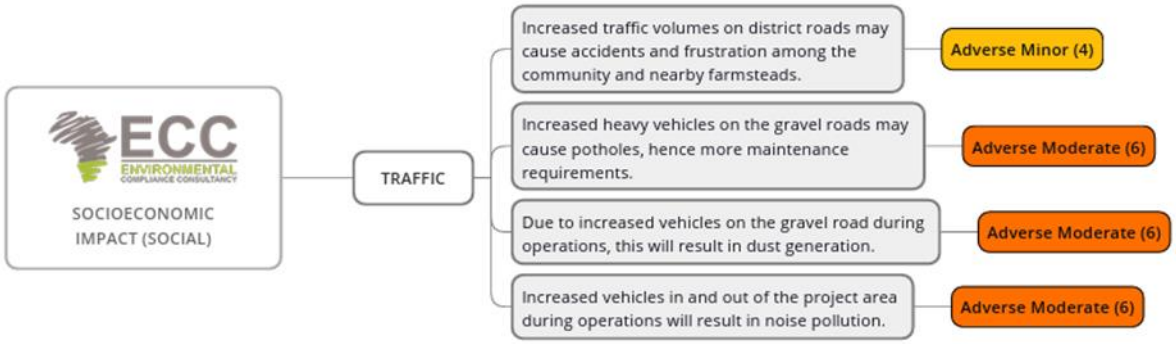

Figure 71 - Traffic impacts associated with the Omitiomire Copper Project on ML 197.

7.3.4.1 Potential altercations to normal traffic flow in the local project area

Traffic flow and volume are expected to increase relatively, mostly on district roads as the Project advances through different phases. Traffic records compiled by Zutari (2023) indicate that traffic growth rate on the district roads connecting the project site with the B-routes is low (since 2016) since the project area is not bounded by any major town or settlement. Currently, the C31 route has substantial traffic volumes consisting of 60 to 90 light vehicles and 20 to 30 heavy vehicles per day. Traffic volumes increases are expected. The additional traffic due to the Omitiomire Copper Project during operations will increase light heavy traffic by 12% and heavy vehicles by 30%, respectively (Zutari, 2023). The exponential growth in traffic during the life of mine is expected to be relatively low and thus traffic congestion on the district routes wouldn't be expected.

The impact is expected to be localised, with a minor magnitude of change as it is predicted that the increases in traffic would cause interruptions in traffic flow throughout the life of mine. Zutari (2023) recommended that the site access route be upgraded to support mine heavy vehicles during operations. Besides the mine, the road upgrade will benefit local motorists and tourists and will better improve traffic flow in the local area. With the implementation of the traffic engineers' recommendations, the site access route would be of a higher standard which subsequently will reduce road risks. Routine maintenance of the road will further ensure stable transition of traffic throughout the life of mine. Therefore, the impact is expected to be adverse minor (Table 28).

7.3.4.2 Potential road degradation and damage to stormwater structures due to increased traffic volume

Zutari (2023) concluded that the C31route is not in the best condition to support heavy vehicles and will therefore require re-gravelling. It is estimated that the Project will involve the use of 15x 32t trucks per day supplying bulk salt, sulphur or diesel, 10x light vehicles per day and 6x busses per week transporting workers to Okahandja or Windhoek as per Project work cycle. Increased heavy vehicles on the gravel roads may cause minor to major road failures (rutting and creation of potholes) and potential damages to stormwater structures. Maintenance of the project access road is therefore required prior to operations.

Re-gravelling, upgrading the main C31 road with a low volume wearing course will lessen the impact. This has been the priority of the Road Authority (RA). The upgrade of the main roads will additionally ensure that mine operations run uninterrupted. Routine maintenance of the roads, when necessary, will further lessen the impact. Furthermore, speed limits for all modes of transport on these roads should be set to ensure good road conditions. The impact is expected to be adverse moderate. With the implementation of the traffic specialist mitigation measures, the magnitude and significance of impact is expected to be minor.

7.3.4.3 Increase in traffic flow along the site access route may lead to increased dust generation leading to nuisance and respiratory illnesses and distress

Local residents living along the unpaved (dirt) roads are susceptible to airborne dust from road surfaces. Fine suspended dust particles from road surfaces could penetrate their homes causing nuisance and health problems (e.g allergies and Asthma). The severity of impact depends on the homestead's proximity to the dirt roads. Most identified dust receptors along the site access route are farmhouses that are 100 m or less from the road center. Two farmsteads located along the mine access route have been identified as dust susceptible receptors (Zutari, 2023). An overview of the dust susceptible receptors is presented in Table 27.

Table 27 – Dust sensitive receptors along the mine access route.

Road	No of farmstead: 0-100 m	No of farmstead: 100-300 m	No farmstead 300-500 m
Mine access route:			
C31	2	3	
D2166		2	
M53			1
Total	2	5	1

Dust impacts are expected to be centered around the two concerned (identified) receptors; thus, the magnitude of impact is expected to be moderate. Excessive dust could be associated with poor visibility and long- term exposure may lead to respiratory illnesses and

distress. The significance of impact could be major across the two identified receptors considering the duration of dust exposure, with less dust anticipated only towards the end of the mine lifespan.

Motorists' adherence to speed limits and timely maintenance of dirt roads would suppress dust to acceptable limits, thereby reducing the magnitude of the impact. The overall significance of the impact is expected to be adverse moderate pre mitigation and minor post mitigation (Table 28).

7.3.4.4 Noise impacts due to traffic volume increases along the mine access routes

Increased heavy vehicles in and out of the Project site will produce noise pollution. Farmsteads closer to the road will be more susceptible to noise nuisances, particularly nighttime as the mine will be operating 24 hours. Zutari (2023) determined that traffic travelling at a speed of 50 km/h on gravel result in noise build-up higher than 4 dBA; a lower record when compared to noise from asphalt surfaced road. Alternatively, one heavy weight vehicle (HV>3.5 tons) travelling at a speed of 70 km/h creates a perceived noise level of 28 lightweight vehicles (LV < 3.5 tons). The IFC states that noise impacts should not exceed a threshold level of 3 dBA. Generally, nighttime traffic noise result in insomnia and increased use of sleep medications (Zutari, 2023).

Zutari (2023) identified eight noise sensitive receptors located along the site access route. The farmsteads are within 500 m from the roads centre lines. The severity of impact is expected to vary, with farmsteads closer to the road more susceptible to excessive noise than those that are distant from the route. There is a degree of ease to adopt to daytime noise, however nighttime noise could infuriate residents, particularly those residing within 100 m from the roads. The magnitude of change is expected to be moderate. The impact is deemed partially reversible if nighttime travelling is restricted. Overall, the impact is expected to be adverse moderate and minor with the implementation of mitigation such as the re-gravelling and upgrade of the access route as recommended by the contracted Project traffic specialist.

The following mitigation measure would lessen traffic induced noise impacts to acceptable levels: Mitigation measures would lessen the impact to acceptable levels.

- Routine maintenance of the gravel roads;
- Discouraging nighttime travels as feasibly possible; and
- Adherence to the recommended speed limits especially for heavy vehicles.

Table 28 - Summary of traffic impacts.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Traffic flow on the district roads	Motorists Tourists	Increased traffic volumes on district roads may cause alteration to normal traffic flow.	Adverse Direct Reversible Moderate Medium term Local Likely	Medium	Minor	Minor (4)
Road degradation	Community New workforce Visitors	Increased heavy vehicles on the gravel roads may cause road degradation by causing potholes and damage to road stormwater structures.	Adverse Direct Reversible Moderate Medium term Regional Likely	Medium	Moderate	Moderate (6)
Operational phase	Community New Force	Dust generation due to increased traffic volume may cause nuisance, visual impacts and respiratory illnesses and distress.	Adverse Indirect Reversible Moderate Medium term Regional Likely	Medium	Moderate	Moderate (6)
Operational phase	Community	Increased vehicles in and out of the project area during operations will result in	Adverse Indirect Partially reversible Moderate Medium term	Medium	Moderate	Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
		noise pollution	Regional Likely			

7.3.5 NOISE IMPACTS

The noise impact assessment chapter addresses potential impact on the acoustic environment and noise sensitive receptors (NSRs) due to the mine operations. Noise is expected to be generated by activities such as ore and waste handling (loading, unloading) on waste dumps and crusher, haul truck traffic, use of mobile equipment and ore processing activities such as crushing and screening. An overview of the specific noise impacts is presented in Figure 72, for illustrative purposes only. The impacts are discussed further in this section.

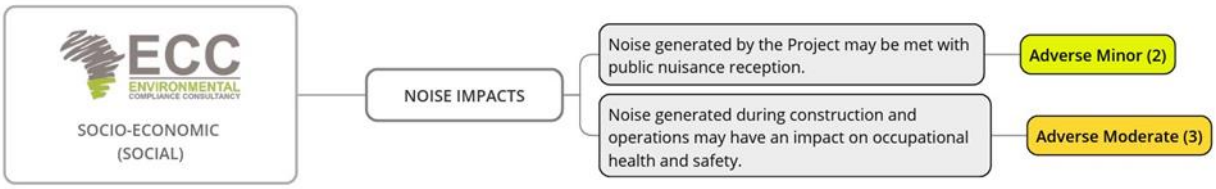

Figure 72 - Noise impacts.

Airshed Consulting was contracted in 2023 to conduct a noise baseline survey for the Project. The specialist findings have been integrated into the noise assessment with mitigation measures provided thereon. The impacts are discussed below.

7.3.5.1 The Project may generate excessive noise and may be met with public nuisance outcry by neighbouring farming community (noise sensitive receptors (NSRs))

The project area is bounded by sparsely located game farms and cattle ranches. Airshed (2023) determined that the only sensitive noise receptor in the project area is the Otjere farmstead that is ~2.5 km to the east of the mine boundary. Baseline noise levels surveyed across three sites (inclusive of Otjere farmstead) showed relatively low noise levels below the IFC residential threshold bands. The International Finance Corporation (IFC) noise level guidelines for residential receptors (55 dBA for day and 45 dBA for nighttime) have been employed and deemed applicable for the assessment as the project area lies within the greater Khomas rural setting.

Generally, excessive noise may cause public nuisance. The propagation of noise levels to be generated during the operational phase was modelled by Airshed as shown in Figure 73 and Figure 74.

It is anticipated that the Otjere farm; being the only closest residential farmstead may similarly be susceptible to some measurable noise levels from the mine operation. This may be associated with additional impacts related to disturbance to the level of comfort, disruption of sleeping patterns and communication. Noise levels across all neighbouring farms are expected to be relatively low as these farms are further away from the mine site. It is projected that the noise levels to be generated during operations will be within the day and night-time IFC noise guidelines of 55 dBA and 45 dBA, respectively. Although noise levels and related impacts are expected to be relatively low and minor across all surveyed points, noise impacts could be met with an intolerable perception as the mine is scheduled to operate 365 days per year on a two 12 hour-hour shift, exposing receptors to noise from the project all year round during the life of mine.

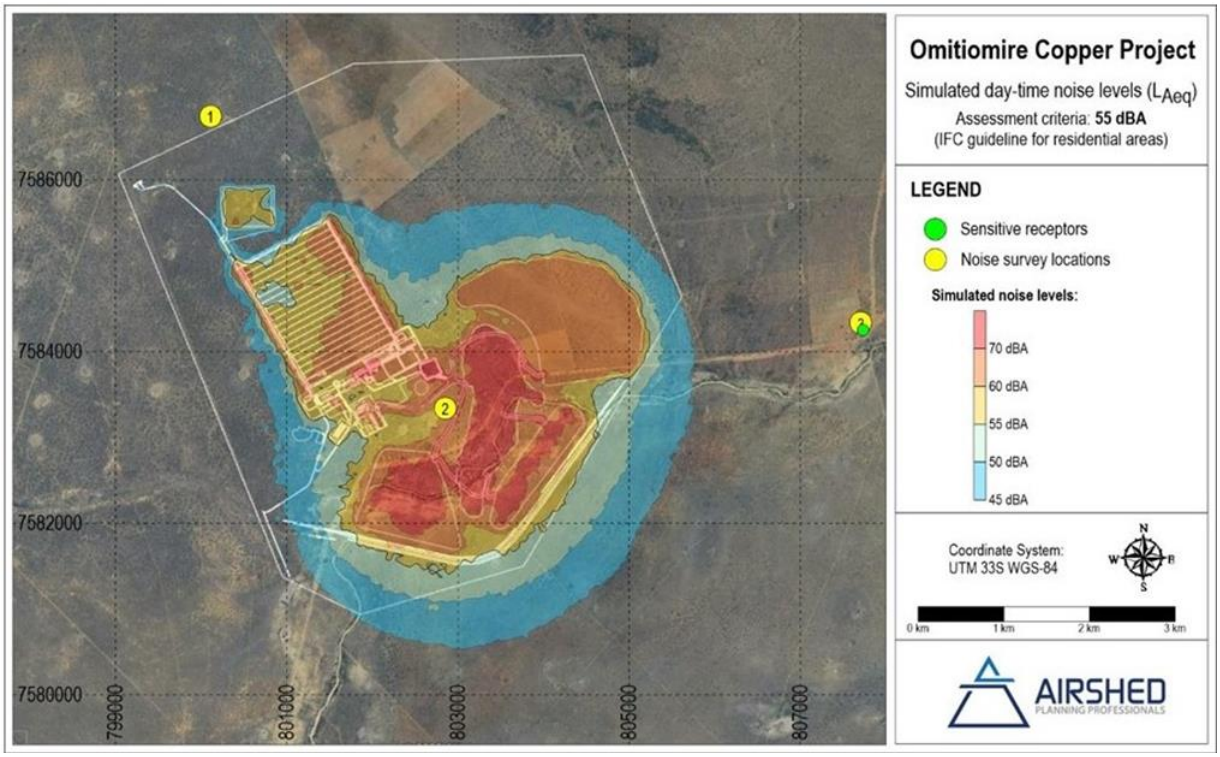

Figure 73 - Projected day-time noise level during operational activities in relation to the sensitive receptor (Airshed, 2023).

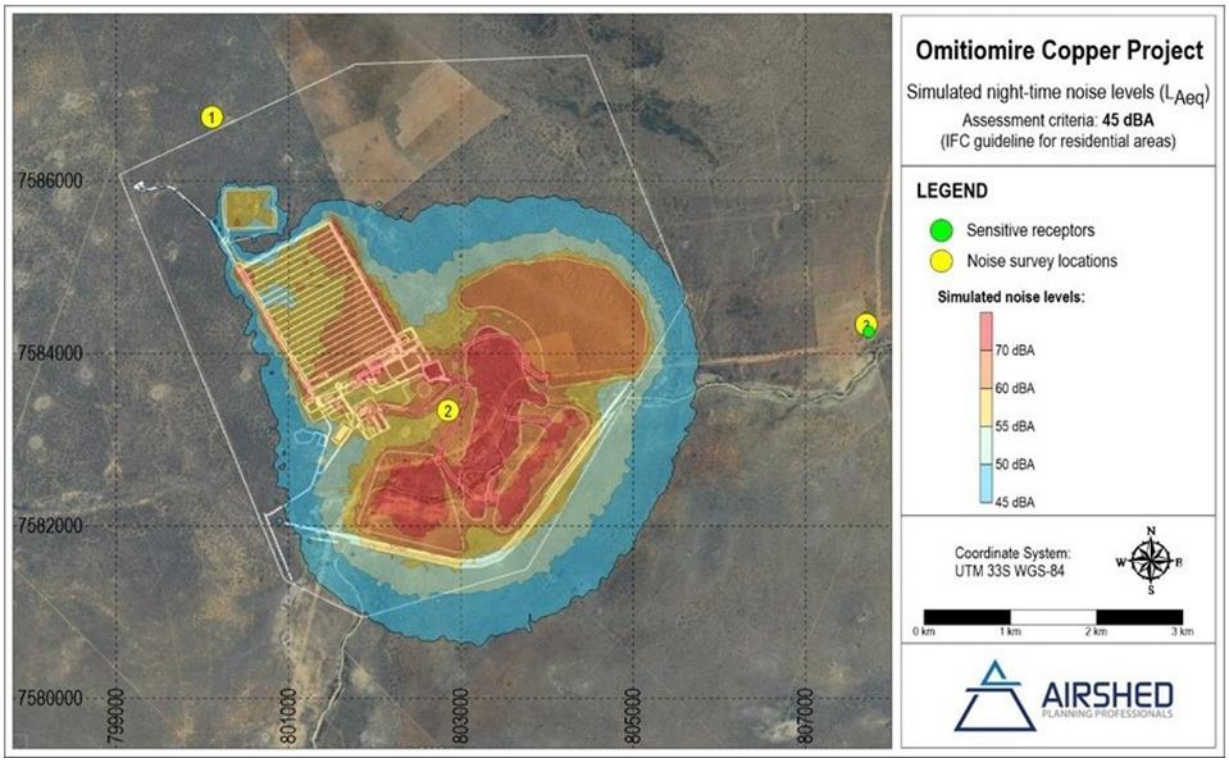

Figure 74 – Projected night - time noise levels during operation in relation to the sensitive receptor (Airshed, 2023).

The Proponent is in the process to acquire farm Otjere; therefore; no impacts are foreseen once the farm is fully procured and transferred to the mine. This would lessen the sensitivity of the impact as there will be no direct receptors (occupancies) to be impacted on. Additionally, it is expected that the WRDs would absorb noise pollution from blasting and crushing process, thus limiting or maintaining noise levels within optimal levels. Noise impacts are expected to be adverse low (Table 29).

