HAIB COPPER PROJECT: ENVIRONMENTAL SUPPORT AND ESIA

ENVIRONMENTAL AND SOCIAL SCOPING REPORT

Prepared for:	Haib Minerals (Pty) Ltd.
Prepared by:	Knight Piésold Consulting (Pty) Ltd.
Assignment Number:	WI301-906/05-P1
Revision Number:	A
Date:	19 November 2025

Knight Piésold CONSULTING

Prepared for
Haib Minerals (Pty) Ltd,
13 Feld Street
Windhoek, Namibia.

Prepared by
Knight Piésold Consulting (Pty) Ltd,
11 Nelson Mandela,
Klein Windhoek,
Windhoek, Namibia,
PO Box 80682, Eros.

WI301-00906/05-A

ENVIRONMENTAL SUPPORT AND EIA
ENVIRONMENTAL AND SOCIAL SCOPING REPORT

Rev	Description	Date
A	Issued in Draft	19 November, 2025

EXECUTIVE SUMMARY

BACKGROUND AND INTRODUCTION

Haib is a porphyry copper exploration Project located in the //Karas Region of southern Namibia, approximately six kilometres (km) north of the border with South Africa and between 12 km and 15 km east of the tarred B1 highway that connects Namibia with South Africa.

Koryx Copper Inc. has a 100% interest in Haib Holdings (Pty) Ltd (formerly Deep South Mining Company (Pty) Ltd.), a Namibian subsidiary which holds the exploration rights to the Haib Project (the Project). Exclusive Prospecting Licence (EPL) 3140 allows for the exploration of base, rare and precious metals over an area of 36,571 hectares (ha).

Towards advancing the copper mining activities at Haib, a comprehensive Environmental and Social Impact Assessment (ESIA) with an associated Environmental and Social Management Plan (ESMP) and public consultations are currently being undertaken and developed to meet Namibian national requirements and guided by International Finance Corporation (IFC) standards for the Project. The ESIA is being prepared to obtain an Environmental Clearance Certificate (ECC) for the Project from Namibian authorities and to support the standards of disclosure required by the Canadian Securities Administrator in a technical report (NI 43-101) providing environmental and social compliance components.

The proposed Project comprises an open pit mine, a 28 million tonnes per annum (Mtpa) crushing, milling and flotation concentrator, a hydrometallurgical plant consisting of an 7 Mtpa heap leach, copper solvent extraction, impurity removal and copper electrowinning plant, as well as infrastructure on and off site necessary to support these operations (waste rock dumps, stockpiles, tailings storage facilities, pipelines and abstraction works, power infrastructure, roads, offices etc.). The operation will achieve a combined throughput of 35 Mtpa. The mining schedule indicates a total material movement of approximately 87.5 Mtpa, providing approximately 23 years' supply of mineralised material. This equates to a total of 1.58 billion tonnes of material to be mined.

The proposed Project is currently in the exploration and studies phase, whereby the feasibility of the Project is being defined through ongoing investigations and analysis.

PURPOSE OF SCOPING REPORT

Knight Piésold Consulting (Pty) Ltd (KP Namibia) was appointed by Haib Minerals (Pty) Ltd to support in the development of the environmental scoping and impact studies and ongoing regulatory compliance. This report is key to the scoping phase of the Project ESIA process to facilitate, through consultations with Interested and Affected Parties (I&APs), the development of the Terms of Reference for the assessment phase of the process.

PROJECT DESCRIPTION

If the Haib Copper Project moves forward, the Namibian economy can expect benefits from revenues during the construction phase, royalties and taxes during the Life of Mine (LoM), and positive contributions towards employment and infrastructure development. The broad mine plan indicates that a maximum of 2,900 staff during construction and maximum of 1,350 during operations will be required by the Project. This will provide direct benefits through income and thus livelihoods to these households

as well as support the broader economy for a minimum of 23 years of production in addition to the construction period of about two years.

The site layout has been designed around critical landform features such as topography, sensitive biodiversity areas, and heritage features. The optimisation has additionally considered the efficiencies required for the mining operation.

It must be noted that this site layout represents the results of preliminary studies, however, it is not final. The final layout will be informed by specialist impact studies and the broader environmental and social impact assessment, as well as ongoing design processes. This finalisation process will also integrate considerations received through the regulatory public consultation process. A summary of the key proposed components is provided:

Open Pit - The Haib deposit straddles the ephemeral Volstruis River and forms the basis for the open pit. The open pit consists of four target areas which will combine to form the larger pit.

The Concentrator Processing Plant - The concentrator processing plant has been laid out to the east of the pit. The Volstruis river valley in which the pit is found flattens to the east as it joins the Haib riverbed. This relatively flat area allows flexibility of the plant layout and an opportunity to minimise earthworks. The Run-of-Mine (ROM) tip pads are located close to the pit edge and are at a similar elevation to the pit rim. The typical processing plant supporting infrastructure comprises a change house, administration facility, workshop, stores, reagents stores, sewerage and water treatment facilities. The final copper and molybdenum concentrate will be dried in a filter press and exported by road.

The Concentrator design is based on a 28 Mtpa facility, executed in a single phase and comprising two 14 Mtpa crushing, milling and flotation circuit modules. The Concentrator will treat higher grade primary sulphide material containing at least 0.275% copper (Cu), for recovery of copper and molybdenum (Mo) minerals and will produce separate copper and molybdenum flotation concentrates (dependent on market conditions and feed grade), which will be trucked to and shipped to international customers.

Hydrometallurgical Plant - The area in the north-west of the EPL footprint on the flatter plain, as well as the area directly north of the pit have been identified as alternatives currently being assessed for the heap leach and hydrometallurgical plant. Mineralised material will be crushed at the ROM pads and conveyed to the agglomeration plant before being stacked on the Heap Leach pad.

The heap leach, solvent extraction and electrowinning plant is designed with a feed capacity of 7 Mtpa, to process 179 million tonnes (Mt) of low-grade primary sulphide mineralised material containing between 0.175% and 0.275% Cu, as well as small quantities of oxide or secondary sulphide mineralised material over approximately 17 years. Copper cathode produced in this circuit will be exported to the market.

Tailings Disposal - Three (3) Tailings Storage Facility (TSF) options are currently being assessed inclusive of options 3, 4 and 5 -two valley impoundment zoned rockfill dams (options 3 and 5) with an upstream lined face and one raised ring feed structure (option 4).

The TSF options are currently unlined, based on the assumption that the tailings are non-acid generating, non-metal leaching, and the quality of the effluent will be above the effluent standard and waste management guidelines (as per the Namibian Water Quality Standards set out in Annexure 11 (Regulation 67) of the Water Resources Management Regulations 2023). The TSFs will have an underdrainage system and downstream seepage interception trenches/wells to maximise seepage water recovery. The TSF options are designed to Global Industry Standard on Tailings Management (GISTM) published in 2020.

Waste Rock Dumps/Stockpiles - Waste Rock Dumps were designed as close to the pit exits as possible to optimise productivity and minimise waste mining costs or environmental impacts.

Access and Haul Roads - The Project can be accessed from Windhoek or Noordoewer through the B1 National Highway and then via sets of farm roads and tracks developed during the various exploration programmes. Different access road options were investigated during the conceptual design stage, and the access (road) going along the Haib riverbank was rated most favourable in terms of geometrics, gradients, and cut and fill material balance. Based on the capital cost, maintenance costs, ease of construction, dust mitigation, and visual aesthetics, a sealed road option is recommended for the mine access road for use by commercial haulage trucks, buses, and general vehicles. A gravel wearing course and dump rock pavement layer with a dust suppressant is recommended for the haul road section between the open pit and processing stockpiles, as well as to the waste rock dumps to lower dust emission, wear, and damage to the road surface.

Bulk Water Infrastructure - The proposed Project's water demand is 20 million cubic metres per year (Mm^3/yr) of which supply is being investigated from two options, that is from the Orange River only or from an Orange River and Neckartal Dam option. Full abstraction from the Orange River is being pursued under this ESIA process.

Raw water supply from the Orange River assumes seasonal reliability of supply. Off-channel storage facilities will offset the impacts of limited to nil water abstraction during the dry season or drought periods. Two sites for abstraction are under investigation. The proposed system comprises as option 1 an abstraction weir, intake structure, a low-lift pumping station and two high-lift booster pumping stations, as well as a pipeline to a site reservoir and option 2 an intake structure, a pumping station and booster pumping stations, as well as a pipeline to a site reservoir.

Mine Camp - On-site mine camp accommodation will be used during construction and operation to accommodate 3 500 rotation-based personnel. The mining camp is to be placed north of the main mining activities on flatter ground near the Project access road and solar photovoltaic (PV) plant. The design includes workers' accommodation, multi-purpose warehouses, gravity-fed water and sewer system, and associated infrastructure services to ensure functionality. The camp will include a comprehensive internal and bulk infrastructure network covering water supply, wastewater management, internal roads, solid waste disposal, and electrical reticulation. Access to the camp will be facilitated by a gravel road linked to the planned access road route. Electrical supply will be via a 33 kilovolt (kV) overhead line connected to the main substation, with a dedicated smaller substation near the camp and internal overhead or underground distribution, including street lighting.

Bulk Power Supply - The power supply concept design includes a hybrid solution combining a solar PV plant (150 MWp (megawatt peak)) and a connection to the regional grid system from the local service provider, the Namibia Power Corporation (NamPower). The system is sized to meet the proposed Project's peak demand that may be up to a maximum of 150 MVA (megavolt-amperes) and annual consumption of 1,123.3 GWh (gigawatt-hour). However, power optimisation studies are still ongoing and expected to provide improvements through introducing efficiencies. The grid supply is recommended to be via a double circuit overhead transmission line (OHTL) configuration for redundancy. The solar PV supply will include either 30% or 100% supply, subject to regulatory approval. Wind energy is a secondary option that was identified.

All infrastructure underwent alternative assessment, which considered designing the site around critical landform features such as topography, sensitive environmental habitats/areas, and heritage features. The process additionally considered the efficiencies required for the mining operation towards identifying an optimal layout. The presented site layout is a result of these considerations.

PUBLIC PARTICIPATION PROCESS

In accordance with Regulation 21 of the Namibian Environmental Impact Assessment (EIA) Regulations 2012, a systematic public participation process is being conducted as part of the Environmental and Social Impact Assessment (ESIA) for the proposed Haib Copper Project.

The formal Scoping Phase consultation period opened with newspaper notices on 17 July 2025 and remained open for written comments until 1 November 2025. All feedback received was integrated into the Scoping Report (This report) and considered in the next phase of the ESIA.

The process looked to find transparency, inclusivity, and proactive stakeholder involvement while ensuring the recognition and consideration of all relevant viewpoints throughout the environmental and social assessment process.