The mine noise attenuation measures will limit the generation of noise. The following noise attenuation measures (also included in the ESMP) are such as:

- Maintaining high level maintenance of all diesel equipment and plant vehicles;
- Limiting non-routine noisy activities such as construction to day-time hours;
- Avoiding unnecessary idling of equipment;
- Maintaining road surfaces regularly to repair potholes; and
- Maintaining a noise complaint register, ensuring noise complaints are addressed as required and lessons learnt are documented.

7.3.5.2 Noise generated during mine operations may impact the health and safety of mine employees

Prolonged exposure to excessive noise levels would negatively affect the health of employees and lead to temporal, partial or permanent hearing loss. Noise from the processing plant operation, crushing and blasting activities may lead to measurable

irreversible hearing effects. It is estimated that noise levels from active operational areas such as the open pit, processing plant and leach pad would reach a peak level of over 70 dBA (Figure 73 and Figure 74). Employees deployed across these work areas are therefore susceptible to the peak noise level, which significantly surpassed both IFC noise guidelines (55 dBA day- time and 45 dBA night-time threshold). The mine occupational health and safety department is however obligated of ensuring that the proper PPE is worn by all employees through all operational areas of the mine.

The Omitiomire Copper Project will act and conduct operations within the best and feasible environmental management framework in line with Namibian best mining practises. Proper personal protective equipment will always be worn to all employees assigned to various tasks on the mine. With the mine occupational health and safety measures in place, the magnitude of change is expected to be minor. Overall, the impact is expected to be adverse moderate without mitigation measures and adverse low with implementation of mitigation measures (Table 29). Occupational health and safety measures are provided in the ESMP.

Table 29 - Noise impacts assessment.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Excessive noise from mine construction and operation	Neighbouring farming community	The Project may generate excessive noise and may be met with nuisance reception by the neighbouring farming community (noise sensitive receptors)	Adverse Direct Reversible Local Unlikely Short term	Low	Minor	Adverse Minor
Excessive noise from mine operation	Occupational health and safety (On-site employees)	Noise generated during mine operations may impact the health and safety of	Adverse Direct Reversible Medium term On-site Unlikely	Low	Low	Adverse Minor (3)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
		mine employees				

7.3.6 HERITAGE AND CULTURE IMPACTS

Heritage impacts embraces potential disturbance to structures identified within the project area with heritage significance, as a result of the project construction, operations and decommissioning activities. The impacts are presented in Figure 75 for illustrative purposes only. The impacts are discussed in the sections below.

The 2013 heritage field survey undertaken by SLR located a total of thirteen archaeological sites on farm Groot Omitiomire representing the sporadic human occupation of the area from the late Pleistocene (probably 150 000 BC) until the recent Holocene period, with some evidence of occupation in the immediate pre- colonial period (Figure 76). The terraces have been subject to extensive sheet erosion which has exposed a dense concentration of them. Sites with some archaeological significance depicting patchy terrace, discontinuous distribution of mixed Pleistocene to recent Holocene surface scatters concentrated along the south bank of the Black Nossob River were also identified.

ESM was commissioned to undertake a supplementary heritage study for the Project in November 2023. The archaeologist identified the ruined (freestanding) farmstead structures and old man-made water storage facilities within the mining licence. ESM concluded however that both structures do not warrant protection under the National Heritage Act No, 27 of 2004.

Heritage objects identified may potentially be impacted on by a range of project activities including excavation, earthwork activities and vibration from open pit operations. These impacts are discussed in the sections below

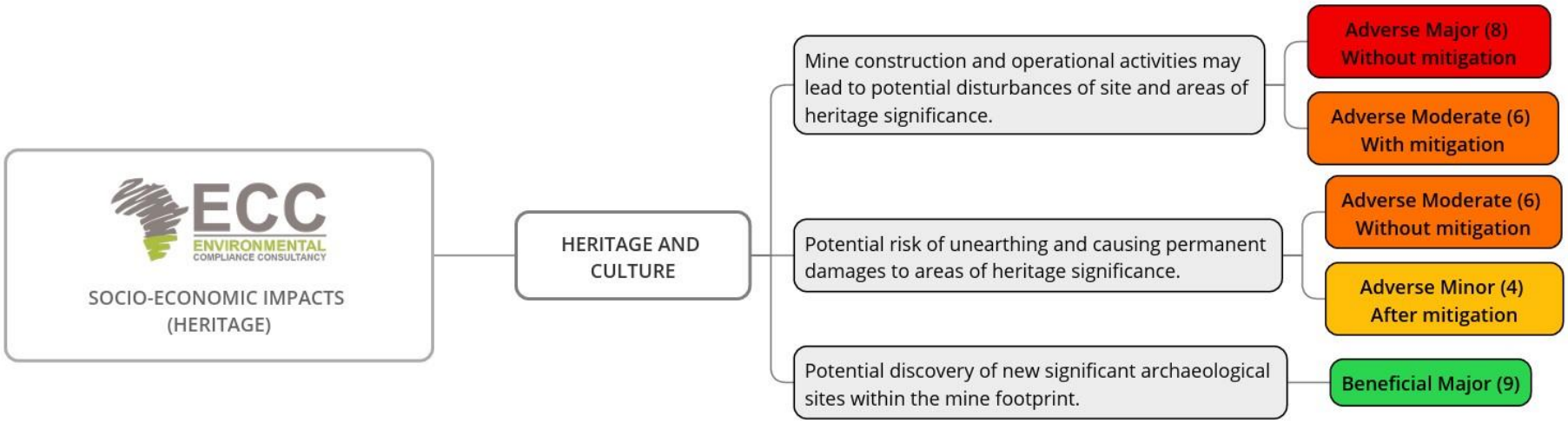

Figure 75 - Heritage impacts.

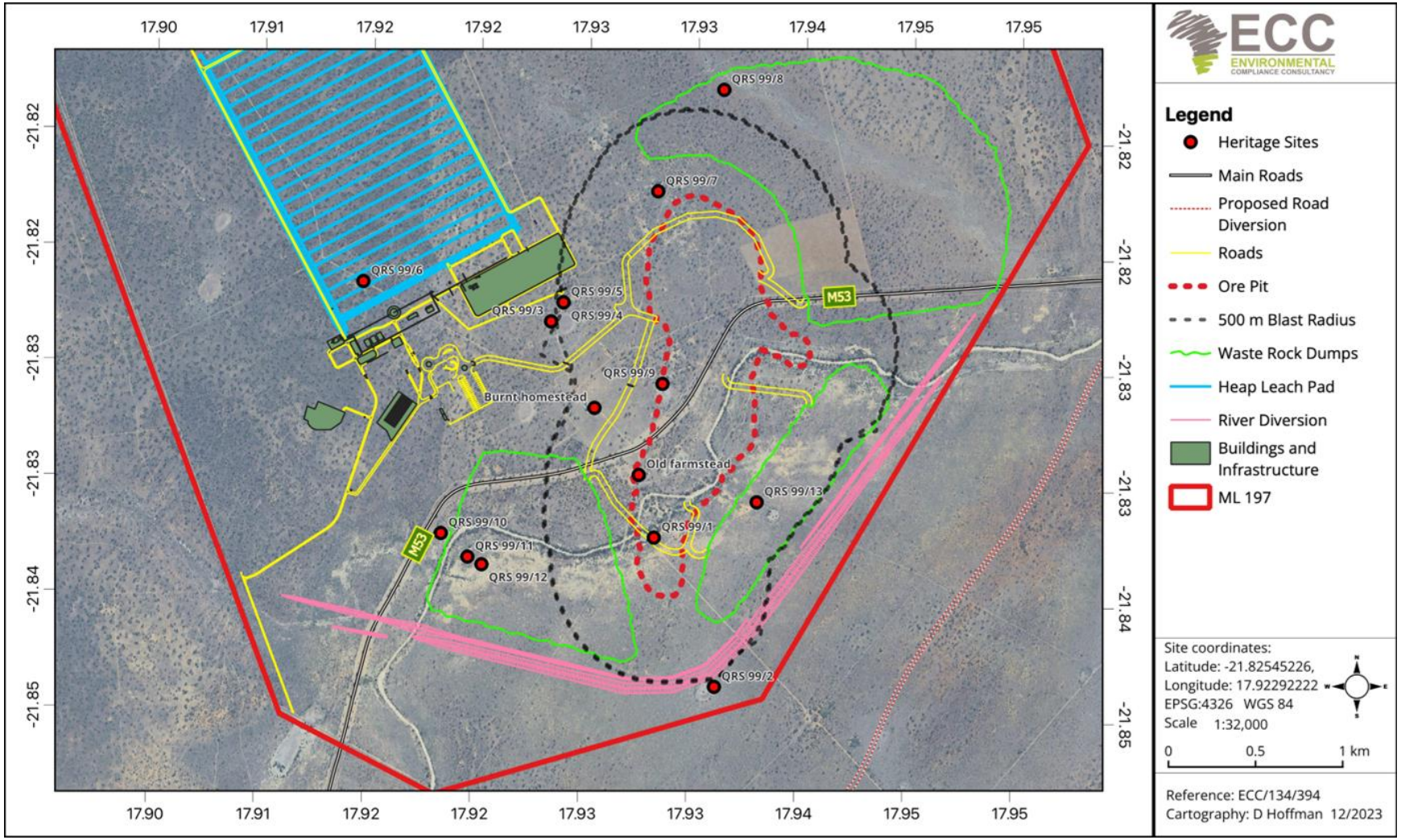

Figure 76 - The identified heritage sites within ML 197.

7.3.6.1 Mine construction and operational activities may lead to potential disturbance of sites or areas of heritage significance

The farmstead ruins and the thirteen archaeological sites representing the sporadic human occupation of the area from the late Pleistocene period until recent Holocene period encrust over areas reserved for accessory works and project infrastructure such as WRD, heap leach pad and open pit (Figure 76). It is apparent that all archaeological artefacts will be susceptible to physical and structural disturbances due to land clearing process, excavation of the open pit and any other earthworks activities related to the mine operation.

The farmstead ruins and water holding structures identified by ESM will be demolished and cleaned up prior construction. The structures do not warrant protection under the National Heritage Act and are therefore disregarded as receptors and impacts are not discussed further in this section.

The thirteen areas representing sporadic human occupation from the late Pleistocene period until recent Holocene period will be disturbed permanently from the Project onset. The impact is deemed irreversible. The areas may hold some historical value for the local area; hence the sensitivity and value of these artefacts is ranked medium. Heritage artefacts will be lost permanently as the land is cleared and excavated for the mine infrastructure; therefore, the impact is limited to the project area. Impact duration is ranked “permanent” considering that permanent damages to artefacts are expected and will endure beyond life of mine. SLR (2013) concluded that consent from the National Heritage Council which signifies that the artefacts will not be preserved prior to mine construction and operations. Most of the artefacts are isolated in undisturbed primary contexts and disturbances will lead to permanent damages and loss of archaeological and cultural patterns. The magnitude of change is regarded moderate. Overall, the significance of impact is expected to be adverse major as shown in Table 30.

The full distinctive dispersion of the artefacts has not been studied throughout the entire mining licence and beyond the mine footprint. As the terraces have evidently been subject to extensive sheet erosion over the years which has exposed a dense concentration of archaeological material, the precautionary chance find procedure and should be adopted throughout all operational areas of the mine.

7.3.6.2 Potential to discover or unearth new heritage sites in the project area

The initial heritage survey conducted as series of surface mapping and shovel test exercises to ascertain possible archaeological mitigation measures in light of the canalisation and diversion of the Black Nossob River. The shovel test field exercise discovered four relatively large, superficial recent Holocene artefacts scatters associated with the south bank terraces of the Black Nossob River (Figure 77). Theoretical concepts of possible of foci of activities have been drawn specific to each identified site, although the specialist determined that none of the site clearly showed evidence of stratification, all appears to be deflation surfaces with little archaeological materials and are therefore of low archaeological significance.

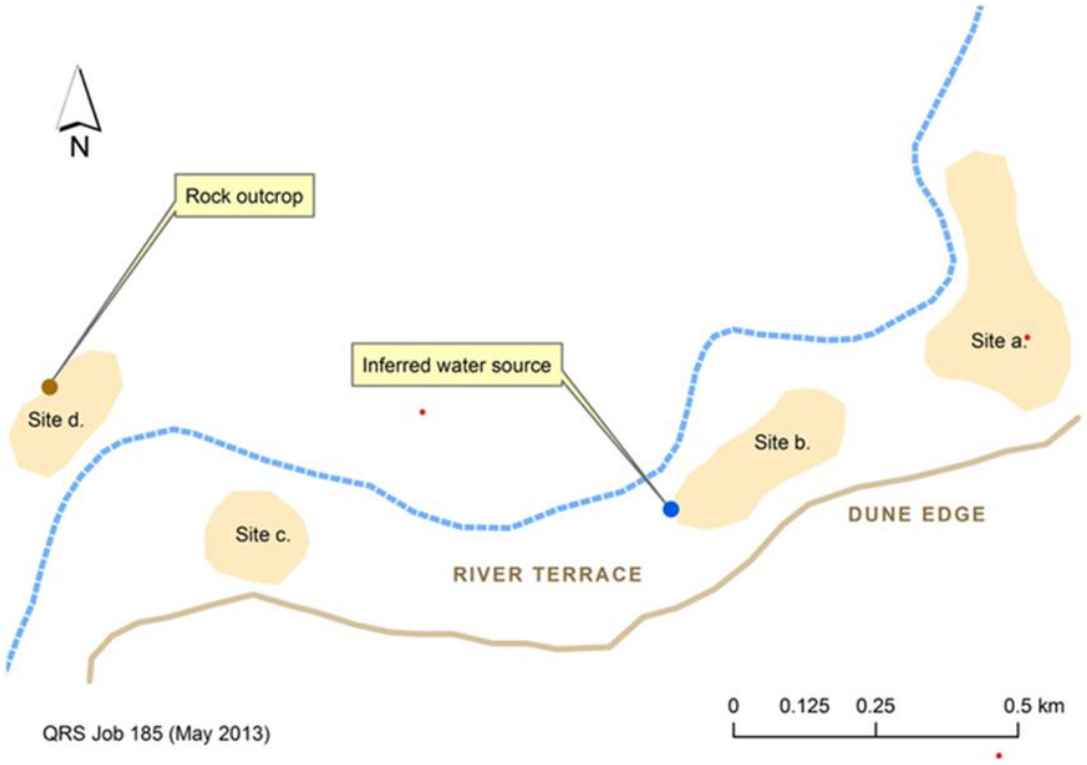

Figure 77 - Inferred position of archaeological sites on Blank Nossob River based on shovel tests.

New heritage sites may potentially be discovered in the project area. Extensive sheet erosions have exposed a dense concentration of archaeological materials in the project area, therefore some of the materials could be within the subsurface. Heritage artefacts, materials and sites of heritage significance could be discovered, unearthed and potentially be disturbed as a result of land clearing, excavation activities and other earthwork related activities during mine's operations. New discovery of heritage sites throughout life of mine is considered beneficial and would foresee the mine's commitments towards the preservation of archaeological sites within its area of operation. This will be mandated by the mine internal standard operating procedures.

However, potential disturbances to such findings could likely occur due to a lack of awareness among mine employees. The occurrence of the event is rated with a medium probability (possible). Heritage materials surveyed thus far in the project area through shovel tests have been rated of low archaeological significance, however this does not preclude the chances of new discoveries of human occupation evidence from the Pleistocene and Holocene periods. Considering the likely scenarios of the abovementioned, the magnitude of impact is ranked moderate. The impact could occur at any time throughout the life of mine. Irreversible damages could occur, however could be mitigated through site inspection and compliance monitoring. Overall, the significance of impact is expected to be adverse moderate before mitigation measures as shown in Table 30. With the implementation of the mitigation measures, the impact is lessened to adverse minor.

The following mitigation measure(s) are also included in the ESMP:

- The precautionary chance find procedure must be adopted throughout all construction and operational areas of the mine. Should any archaeological objects be found, guidelines should be followed promptly;
- Ensuring that the mine standard operating procedures related to the discoveries of heritage artefacts are enforced throughout all operational areas of the mine; and

Routine training of mine employees to ensure pristine heritage sensitive areas within the mine operational (when identified) are preserved in the best way possible.

Table 30 - Heritage impact assessment.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Mine construction and operation	Cultural heritage	Potential risk of disturbance and causing physical damages to areas of heritage significance during mine construction and operation.	Adverse Direct Irreversible Temporary On-site Definite (Certain)	Medium	Moderate	Adverse Major (8) (pre - mitigation)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Mine construction and operation	Cultural heritage	Potential risk of unearthing and causing permanent damages to areas of heritage significance	Adverse Direct Partly reversible Medium term Local Medium (possible)	Medium	Moderate	Adverse Moderate (6)
Mine construction and operation	Cultural heritage	Potential discovery of new significant archaeological sites within the mine footprint.	Beneficial Direct Irreversible High/major Permanent National Medium (possible)	High	High	Beneficial Moderate (9)

7.3.7 BLAST AND VIBRATION IMPACTS

The blast impact assessment section embraces the potential impacts of ground vibrations, air blast and fly rocks from open pit blast operations. The blast specialist study was undertaken by Blast Management Consulting in 2023. An overview of the blast impacts is provided in Figure 78 below and impacts are discussed further in the sections below.

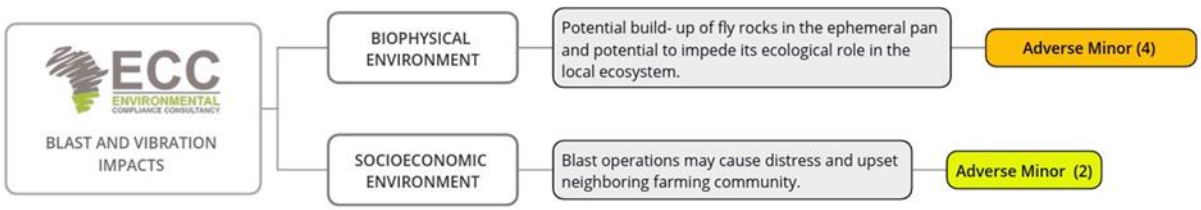

Figure 78 - Blast impacts.