BIOPHYSICAL AND SOCIAL BASELINE

The table below summarises the environmental and social setting for the Project area:

Aspect	Description
Topography	The terrain is varied, featuring flat gradients in the west and rocky extreme topography in the east. The resource site straddles the ephemeral Volstruis River, a tributary of the Haib River, which flows into the Orange River.
Land Use	The sparse vegetation allows for subsistence grazing of goats and sheep, and there are remnants of historical mining nearby. Nearby agricultural settlements (Noordoewer, Aussenkehr) rely on irrigation for grapes and lucerne.
Geology	The site is underlain by the Haib Subgroup volcanics of the ORG and VIS rocks on the eastern half, with an unconformity into the Karoo Sediments on the western half. The EPL hosts the Haib porphyry copper deposit within 1,800–2,000 Ma volcanic/plutonic rocks (Orange River Group). Deeply eroded system with igneous-hydrothermal breccias.
Climate	Hot desert climate (BWh): temperatures range from 0°C (winter) to 40°C+ (summer). Low rainfall (25–50 millimetres per year (mm/yr)), high evaporation (1,900 mm/yr).
Surface Water	Sparse to no available surface water on site. Ephemeral rivers (Haib and Volstruis Rivers) and drainage lines are typical of with flash floods after storms events however surface water is availability is short lived . Orange River (15 km south) is the primary surface water source in the region.
Groundwater	Very low yield (0–2.7 litres per second (l/s)) from fractured aquifers. Ephemeral rivers are seen as having little to no hydraulic connection with the aquifers underlying the rivers, and there is no groundwater baseflow contribution to these drainage lines.
Terrestrial Biodiversity	Generally low species diversity but higher endemism. It is estimated that at least 53 reptile, 11 amphibian, 64 mammal, 153 bird species (breeding residents), at least 54 species of larger trees and shrubs (>1 m in height), and up to 49 grasses are known to or are expected to occur in the general area. A high proportion are endemics, however these species are not exclusively associated with the Haib

Aspect	Description
	Copper Project area. Sensitive habitats include the Orange/Haib River riparian zones, rocky habitats, specific nesting sites on cliffs, and bird flyways.
Aquatic Biodiversity	Aquatic ecosystems are limited to the Orange River, which represents a moderate water quality with elevated salinity content and nutrient levels, attributed to agricultural activities within the catchment and upstream of the surveyed area.
Socio-Economic	Karasburg West (population 17,741) faces income insecurity, and low education. The towns of Noordoewer and Aussenkehr with populations in the order of 2,000 and 4,500, respectively, rely on irrigation fed agriculture as the primary economic driver. Both communities suffer similar development challenges inclusive of large informal settlement, illegal dumping due to ineffective solid waste management, and a suboptimal health service.
Cultural Heritage	Investigations have revealed 51 archaeological features located in the broader region which have varied significance and that are inclusive of historical sites, graves and cairns, stone circles, dwellings and other miscellaneous artefacts.

IMPACT ASSESSMENT

A preliminary risk assessment for the proposed Haib Copper Project has identified a range of potential environmental and social impacts that will be further assessed in the full ESIA through targeted investigations.

Potential environmental impacts include:

- Altering the nature of land use on the site, potentially leading to the loss of grazing areas and limiting access to communal lands. This potentially leads to landscape fragmentation, affecting both human and wildlife movement.
- Changes in topography and drainage patterns intensify potential erosion and disturb the natural hydrological cycles typical of the area.
- Construction and operational activities pose risks of soil degradation, erosion, soil compaction and contamination. Increased erosion and reduced soil stability increase sedimentation risks, especially during construction.
- The loss and fragmentation of faunal and floral habitats can significantly impact biodiversity, life cycles of native species and ecosystem health of native species. Potential direct impact on protected, endemic or species of conservation concern through increased human activity in the area.
- Geological disturbance due to bedrock removal and subsurface exposure from blasting and excavation.
- Risks of sedimentation, flow modification and water contamination negatively influencing aquatic ecosystems.
- Potential impacts to groundwater and surface water quality through contaminant and geochemical leaching, ineffective stormwater and runoff management and direct contamination of surface water resources.
- Potential impacts to groundwater and surface water availability through over-abstraction and disruption of recharge pathways.
- Dust and emissions production from construction and operational activities increase risks of air quality, and
- Increased prevalence of greenhouse gas emissions contributing to climate change.

- Potential noise and vibration generation through construction and operational activities.
- Landscape alteration, air pollution and permanent facilities risk a reduction in aesthetic and visual aesthetics.

Potential social impacts include:

- Significant contributions to employment, infrastructure development and the local and regional economy.
- Population influx placing pressure on local infrastructure, services, health and safety of local communities.
- Livelihoods impacted which are associated with historical land uses or recipient impacted sites (grazing and ecotourism).
- Loss and reduced access to culturally significant sites or features of heritage significance.

Overall, the proposed Project offers substantial positive socio-economic benefits, while introducing potential negative environmental and social risks. These risks will be explored further to ensure appropriate mitigation and management of these risks.

ESIA METHODOLOGY

The Environmental and Social Impact Assessment (ESIA) for the proposed Haib Copper Project is being executed in compliance with Namibia's Environmental Management Act (2007) and the Environmental Impact Assessment (EIA) Regulations (2012), while adhering to international best practices, notably guided by the IFC Performance Standards. The ESIA methodology encompasses a thorough, multi-stage process comprising baseline studies, stakeholder engagement, impact assessment, and mitigation planning.

The Project team together with inputs from I&APs will conduct comprehensive baseline studies in environmental and social fields, encompassing biodiversity, aquatic systems, air and noise quality, hydrogeology, geochemistry, archaeology, and socioeconomics. Continuous monitoring of surface and groundwater quality, air quality, and meteorological data is being conducted to establish the Project baseline.

The methodology guarantees a comprehensive consideration of both environmental and social aspects of the proposed Project while adhering to Namibian legislation and guided by key IFC standards.

TABLE OF CONTENTS

PAGE

TABLES

FIGURES

ANNEXURES

ABBREVIATIONS

AP	Acid Potential
APP	Atmospheric Pollution Prevention (Ordinance)
ARD	Acid Rock Drainage
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CEO	Chief Executive Officer
CMSA	Copper Mines of Southern Africa
Cu	Copper
DAS	Dust-a-Side
DSM	Deep-South Mining Company
DTH	Down-the-hole (drilling)
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
EBRD	European Bank for Reconstruction and Development
ECC	Environmental Clearance Certificate
EHS	Environmental Health and Safety
EP	Equator Principle
EPL	Exclusive Prospecting License
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
GFM	Great Fitzroy Mines NL
GISTM	Global Industry Standard on Tailings Management
GN	General Notice
HIV	Human Immunodeficiency Virus
HM	Haib Minerals
I&APs	Interested and Affected Parties
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
IEMA	Institute of Environmental Management and Assessment (UK)
IFC	International Finance Corporation
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
ILO	International Labour Organization
IPP	Independent Power Producer
ISEP	Institute of Sustainability and Environmental Professionals
KIRLUP	//Karas Integrated Regional Land Use Plan
KP	Knight Piésold Consulting (Pty) Ltd
KRC	King Resources of South Africa (Pty) Ltd
LDV	Light Delivery Vehicle
LOM	Life of Mine
MAFWLR	Ministry of Agriculture, Fisheries, Water and Land Reform
mamsl	Metres above mean sea level
mbgl	Metres below ground level
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources (Namibia)
MIME	Ministry of Industries, Mines and Energy

ML ..... Mining License
Mtpa ..... Million tonnes per annum
NamPort ..... Namibian Ports Authority
NamPower ..... Namibia Power Corporation
NamWater ..... Namibia Water Corporation
NCE ..... Namibia Chamber of Environment
NCJV ..... Namibian Copper Joint Venture
NCM ..... Namibian Copper Mines Inc.
NDP ..... National Development Plan
NHC ..... National Heritage Council of Namibia
NNP ..... Net Neutralising Potential
OHTL ..... Overhead Transmission Line
ORASECOM ..... Orange-Senqu River Commission
PEA ..... Preliminary Economic Assessment
Project ..... Haib Copper Project
ROM ..... Run-of-Mine
RTZ ..... Rio Tinto Zinc (former name of Rio Tinto plc)
SADC ..... Southern African Development Community
SEA ..... Strategic Environmental Assessment
TCu ..... Total Copper
TSF ..... Tailings Storage Facility
UNAM ..... University of Namibia
UNFCCC ..... United Nations Framework Convention on Climate Change
WHO ..... World Health Organisation
XRD ..... X-Ray Diffusion

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Haib is a porphyry copper exploration Project located in the //Karas Region of southern Namibia, approximately six kilometres (km) north of the border with South Africa and between 12 km and 15 km east of the tarred B1 highway that connects Namibia with South Africa.

Koryx Copper Inc. has a 100% interest in Haib Holdings (Pty) Ltd (formerly Deep South Mining Company (Pty) Ltd.), a Namibian subsidiary which holds the exploration rights to the Haib Project (the Project). Exclusive Prospecting Licence (EPL) 3140 allows for the exploration of base, rare and precious metals over an area of 36,571 hectares (ha).

Towards advancing the copper mining activities at Haib, a comprehensive Environmental and Social Impact Assessment (ESIA) with associated Environmental and Social Management Plan (ESMP) and public consultations are currently being undertaken and developed in accordance with the Namibian national requirements and guided by principles from the International Finance Corporation (IFC). The ESIA is being prepared to obtain an Environmental Clearance Certificate (ECC) for the proposed Project from Namibian authorities and to support the standards of disclosure required by the Canadian Securities Administrator in a technical report (NI 43-101) providing environmental, social compliance components.

The proposed Project comprises an open pit mine, a 28 Mtpa crushing, milling and flotation concentrator, a hydrometallurgical plant consisting of an 7 Mtpa heap leach, copper solvent extraction, impurity removal and copper electrowinning plant, as well as infrastructure on and off site necessary to support these operations (waste rock dumps, stockpiles, tailings storage facilities, pipelines and abstraction works, power infrastructure, roads, offices, etc.). The operation will achieve a combined throughput of 35 Mtpa. The mining schedule indicates a total material movement of approximately 87.5 Mtpa, providing approximately 23 years' supply of mineralised material. This equates to a total of 1.58 billion tonnes of material to be mined.

The Project is currently in the exploration and studies phase, whereby the feasibility of the Project is being defined through ongoing investigations and analysis. The broad schedule expected before construction works is presented in Figure 1-1 which indicates that investigations and financing will continue into the latter part of 2027.

Knight Piésold Consulting (Pty) Ltd (KP Namibia) was appointed by Haib Minerals (Pty) Ltd to support in the development of the environmental scoping and impact studies and ongoing regulatory compliance. This report is required for the scoping phase of the Project. The objective of the scoping phase is to facilitate, through consultations with Interested and Affected Parties (I&APs), the development of the Terms of Reference for the assessment phase of the process.

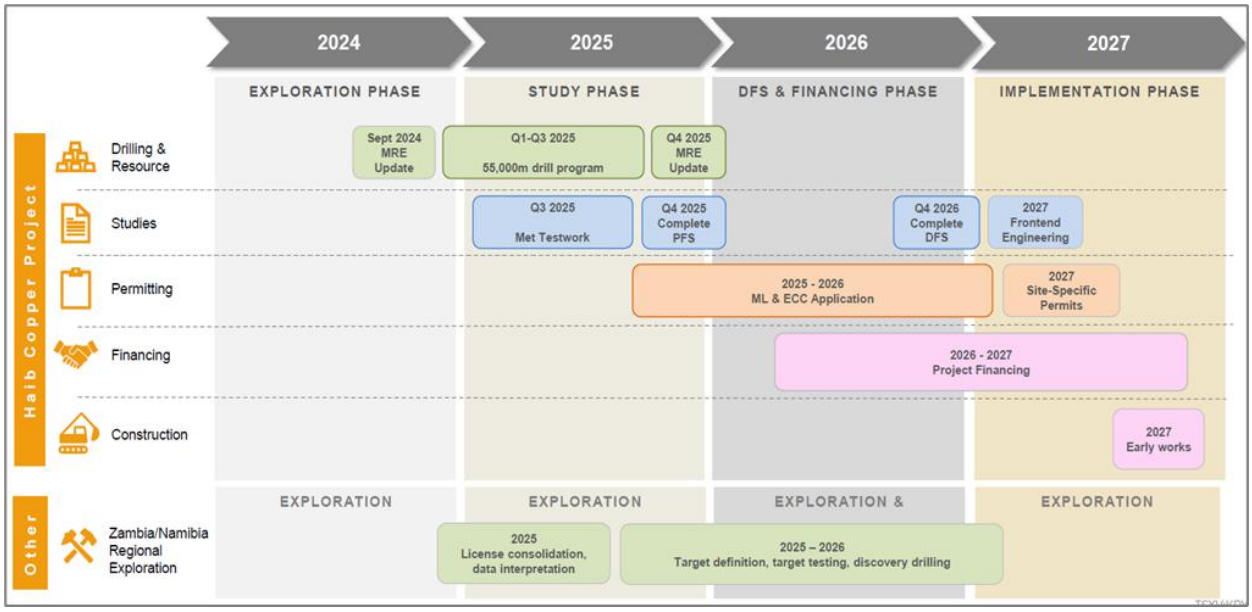

Figure 1-1: Exploration and studies schedule

1.2 PROJECT LOCATION

The Haib Copper Project (EPL 3140) covers an area of approximately 36,571 ha and is located in the south of Namibia, approximately 9 km (from the south-western boundary) from Noordoewer (Figure 1-2). The B1 Road forms the north-western boundary of the EPL. The Orange River runs immediately to the south of the EPL, and a number of farms surround the EPL. The biggest portion of EPL 3140 lies on state land. The eastern part of the EPL is located on Farm Tsams and the Farm Withoek is located within and on the north-eastern boundary of the EPL.

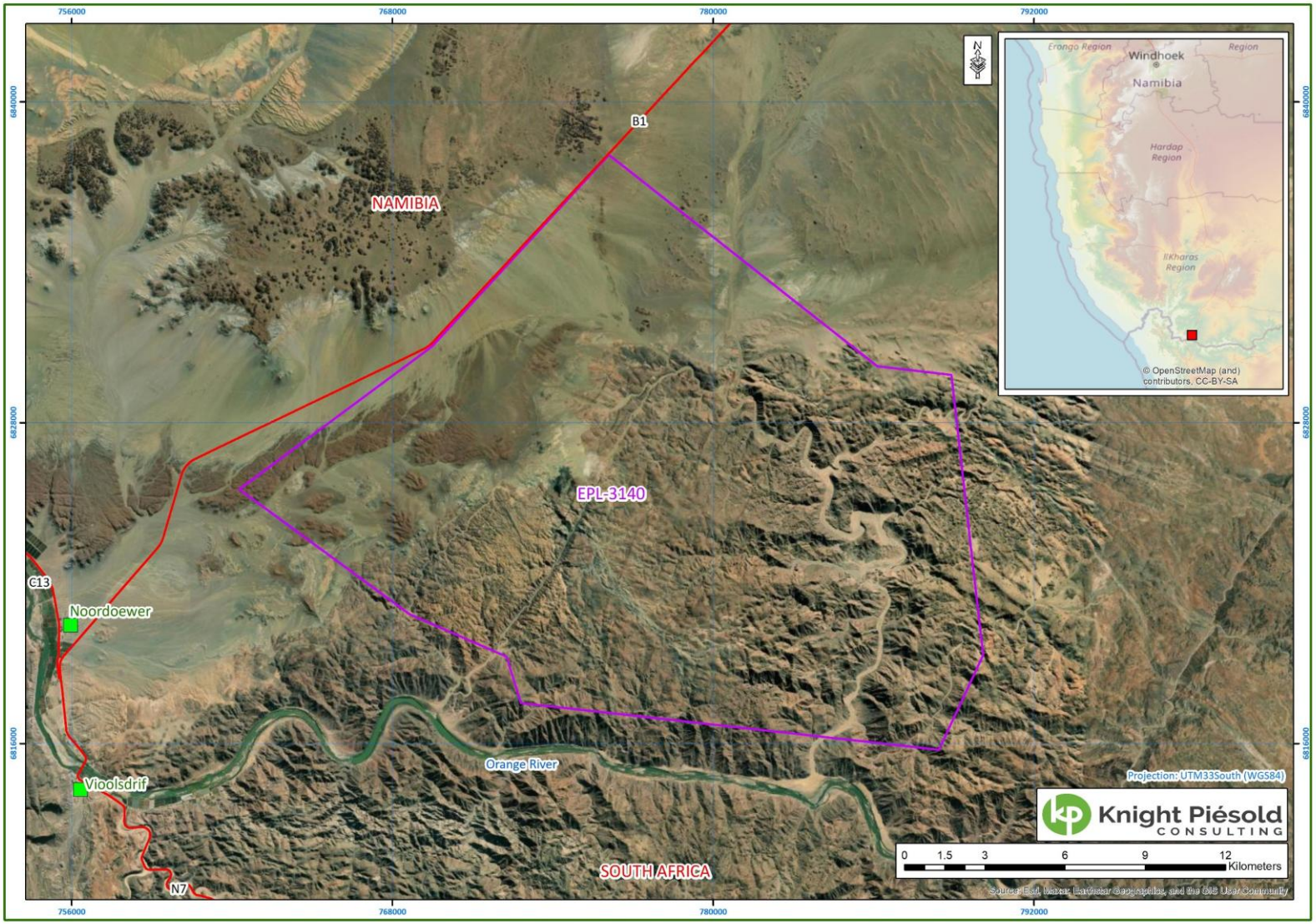

Figure 1-2: Location of EPL 3140

2.0 DETAILS OF THE APPLICANT AND CONSULTANT

2.1 DETAILS OF THE APPLICANT

Details of the applicant and Environmental Assessment Practitioner (EAP) is provided in Table 2-1.

Table 2-1: Details of the Applicant and Environmental Assessment Practitioner

	Applicant	Environmental Assessment Practitioner
Name of company / organization	Haib Minerals (Pty) Ltd	Knight Piésold Consulting (Pty) Ltd
Contact person	Charles Creasy	Mr. Joseph Mülders and Dr Lima Maartens
Telephone **Email**	 ccreasy@koryxcopper.com	+264 61 307 297 +264 61 255 750 jmulders@knightpiesold.com limamaartens@gmail.com
Physical address	13 Feld Street Windhoek, Namibia.	Corner 45 Nelson Mandela Ave and Hugo Hann Street, Klein Windhoek, Windhoek.
Postal address	P.O. Box 97225, Maerua Mall, Windhoek.	PO Box 86062, Eros, Windhoek.

2.2 DETAILS OF THE ENVIRONMENTAL CONSULTANTS

2.2.1 COMPANY PROFILE

Knight Piésold is an international consulting company providing engineering and environmental services for the mining, power, water, transportation and construction sectors. Knight Piésold was founded in South Africa in 1921 and has expanded over the world in response to project requirements, with 30 offices established in 15 countries, namely Argentina, Australia, Botswana, Canada, Chile, China, Colombia, Ghana, Namibia, Peru, South Africa, Swaziland, the USA, and Vietnam.

Knight Piésold has an office in Windhoek, Namibia and provides engineering and environmental services to the transportation, mining and water sectors. The team has been involved in various environmental projects across Namibia. Knight Piésold Consulting (Pty) Ltd (KP Namibia) was appointed by Haib Minerals (Pty) Ltd to support in the development of environmental scoping and impact studies and ongoing regulatory compliance.

2.2.2 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Mr. Joseph Mülders, Senior Environmental Scientist at Knight Piésold (Pty) Ltd., and Dr. Lima Maartens T/A LM Environmental Consulting have been appointed by Haib Minerals as the independent Environmental Assessment Practitioners (EAPs).

The authors of this report are Mr. Joseph Mülders and Dr Lima Maartens (see Appendix A for CVs). Mr. Joseph Mülders has 12 years of experience in the environmental services industry and is a registered Professional Natural Scientist (Pr. Sci. Nat in Environmental Science). Joseph has been involved in social and environmental risk, safeguards assessments and monitoring, spatial classification of socioeconomic and environmental systems. He specialises in environmental due diligence, impact assessments and risk analysis, environmental monitoring, rehabilitation and offset quantification and design, stakeholder consultation, environmental monitoring and compliance. Joseph has experience in various African countries in terms of delivering projects to international best practice standards focusing on socioeconomically sustainable development and management of natural resources.

Dr Lima Maartens has more than 32 years' experience in natural resource management (she gained her doctorate in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000), lecturing (University of Namibia (UNAM)), environmental science and management (De Beers Marine Namibia and the Canadian Forsys Metals Corp), and consulting. Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Sustainability and Environmental Professionals (ISEP) (previously the Institute of Environmental Management and Assessment (IEMA)) in the United Kingdom (UK), a Full Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society.

Curriculum vitae of Mr. Joseph Mülders and Dr Lima Maartens are available in Appendix A.

3.0 POLICY AND LEGAL FRAMEWORK

3.1 CURRENT PROJECT APPROVALS

The Haib Copper Project site operates in accordance with its current and approved Environmental Clearance Certificate (ECC) issued in terms of the Environmental Management Act. No. 7 of 2007 for EPL 3140 (Table 3-1). As part of the Project's development, EPL 3140 will be progressed to a Mining License (ML).

Table 3-1: Details of current approvals

License / Permit	Date (From)	Date (To)	Measure / Units (ha)	Comments
EPL 3140	22 April 2004	6 July 2025	36 571 Ha	Precious Metals and Base & Rare Metals Renewal submitted in March 2025. Notification of intent to renew received from MIME 15 August 2025. Renewal will extend validity to April 2028.
ECC for exploration	03 September 2024	03 September 2027	N/A	License required to undertake the following listed activity: Proposed Additional Exploration activities on EPL 3140, Noordoewer, //Karas Region
Water Abstraction License	31 August 2024	30 August 2029	36,000m^3/a	License number 11780 Maximum abstraction of 36,000m^3/a; 20m^3 per day during peak periods from Orange River for Mining/Industrial purposes
Borehole Permit	31 August 2024	30 August 2027	36 Boreholes	License number 11810 36 Boreholes for mineral exploration purposes
Borehole Permit	31 July 2024	20 July 2027	24 Boreholes	License number 11746 24 Boreholes for mineral exploration purposes
NHC Consent	24 June 2025	23 June 2026	N/A	Consent Number: 66/2025/48

3.2 ENVIRONMENTAL PERMITS AND LEGAL REQUIREMENTS

The Environmental Impact Assessment (EIA) Regulations 2012, Environmental Management Act, No. 7 of 2007, stipulates that an ECC is required to undertake certain listed activities. Potential listed activities triggered by the proposed Haib Copper Project are listed in Table 3-2. These activities will be confirmed during the Pre-feasibility Stage (PFS), however, they broadly form the basis of elements included in the ESIA and management process.

The regulatory framework for the Haib Copper Project's proposed mining activities is provided in Table 3-3.

The process is phased, commencing with a screening phase which aims to notify the Competent Authority (CA) towards identifying the scale of the studies required. Thereafter, the scoping phase looks to define the terms of reference and focus of the impact studies. The scoping phase is undertaken together with inputs from Interested and Affected Parties (I&APs) through implementing a public consultation process.

The impact assessment phase is then guided by outcomes of the scoping phase and undertakes focused specialist studies towards understanding the receiving environment, the significance of impacts and the development of management plans to mitigate impacts. The outputs are then subject to an additional round of public consultations and comments to ensure “co-development” with I&APs and communities of the final submission. The final output is then submitted towards the application for an ECC.

The ESIA and associated measures implemented under the Haib Copper Project are further guided by the IFC Performance Standards on Environmental and Social Sustainability (IFC 2012).

Table 3-2: Potentially triggered listed activities in Namibia

Listed Activities		Relevance to Haib Copper Project
ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES	1. The construction of facilities for - (a) the generation of electricity; (b) the transmission and supply of electricity;	The Haib Copper Project will generate and/or transmit electricity for operations.
WASTE MANAGEMENT, TREAMENT, 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 (APP) Ordinance, 1976. 2.3. The import, processing, use and recycling, temporary storage, transit or export of waste.	The Haib Copper Project will require storage of waste at waste sites and the transport of this waste. Scheduled processes under the APP Ordinance include: Copper works; Bulk storage and handling of ore.
MINING AND QUARRYING ACTIVITIES	3.1. The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992. 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.	The Haib Copper Project's key focus is mining activities and the development of mining-related infrastructure.
LAND USE AND DEVELOPMENT ACTIVITIES	5.1. The rezoning of land from - (c) agricultural use to industrial use	Land will need to be rezoned from agricultural to industrial.
AGRICULTURE AND AQUACULTURE ACTIVITIES	7.5. Pest control	Implementation of the Environmental and Social Management Plan (ESMP) may require pest control (Fauna and Flora).
WATER RESOURCE DEVELOPMENTS	8.1. The abstraction of ground or surface water for industrial or commercial purposes. 8.3. Any water abstraction from a river that forms an international boundary. 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 water courses within flood lines. 8.9. Construction and other activities within a catchment area.	The Haib Copper Project is looking to abstract, store and transport water from the Orange River which will require the construction of abstraction works within the catchment.