The identified sensitive points of interest in the project area (most susceptible to blast impacts as they are within the 3500 m radius from the proposed pit edges). Minimum (321 kg) and maximum (1604 kg) charge mass per delay operations are proposed for the Project.

The overhead powerline grid in the project area transverse over the proposed open pit area. The powerline grid will have to be relocated prior to operations.

The ruined farmstead buildings on farm Omitiomire are un-occupied and were deemed to be of no heritage significance and will be demolished and cleaned up prior to construction. Additionally, the cattle on the property will be removed and the cement dam will be demolished and cleaned dup prior to construction.

These structures are therefore not considered as susceptible receptors. The impacts are therefore not discussed further in this section as the powerline will not be a receptor.

The M53 gravel road and the Black Nossob River currently passes through the proposed open pit area. Both sections are subject to permanent structural damages during blasting operations and will therefore be diverted to the southern boundary of the mine pit area away from the mine infrastructure. The diversion of the district road will ensure throughfare for district road users whilst the canal will ensure undistracted natural flow of flash floods. Blast impacts along these diversion channels are expected to be minor and are not discussed further in this section.

7.3.7.1 The potential for fly rocks to build – up in the ephermeral pan in the project area and impede its ecological function

The biodiversity specialist study identified ephemeral pans in the general project area as sensitive pristine habitats for amphibians. The only sensitive ephemeral pan within the unsafe zone is 417 m north from the proposed open pit edge. Considering the unsafe zone, the pan may potentially be encroached by fly rocks during blasting operations and may build up overtime. Falling debris over the pan are not expected to adversely disturb the ecological role of the pan overtime; however, in this context, concerns are raised as the pan plays an important ecological role in the project area, particularly during rainfall seasons. The magnitude of impact is expected to be minor. The probability of event occurring is regarded low due to uncertainty regarding the dispersion of fly rocks. Although the ephemeral pan would still maintain its ecological role, the sensitivity of impact is rated medium due to the sensitivity and ecological status of the pan in the local ecosystem. The impact is expected to be adverse minor (Table 31).

7.3.7.2 Blast operations may potentially cause distress and upset neighbouring farming communities

The effect of ground vibration and air blast may have influence on people and may be met with opposition. These effects tend to create noise on structures in various forms and people may react to occurrence even at low levels. However, the Project is situated in a sparsely populated area. Otjere farm is the closest private farm and is located ~3750 m east of the mining licence. Other farmsteads with occupancies are located further and blast impacts will not be felt. It may be unlikely that ground vibrations will be felt at Otjere farm as air blast levels of up to 121.5 dBL may be experienced. The level is relatively high and could trigger nuisance reactions, although on the contrary is relatively lower than the 134 dBL level which is permissible and considered problematic and would cause major structural damages to properties.

The duration of impact is expected throughout the life of mine and magnitude of impact is rated moderate although low air blast levels are expected at farm Otjere, blast schedule will increase the level of intolerance. Ground vibration levels are expected to be relatively low and air blast impacts may be met with some oppositions and complaints. Air blast impacts are reversible with the implementation of mitigation measures. The project area is however sparsely populated, with neighbouring farms and places of residencies located far away from the mining licence, thus community complaints are expected. The sensitivity is rated low as complaints are expected only from one receptor in the project area. An adverse minor impact is expected (refer to Table 31 for the impact assessment).

The following management mitigation measures can be considered to lessen the impacts from blast operations:

- Conducting test blasting at the initial phase of the Project to fully understand blast impacts;
- Monitoring meteorological information prior to blasting to ensure blasting is conducted during conditions that will have less impacts;
- Monitoring air blast results to understand the extend of air blast impacts and implement corrective measures when necessary; and
- Maintaining a complaint register to further understand the impacts from the receptors point of view.
- Review the blast design to assess the possibility of using electronic initiatives as opposed to conventional timing systems; and
- Fly rock observation, video recording of fly rocks and analysis of impacts towards targeted and un-targeted receptors. Video of each blast event may guide implementation of immediate mitigation measures; and
- For occupational health and safety, compliance to the 472 m unsafe zone.

Table 31 - Blast impacts assessment.

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Blasting operations	The biophysical environment: ephemeral pan in the project area.	Potential build-up of fly rocks in the ephemeral pan and impede it ecological role in the local ecosystem.	Adverse Direct Reversible Medium term On-site Possible	Medium	Minor	Adverse Minor (4)
Blasting operations	Social environment: Neighbouring farming community	Blast operations may cause distress and upset neighbouring farming community	Adverse Direct Reversible Medium term Local Possible	Low	Moderate	Adverse Minor (2)

7.3.8 AIR QUALITY IMPACTS

Air quality is determined by the amount and particle size of solid particulate matter (PM) and chemical pollutants in the atmosphere for a particular period of time. The main pollutant of concern in the region is particulate matter resulting from vehicle entrainment on the road (paved, unpaved and treated surfaces0 and windblown dust (Airshed, 2023). Gaseous pollutants such as SO_2, NO_x, CO and CO_2 result from vehicles and combustion sources, but are expected to be at low concentrations due to the few sources in the region.

Particulate matter (PM) is categorised according to particulates size and shape of organic and inorganic substances i.e. TSP, PM_{10} and $PM_{2.5}$. These categories are summarised below:

- TSP are airborne particles suspended in the air and may have particle size as large as 150 µm. Generally suspended particles larger than 75 µm to 100 µm do not travel far and deposit close to the source of emission;
- PM_{1O} are inhalable coarse particles that can penetrate the head airways and enter the airways of the lung. PM_{10} consist of particles with a mean aerodynamic diameter of 10 µm or smaller. The particles are typically found near roadways and dusty industries; and
- $PM_{2.5}$ are inhalable airborne particles that can penetrate beyond the terminal bronchioles into the gas-exchange regions of the lungs. These fine particles have a mean aerodynamic diameter equal or less than 2.5 µm.

Both short-term and long-term exposure to air pollutant can lead to a wide range of respiratory diseases such as lung cancer, TB, brochitis, chronic obstructive pulmonary disease COPD, cardiovascular diseases and stroke.

Temperature, wind direction and speed also play a critical role in air quality as these atmospheric parameters influence the deposition of particulate matters from emission sources. Air quality can be worse during winter months as pollutants tend to be trapped close to the earth surface by a layer of dense, cold air. In the summer months, heated air rises and disperses pollutants from the earth's surface into the upper troposphere layer.

The Project is located in an area associated with winters between May and September, equally similar to any area within Namibia. The project area is dominated by northeast (NE), south and southeast (SE) winds which are associated with average wind speed of < 10 m/s. The closest communities are located more than 30 km from the Project, however, farm Otjere located ~2.5 km to the east and farm Ekuja located ~3.5 km to the south of the mine boundary have been identified as potential air quality sensitive receptors.

The air quality impacts that may arise because of the Project (before mitigation) are presented in Figure 79 below, for illustrative purposes only. The impacts are discussed in detail in the sections thereafter.

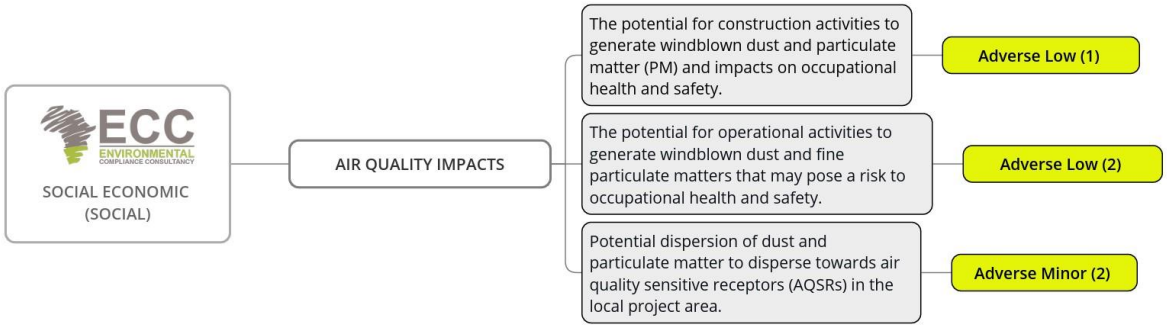

Figure 79 - Air quality impacts.

7.3.8.1 The potential for construction activities to generate windblown dust that would impact employees based on site.

The construction phase of the Project comprises of a series of operations such as site clearing, topsoil removal, road grading, material loading, grading, bulldozing and compaction. Most of the infrastructure such as surface haul roads required for the life of mine will be constructed during the first year of the Project. The extent and impact of dust from construction activities towards sensitive receptors would vary considerably depending on the level of these activities, duration and prevailing meteorological conditions.

Construction emissions are expected collectively to be lower than the operational phase emissions due to their temporary nature, duration and that these activities will not occur concurrently at all portions of the site. Given the sporadic nature of construction operations, emissions are anticipated to vary based on activity levels. The magnitude of impact is rated minor as low contributions or alterations to the overall environment's air quality are anticipated. The impact of dust generated during construction will be relatively low and may only affect employees on site. It is a standardised procedure that employees (contractors) assigned for various tasks will always be required to wear proper PPE to minimise exposure to excessive levels of dust and particulate matter. Therefore, considering the low risk the impact is rated adverse low as shown in Table 32.

7.3.8.2 Potential for Operational activities (hauling of WRDs, ore stockpiling and crushing, drilling and blasting etc) to generate windblown dust and fine particulate matter that may impact on site employees and neighbouring sensitive receptors

The operations phase of the mining life cycle presents for management of dust and emissions to ensure mine operations are in line with best environmental mining principles.

During operations, gaseous emissions (i.e. $S0_2$, NO_X, CO and VOC_s) will be generated primarily from diesel combustion, while dust emissions will be generated from activities such as vehicles entrainment on unpaved surfaces, drilling, blasting, loading, hauling, screening, crushing and ore processing. The ground level dispersion models by Airshed (2023), indicate that most dust and particulate matters will be induced as a result of vehicle entrainment on unpaved surfaces, material handling and through the screening and crushing process. Additionally, dust from the WRDs, ore stockpiles and heap leach pad may be windblown and dispersed depending on prevailing meteorological conditions.

The operational phase involves activities running concurrently along with routine implementation of mitigation measures, where required. The dust and PM emission model results for mitigated project operations indicate that the daily and annual $PM_{2.5}$ and PM_{10} levels are expected to be within the WHO IT3 daily and annual thresholds at the closest AQSRs (farm Otjere and farm Ekuja) (Figure 80 and Figure 81). Moreover, dust fall out levels are expected to be relatively low and below the three SANS threshold bands at the AQSRs during mitigated project operations (Figure 82). It is expected that the PM levels and dust fall out levels will be exceeded on-site, however, it is expected that employees will always be equipped with proper PPE required for them to perform various activities.

The impact is considered long term as the dust dispersion models indicate that both daily and annual $PM_{2.5}$ and PM_{10} thresholds may be exceeded on-site post mitigation throughout LoM. The magnitude of impact is however rated minor occupational health and safety measures will always be in place to limit likely chances of prolonged exposure. Routine mitigation measures such as dust suppression on unpaved roads and water spray of ore during crushing and screening operations will always be implemented. Overall, the significance of impact is rated low with these mitigation measures (Table 32).

The dispersion models by Airshed indicated that it is rarely likely that dust particles and fine particulate matter may be dispersed towards AQSRs, as the receptors are further away from site (2.5 km to the east and 3.5 km to the south, respectively). The terrain of the Omitiomire Project area is relatively flat. Therefore, in the effort to understand the dispersion patterns of PM and dust fall out in the local area, the Proponent will commit to maintaining the dust monitoring network and commence with ambient PM monitoring at the AQSRs. In the likely event that alarming exceedances are noted, mitigation measures will be implemented as required. With the overall implementation of mitigation measures, the significance of impact is expected to be adverse minor as shown in Table 32.

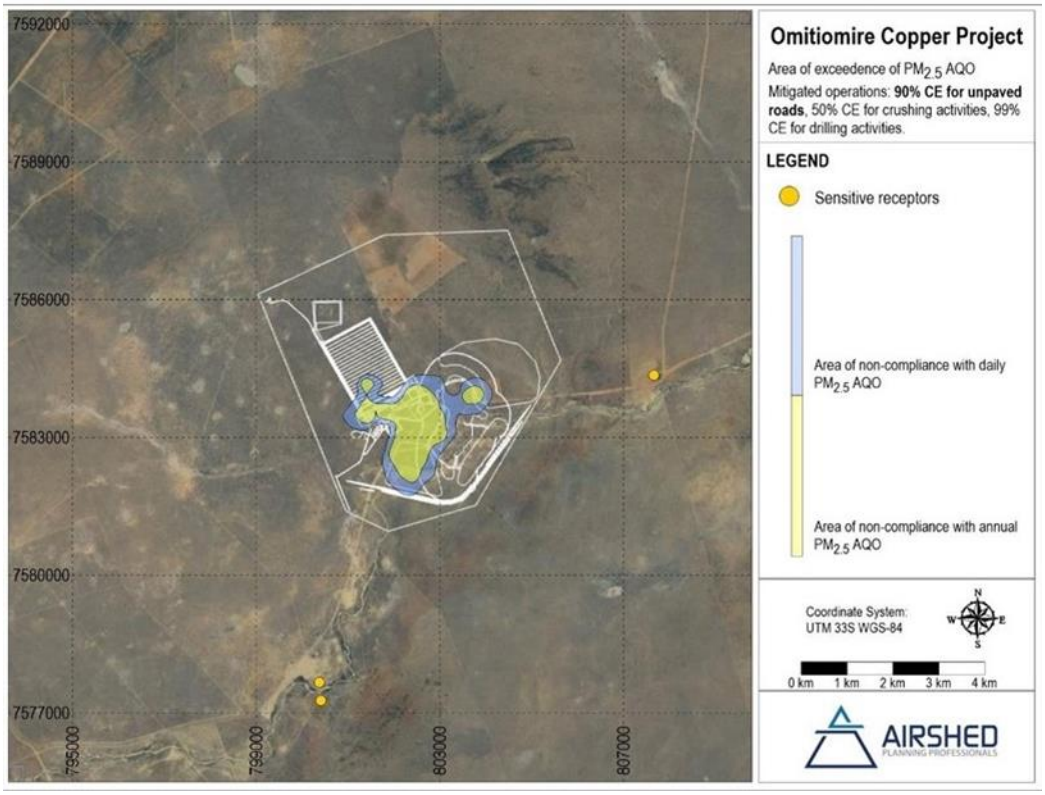

Figure 80 - Figure 1 - Modelled daily and annual $PM_{2.5}$ ground level concentrations for mitigated operations.

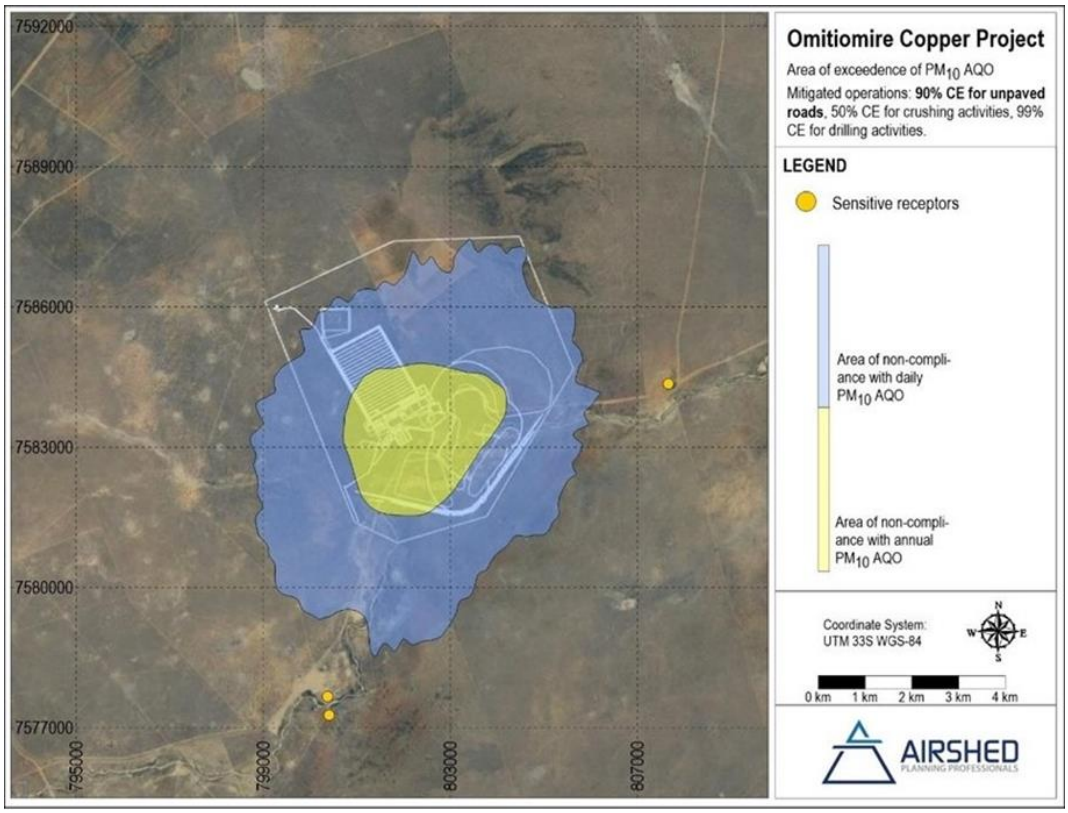

Figure 81 - Figure 2 – Modelled daily and annual PM_{10} ground level concentrations of mitigated operations.