Listed Activities		Relevance to Haib Copper Project
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 authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste. 9.3. The bulk transportation of dangerous goods using pipeline, funiculars or conveyors with a throughout capacity of 50 tonnes or 50 cubic meters or more per day. 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. 9.5. Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.	The Haib Copper Project's mining operations, specifically the processing plant, will require the use of fuel and hazardous substances. Bulk fuel storage facilities will be needed for the effective operation of the mine.
INFRASTRUCTURE	10.1 The construction of- (b) public roads; (d) airports and airfields; if applicable; (g) communication networks including towers, telecommunication and marine telecommunication lines and cables;(j) masts of any material or type and of any height, including those used for telecommunication broadcasting and radio transmission, but excluding – if applicable (i) flag poles; and (ii) lightning conductor poles. 10.2 The route determination of roads and design of associated physical infrastructure where -(a) it is a public road.	The Haib Copper Project will develop access roads and communication networks.

The most pertinent legislation (Ruppel and Ruppel-Schlichting, 2022; and Legal Assistance Centre (LAC), 2023; 2024), with the aim of informing Koryx Copper Inc. of the legal requirements pertaining to the proposed mining activities at the Haib Copper Project is listed in Table 3-3.

Table 3-3: Regulatory framework for the Haib Copper Project's proposed mining activities

National Law
Acts of Parliament, Regulations, Ordinances, Proclamations
The Constitution of the Republic of Namibia 1990 (and First Amendment Act 34 of 1998, Second Amendment Act 7 of 2010, and Third Amendment Act 8 of 2014)
War Graves Control and Maintenance Ordinance 2 of 1927
Employees' Compensation Act 30 of 1941 (as amended in South Africa before Namibian independence) (Amendment Act 5 of 1995 amends the Act substantially and changes its name from the Workmen's Compensation Act to the Employees' Compensation Act) (and the General Regulations 1961 (as amended))
Explosives Act 26 of 1956 (as amended and made applicable in Namibia; and the Explosives Regulations 1972 (and amendments))
Burial Place Ordinance 27 of 1966
Soil Conservation Act 76 of 1969 (as amended in South Africa to March 1978)
General Health Regulations (Government Notice 121 of 1969 as amended; the amendments were substituted by those in Government Notices 139 of 1970 and 168 of 1976)
Hazardous Substance Ordinance 14 of 1974 (and the General Regulations 1979; no post-independence regulations have been promulgated)
International Health Regulations Act 28 of 1974 (as amended to December 1977); the International Health Regulations were replaced in turn by the International Health Regulations, 2005, which entered into force internationally on 15 June 2007 (Source: World Health Organisation (WHO)). Namibia is bound by these 2005 Regulations from that date in accordance with Articles 21(a) and 22 of the WHO Constitution.
Nature Conservation Ordinance 4 of 1975 (and the Regulations Relating to Nature Conservation 1976 and the amended Regulations)
Atmospheric Pollution Prevention Ordinance 11 of 1976 (Regulations are authorised by several sections of the Act; no post-independence regulations have been promulgated)
Petroleum Products and Energy Act 13 of 1990 (as amended by the Petroleum Products and Energy Amendment Act 29 of 1994, Act 3 of 2000, and Act 16 of 2003) (and the Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil 1991, Petroleum Products Regulations 2000 (amended in 2002 and 2016 and 2021), Regulations for arbitration procedures 2003, Regulations on funding of approved agencies 2004 (withdrawn 2005) (GN 247/2013 purports to amend the regulations in GN 230/2004, leaving the correct text of these regulations uncertain), and the Regulations relating to the reselling price of petrol and petrol products (issued frequently, with each one revoking or replacing the previous one)
Regional Councils Act 22 of 1992 (and Amendment Acts 17 of 1997, 30 of 2000, 12 of 2002, 12 of 2010, 16 of 2010, and 7 of 2017) (and the Regulations: Commercialisation Regulations 2001; Joint Business Venture Regulations 2001; and Tender Board Regulations 2001)
Minerals (Prospecting and Mining) Act 33 of 1992 (and Minerals (Prospecting and Mining) Amendment Act 8 of 2008)
Namibian Ports Authority Act 2 of 1994 (as amended by the National Transport Services Holding Company Act 28 of 1998, the Namibian Ports Authority Amendment Act 12 of 2000, and the State-owned Enterprises Governance Act 2 of 2006) (and the Port Regulations 2001) & Environmental Management Plan for the Operations of the Port of Lüderitz (Faul et al., 2019).

Social Security Act 34 of 1994 (as amended by the State-owned Enterprises Governance Act 2 of 2006 and later renamed as the Public Enterprises Governance Act 2 of 2006, the Labour Act 11 of 2007, and the Abolition of Payment by Cheque Act 16 of 2022/23 (and the General Regulations 1995, and amendments))
Arms and Ammunition Act 7 of 1996 (and amendments: Combating of Domestic Violence Act 4 of 2003; and General Law Amendment Act 14 of 2005) (and the General Regulations 1998)
Namibia Water Corporation Act 12 of 1997 (and amendments: State-owned Enterprises Governance Act 2 of 2006 (re-named the Public Enterprises Governance Act 2 of 2006); and the Water Resources Management Act 11 of 2013) (regulations are authorised by section 43 of the Act, but none have yet been promulgated).
Affirmative Action (Employment) Act 29 of 1998 (as amended by Act 6 of 2007 and the Labour Act 11 of 2007) (and the General Regulations 1999)
Road Traffic and Transport Act 22 of 1999 (as amended by the Road Traffic and Transport Amendment Act 6 of 2008) (and the Road Traffic and Transport Regulations 2001)
Forest Act 12 of 2001 (as amended by the Forest Amendment Act 13 of 2005) (and the Forest Regulations 2015)
National Heritage Act 27 of 2004 (as amended by the State-owned Enterprises Governance Act 2 of 2006, later re-named the Public Enterprises Governance Act 2 of 2006, and the Abolition of Payment by Cheque Act 16 of 2022 (and the National Heritage Regulations 2005)
Atomic Energy and Radiation Protection Act 5 of 2005 (and the Radiation Protection and Waste Disposal Regulations 2011)
Electricity Act 4 of 2007 (and the Electricity Regulations: Technical 2004, the Electricity Regulations: Administrative 2011, and the Namibian Electricity Safety Code 2011 (amended 2012))
Environmental Management Act 7 of 2007 (and the Environmental Impact Assessment Regulations 2012)
Labour Act 11 of 2007 (as amended by the Labour Amendment Act 2 of 2012, the Whistleblower Protection Act 10 of 2017, and the Abolition of Payment by Cheque Act 16 of 2022 (and the Regulations relating to the Health and Safety of Employees at Work 1997, the Labour General Regulations 2008, and the Regulations relating to Domestic Workers 2017)
Tobacco Products Control Act 1 of 2010 (and the Regulations 2014)
Water Resources Management Act 11 of 2013 and the Water Resources Management Regulations 2023
Public and Environmental Health Act 1 of 2015
Namibia Investment Promotion Act 9 of 2016
Policies, Guidelines, National Strategies & Action Plans
Policies
Conservation of Biotic Diversity and Habitat Protection 1994
Namibia: National Code on HIV/AIDS in Employment 2000
Minerals Policy of Namibia 2002
Namibia's *Draft* Wetland Policy 2004
National Policy on HIV/AIDS 2007
Water Supply and Sanitation Policy 2008
National Gender Policy 2010 - 2020
National Health Policy Framework 2010-2020 - "towards quality health and social welfare services"
National Policy on Climate Change for Namibia 2011

Revised National Policy on Prospecting and Mining in Protected Areas, Other Areas with High Value Species, and Environmentally Sensitive Areas (2024/2025 – 2034/2035)
Guidelines
Petroleum Products Regulations, 2000 Guidelines for Consumer Installations
National Strategies & Action Plans
Namibia's Green Plan 1992
Vision 2030 2004
National Climate Change Strategy & Action Plan (2013 – 2020)
Namibia's Second National Biodiversity Strategy and Action Plan (NBSAP 2) (2013 – 2022)
Namibia's Si**xth** National Development Plan (NDP6) –*Fostering Recovery, Inclusiveness and Resilience for Sustainable Development, 2025/6 – 2029/30*)
National Solid Waste Management Strategy 2018
National Parks Environmental Management Plans (EMPs)
N/A
Town Planning Schemes, Structure Plans, & Land Use Plans
//**Karas** Integrated Regional Land Use Plan (KIRLUP) 2011 - 2016
Strategic Environmental Assessments (SEAs)
Strategic Environmental Assessment (SEA) for the //**Karas** Integrated Regional Land Use Plan (KIRLUP) 2011
Good Industry Practice
Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) Mining Policy Framework Assessment: Namibia 2018
Best Practice Guide. Environmental Principles for Mining in Namibia 2019
International Law
African Union (AU)
African Charter on Human and Peoples' Rights (Banjul Charter) 1981, the Protocol to the African Charter on Human and Peoples' Rights on the establishment of the African Court on Human and Peoples' Rights 1998 (non-binding), and the Protocol to the African Charter for Human and Peoples' Rights on the Rights of Women in Africa 2003
Agreement between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia and the Republic of South Africa on the Establishment of the Orange-Sengu River Commission (ORASECOM) 2000
African Convention on the Conservation of Nature and Natural Resources (Revised Version) 2003 (non-binding)
Agreement for the Establishment of the Africa Institute for the Environmentally Sound Management of Hazardous and Other Wastes Agreement 2004
Southern African Development Community (SADC)
Treaty of the Southern African Development Community (SADC) 1992 (and Agreement Amending the Treaty 2001; Agreement Amending Article 22 of the Treaty 2007; Agreement Amending the Treaty 2008; Agreement Amending the Treaty 2009 – DES; and Agreement Amending the Treaty 2009 – ORGAN)
SADC Protocol on Mining 1997
SADC Protocol on Health 1999
Revised Protocol on Shared Watercourse Systems in the SADC 2000

SADC Protocol on Forestry 2002
Charter of Fundamental Social Rights in SADC 2003
SADC Protocol on Gender and Development 2008 (and an Agreement Amending the SADC Protocol on Gender and Development 2016)
SADC Protocol on Environmental Management for Sustainable Development 2014 (not yet binding)
SADC Protocol on Employment and Labour 2014 (not yet binding)
United Nations (UN) / International Conventions
Constitution of the International Labour Organization (ILO) 1919 (as amended), and *Instrument of Amendment of the ILO Constitution, 1986 (not yet binding), and the Instrument of Amendment of the ILO Constitution 1997
Constitution of the World Health Organization (WHO) 1946 (and *Amendment to Article 7 of the Constitution of the World Health Organization 1965 (not yet binding); *Amendment to Article 74 of the Constitution of the World Health Organization 1978 (not yet binding); Amendments to Articles 24 and 25 of the Constitution of the World Health Organization 1986; and Amendments to Articles 24 and 25 of the Constitution of the World Health Organization 1998)
ILO Convention concerning Discrimination in Respect of Employment and Occupation (No. 111) 1958 (and including the Forced Labour Convention 1930 (No. 29); Abolition of Forced Labour Convention 1957 (No. 105); Freedom of Association and Protection of the Right to Organise Convention 1948 (No. 87); Right to Organise and Collective Bargaining Convention, 1949 (No. 98); Equal Remuneration Convention 1951 (No. 100); Discrimination (Employment and Occupation) Convention 1958 (No. 111); Minimum Age Convention 1973 (No. 138); and Worst Forms of Child Labour Convention 1999 (No. 182))
International Convention on the Elimination of All Forms of Racial Discrimination 1966
International Covenant on Civil and Political Rights (ICCPR) 1966 (and the Optional Protocol to the International Covenant on Civil and Political Rights 1966 and the Second Optional Protocol to the International Covenant on Civil and Political Rights, aiming at the Abolition of the Death Penalty 1989)
International Covenant on Economic, Social and Cultural Rights (ICESCR) 1966
Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention) 1971 (and Protocol to amend the Convention on Wetlands of International Importance especially Waterfowl Habitat 1982, and Amendments to Article 6 and 7 of the Convention on Wetlands of International Importance especially Waterfowl Habitat 1987)
Convention Concerning the Protection of the World Cultural and Natural Heritage 1972
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) 1979 and Optional Protocol to the Convention on the Elimination of all Forms of Discrimination against Women 1999
Vienna Convention for the Protection of the Ozone Layer 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer 1987 (and Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Second Meeting of the Parties at London on 29 June 1990 (London Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Fourth Meeting of the Parties at Copenhagen on 25 November 1992 (Copenhagen Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Ninth Meeting of the Parties at Montreal on 17 September 1997 (Montreal Amendment); Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Eleventh Meeting of the Parties at Beijing on 3 December 1999 (Beijing Amendment); and Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Twenty-Eighth Meeting of the Parties at Kigali from 10 to 15 October 2016 (Kigali Amendment))
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) 1989 and the Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1995

Convention on Biological Diversity (Biodiversity Convention) 1992, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Montreal 2000, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity 2010
United Nations Framework Convention on Climate Change (UNFCCC) 1992, the Kyoto Protocol to the UN Framework Convention on Climate Change 1997 (and the not yet binding Doha Amendment to the Kyoto Protocol to the United Nations Framework Convention on Climate Change 2012), and the Paris Agreement 2015
Convention on the Law of the Non-Navigational Uses of International Watercourses 1997
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) 1998 (with Annexes as amended)
Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention) 2001 (and amendments)
Convention for the Safeguarding of the Intangible Cultural Heritage 2003
Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005
United Nations Guiding Principles on Business and Human Rights 2011
International Best Practice
The Vermillion Accord on Human Remains 1989
International Finance Corporation (IFC) Environmental Health and Safety (EHS) Guidelines 2007 and the EHS Guidelines for Mining 2007 **International Finance Corporation Performance Standards 2012**
Workers' accommodation: process and standards (IFC and European Bank for Reconstruction and Development (EBRD), 2009)
Equator Principles (EP 4) 2020

4.0 PROJECT DESCRIPTION

4.1 NEED FOR THE PROJECT

New mining operations have several positive contributions to the national and local economy of any country. These contributions are primarily through economic growth, infrastructure development, and job creation.

Mining activities, such as the Haib Copper Project, have the potential to boost Namibia's Gross Domestic Product (GDP), attract direct foreign investment, and improve the socio-economic wellbeing of communities through employment and funding for essential services. If the Haib Copper Project moves ahead, the Namibian economy can expect benefits from revenues during the construction phase, royalties and taxes during the Life of Mine (LoM), and positive contributions towards employment and infrastructure development. The broad mine plan indicates that a maximum of 2,900 staff during construction and maximum of 1,350 during operations will be required by the Project. This will provide direct benefits through income, and thus livelihoods to these households, as well as support the broader economy for a minimum of 23 years of production in addition to the construction period of about two years.

4.2 EMPLOYMENT

The scale and size of the Haib Copper Mine is expected to require labour of maximum 2,900 during the construction phase and a maximum of 1,350 during the operational phase. The labour expectations by component are presented in Table 4-1.

Table 4-1: Labour requirements estimate across the operational components for the Haib Copper Project

Component	Personnel Required
	Max
Construction Personnel	
Management / Consultants	230
Professionals	310
Skilled Labour	1090
Semi Skilled Labour	880
Unskilled Labour	480
Total	**2.900**
Operations Personnel	
Mining, general and administrative support	790
Heap Leach Pad Processing	220
Concentrator Processing	340
Total	**1350**

A detailed labour plan covering all phases and components of the Project will be developed as the Project advances.

4.3 PROJECT BACKGROUND AND EXPLORATION HISTORY

The Haib Copper Project is located in the south of the //Karas region of Namibia, close to the border with South Africa as defined by the Orange River. The Project is located at a latitude of approximately 28°41'48" and a longitude of approximately 17°52'59" (Figure 4-1). The Project is situated between 12 km and 15 km east of the main highway connecting South Africa to Namibia (B1). The nearest railway station is in the town of Grunau, approximately 120 km north on the main highway. The rail connection provides access to the port towns of Lüderitz and Walvis Bay via Windhoek, or South African ports via Upington.

The Haib deposit straddles the Volstruis River, which is a tributary of the Haib River. Both are ephemeral tributaries of the Orange River, which lies south of Haib. The Haib deposit has a distinct surface expression with abundant copper staining on fractures and joint planes, particularly in and around the dry riverbed of the Volstruis River. This led to German prospectors identifying the deposit around the late 1800s or early 1900s. Small tonnages of high-grade copper carbonate mineralised material were mined at this time. After World War II, the prospect owner George Swanson conducted small-scale mining and tank leaching operations. Copper carbonate mineralised material was leached with acid.

Since then, a variety of mining companies have prospected the area inclusive of Falconbridge of Africa (Pty) Ltd (Falconbridge) (eleven boreholes totalling 1,012 metres (m) of drilling between 1963 and 1965), King Resources of South Africa (Pty) Ltd (KRC) (between 1968 and 1969), Rio Tinto Zinc (RTZ) (120 holes totalling 45,903 metres between 1972 and 1975) and Great Fitzroy Mines NL (GFM) and Namibian Copper Joint Venture (NCJV) (between 1995 and 1999). Haib Minerals (HM), registered in Namibia, held EPL 3140 since 2004 with shares held by Deep South Mining Company (DSM) and Teck. Teck acted as the exploration operator and manager for HM. In 2017, DSM acquired all of the shares in HM from Teck and now holds a 100% interest in HM. In 2018, the first Preliminary Economic Assessment (PEA) was developed for the Haib Copper Project. HM have since been continuing exploration drilling and investigating the feasibility of a project. The PEA was updated in 2020 and is currently in the process of being updated in 2025. The focal target resources for mining activities include copper and molybdenum.

Haib Minerals currently holds EPL 3140 and an associated Environmental Clearance Certificate (ECC) for exploration activities. The Project has advanced sufficiently to apply for a Mining Licence (ML) from the Ministry of Industries, Mines and Energy (MIME) and a mining level ECC from the MIME and the Ministry of Environment, Forestry and Tourism (MEFT).

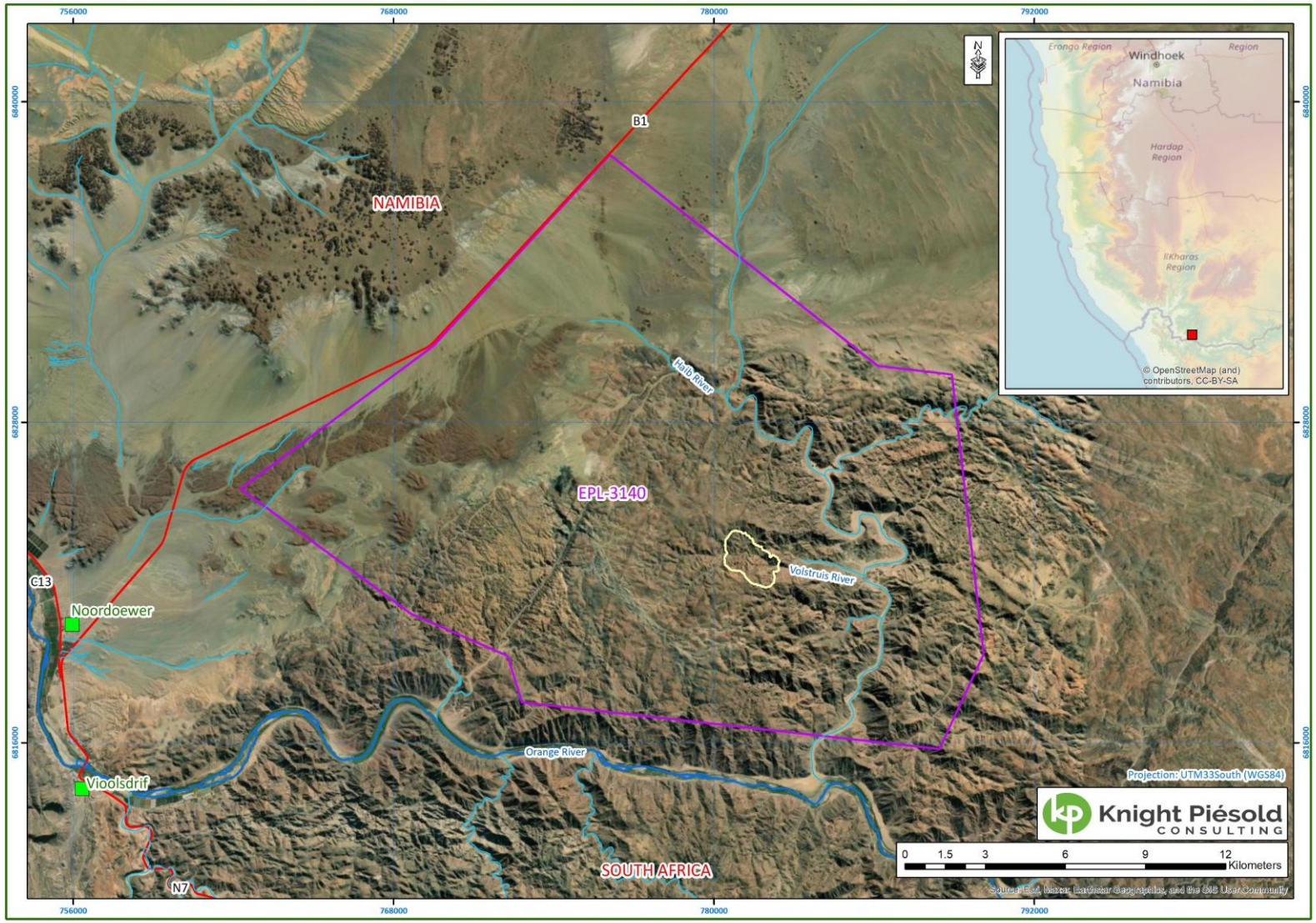

Figure 4-1: Haib Copper Project Operational Area

4.4 SITE LAYOUT

The Haib deposit lies at elevations from a floor elevation of just under 375 meters above mean sea level (mamsl) to over 600 mamsl. The surrounding area is up to about 650 mamsl at the highest point. The area is rugged with steep-sided valleys and rugged local relief. Flatter topography is present in the west and north-west portions of the EPL footprint, but these areas are far away from the Haib deposit.

The site layout has been designed around critical landform features such as topography, sensitive biodiversity areas, and heritage features. The optimisation has additionally considered the efficiencies required for the mining operation. The proposed site layout is provided in Figure 4-2.

The current site layout represents the results of preliminary studies, however, it is not final and thus represents a variety of alternative sites for development. The final layout will be informed by specialist impact studies and the broader environmental and social impact assessment, as well as ongoing design processes. This finalisation process will also integrate considerations received through the public consultation process.

Although the mine development is at an advanced conceptual phase, the key components and potential options to be further assessed include the following:

1. A single large open pit
2. A concentrator processing plant (crushing, milling and flotation circuit with a capacity of 28 Mtpa)
3. A heap leach, solvent extraction and electrowinning plant (capacity of 7 Mtpa with two alternative sites provided)
4. A tailings storage facility (TSF) (three alternatives provided)
5. Two Waste Rock Dumps (WRDs) (0.273 Mt and 1.017 Mt)
6. A solar photovoltaic (PV) plant (150 MWp)
7. Storm water attenuation dams (SWADs) upstream of the open pit
8. Off-channel water storage
9. Water abstraction works on the Orange River, pipeline and associated infrastructure (two alternative sites provided)
10. Ancillary infrastructure (access roads, transmission lines, labour accommodation camp, offices, etc.)