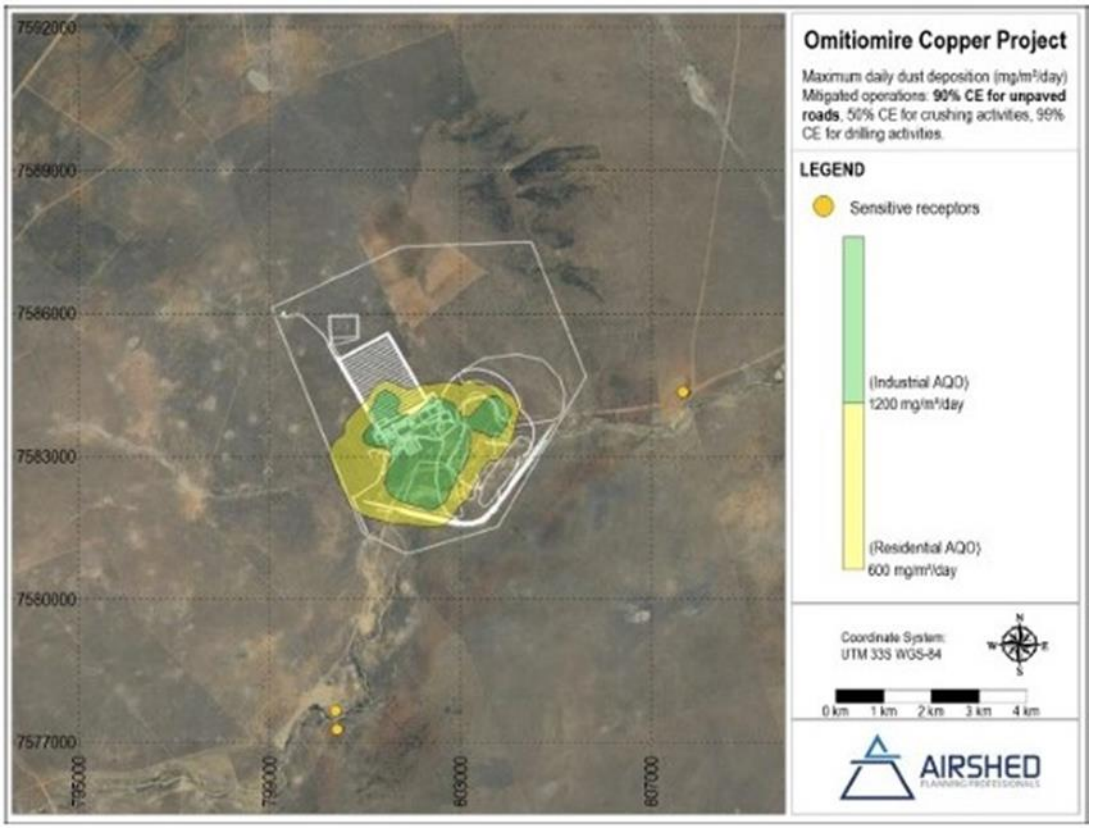

Figure 82 - Modelled dust fall out ground level concentration for unmitigated operations.

Table 32 - Air quality impact assessment.

Activity	Receptor	Impact	Nature of Impact	Value & Sensitivity	Magnitude of change	Significance of impact
Mine construction activities and infrastructure development	On-site employees	The potential for construction activities to generate windblown dust and PM and impacts on occupational health and safety.	Adverse Direct Reversible Temporary On-site Unlikely	Low	Minor	Low (1)
Operations	On- site employee	Potential for	Adverse Direct	Low	Minor	Low (2)

Activity	Receptor	Impact	Nature of Impact	Value & Sensitivity	Magnitude of change	Significance of impact
		operational activities to generate windblown dust and fine particulate matter that may impact employees on site	Reversible On-site Unlikely Local Long term			
Operation	Community (AQSRs)	Potential dispersion of dust and particulate matter to disperse towards AQSRs.	Adverse Irreversible Long term Local Unlikely	Low	Minor	Minor (2)

7.4 BIOPHYSICAL ENVIRONMENT: BIODIVERSITY IMPACTS

The biodiversity impact assessment covers potential impacts to fauna, flora and avifauna and the related ecological function or ecosystem services in the proposed Project area. Biodiversity impacts generally include issues such as alteration or loss of habitat or ecosystems (unique or other), alteration to behavioural traits of certain keystone species, disturbance to important protected species and displacement of species and offsetting.

The significant biodiversity impacts are discussed in detail in the sections below.

7.4.1 IMPACTS ON FLORA

ML 197 area has been modified by current/past farming and exploration activities. As the Project develops, certain flora species may be removed to make way for infrastructure development such as the open pit, WRD, heap leach pad, mine processing plant, access road corridors and overhead power grid servitudes. Moreover, the Black Nossob River and M53 road diversion would induce some degree of flora disturbance. There is potential risk regarding the possible spread of alien invasive species in the project area. The specific impacts to flora in the project area before mitigation during the construction and operation phases are presented in Figure 83, for illustrative purposes only. The potential impacts on flora are discussed further in the sections below.

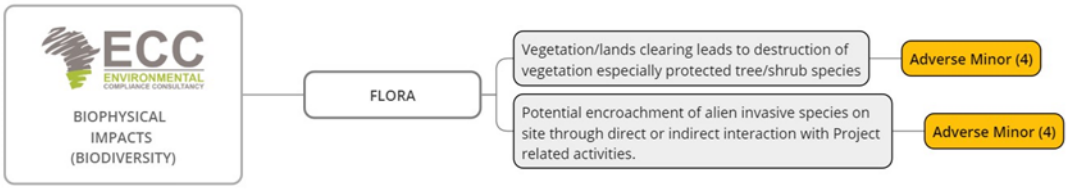

Figure 83 - Impacts on flora.

7.4.1.1 *Potential removal of protected flora species in the project area*

The ecological report by Cunningham (2023) determined that a total of 69 large tree species are expected in the general ML 197 area. Dominant protected species identified in the project development areas are such: *Tarchonanthus camphoratus*, *Acacia erioloba, Acacia hebeclada* and *Ziziphus mucronata* species (Cunningham, 2023) (Figure 84). The overall tree/shrubs composition across the proposed development area is presented in Figure 84 below. Land excavation for the open pit development and earthwork activities for other infrastructure development would warrant the removal of these species leading to physical disturbance of the site and surrounding areas.

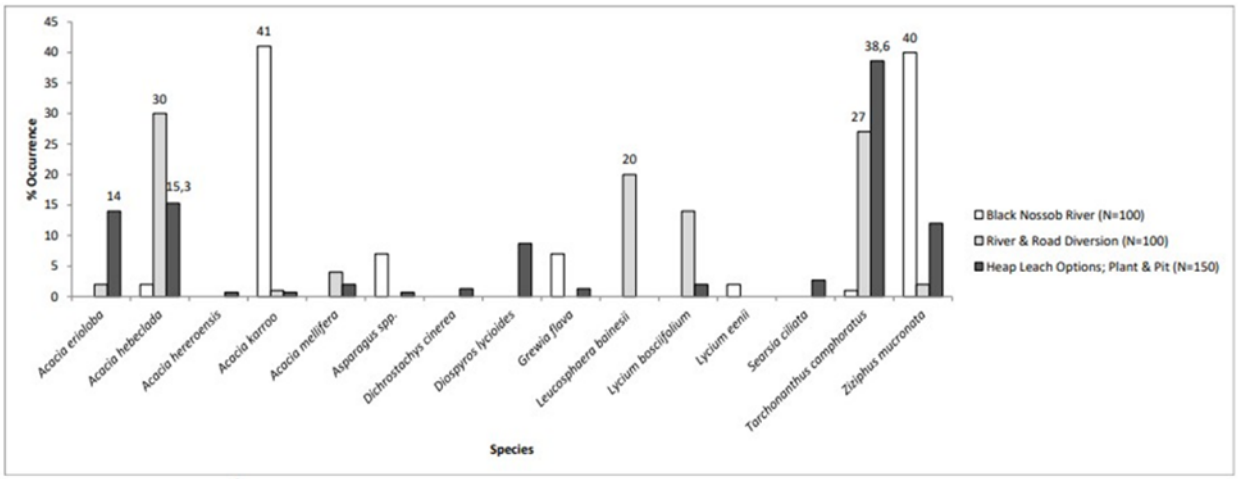

Figure 84 - Trees/shrub species composition across proposed development areas (Cunningham, 2023).

The adverse impact regarding the potential removal of protected vegetation is direct and on-site. According to Cunningham (2023), these species are however widespread throughout Namibia and are not only confined to the project area. Additionally, the removal of vegetation is a once off event, therefore, the magnitude of change is regarded moderate. Portions of land will be cleared for mine infrastructure development; therefore, the event and impact probability are ranked high. Sensitivity is low as areas planned for clearing for development purposes are regarded relatively small and land clearing will only be confined to ML 197. It is concluded that the Proponent will have to apply for vegetation clearing permits prior to any land clearing activity which lessen the overall significance of the impact. Considering the abovementioned, the overall impact is expected to be adverse- minor before mitigation (Table 33).

7.4.1.2 *Potential encroachment of alien invasive species on site through direct or direct interactions with project related activities*

The field study by Cunningham (2023) identified various alien invasive species located at the old cattle kraal and old farmstead ruin site which could have been brought by past farming activities. The following alien invasive species were identified on ML 197 during the field study:

- *Cereus jamacaru*; located at the old farmstead, purposely introduced and regarded as ornamental plant;
- *Datura innoxia* observed at the old cattle kraal and could potentially have developed through manure fertilisation;
- *Eucalyptus spp* observed at the old farmhouse ruin in the proposed pit area; and
- *Melia azedarach, Melia azedarach* and *Schinus mole* observed at the old farmstead.

There is potential infestation risk through various close contact or direct interaction, particularly during the construction phase. Should there be infestation, such species may potentially outcompete with native species and spread further to un-targeted environments.

The adverse impact is direct and deemed partly reversible. The duration of impact may endure throughout the life of mine as interactions may be simultaneous. Unless cautiously handled and removed either by mechanical or chemical methods, the sensitivity is considered medium. Although the project area is currently scarcely infested by alien invasive species, a worst-case scenario is employed in this regard, hence the event probability is rated as high with a moderate magnitude due the fast growing, rapid reproduction and high dispersal ability characteristics of invasive species. Overall, the significance of the impact is expected to be adverse- moderate (Table 33).

To mitigate the impact, the following mitigation management measures proposed and are further discussed in the ESMP:

- Mechanical clearing methods should be enforced, stem/trunk should be cut as close to the ground as possible (not higher than 150 mm);
- Removal of alien invasive species should be supervised by a qualified professional Botanist to prevent re- infecting the area;
- Dis-infect equipment after every clearing campaign; and
- Regular inspection of treated areas to monitor species re-growth capacity.

Table 33 - Impacts on flora.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Construction and operation of the open pit, waste rock dump, infrastructure and heap leach pad	Trees and shrubs	Vegetation clearing leads to destruction of vegetation, especially protected tree/shrub species	Adverse Direct Partly reversible Long term On-site Likely	Low	Moderate	Minor (3)
Construction and operation of the open pit, waste rock dump, infrastructure	Vegetation	Potential spread of alien invasive species and potential to outcompete native species	Adverse Direct Partly reversible Minor Long term Local	Low	Minor	Minor (3)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
and heap leach pad.		in the project area.	Likely			

7.4.2 IMPACTS ON REPTILES

The Project ecologist determined that 62 reptile species are expected in the area, of these, 16 are endemic. Land excavation and earthwork activities for facilities such as the WRD and heap leach pad may disturb habitats of reptile species. Blast and vibration activities during operation may modify and alter the behavioural and physiological habits of reptiles such as mating calls, competition, and predatory-prey relationships. Moreover, land excavation for the open pit may act as a pitfall for smaller reptiles which may stress reptile populations in the project area. The specific Project impacts towards reptiles occurring in the project area are presented in Figure 85, for illustrative purposes only. The potential project impacts on reptiles are discussed further in detail in the sections below.

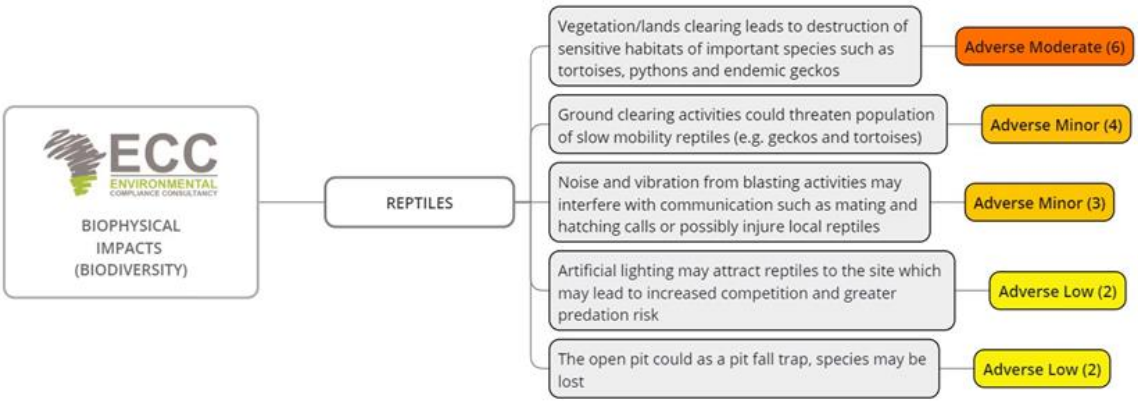

Figure 85 - Impacts on reptiles during construction and operational phase.

Ground clearing activities associated with the construction of the plant, heap leach pad, WRD, mine access road and the diversion of the Black Nossob River and M53 gravel road could potentially lead to destruction of reptile habitats. Ground clearing activities could potentially pose threats to population densities of slow mobility and ground burrowing reptile species such as *Stigmochelys pardalis* and *Psammobates oculiferus*, *Python natalensis*, *Varanus albigularis* (classified as vulnerable and protected game) and some of the endemic and rarely known gecko species- Pachydactylus which have been confirmed to occur in the project area.

Most reptiles expected to occur in the area such as geckos, monitor lizards and snakes may seek shelter in the waste rock dumps as these facilities will be large. It is expected that the WRDs would be favourable habitat for most reptile's post closure when disturbances are minimal. On another note, reptiles may be susceptible to blast vibrations and noise from

the processing plant, which may disrupt communication and mating patterns. Outdoor lightings from mine infrastructure will potentially attract certain nocturnal reptiles on the hunt for prey. This modifies the hunting and feeding characteristics of such reptiles.

The open pit operations may act as a pitfall for reptiles occurring in the project area, although reptiles may naturally be wary of the open pit through-out the life of mine and post closure. This impact is therefore expected to be low. Industrial lighting impacts towards reptiles are expected to be on-site, long term and localised. Overall, envisioned mine activities and operations are expected to have moderate to low impacts towards reptiles. The impact ratings are shown in Table 34.

The following mitigation measures will lessen project impacts towards reptiles occurring on site:

- Using existing roads and maintaining a speed limit of 30 km/h on site;
- All life forms on site have the right of way;
- Slow moving species such as tortoises and chameleons should be relocated when encountered; and
- Alternative low intense lighting options should be considered to limit lights to the site and area of operation.

Table 34 - Impacts on reptiles.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Construction and operation of waste rock dump (WRD)	Reptiles	Vegetation/lands clearing leads to destruction of sensitive habitats of important species such as tortoises, pythons and endemic geckos	Adverse Direct Partly reversible Moderate Long term Regional Likely	Medium	Moderate	Moderate (6)
Construction of mine Infrastructure		Ground clearing activities could threaten population of slow mobility reptiles (e.g. geckos and tortoises)	Adverse Direct Irreversible Permanent On-site Possible	Low	Medium	Minor (4)
Blasting and drilling		Noise and vibration from	Adverse Direct	Low	Minor	Minor (3)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
activities during operations		blasting activities may interfere with communication such as mating and hatching calls or possibly injure local reptiles	Reversible Minor Short term Local Likely			
Power supply infrastructure		Artificial lighting may attract reptiles to the site which may lead to increased competition and greater predation risk	Adverse Direct Reversible Minor Long term On-site Likely	Low	Low	Low (2)
Construction and Operational phase		The open pit could act as a pit fall trap and species may be lost.	Adverse Direct irreversible Moderate Long term On- site Likely	Low	Low	Low (2)

7.4.3 IMPACTS ON AMPHIBIANS

The project area has been heavily impacted by past farming and exploration activities. Noise and vibration from blasting activities may trigger physiological modifications and cause stress, suppress immune function and affect colouration of amphibians. Similar to reptiles, amphibians may experience physiological and behavioural changes due to artificial industrial lighting from the mine power supply infrastructure. The specific impacts to amphibians in the project area before mitigation are presented in Figure 86, for illustrative purposes only. The potential impacts are discussed further in the sections below.

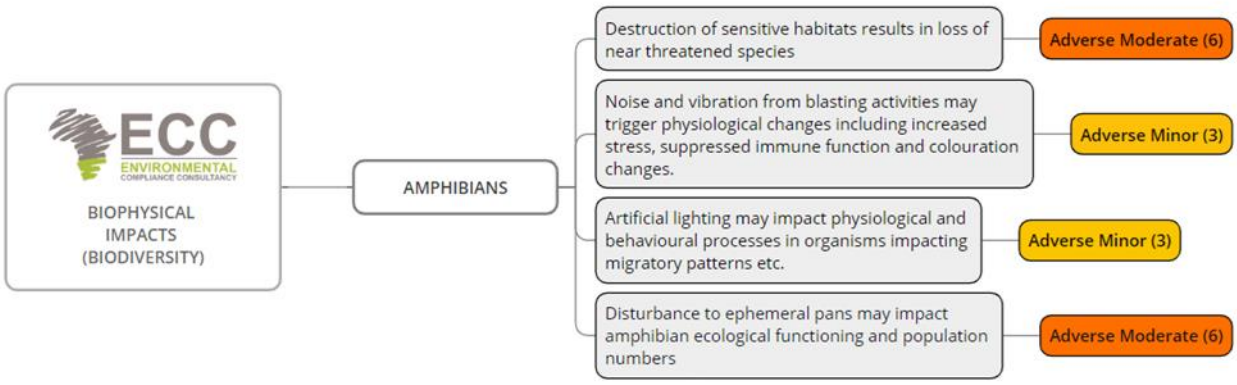

Figure 86 - Impacts on amphibians.

According to Cunningham (2023), ephemeral pans identified in the project area are unique and favourable habitat for amphibians, hence disturbances to these pans and other water courses could ultimately impact amphibian diversity in the project area and/or its surrounding. Cunningham (2023) determined that at least 6 ephemeral pans are located within ML 197.

Endemic species such as *Phrynomantis annectens*, *Phrynomantis bifasciatus* and *Pyxicephalus adspersus* (classified as near threatened) are expected to occur in the project area. These species numbers are decreasing in Namibia (Cunningham, 2023). Therefore, preservation of these pristine habitats should be the Proponent's enduring commitment.

An example of the ephemeral pan is illustrated in Figure 87.

Figure 87 - Ephemeral pan in ML 197 (Source: Cunningham, 2023).

Ephemeral pans encrust over the open pit and the proposed site for the heap leach pad. Disturbances of these pristine amphibian habitats is therefore expected. It is definite that the pan encrusting over the open pit will be disturbed as the pit layout is fixed and is pertinent to the underground orebody, therefore no other alternative site could be considered.

The disturbance of the ephemeral pans in the project area is expected to be permanent and irreversible, and amphibians' mortalities could occur during excavations. Additionally, disturbance to ephemeral pans in the project area would impact ecological functions of the pans and threaten the population densities of amphibians whose ecological status is decreasing and is a national concern. Therefore, both sensitivity and magnitude of change are regarded moderate. The magnitude of change related to noise and lighting impacts range between minor to moderate as amphibians are usually in hibernation or estivation and would only return to waterbodies during the breading season. Blast vibration impacts towards amphibians may however impose some degree of disturbance. The overall project impacts on amphibians ranges between minor to moderate as shown in Table 35.

Table 35 - Impacts on amphibians.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Construction and operation of the open pit	Amphibians	Destruction of sensitive habitats results in loss of near threatened species.	Adverse Direct Irreversible Moderate Medium term Local Likely	Medium	Moderate	Moderate (6)
Blasting and drilling activities during operations		Noise and vibration from blasting activities may trigger physiological changes including increased stress, suppressed immune function and colouration	Adverse Direct Reversible Moderate Short term Local Likely	Low	Moderate	Minor (3)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
		changes.				
Power supply infrastructure		Artificial lighting may impact physiological and behavioural processes in organisms impacting migratory patterns etc.	Adverse Direct Reversible Minor Long term On-site Likely	Low	Minor	Minor (3)
Constructions and operations of heap leach pad		Disturbance to ephemeral pans may impact amphibian ecological functioning and population numbers.	Adverse Direct Partly Irreversible Moderate Long term On-site Likely	Moderate	Moderate	Moderate (6)

7.4.4 IMPACTS ON MAMMALS

The specific impacts on mammals (before mitigation measures) are presented in Figure 88 for illustrative purposes only. Impacts are discussed in detail in the sections thereafter.

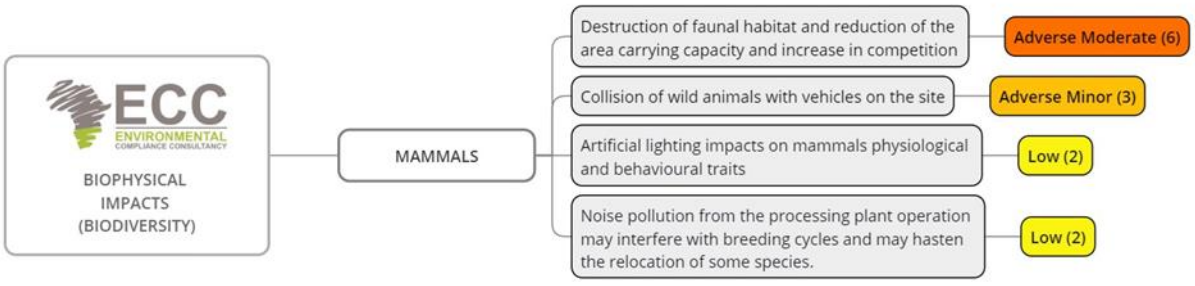

Figure 88 - Impacts on mammals during project construction and operations.

Land clearing and frequent movements on site during construction and operation may reduce the carrying capacity of the area, which may increase competition for resources, particularly among large mammals' population. This is expected as larger mammals are responsive to disturbances such as noise, lights and tend to migrate to areas with better conditions that suit their needs. This is also triggered should human induced factors such as noise and lighting become more invasive. The farms surrounding the project area are all fenced off, therefore large mammals would likely react to disturbances by relocating to un-disturbed portions. Some larger mammals may avoid active mining areas or be deterred by the waste rock dump site.

Game migration patterns in the local area have been taken into account in the assessment. In a worst-case scenario vehicles and wildlife collisions could occur in the vicinity of the Project area, leading to injuries and/or possibly death of small/large mammals as a result of the changes in the traffic volumes (during both construction and operation) on the mine access roadways and network.

Mammals are very responsive to disturbed environments, therefore the magnitude of change and sensitivity of impacts rank between minor to moderate. Vehicles collisions with wildlife will be local and could be severe during the initial phase of the Project, however as motorists and employees get more accustomed to the site, the impact is expected to be moderate. Overall, the significance of project activities and operations impacts on mammals are expected to range between low- minor and moderate. Table 36 provides a summary of the project impacts on mammals before mitigation.

To mitigate mammal fatalities on site, the following mitigation measures are recommended and are further detailed in the ESMP:

- All vehicle activities (including haul trucks) should abide to the site speed limit of 30km/h;
- As per project design, the mine active area should be defined and securely fenced-off to ward off mammals that would adapt to living in the disturbed environment; and
- Mammal fatality records should be kept; root cause investigations should be conducted thoroughly by the HSE department and reason learnt should be documented.

Table 36 – Impacts on mammals.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Construction and operation of waste rock dump (WRD)	Mammals	Destruction of faunal habitat and reduction of the area carrying capacity and increase in resource competition.	Adverse Direct Partly Irreversible Moderate Medium term On-site Likely	Medium	Moderate	Moderate (6)
Construction and operational activities		Collision of wild animals with vehicles on the site	Adverse Direct Irreversible Moderate Long term Local Possible	Low	Moderate	Minor (3)
Power supply infrastructure		Artificial lighting impacts on mammals physiological and behavioural traits.	Adverse Direct Reversible Minor Long term On-site Possible	Low	Minor	Low (2)
Processing plant operation		Noise pollution may interfere with breeding cycles and may hasten the relocation of some species.	Adverse Direct Irreversible Moderate Medium term On-site Possible	Low	Moderate	Low (2)

7.4.5 IMPACTS ON AVIFAUNA

Ground clearing activities and infrastructure development such as the overhead power grid, heap leach pad, open pit and WRD would likely have impacts on bird populations in the project area and its surroundings. Heavy birds with poor manoeuvrability such as Kori bustards, vultures and Ludwigs's bustards are prone to collision and electrocution with the project overhead powerline. Artificial industrial lighting may also attract birds and possibly

deplete their energy reserves as their biological clocks may become disrupted and modified. Ground clearing activities particularly along the Black Nossob ephemeral drainage line could cause removal of certain flora species which are unique as habitats for certain avifauna species of local to international conservatory concerns.

The specific impacts on avifauna species are presented in Figure 89 for illustrative purposes only.

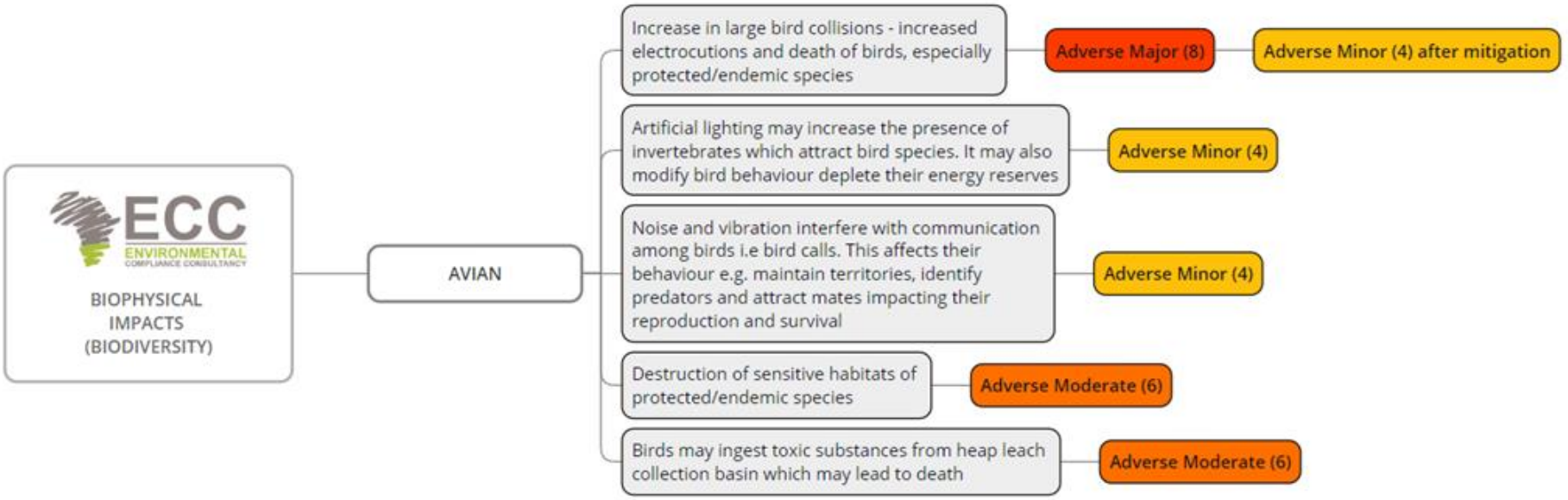

Figure 89 - Impacts on avifauna during construction and operational phase.

The biodiversity study by Cunningham (2023) concluded that general project operations could affect bird species of concern observed in the project area. Birds are however mobile and will not be limited to the operational or disturbed areas. Groups of species noted of concern associated with the general project area are such as:

- Namibia endemic species: Rűppel's parrot and violet woodhoopoe (not necessarily observed on site during the field survey but are known to be unique to the general project area and are known to have the lowest population size of all Namibian endemics bird species);
- Critically endangered: White – backed vulture;
- Endangered: Ludwig's bustard, Lappet-faced vulture, Bateleur, Black harrier, Martial eagle, Secretary bird;
- Vulnerable: Tawny eagle; and
- Near threatened: Kori bustard and Marabou stork.

The potential avifauna impacts are discussed in detail in the sections below.

7.4.5.1 Potential avifauna collision and electrocution by direct contact on powerline structures

There is a potential risk of increased electrocutions and collision of birds with the overhead powerline, which could lead to injuries and fatalities of endemic and protected species occurring in the project area. Heavy flying birds with slow manoeuvrability would be most susceptible to powerline collisions. The adverse impact is expected to be direct and expected to be long- term for the duration of the mine (10 years). There is an existing power grid on farm Groot Omitiomire, therefore an additional powerline would likely increase probability of the events occurring. The magnitude and sensitivity of the impacts are expected to be major and medium as critically endangered and vulnerable species such as White-backed vultures, Kori bustard and Marabou stork birds are expected and/or have been confirmed to occur in the project area. Kori bustard being the world heaviest flying birds are more susceptible to powerline collision due to their poor manoeuvrability. Overall, the significance of the impact is regarded adverse major considering the species of concern that have been confirmed to occur in the project area.

The Project would require a separate EIA study for the powerline. Mitigation measures may include:

- Sensitive sections of the powerline should be marked to increase visibility (i.e. the use of bird deterrents such as bird flight diverters);
- Ensure that the entire powerline route is monitored for any signs of bird mortalities resulting from the operation of the line e.g., regular monitoring patrols should be carried out once a month for at least the first year after construction, and thereafter at least once per quarter;

- Construct a simple bird perch device on top of the tower structure to encourage birds to perch above dangerous structures rather than on them or use braced insulators in vulture sensitive areas;
- Record all bird mortalities on a standardised form, with the GPS coordinates and powerline structure and other details, and photographs of the carcass (especially the head of the bird), powerline structure and general habitat; and
- Existing power lines in the area should also be inspected from time to time, for cumulative impacts.

7.4.5.2 Artificial lighting attracting birds of prey to the mining area

Birds are migratory and it is expected that nocturnal birds (owl, nightjars etc.) searching for prey would be attracted by the mine lights. Therefore, the scale of these adverse impacts is expected to be local. The adverse impacts are considered direct and medium term for the duration of the mine (10 years). The magnitude of impact is considered minor as nocturnal species impacted on are local to the area, hence no local or regional impact is expected. Heavy birds such as White-backed vultures, Lappet-faced vultures and Marabou stork are not direct receptors as they are diurnal and would congregate in large communal roosts, primarily feeding on carrion. The significance of the impact is expected to be minor (Table 38).

On-site mitigation programmes are required to be enforced through regular monitoring of avifaunal activity. Light management measures include using low intensity lighting bulbs in the overall mine architectural design to limit light pollution, whereas downward- facing lighting options should be considered to limit light to areas of operations.

7.4.5.3 Potential destruction of unique avifaunal habitats

During the construction phase, flora species across the project development areas will be cleared. These species are habitats for roosting, perching and breeding birds, therefore certain species may be displaced.

Cunningham (2023) concluded that the riparian vegetations along the Black Nossob River is comprised of large, protected trees such as *Ziziphus mucronata* and *Acacia erioloba* which provide habitat for some raptors and vultures in the project area. Furthermore, Lappet-faced vultures, White-backed vultures and Marabou stork are known to nest in the general project area, although nests in the immediate ML 197 could have been missed during the field survey.

Table 37 presents a summary of the tree and shrub species composition encountered across the proposed project infrastructure sites (Cunningham, 2023).

Table 37 - Trees/shrub composition at proposed project infrastructure sites.

Site	Dominant trees/shrubs species and density	Total number of tree/shrub species
Black Nossob River	- *Acacia karroo* and *Ziziphus mucronata*	7
River & Road Diversion area	- *Acacia hebeclada*, *Tarchonanthus camphoratus* ,*Leucosphaera bainesii* , *Acacia erioloba* and *Ziziphus mucronata*	8
Heap Leach, Pit & Plant areas	- *Tarchonanthus camphoratus*, *Ziziphus mucronata Acacia hebeclada* and *Acacia erioloba*	13

Cunningham, (2023) maintained however that the protected species listed above are widespread throughout Namibia and not limited to the development area.

The adverse impact of potential destruction of birds' habitats is direct, partly reversible and will be long term. Bird's nests and Juvenile birds (but entire population will not be lost) will be impacted during the clearing process; therefore, the impact will be on-site. Birds are localised and migratory and would therefore avoid active mining areas or will be deterred by construction, blasting and noise. The magnitude for change is considered moderate due to the internationally IUCN listed species may be displaced to other areas. Overall, the significance of the impact is expected to be adverse- moderate as species will recuperate from the impact, thus detrimental ecosystem dis-functionalities are not expected.
The following mitigations are recommended and are detailed and discussed in the ESMP:

- Vegetation clearing permits should be applied for;
- Prevent or discourage activities with potential to cause veld fires as this could burn out sensitive habitats; and
- Regular monitoring is required to determine sensitive avifauna nesting or breeding sites.

7.4.5.4 Bird interaction with wet waste materials (weak acids) of the heap leach pad

There is a potential risk of birds ingesting wet industrial waste materials (weak acids) from the heap leach pad during operations. Potential impacts from ingestion of waste materials could lead to injury or death of certain species.

The impact is expected to be direct, localised and will have a medium impact considering the life of mine (10 years). The probability of the impact occurring is highly probable, as the general project area has an active avifaunal population (~141-170 species) (Cunningham, 2023). The value of sensitivity is medium as raptors observed on site are of conservatory concerns. Although the adverse impact is highly probable, the significance of the impact is expected to be moderate and would not lead to permanent ecosystem disturbances and it

is expected that rehabilitation of the heap leach pad will lessen the impacts beyond post closure. A summary of the impact assessment before mitigation is provided in Table 38.