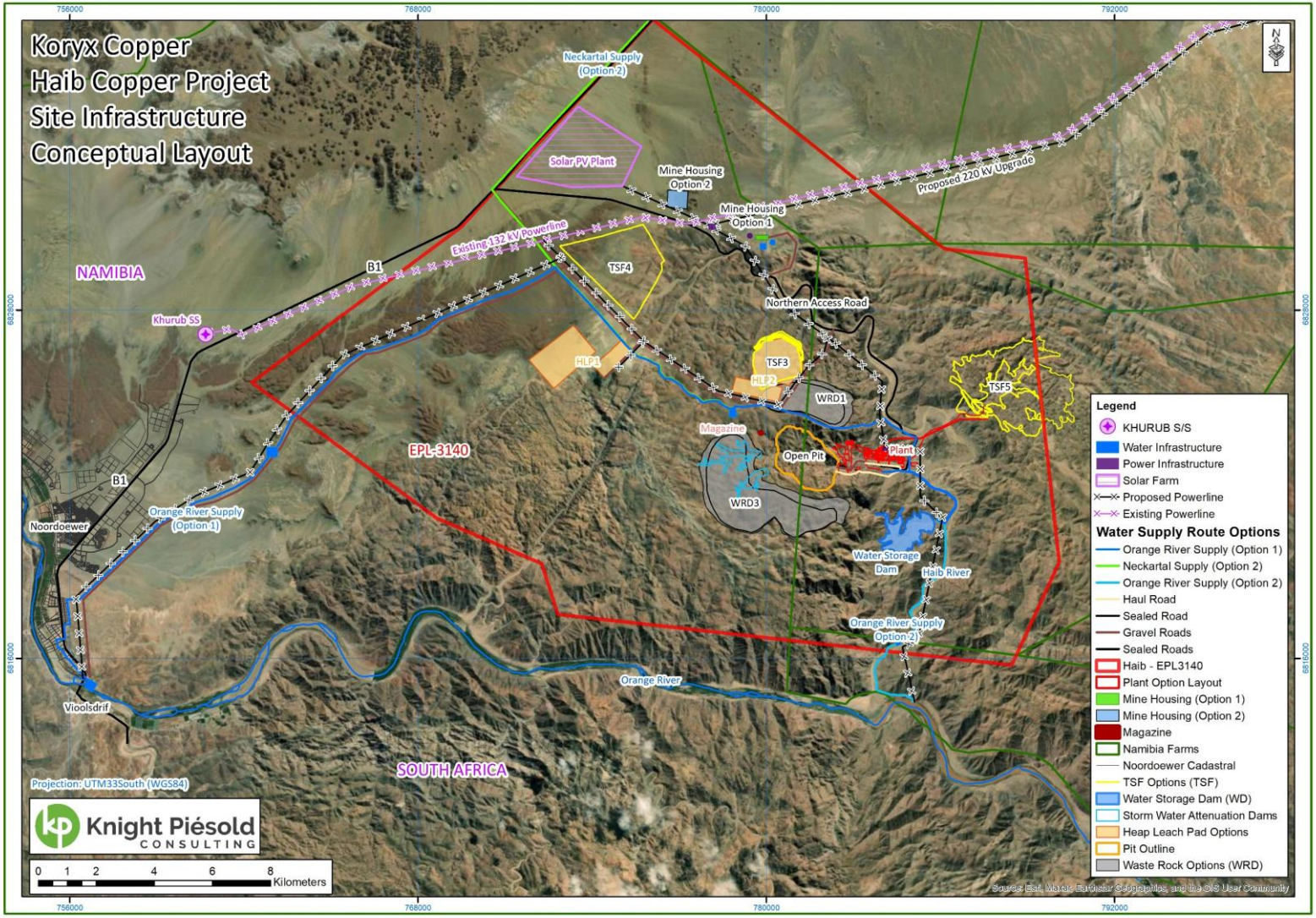

Figure 4-2: Haib Copper Site Layout (inclusive of alternatives)

4.5 MINING INFRASTRUCTURE AND SERVICES

4.5.1 MINERALISATION

The Haib mineralisation is hosted within two different structural domains (the Northwest (NW) and Southeast (SE) zones) separated by an approximately N-S striking, 60° E-dipping fault, termed “Quartz Vein”. The mineralisation of the Northwest zone effectively terminates against an E-W striking shear zone in the northern part of the Project area.

The total strike length of the modelled portion of the deposit is approximately 2,100 m, with the across-strike and down-dip portions typically being 900 m to 1,000 m and 1,000 m, respectively.

4.5.2 MINING METHOD AND EQUIPMENT

The Haib Project will make use of conventional shovel and truck operations, with bulk open pit mining methods augmented by more selective mining in areas with narrow mineralised zones. The proposed mining practice for the Project involves an open-pit mining method, with drilling and blasting operations occurring on mineralised benches.

Mineralised material and waste will be loaded with hydraulic excavators and hauled by 240-tonne rigid dump trucks. Mineralised material will be directly tipped into the crusher bin to be routed to the primary crusher, ROM pad stockpile, low-grade stockpile, or waste dump.

Mined mineralised material will be stockpiled in paired stockpiles on the ROM pads and at other destinations at the milling and flotation stations, and the heap leach processing plants, depending on the grade and oxidation state. Mineralised material is then re-handled to the different processing plant routes per the feed schedule. In-pit blending will minimise the extent of the re-handling of mineralised material from the stockpile to the primary crusher to cater for short-term grade variations over the LOM.

It is planned that the mine will operate 361 days per annum on a 24-hour basis. An approved localisation plan will be established to train and equip the Namibian workforce sufficiently, enabling a seamless transition of responsibilities over time. The bulk of the equipment operators are expected to be unskilled (approximately 80%) and will require basic-level training. The start-up strategy for the contract mining operations takes this requirement into account.

4.5.2.1 BLAST OPERATIONS

Rock fragmentation will be undertaken by drilling and blasting, and the Project assumes that all the material to be mined at the Project would require blasting.

4.5.2.2 DRILLING

Drilling is the first operation performed at most open-pit mining operations. For this Project, a diesel crawler down the hole (DTH) drill rig has been selected for the production holes for the mineralised material, waste benches, and the wall control blasting holes.

4.5.2.3 LOAD AND HAUL OPERATIONS

The overall scale of mining envisaged at the Haib Copper Project is a large-sized mine with total material movements of approximately 87.5 Mtpa. In order to manage mineralised material dilution and losses at the Project, selective mining practices have been incorporated into the ore mining methodology.

For the waste and mineralised material mining operation, it is envisaged that large-sized hydraulic face shovels will be operated in the 400-tonne class for selective mining combined with a fleet of 240-tonne rigid dump trucks.

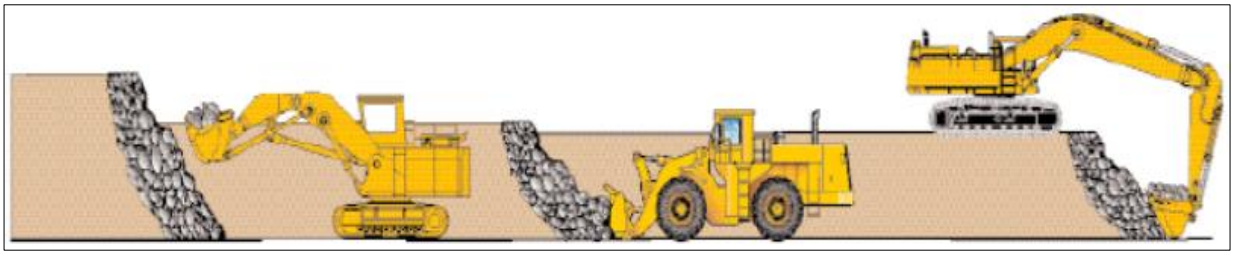

Figure 4-3: Possible loading methods

The hydraulic face shovel, wheel loader and hydraulic excavator will function as the primary loading equipment (Figure 4-3). Rigid frame and articulated diesel trucks have been used in the mining of small to large open pits for many years, and their mechanical capabilities are well respected. It was for this reason that diesel-powered rigid haul trucks were selected for the proposed Project.

During the mining operations, mineralised material would be excavated and the mineralised material and waste be loaded as per the marked mineralised material and waste boundaries to ensure minimum contamination and maximum recovery of mineralised material.

4.5.2.4 SECONDARY AND TERTIARY (SUPPORT) EQUIPMENT

Secondary and tertiary equipment are mining equipment that falls outside that of the primary production equipment's scope, but which the mine would not function without. This support equipment is the lifeline of reliable and cost-effective mining production by supporting the primary production equipment with the following activities:

- Keeping loading, tipping and haul road areas clean, thus prolonging tyre life and making the operation safe
- Maintaining haul road conditions, thus prolonging tyre life and making the operation safe
- Suppressing dust emissions from a health, safety, environmental and financial perspective
- Supporting the complete equipment maintenance and diesel requirements for remote track-propelled equipment and breakdowns
- Bench preparation and levelling
- Fuelling of track-mounted equipment and dump trucks
- Rehabilitation – Track Dozers.

The tertiary (support) equipment fleet consists of units that assist in tasks that are required 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, known as support tasks. The fleet consists of:

- Small trucks used for maintenance activities.
- Light delivery vehicles (LDVs) used to transport management, technical services and maintenance personnel around the mine.
- Busses 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 nighttime.
- Pumping equipment for pit dewatering.

4.5.2.5 OTHER MINING ACTIVITIES AND INFRASTRUCTURE

The majority of surface haul roads, dumps, and stockpiles required for the LOM will be constructed during the first year of mining.

The waste dump will progress by the haul truck tipping on the top elevation of the dump with the dozer pushing the waste down. These actions will cause the waste dump to progress horizontally over time. Waste dumps will be progressively rehabilitated with topsoil, where possible. Rehabilitation will be performed as soon as possible on the external faces of the waste dump. Mineralised material stockpile dumps will be constructed in close vicinity to the primary crusher tipping point to minimise the reclamation costs.

Waste rock will also be required for the construction of mine infrastructure, such as ROM pad and tailings storage dam walls.

Mineralised material mined will be stockpiled in paired stockpiles on the ROM pads and at other destinations at the milling and flotation, and the heap leach processing plants, depending on the grade and oxidation state. Mineralised material will then be re-handled to the different processing plant routes per the feed schedule. In-pit blending will minimise the extent of the re-handling of mineralised material from the stockpile to the primary crusher to cater for short-term grade variations over the LOM.

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. A mobile, trailer-mounted, pit-dewatering pump will pump excess water to the mine pond to be used for dust suppression, and the overflow will be pumped to the mine return water dam close to the plant to be used as processing water and for dust suppression purposes.

Haul road dust suppression is a key requirement considered for the Project. It will be handled through a comprehensive dust management system provided and managed by Dust-a-Side (DAS), an industry leader in this regard, or a similar product. DAS is a bitumen-based product which is applied during haul road construction and maintained on a customised maintenance programme.

4.5.3 PIT AND HAULAGE DESIGN

The objective of the pit design process is to transform the optimal pit shell into a practical pit with ramps, bench and berm configurations, taking into consideration design criteria and geotechnical constraints. The following methodology was followed during the design process:

- Use the selected optimal pit shells derived from the pit optimisation as the design limit.
- Use the latest block model to show the mineralised material distribution.
- Apply the pit design criteria and geotechnical parameters.

The width criterion for a haul segment is based on the widest vehicle in use (likely a Caterpillar 793 240-tonne rigid dump truck). The dimensions of the haul road are based on global standards of good practice.

The ultimate Haib pit design is illustrated in Figure 4-4 (isometric view with pit dimensions) and the pit in plan view illustrated in Figure 4-5.