Table 38 - Impacts on avifauna.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Power supply infrastructure (Without mitigation applied)	Avifauna	Increase in large bird collisions - increased electrocutions and death of birds, especially protected/endemic species	Adverse Direct Irreversible Major Long term Regional Likely	Medium	Major	Major (8)
		Artificial lighting may increase the presence of invertebrates which attract bird species. It may also modify bird behaviour and deplete their energy reserves	Adverse Direct reversible Minor Medium term Local Possible	Medium	Minor	Minor (4)
Blasting and drilling activities during operations		Noise and vibration interfere with communication among birds i.e bird calls. This affects their behaviour e.g. maintain territories, identify predators and attract mates impacting their reproduction and survival	Adverse Direct Reversible Minor Medium term Regional Possible	Medium	Minor	Minor (4)
Construction and		Destruction of sensitive habitats	Adverse Direct	Medium	Moderate	Moderate (6)

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
operational phase of the plant, pit, WRD and heap leach pad		of protected/ endemic species	Partly reversible Moderate Long term On-site Possible			
Operations of heap leach pad		Birds may ingest weak acids from heap leach collection basin which may lead to death	Adverse Direct Partly Irreversible Moderate Medium term Local Likely	Medium	Moderate	Moderate (6)

7.4.6 CLIMATE CHANGE IMPACTS

Globally, mining companies are known to generate significant amounts of greenhouse gas (GHGs) emissions primarily through chemical operational processes, energy consumption as well as on-site and off-site transportation. GHGs are direct contributing factors to climate change, it is therefore crucial for industries to integrate decarbonation models in today's business environments. Figure 90 below provides an overview of the climate change impacts related to the Omitiomire Copper Project. The impacts are discussed further in the section below.

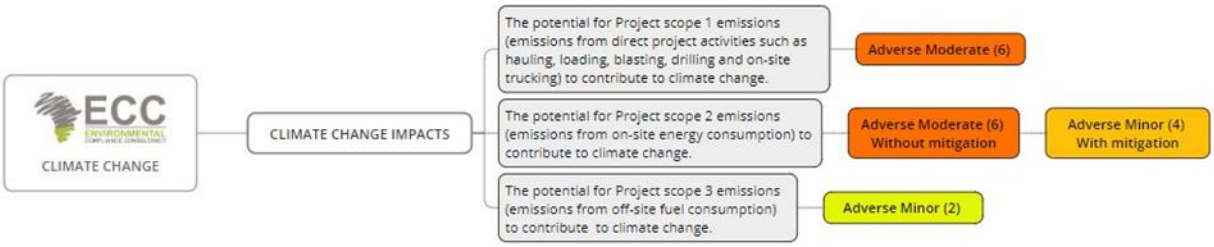

Figure 90 - The Project impact on climate change.

7.4.6.1 Potential for Project activities to generate GHG emissions

The projected GHG emissions that will be produced by the Project over LoM were calculated and modelled in the climate change report compiled by RDJ Consulting in 2023. The projections were based on plans and assumptions which created a picture of the anticipated

climate change impacts that can occur based on the LoM activities. It is projected that the Omitiomire Copper Project will generate scope 1 and scope 2 $C0_2e$ emissions exceeding 100,000 tonnes tCO_2e per annum at a particular juncture of operations. According to the Equator Principle (2), significant scope 1 and scope 2 emissions values (>100 000 tCO_2e) should be quantified and thoroughly assessed.

Projections indicated that operation of the Omitiomire Copper Project will generate a total of 1, 299,919 tCO_2e over LoM. During year seven (7) of operation, emissions of about 150,725 tCO_2e could be expected. Scope 1 emissions derived from various construction, operational activities such as loading, hauling of ore and waste rock, drilling, blasting and on-site traffic movements are estimated to reach a maximum level of 79,598 tCO_2e in year seven (7) of operation and cumulatively would account to 623,498 tCo_2e over the LoM. The high use of electricity in the production process will contribute to overall scope 2 peak emissions of 45,821 tCO_2e and cumulatively would account to 466,102 tCO_2e over the LoM. Scope 3 emissions are indirect emissions and are a consequence of the activities not directly owned or controlled by the mine, it is expected that annual emissions would peak with a value set of 23,779 tCO_2e (majority attributed to off-site fuel use) during year three (3) of operations, and cumulatively a relatively low emission value set of 210,319 tCO_2e over LoM.

In isolation, annual emissions from all three emission categories throughout the life of mine do not trigger the 100,000 tCO_2e Equator Principle (2) threshold for quantification and reporting. Nonetheless, GHG emissions from all three combined scope of emissions over the life of mine are projected to contribute to emissions above the Equator Principle (2) emission threshold from year one (1) to year ten (10) of operation (Figure 91).

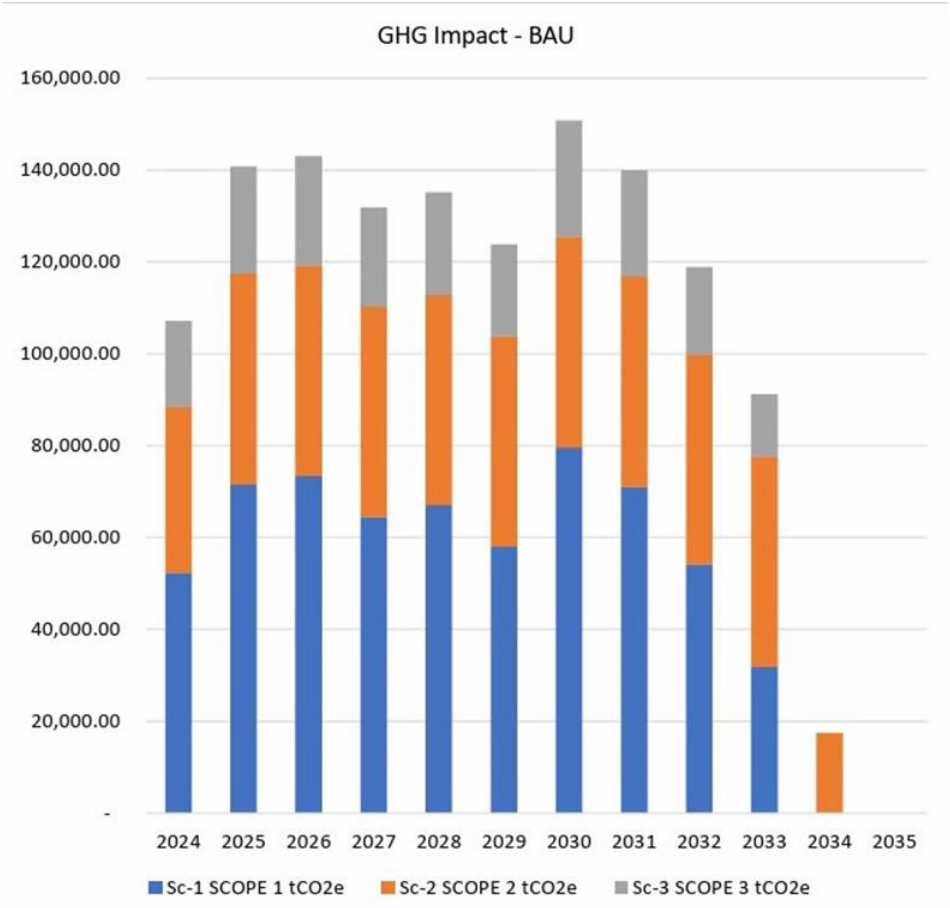

Figure 91 - Projected GHG emissions associated with operations of the Omitiomire Project.

Scope 1 and scope 2 emissions are directly associated with the mine operation and/or controlled by the mine and combined emissions are expected to be slightly above the 100 000 tCO_2e threshold from year 2 to year 7 of operations (Figure 91). Craton proposes to use solar photovoltaic generation to account for ~30% of the mine electricity demand which would significantly reduce scope 2 life of mine emissions from 1,299,919 tCO_2e to 1,160,088 tCO_2e.

The mine is expected to generate GHG emissions throughout the life of mine, therefore the duration of impact is expected to occur throughout the run of mine. Both scope 1 and scope 2 emissions and deemed partly reversible as emissions from activities could be lessened through interventions and use of alternative technologies that have low carbon footprints. The Project will use electricity acquired from the local utility (NamPower); therefore, the scale of scope 2 emissions is rated national as NamPower imports ~70% of its electricity to meet local demand. Integration of supplementary solar photovoltaic energy would significantly reduce scope 2 emissions therefore the magnitude of impact is rated minor as the mine will significantly reduce its carbon footprint. With the integration of the proposed supplementary energy, significance of impacts of both scope 1 and scope 2 emissions is rated medium as emissions in exceedance of the 100 000 tCO_2e threshold is only expected

during four (4) distinguished years of operation over the LoM. While scope 3 emissions are not directly controlled by the mine, an overall value set contribution is expected and thus scope 3 emissions are rated adverse minor. Adverse moderate impact (scope 1) and adverse minor impact (scope 2) could be expected, respectively.

The potential for climate change to impact the proposed project are rated non – significant as the Proponent will have emergency management measures and plans in the event of increasing temperature, occurrence of fire, drought periods and flood events.

Namibia is classified as a carbon sink country in comparison to other global GHG emitters, although Namibia's low population and economy are vulnerable to climate change, the overall impact of the Project's contribution to climate change has been rated minor. Table 39 below shows the impact ratings. Good emissions reduction practises for consideration during the operation are provided in the ESMP.

Table 39 - The Project CO_2 and GHGs emission rating.

Activity	Receptor	Impact	Nature of impact	Value & Sensitivity	Magnitude of change	Significance of impact
Construction and operations	Air quality, biota and people	The Project's scope 1 emissions contribution to climate change.	Adverse Direct Partly reversible Long term Local Possible	Medium	Moderate	Adverse Moderate (6)
Construction and operations	Air quality, biota and people	The Project's scope 2 emissions contribution to climate change.	Adverse Direct Partly reversible Long term National Unlikely	Medium	Minor	Adverse Minor (4)[2]
Construction and operations	Air quality, biota and people	The Project's scope 3 emissions contribution to climate change.	Adverse Direct Irreversible Long term Local Unlikely	Low	Minor	Adverse Minor (2)

[2] Post the provision and use of renewable solar photovoltaic energy on-site.

7.4.7 GROUNDWATER IMPACT

The Omitiomire Copper Project lies in an area characterised the shallow aquifer in the alluvium and the deep aquifer which is confined in the hard rock. The unconfined alluvial aquifer comprises of silty sand about 10 m deep and is strongly influenced by recharge and evaporation. The deep fractured aquifer has a very low porosity.

Groundwater flow within the Black Nossob River alluvial deposit is of local importance to the local farming community as it is generally of excellent quality (Group A) and is pumped to the surface through local boreholes.

Bulk water supply required for the Project will be sourced from the Summerdown Kalahari Aquifer.

This section therefore describes the nature of impacts related to surface water flow (hydrology) and groundwater (hydrogeology) in the two Project areas as a result of the proposed mining activities. The specific impacts are discussed independently in the section below and mitigations to reduce the impacts are provided.

An overview of the groundwater impacts aligned with the operational activities are provided in Figure 92, for illustrative purposes only. The impacts are discussed in detail in the section below.

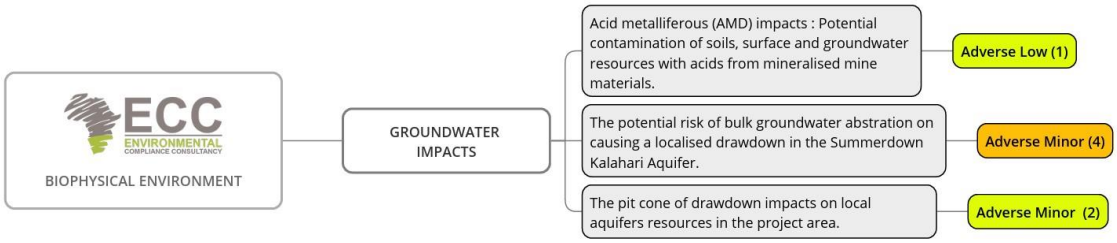

Figure 92 - Groundwater impacts.

7.4.7.1 Acid mine drainage (AMD) impacts

The geological model and mine plan provide an excellent guide to sampling the rocks and materials that will form the waste rock dumps. Testing and analysis of rocks is the best way to characterise the geochemical potential of the proposed mine.

The presence of sulphur in mine materials combined with exposure to air at surface and water as a transport mechanism can lead to contamination of local water resources. Therefore, a geochemistry study of the mineralised mine materials was deemed necessary for the Project. A geochemical sampling and test program was conducted of the representative mine materials (waste rock, low-grade and high- grade ore samples) by RGS

and ECC in 2023 to assess the mineralogical composition and potential for the generation of acid and metalliferous drainage (AMD), neutral and metalliferous drainage (NMD) and saline drainage (SD). A total of 96 representative samples comprised of 86 waste rock from 53 drill holes and 10 ore samples from 5 drill holes were collected for the geochemistry assessment study.

The geochemical assessment concluded that the total sulphur content of the mine material samples ranged from 0.01 to 0.6 %S (Figure 93). Most of the waste rock samples had a low total sulphur concentration below the median crustal abundance (0.1 %S) and are therefore non -acid forming (i.e. have negligible capacity to generate acidity). Four (4) high-grade samples and one medium -grade ore sample (MGN) had total sulphur content greater than 0.1 S% (Figure 93). Based on the total sulphur content, the mine materials samples maximum potential acidity (MPA) ranges from 0.2 to 18.3 kg H_2SO_4/t, which is also relatively low and thus there is a low risk for mine materials to be sources of acid and metalliferous drainage (AMD).

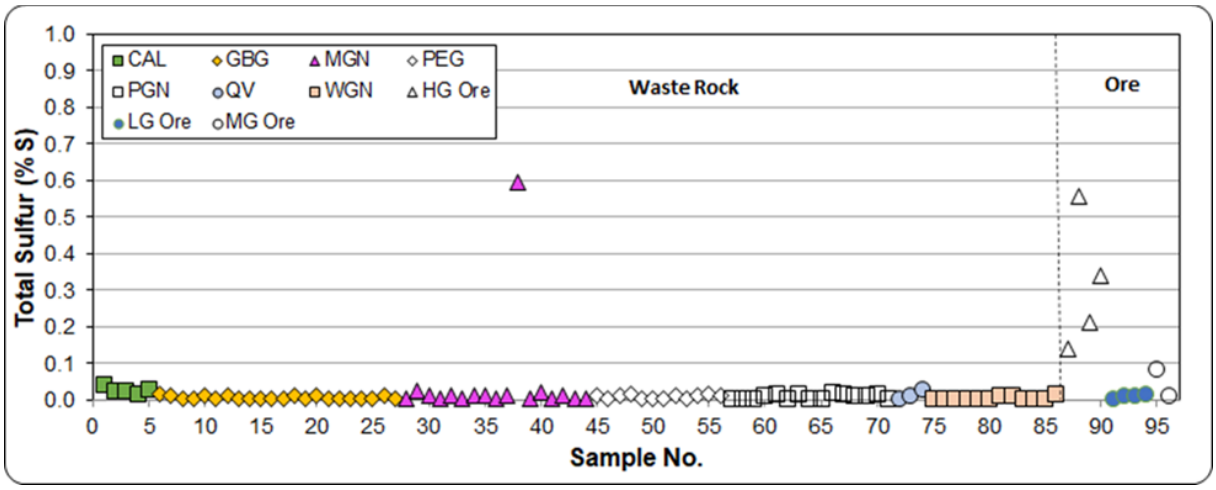

Figure 93 – Total sulphur concentration for mine materials(Source: ECC:RGS, 2023).

Sulphur concentrations of the representative samples are relatively low, and most of the representative samples had a high acid neutralising capacity (ANC). The geochemistry study concluded that most mine material samples have a high safety factor and a greater ANC:MPA (greater than 2) and thus fall within the low to negligible risk domain (Figure 94). The exception is of two of the high- grade ore samples in the increased risk domain and may potentially have a reduced safety factor and may have a low capacity to generate acid (Figure 94). Table 40 below provides a summary of geochemical classification of the representative mine materials.

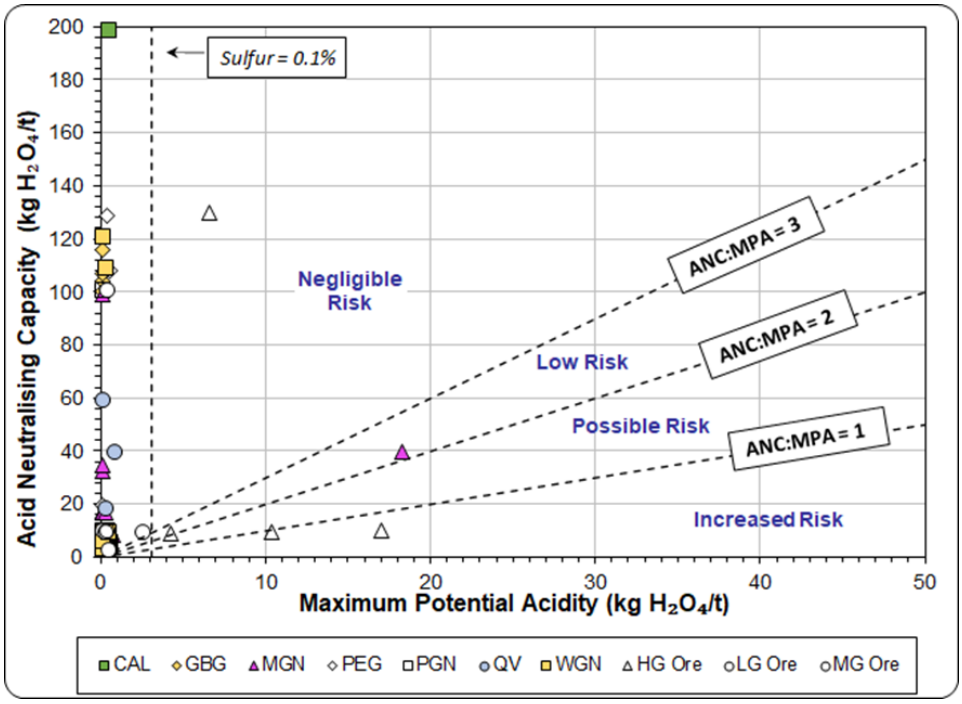

Figure 94 - NCA:MPA classification on mine materials.