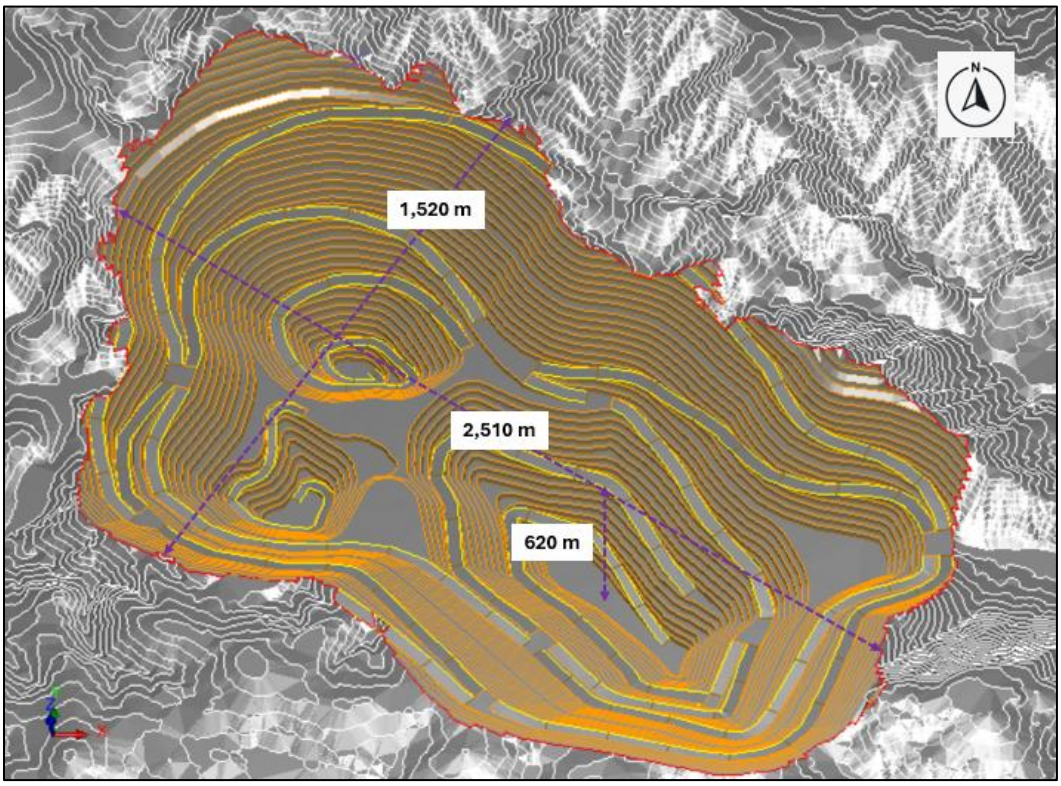

Figure 4-4: Haib ultimate pit design in isometric view

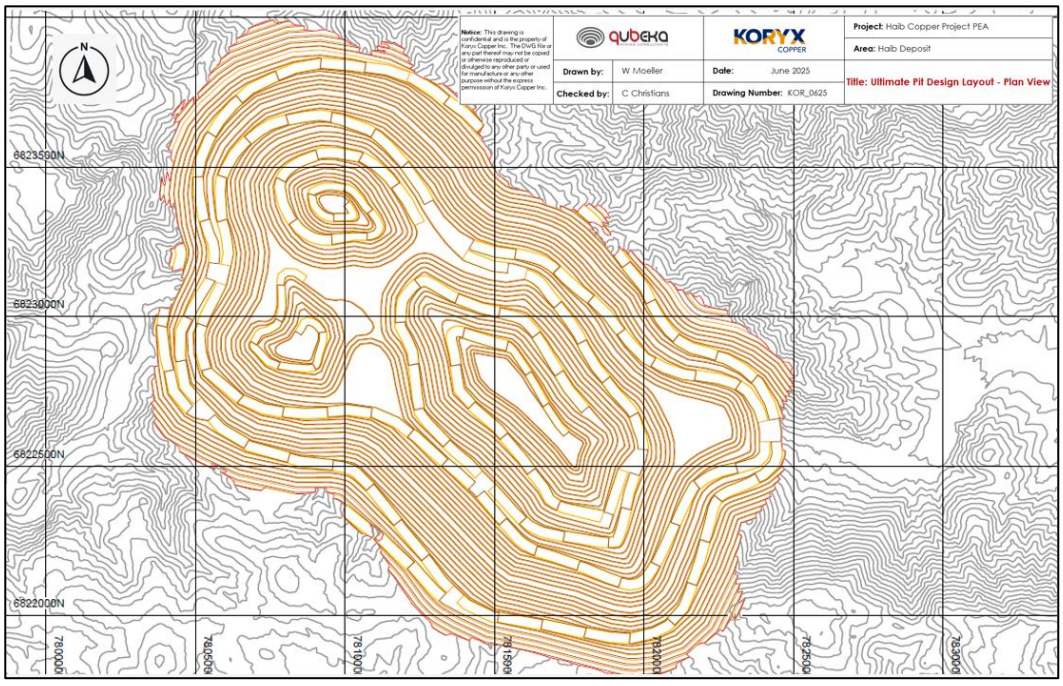

Figure 4-5: Haib ultimate AML pit design in plan view

4.5.4 METALLURGY AND PROCESSING

The mining and processing strategy builds upon the 1997 Feasibility Study, the 2021 PEA, and the latest 2025 test work. This has resulted in a production plan that integrates a primary 28 Mtpa crushing, milling

and flotation circuit in combination with a 7 Mtpa hydrometallurgical plant comprising heap leaching, copper solvent extraction and electrowinning to achieve a combined throughput of 35 Mtpa. The crushing, milling and flotation circuit will process the higher-grade primary sulphide material containing at least 0.275%. The lower-grade sulphide material containing 0.175% - 0.275% Cu will be processed in the hydrometallurgical circuit.

4.5.4.1 CONCENTRATOR PLANT PROCESS DESIGN

As described above, the concentrator processing plant has been laid out to the east of the pit. The ROM tip pads are located close to the pit edge and are at a similar elevation to the pit rim.

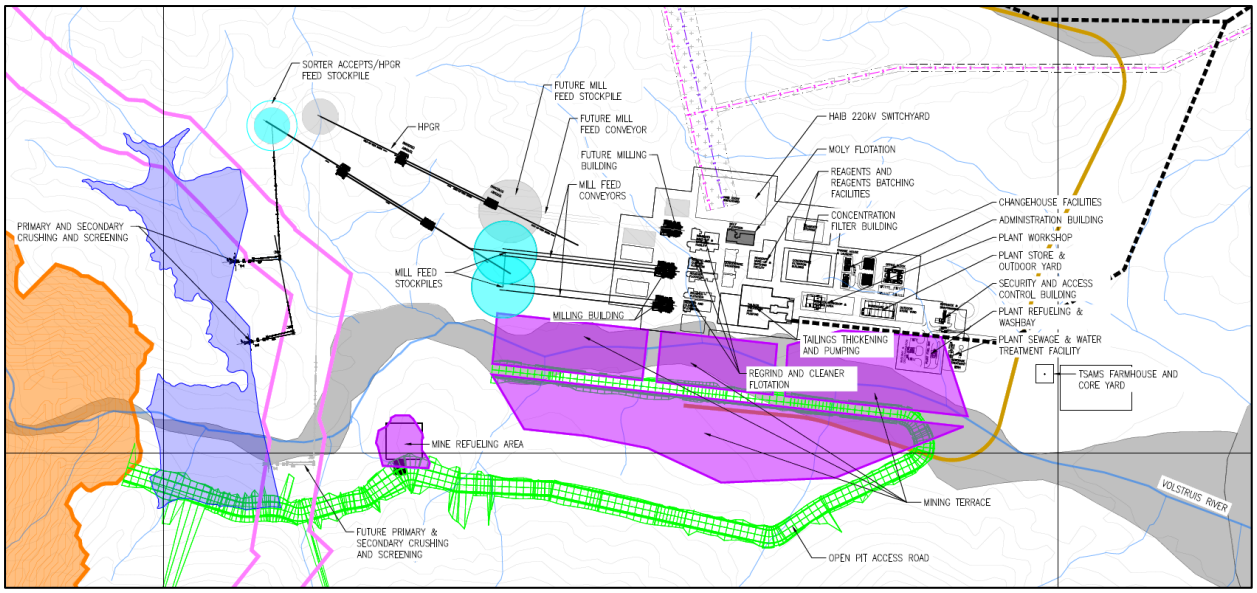

Figure 4-6: Comminution Circuit and Process Plant Infrastructure

Typical process plant supporting infrastructure has been indicated, comprising a change house, administration facility, workshop, stores, reagents stores, sewerage and water treatment facilities. Final copper and molybdenum concentrate will be dried in a filter press and exported by road.

The concentrator design is based on a 28 Mtpa facility, executed in a single phase and comprising two 14 Mtpa crushing, milling and flotation circuit modules. The flowsheet includes the following conventional size reduction and mineral beneficiation unit processes:

- Primary and Secondary Crushing and Screening
- Tertiary High-pressure grinding rolls (HPGR) and Screening.
- Milling and Classification, incorporating Coarse Particle Flotation and Coarse Gangue Rejection
- Copper Rougher Flotation
- Copper Rougher Flotation Concentrate Regrind
- Copper Cleaner and Cleaner Scavenger Flotation
- Copper Concentrate Thickening, Filtration and Dispatch
- Molybdenum Rougher Flotation
- Molybdenum Cleaner Flotation
- Molybdenum Final Cleaner Concentrate Leaching
- Molybdenum Concentrate Dewatering and Dispatch
- Tailings Dewatering and Pumping
- Reagent Delivery, Make-up, and Dosing Facilities
- Services: Air and Water Supply and Distribution.

A simplified summary flowsheet is presented in Figure 4-7.

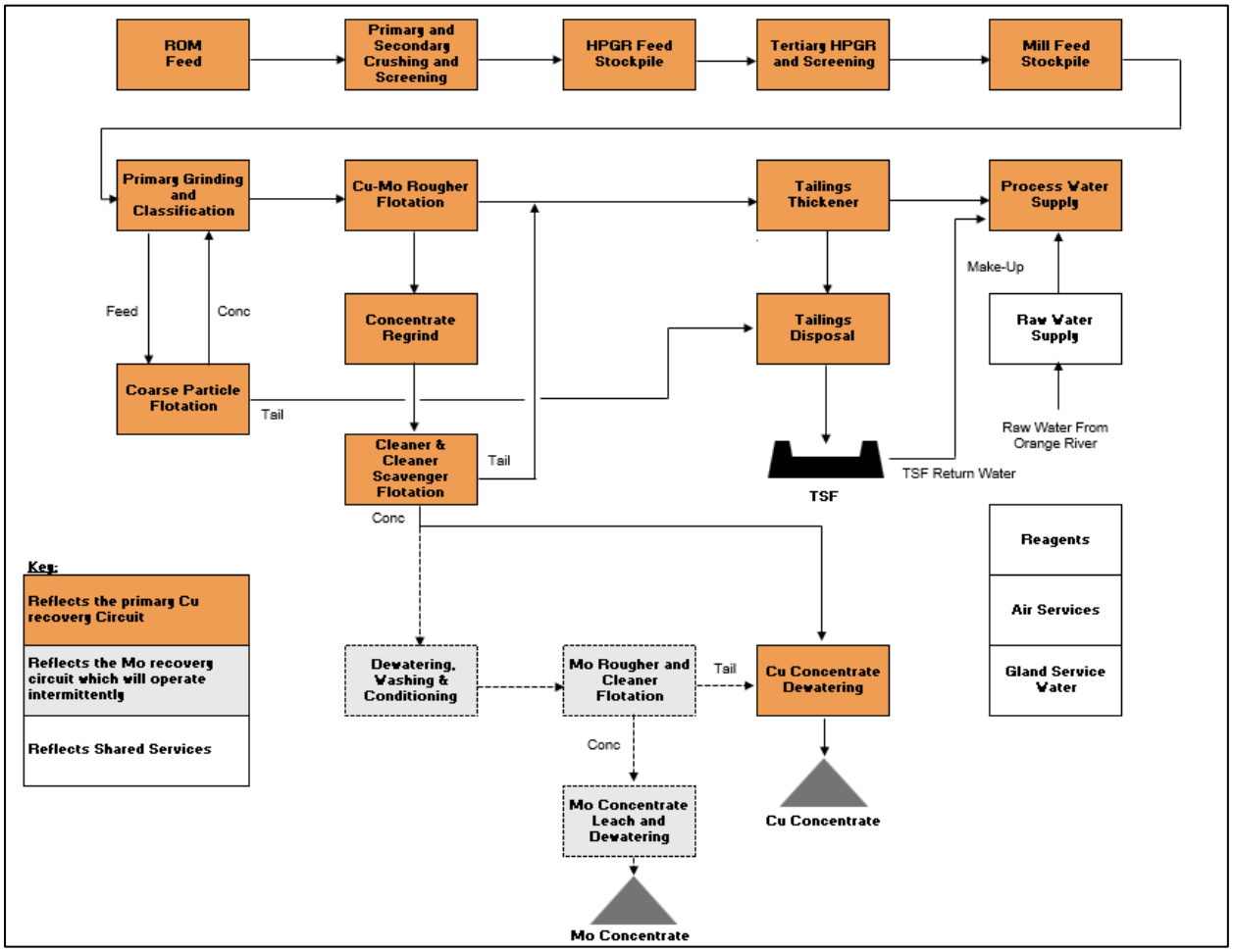

Figure 4-7: Concentrator Plant Simplified Summary Flowsheet

The process will produce separate copper and molybdenum flotation concentrates (dependent on market conditions and feed grade), which will be trucked and shipped to international customers.