Table 40 - Geochemical classification criteria of representative mine materials.

Geochemical Classification	Total Sulfur **(%)**	NAPP **(kg H_2SO_4/t)**	ANC: MPA **Ratio**	Waste Rock **(n = 86)**	Ore **(n = 10)**
Non-Acid Forming (Barren)	≤ 0.1	-	-	85	6
Non-Acid Forming	> 0.1	< -5	-	1	1
Uncertain	> 0.1	> -5 and ≤ 5	≤ 2	0	2
Potentially Acid Forming (Low Capacity	> 0.1	> 5	< 2	0	1
Potentially Acid Forming	> 0.1	> 10	< 2	0	0

Overall, all 86-waste rock representative samples had low sulphur content, excess ANC and are classified as non- acid forming (Table 40). Six (6) low -grade and medium ore samples have been classified as non- acid forming and one high- grade sample has been classified as potentially acid forming (low capacity). None of the samples were classified as potentially acid forming.

Surface runoff and seepage from mine materials is expected to generate low concentration of dissolved solids. No major acid mine drainage impacts are expected as the waste rocks have relatively low sulphur contents and high acid neutralising capacity (ANC), therefore generation of acid is generally expected to be low. The concentration of metalloids in surface runoff/ seepage and leached metals from the waste rock dumps is expected to be low and the risk of potential risk on the quality of soils, surface and groundwater resources

from initial contact with mine materials is also expected to be low. Due to the low capacity of waste rocks to generate acids, no irreversible impacts are expected. Furthermore, the low sulphur content in the mine materials and low potential risk of groundwater contamination would ensure the farming community in the project area will have safe water for household use and farming. This is expected throughout the life of mine and post closure. No major AMD impacts are expected; therefore, magnitude and the sensitivity of impact are regarded minor and low. Overall, the significance of impact is expected to be adverse low, as shown in Table 41.

Acid mine drainage impacts are expected to be relatively low. Detailed AMD mitigation measures are provided in the ESMP.

7.4.7.2 The potential risk of bulk groundwater abstraction on causing a localised drawdown in the Summerdown Kalahari Aquifer

The Omitiomire area has a net water deficit, hence the Project will source bulk water required for operations from the Summerdown Kalahari Aquifer. A series of exploration and pump test suggests that the Summerdown Aquifer has potential to sustainably meet the Project's water demand of 2.2 Mm^3/a.

The Project will acquire bulk water for operations from a network of 16 high yield boreholes located on farms Lawriesdale, Meyerville, Kismet and Ettick in the Summerdown area (refer to Figure 42). The Summerdown Aquifer is characterised by both low and high yield zones which subsequently has facilitated the establishment of several centre-pivot irrigation scheme. Annual consumption through irrigation has been estimated to be ~4 Mm^3/a.

Bulk abstraction of groundwater will cause an initial reduction of aquifer storage and a decline of the water table. Over an extended period of time, total bulk pumping for irrigation and mine supply will reduce natural losses from the aquifer. A worse- case scenario was investigated by Namib Hydrocensus through the use of a steady state numerical model. At peak production (i.e. 30% increase in annual water demand), it is projected that combined bulk abstraction for irrigation and mine supply (~6.1 Mm^3/a) will cause localised drawdown as boreholes are closely spaced (Figure 95). In the worse-case scenario investigated, bulk abstraction from closely spaced boreholes will cause the draw down to extend to ~17 m on farm Lawriesdale, while minor drawdown impacts may range between 7 m to 3 m on farms Meyerville and Kismet, respectively. In the similar turn of events, it is anticipated that at this pumping rates, farm Lawriesdale would not have capacity to sustainably meet its irrigation water requirements. Additionally, the development of new irrigation schemes will need to be regulated to ward off pressure on the aquifer system.

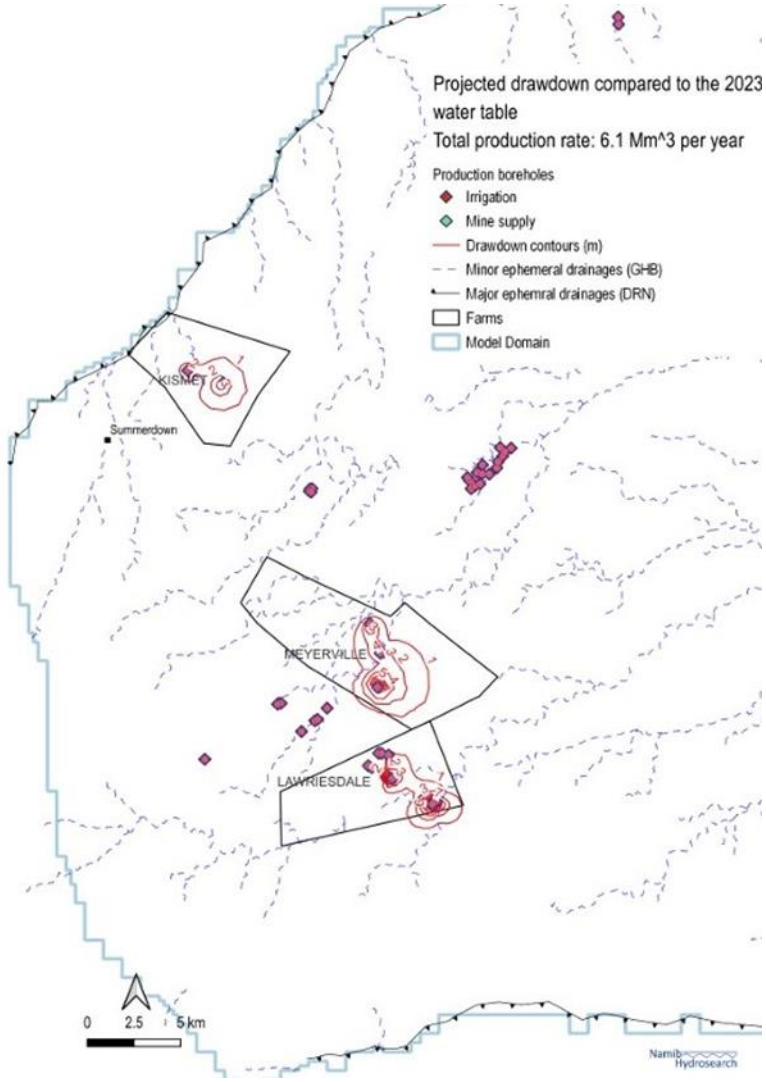

Figure 95 - Steady state drawdown calculated at project boreholes and bulk irrigation points.

The impact of drawdown is local as it may affect the aquifer levels in the local area. In the worst- case scenario investigated, a high local drawdown at farm Lawriesdale may be expected as the production boreholes are closely spaced, therefore the mine is required to develop an abstraction plan to mitigate the impact of localised drawdown. The probability of event is rated medium as bulk pumping for irrigation and the mine may occur concurrently.

The aquifer is an important water supply source to all farmers in the local area and any alterations to the aquifer system may result in yield and economic losses, thus the significance of impact is rated medium. However, rainfall frequencies (and events exceeding 452 mm) for the area suggests that there is potential for the aquifer to recharge at any stage during operations as average rainfall in the Summerdown area exceeds average potential evapotranspiration. Therefore, magnitude of impact is rated minor, and a short-term impact may be expected. Pumping rates and abstractions from the aquifer will be regulated and monitored closely to understand the performance of the aquifer overtime. Any irregular

trends will be investigated promptly, and this lessen the probability of the event occurring. Therefore, the impact is expected to be adverse minor. The following mitigation measure are proposed to ensure water supply security and sustainable abstractions for both mining and irrigation schemes operations.

Mitigation measures proposed include:

- When demand exceeds supply, additional boreholes should be established rather than unsustainably increasing abstraction from the existing supply boreholes;
- At farm Lawriesdale, production boreholes (P18 and P19) should be spaced adequately (minimum spacing of 1 km) to avoid high local drawdown;
- Maintain the conservative recommended pumping rates;
- Liaison with farmers who intend to establish new irrigation schemes to apply for abstraction permits from the Department of Water Affairs as per the newly promulgated Water Resources Management Act No, 11 of 2013. Permits are to take cognisance of the existing abstractions in the local area;
- Establish a network of monitoring boreholes in order to identify and observe the performance of the aquifer under different production conditions;
- Monitoring rainfall on -site to ascertain recharge capacity of the aquifer;
- For security of water supply and avoiding high localised drawdown, additional exploration for groundwater should be undertaken on adjacent properties; and
- Maintain a site wide water balance and steady state model to fundamentally understand the groundwater flow and budget of the western part of the Summderdown Kalahari Aquifer. This will enhance accurate quantification and reliability on the resource.

7.4.7.3 Cone of drawdown on the yield of local aquifer resources in the project area

As the pit is excavated, the dewatering process will subsequently produce a cone of drawdown (COD). The pit inflow models from year 2 to year 10 suggest that the inflow rates are low, reaching 690 m^3/day by LoM (Figure 96). Based on the low inflows and high evaporation rate in the area, it is unlikely that active dewatering will be required.

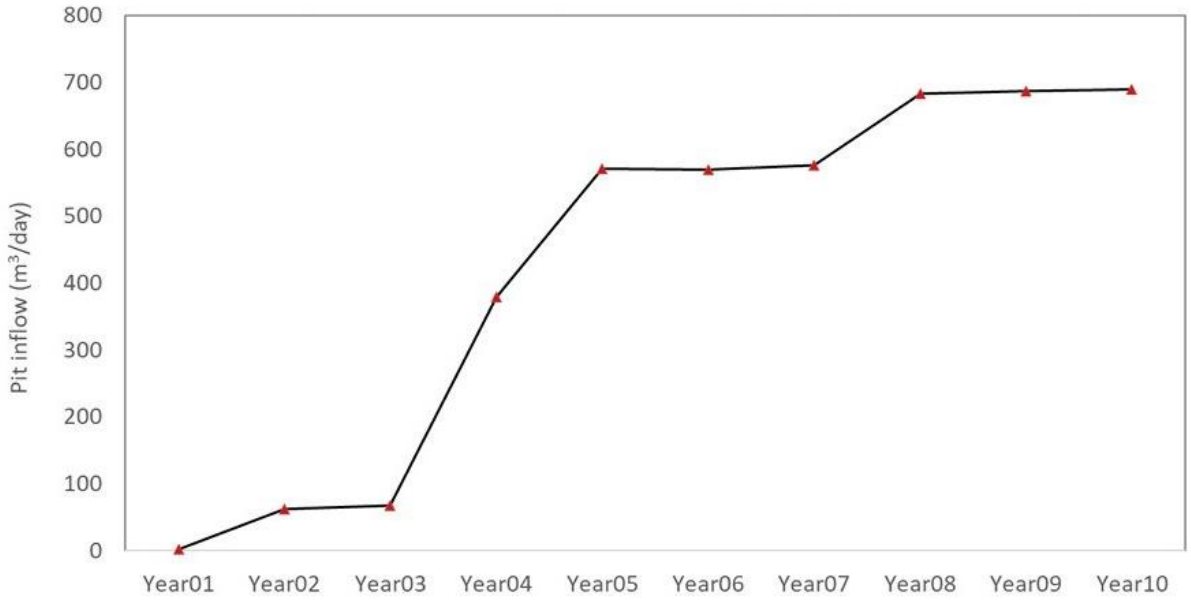

Figure 96 - The pit base inflow over the LoM (i.e.10 years).

The modelling further suggests that the cone of depression expansion from year 2 to year 10 is towards the south and to a lesser extent towards the east which is in line with the direction of the groundwater regional flow. Drawdown of ~3 m will be observed ~3.5 km from the pit centre by the end of life of mine. At maximum pit depth, the COD generated by the pit extends to a maximum of 4.5 km from the pit centre after 50 years post closure.

The magnitude of impact is rated low as it is anticipated that groundwater resources in the project area will not be impacted adversely. The duration of impact is rated temporary as no regional or local disturbance of the aquifer systems are expected throughout the life of mine. The cone drawdown does not extend beyond the proposed mine boundary, and the no significant impacts on the local or regional aquifer systems are expected. Overall, the impact is rated adverse minor as no major disturbances to local groundwater resources are expected (Table 41).

Table 41- Groundwater impacts.

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Construction and operation	Soil, surface and groundwater	Contamination of soils, surface and groundwater resources with acids from mineralised mine materials (AMD).	Adverse Direct On-site Temporary Unlikely	Low	Minor	Adverse Low (1)

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
Groundwater abstraction (Cone of depression)	Farmers, Agriculturalists in Summerdown	The potential risk of bulk groundwater abstraction on the Summerdown Kalahari Aquifer.	Adverse Cumulative Partly Reversible Short term Local Unlikely	Medium	Moderate	Adverse Minor (4)
Mine construction and operation	Neighbouring farming community	Cone of drawdown on the yield of local aquifer resources in the project area.	Adverse Direct Partly reversible local Unlikely	Low	Minor	Adverse Minor (2)

7.4.8 DRAINAGE AND HYDROLOGY IMPACTS

An overview of the drainage and hydrology impacts is presented in Figure 97. The impacts are discussed in the sections below.

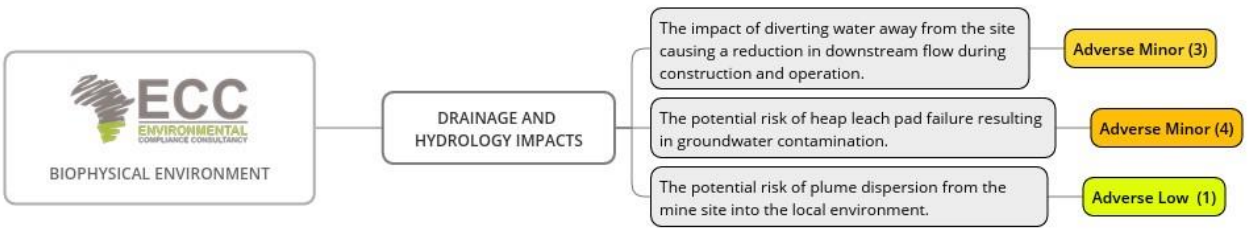

Figure 97 - Drainage and hydrology impacts.

7.4.8.1 The impact of diverting water away from the site causing a reduction in downstream flow during construction and operation.

Figure 41 shows generalised drainage pattern of the region, including ML 197, where numerous ephemeral sub-catchment courses drain the site where various mining infrastructure will be constructed. Sub-catchment rivers only flow eastward towards the Black Nossob River after significant rainfall events. Considering the flat terrain of the project area, the hydrological flood models identified the need for diversion structures (see Figure 40) to avoid flooding in the ML area when significant rainfall is received. Managing run-on (flooding) towards the site entail diverting flow out of the natural water course and away

from vital infrastructure. Diversion of surface water flow may result in a reduction of flow further downstream and in adjoining water courses. Sediment distribution down stream of site may be altered, changing local drainage patterns, influencing spatial and temporal recharge of shallow alluvial aquifers (reduction in baseflow) and altering flow paths which may during intense rainfall events lead to localised flooding of previously dry areas.

Diversion channels are in the ML area have been designed to divert stormwater around the WRDs and link up with the main diversion canal of the Black Nossob River. Modifications to flow patterns can have ecological implications, as downstream ecosystems may be accustomed to specific flow regimes. As the WRDs in the area are non-acid forming, it is not expected that no contaminants will be captured within these diversion channels and diverted downstream. As such the nature of this impact will be adverse and direct, while the duration of the impact during construction will be short term but long-term during operations. The extent of the impact however will be local, and partly reversible. Local drainage patterns may be altered; therefore, magnitude of change is moderate and the probability of this impact occurring is high. The value and sensitivity of this impact is low and therefore the significance of this impact has been rated adverse moderate.

7.4.8.2 The impact of possible heap leach pad failure resulting in groundwater contamination.

The greatest, long-term risk, of improperly designed heap leaching pads, is groundwater contamination. Instability of the ore heap (either static, seismic, or during extreme rainfall) can lead to loss of the facility, failure of the liner system, and environmental containment. Most of the leachate percolate down through the layers of soil and rock and can settle into the water table and spread much further. This is a hazard to human health, livestock, or crops irrigated with such water. Leachate of weak acids in this instance weak sulphuric acid through the leach pad berms may also lead to surface run- offs that could contaminate soils and water sources.

In the worse- case scenario, it may be likely that contamination of groundwater may occur as the local groundwater table in the project area is relatively shallow (i.e. ≤ 15 mbgl). The water quality is of good quality in the general project area and is of importance to the local farmers for agricultural and domestic purposes.

The magnitude of impact is rated medium as contamination may lead to unmeasurable impacts (lasting beyond LoM). The impact is deemed direct, irreversible and localised. It is however noted that the heap leach pad will be lined with a double liner system, which has a leakage detection system. This lessen the probability of the event occurring as the system will capture any leakages in time and will be addressed. The probability of the event occurring is rated low as the double liner system which will detect leakages. A moderate magnitude of impact could thus be expected. Subject to routine monitoring during operations, leakages would likely be detected from the earliest onset through a network of

shallow monitoring boreholes. Post closure, strategic rehabilitation measures will be required to ensure the impacts do not occur at the end of LoM. Overall, the impact is expected has been rated adverse moderate.

7.4.8.3 Potential for plume dispersion from site to migrate downstream or in the local project area.

Knight Piesold (2023) modelled the plume dispersion extent from the WRD and heap leach pad. Cu was selected as three species to investigate their migration from the mine facilities. According to geochemical analysis kinetic testing, the maximum concentration of heap leach Cu residue is 17.91 mg/l.

Post closure, the solute reaches the saturated zone but may not migrate downstream due to the hydraulic force induced by the pit's cone of depression. The solute is unlikely to migrate downstream from the mine because of the pit capture zone. The maximum horizontal and vertical migration after 35 years post-closure of Cu with 1 mg/l is 370 and 245 m, respectively. Post closure, it is expected that the pit will act as a regional sink and draw groundwater and potential contaminants.

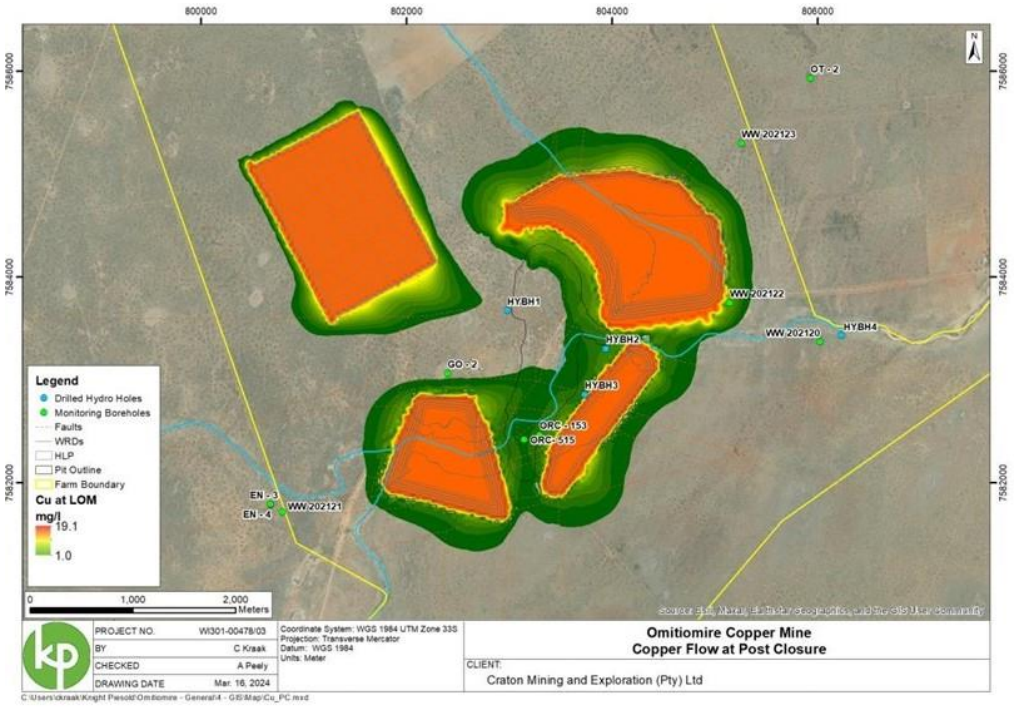

Figure 98 - Cu mass transport in year 50.

Based on the mass transport model, the probability for potential downstream migration of solutes is relatively, with contaminations only expected on-site due to the cone of depression. No off-site groundwater resources contaminations or downstream contaminants flows are expected; thus, the magnitude of impact is rated minor. Overall, the impact is rated adverse low (Table 42).

Table 42 - Drainage and hydrology impact assessment.

Activity	Receptor	Impact	Nature of impact	Value & sensitivity	Magnitude of change	Significance of impact
diverting the drainage systems on site during construction and operations	Surface water/ downstream ecosystem	The impact of diverting water away from the site causing a reduction in downstream flow during construction and operation.	Adverse Direct Short term Partly reversible Local High probability	Low	Moderate	Adverse Minor (3)
Heap leach pad operations	Groundwater quality	The impact of possible heap leach pad failure resulting in groundwater contamination.	Adverse Direct Irreversible Local Permanent Unlikely	medium	moderate	Adverse Minor (4)
Operations	Groundwater quality	Plume dispersion from the mine site into the local environment.	Adverse Direct Irreversible Local Rare	Low	Minor	Adverse Low (1)

7.5 FURTHER CONSIDERATION CUMULATIVE IMPACTS

The EIA regulations clearly state that cumulative impacts should be considered as part of the ESIA for a proposed project. Good practice requires that, as a minimum, cumulative impacts are assessed during the ESIA process. Cumulative impacts can arise when a single resource or receptor is affected by more than one impact from the proposed project. For example, sensitive receptors could be affected by noise from construction vehicles and dust from ground excavation during the construction stage. In isolation, the impacts of noise and dust may be insignificant, however, when combined, the impacts on the receptor (if present) may result in a significant impact.

Cumulative impacts may also arise because of the combination of two or more projects. A receptor could be impacted by similar types of impact from different developments, or a receptor. Cumulative impacts have a wide temporal and spatial scope and are not restricted to a local area nor need to happen at the same time. It is, therefore, crucial to identify a suitable study and assessment area, as well as a timeframe to assess. Cumulative impacts can also be vast and complicated; therefore, it is important to focus on the significant impacts.

The six-step rapid CIA process has been followed:

- Step 1: Scoping - determine spatial and temporal boundaries.
- Step 2: Scoping - identify valued environmental and social receptors and identify reasonably foreseeable developments.
- Step 3: Determine the present condition of valued environmental and social receptors (the baseline)
- Step 4: Assessment of cumulative impacts and evaluation of the significance of the cumulative impacts
- Step 5: Identification of mitigation measures to avoid or reduce cumulative impacts.

The cumulative impacts that may arise because of the project before mitigation are presented in Figure 99, for illustrative purposes only and are outlined in Table 43 and Table 44.

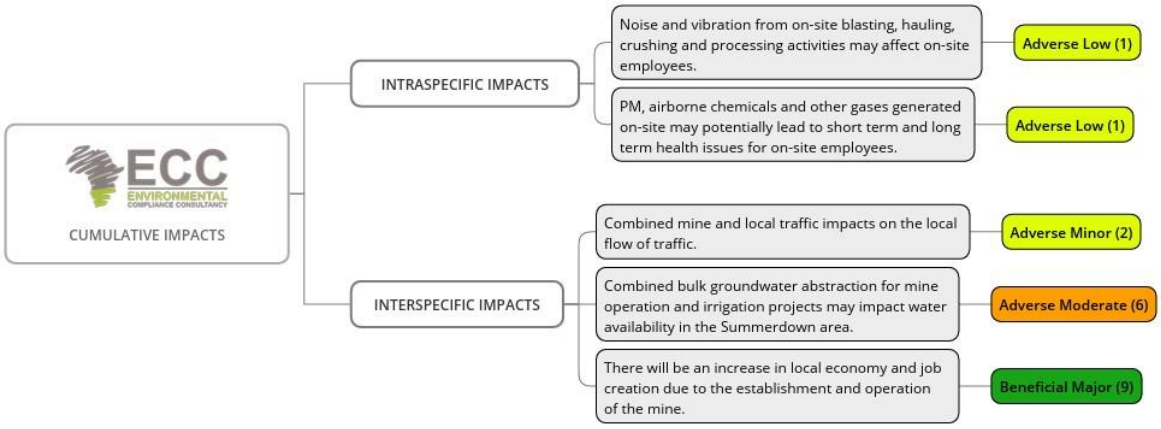

Figure 99 - Cumulative impacts.

7.5.1 INTRASPECIFIC CUMULATIVE IMPACTS

7.5.1.1 Cumulative impact of noise and vibration on site from blasting, crushing and other mining activities may affect onsite employees.

General mine activities such as crushing, hauling, blasting and overall processing plant operations may generate excessive noise levels. Prolonged exposure to these disturbances can cause stress and adversely affect communication. Cumulative impacts may result in chronic stress levels that affect the overall health of employees on site. The nature of this impact is adverse and cumulative. The impact is reversible, and duration of the impact is short-term, lasting only during the LoM. The scale of this impact is on site and the magnitude of the impact is low. The probability of this impact occurring is likely and the sensitivity of this impact is low. Therefore, this impact has been rated adverse low.

7.5.1.2 Intraspecific cumulative impact of PM, airborne chemicals, and gases on onsite may lead to short or long term respiratory and health issues for onsite employees.

The different mining activities such as blasting, crushing, hauling and other construction related activities such as road works may produce windblown dust and fine particulate matter. This impact the air quality on site and may contribute to short-term discomfort or long-term health issues. The nature of this impact is adverse and cumulative. The impact is reversible, and duration of the impact is short-term, lasting only during the LoM. The scale of this impact is on site and the magnitude of the impact is low. The probability of this impact occurring is likely and the sensitivity of this impact is low as occupational health and safety measures will always be in place. Overall, the impact has been rated adversely low.

7.5.2 INTERSPECIFIC CUMULATIVE IMPACTS

7.5.2.1 Combined mine and local traffic impacts on the local flow of traffic.

Increased mining traffic (both during construction and operation) may alter traffic flow along the district roads. The increases in traffic flow may also cause road degradation as both heavy and light vehicles will be using the roads, resulting in higher maintenance costs and more frequent repairs. The nature of this impact is adverse and cumulative. The impact is reversible, and duration of the impact is short-term, lasting only during the LoM. The scale of this impact is local, and the magnitude of the impact is low. The probability of this impact occurring is likely and the sensitivity of this impact is rated low. Overall, this impact has been rated adverse low.

7.5.2.2 Combined bulk groundwater abstraction for mine operations and irrigation scheme projects may impact water availability in the Summerdown area

Combined bulk groundwater abstraction for mine operations and to support irrigation schemes in the Summerdown area may potentially pressurise the aquifer system, particularly during periods of increased production. Although exploration and test pump investigations suggest that aquifer system has capacity to sustainably support mine operation and irrigation project, a worse- case scenario analysis indicated that a localised drawdown may occur across a network of closely spaced boreholes. The impact is rated direct, cumulative and partly reversible as monitoring measures will be in place to proactively manage any irregular trend. The sensitivity of this impact is medium considering the importance of the aquifer to local farmers in Summerdown. Overall, the impact is rated adverse minor provided that bulk abstractions are proactively monitored and regulated to enable the aquifer to recover.

7.5.2.3 There will be an increase in the local economy and job creation due to the establishment and operation of the mine.

Mining operations require a diverse range of skilled and unskilled labour, from engineers and geologists to equipment operators and support staff. The establishment of the mine can lead to a significant increase in local employment opportunities, providing jobs for people with various skill sets and qualifications and increased spending. The mining industry often stimulates the growth of ancillary businesses and services. Local businesses may emerge to provide goods and services needed by the mining operations, such as equipment maintenance and transportation. The nature of this impact is beneficial ,cumulative and reversible. duration of the impact is medium-term, as they may last after the LoM. The scale of this impact is regional, and the magnitude of the impact is high. The probability of this impact occurring is likely and the sensitivity of this impact is medium. Therefore, this impact has been rated beneficial major.

Table 43 -Intraspecific cumulative impacts of mining operations at Omitiomire.

Receptor	Impacts	Significance of impact	Impact management
Noise and vibration	**Activity:** Blasting, Crushing and overall operations. **Impact:** Blasting and vibration may affect the hearing of employees.	**Low (1)**	– Retrofit or upgrade equipment to reduce noise and vibration emissions. – Conduct regular training sessions to educate employees about the risks associated with noise and vibration and promote the use of personal protective equipment (PPE). – Provide and require the use of earplugs or earmuffs for employees working in high-noise area. – Implement a monitoring program to regularly assess noise and vibration levels across the mine site. – Ensure that all equipment are well-maintained to reduce the likelihood of excessive noise and vibration emissions.
Air quality	**Activity:** Construction of the mine and commencement of operations. **Impact:** Increased dust in the air reducing the quality of the air in that area.	**Low (1)**	– Regular air quality monitoring. – Dust suppression measures (Applying chemical and water dust suppressants to roads and stockpiles can help to control dust). – Constructing physical barriers like berms or windbreaks to shield sensitive areas from prevailing winds. – Ensure that international air quality standards and best practices are adhered to.

Table 44 - Interspecific cumulative impacts of mining operations at Omitiomire

Receptor	Impacts	Significance of impact	Impact management
Traffic (Road users and road quality)	**Activity:** Transport of people and goods to and from the site. **Impact:** Increased traffic and heavy loads on the C13 may cause an increase in traffic congestion, resulting in longer travel times, fuel wastage and increased emissions. There will be an increase in potholes, cracks, and surface degradation increasing the need for maintenance and repair of roads to keep them in a good condition.	**Low (2)**	– Implement a structured maintenance schedule to address wear and tear, including resurfacing, grading, and drainage improvements. – Continuous engagement between the three mining operations.
Groundwater availability	**Activity:** Bulk groundwater abstraction from the Summerdown Kalahari Aquifer. **Impact:** Decrease in the quantity of water available for mine operations and irrigations.	**Minor (6)**	– Regular water audits and monitoring by monitoring groundwater levels to ensure that mining activities do not negatively impact local aquifers. – The Proponent to liaise with farmers in Summerdown to explore potential of bulk water supply on sparsely spaced boreholes. – Maintaining the conservative recommended pumping rates. – Implement water recycling systems to treat and reuse water from processes thereby limiting the rate of abstraction. – Use treated wastewater for non-potable purposes, such as dust control or irrigation. – Ensure compliance with permitting requirements and report water usage and conservation efforts as required. – Continuous engagement with the farmers in Summerdown to ensure the aquifer is utilised sustainably during all operations.

Receptor	Impacts	Significance of impact	Impact management
Employment, skills and the local economy	**Activity:** Job creation and investment in the local economy. **Impact:** Reducing unemployment, enhancing skills development through on-site training. and attracting investments. in a community spur the formation of new businesses, cultivating an entrepreneurial environment and enhancing local economic diversity. The resulting growth in businesses and employment enlarges the local government's tax base, generating extra revenue for crucial public services like education, healthcare, and infrastructure. This contributes substantially to the comprehensive development of the community. Moreover, the expansion of businesses involves investments in training programs, elevating the skills of the local workforce, boosting competitiveness, and attracting additional investments, ultimately fostering innovation.	**Beneficial Major**	– Introduce focused training initiatives aimed at enhancing the skills of the local workforce, encompassing both technical mining expertise and soft skills. – Invest in community development projects, including, healthcare, and educational facilities, to enhance overall quality of life. – Preference to local suppliers for goods and services, thereby fostering the growth of indigenous businesses. – Collaborate with local and regional authorities to enhance infrastructure such as roads, power supply, and water facilities in support of mining operations. – Explore prospects in tourism, agriculture, or other sectors that can flourish in tandem with mining activities.

8 CONCLUSION

A full and comprehensive Environmental and Social Impact Assessment (ESIA) has been undertaken for the Omitimire Copper Project. All aspects have been considered in the impact assessment. These aspects have been thoroughly investigated against planned mining activities. All contributions from the public participation have been considered and incorporated in the report for the decision making and impact assessment. All specialist input has been examined and the recommended mitigations have been included in the environmental and social management plan (ESMP).

The scoping phase of the ESIA described the receiving environment adequately. The different diversion routing channels of the Black Nossob River and the M53 district road were assessed by specialist and fixed channels were determined and used for the assessment. The scope of the assessment did not take into account assessment of the Project powerline as this will require and independent impact assessment study.

Table 45 summarises the impacts after mitigation. On a scale from 1 to 12, low to high, the beneficial (B) and negative (N) impact significance is stated. Some variation between the sub-sections of these aspects exists so the average significance is stated for some aspects.

Table 45 – Summary of the significance rating after mitigations for the expected impact (B= Beneficial impact, N= Negative impact, scale of 1-12 from low to high).

Socioeconomic environment: economic		**Socioeconomic environment: social**		**Biophysical environment**	
Impacts on employment and job creation	B6	Impacts on air quality	N1	Acid mine drainage impacts	N1
Impacts on national and local economy	B12	Visual impacts	N3	Impacts on groundwater	N4
Mine closure impacts	N6	Traffic impacts	N4	Biodiversity – Flora	N4
		Blast and vibration impacts	N6	Biodiversity – Reptiles	N2
		Noise impacts	N2	Biodiversity - mammals	N2
		Heritage and cultural impacts	N6	Biodiversity - Avifauna	N4
		Occupational health and safety impacts	N4	Climate change impacts	N4

The ESIA report adequately outlines the process of impact assessment for Omitiomire Copper Project and lists all the foreseeable outcomes and recommended mitigations to prevent or reduce the potential impacts. The ESMP includes the required monitoring of the project at all stages of the project. All stakeholders and registered interested and affected parties were given the opportunity to provide comments, if any, to ECC during the public review period of the draft ESIA report and the preliminary ESMP. During the public review period, comment was received from an IAP requesting for the Proponent's contact information. No further comments were received from stakeholders and registered IAPs.

The ESIA and ESMP reports have been revised and are submitted to the competent authorities for their review and record of decision.

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APPENDIX A – ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

APPENDIX B – BACKGROUND INFORMATION DOCUMENT

APPENDIX C – PUBLIC CONSULTATION RECORDS

APPENDIX D – EAP CV'S

APPENDIX E – GEOTECHNICAL REPORT: OPEN PIT - SLOPE DESIGN

APPENDIX F – AIR QUALITY SPECIALIST REPORT

APPENDIX G – GEOTECHNICAL REPORT – EARTHWORKS AND FOUNDATION DESIGN

APPENDIX H – GEOCHEMISTRY REPORT

APPENDIX I – WATER SUPPLY STUDY

APPENDIX J – BIODIVERSITY STUDY

APPENDIX K – TRAFFIC IMPACT ASSESSMENT

APPENDIX L1 – HERITAGE IMPACT ASSESSMENT (2013)

APPENDIX L2 – HERITAGE IMPACT ASSESSEMENT (2023)

APPENDIX M – NOISE IMPACT ASSESSMENT

APPENDIX N – BLAST AND VIBRATION IMPACT ASSESSMENT

APPENDIX O – CLIMATE CHANGE RISK ASSESSMENT

APPENDIX P – HYDROGEOLOGY REPORT