4.5.4.2 HEAP LEACH PLANT PROCESS DESIGN

The area in the north-west of the EPL footprint on the flatter plain, as well as the area directly north of the pit have been identified as alternatives currently being assessed for the Heap Leach and Hydrometallurgical plant. Mineralised material will still be crushed at the ROM pads east of the pit and conveyed to the Agglomeration plant before being stacked on the Heap Leach pad.

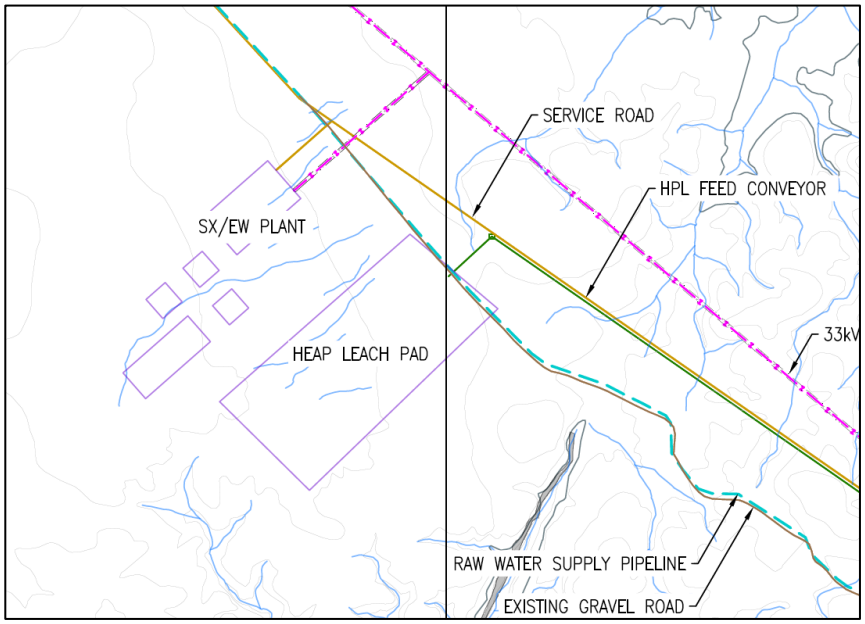

Figure 4-8: Heap Leach Pad and Plant Area

The heap leach plant has been sized to process 7 Mtpa of ROM feed to match the steady-state mining production rate. This circuit will treat the lower grade sulphide material containing 0.175% - 0.275% Cu and oxides to produce Grade A copper cathode product (99.995% Cu) that will be trucked, railed and shipped to international customers. The hydrometallurgical process uses crushing and screening, conveying, agglomeration, heap leach construction, bacterial heap leach processing, copper solvent extraction, iron removal and copper electrowinning steps that have all been applied on many other mineral projects worldwide. Metallurgical processes in this flowsheet are all based on international best practise. The low-grade mineralised material processing route is provided in Figure 4-9.

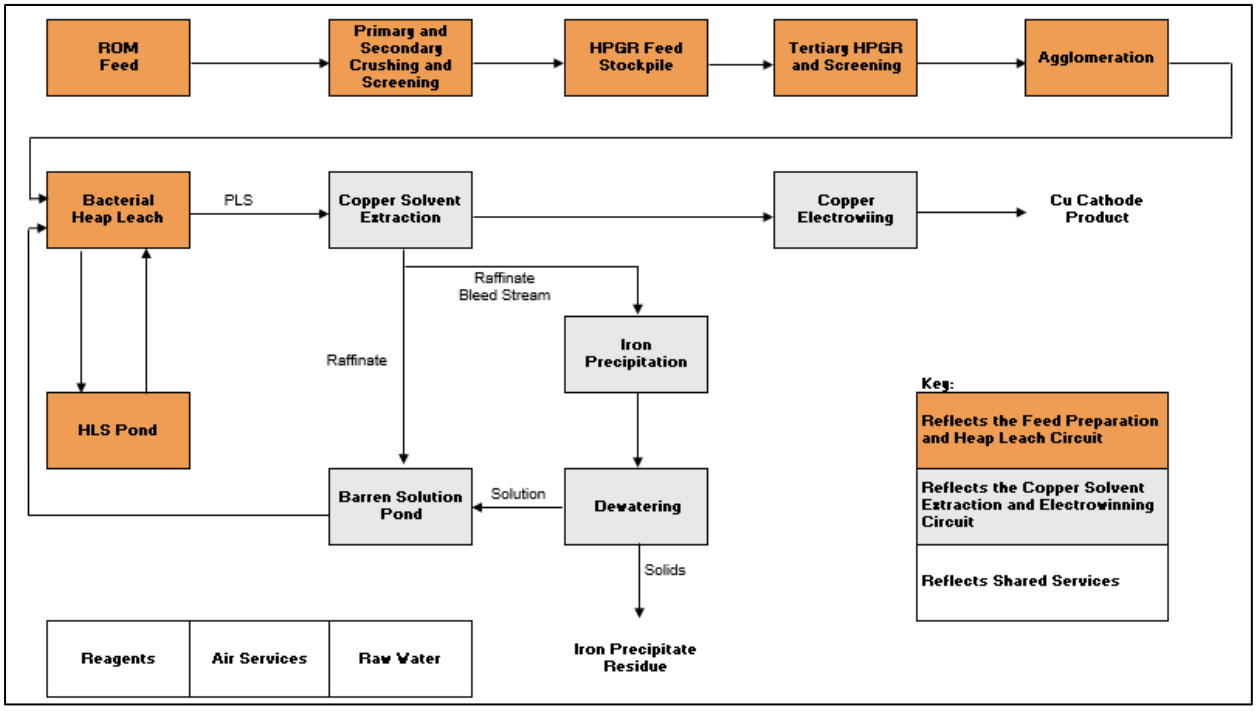

Figure 4-9: Hydrometallurgical Plant Simplified Summary Flowsheet

Three active heaps and possibly also a leach residue (“ripios”) dump will be developed. Mine haul trucks will be used to deliver mineralised material to the ROM tip located to the east of the pit. Low grade

mineralised material will be crushed and conveyed over a ridge onto the plain or onto the plateau mentioned above, either from the primary and secondary crushers or after reclamation from low-grade mineralised material strategic stockpiles. Mineralised material will be delivered to a stockpile to feed the planned Heap Leach pad. Irrigation of the leach solution will be accomplished using drippers that are used primarily in arid environments to reduce evaporation compared to heap sprays.

The leach solution arrangements proposed are shown in Figure 4-10. “ILS” refers to intermediate leach solution, “BS” is barren liquor solution and “PROCESS” comprises copper solvent extraction and electrowinning.

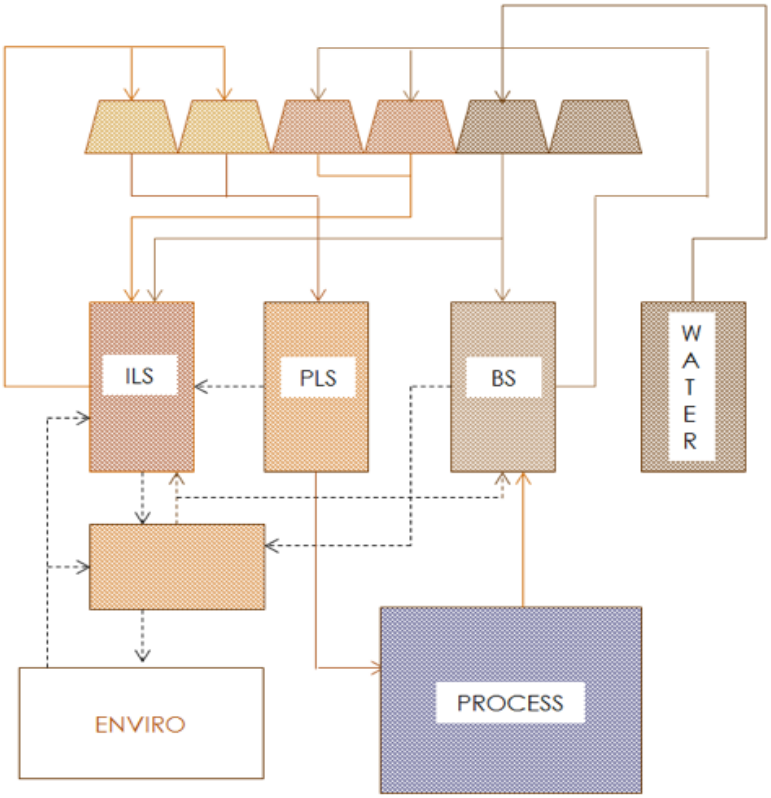

Figure 4-10: Leach Solution Ponds and Piping Interconnections

Electrowinning is an electrolytic technology using two electrodes – an anode and a cathode. In copper electrowinning, the cathode is a copper starter sheet made of copper electroplated onto titanium or stainless-steel blanks. Electrowinning involves applying an electrical potential to the electrodes in the copper electrolyte and then plating pure metallic copper onto the cathodes. The cathodes loaded with metallic copper will be washed in a cathode washing tank. The washed cathodes are then sent to a flexing station and a stripping station to release the metallic copper from the cathodes, while the wash water will be directed to the barren pond. The metallic copper sheets will be transferred to a strapping station and a weighing station, where they will be palletised and weighed prior to being transported to market.

4.5.4.3 INFRASTRUCTURE REQUIRED AT THE PLANT AND MINE LOCATIONS

4.5.4.3.1 Terracing and Bulk Earthworks

The current concentrator processing plant terrace consists of a single terrace.

4.5.4.3.2 Stormwater Management

An allowance for contact and non-contact stormwater cut-off drainage and pollution control facilities has been made. The capacities of the facilities will be determined once the terracing and infrastructure

requirements and design work commence. Stormwater attenuation dams (SWADs) have been included in the facility to manage stormwater runoff into the pit.

4.5.4.3.3 Buried Services

The following bulk services were included for both the Plant and Mining terraces:

- Water reticulation
- Sewage reticulation
- Firewater reticulation
- Electrical sleeves.

4.5.4.3.4 Heap Leach Feed Conveyor

The option of transporting the low-grade mineralised material to the Heap Leach pad using a conveyor is included.

4.5.4.3.5 Concentrate and Cathode Copper Transportation

A rail, rail and road, and road transportation trade-off study (TOS) was conducted to evaluate possible methods to transport product from the Haib site to market. The TOS investigated routes and methods to reach various harbours in Namibia and South Africa, as well as smelters located in Southern Africa. The transportation modes or options considered included the following:

- A combination of road transportation and a new rail siding on an existing rail line passing through Grunau or Karasburg, to transport mineralised material to the selected destination by rail.
- Road transportation only, from the site to the selected destination.

The following harbours were considered:

- Lüderitz - Namibia
- The harbour's capacity needs to be confirmed.
- Walvis Bay - Namibia
- No restrictions.
- Gqeberha/PE - South Africa
- Can only handle containerised or bagged materials.

The following Smelters were considered:

- Dundee Smelter - Tsumeb (Namibia).
- Copper Belt Smelters - Lubumbashi (DRC) or Kitwe (Zambia).

The road-rail option has operational cost and flexibility benefits; however, it would require additional rail infrastructure and materials storage and handling facilities with a significant capital cost impact.

The final transportation route is to be determined as the Project progresses.

4.5.4.3.6 Tailing Delivery Pipelines

There are three (3) tailing delivery pipelines servitudes allocated. The tailings delivery pipelines are from the concentrator processing plant to the following site alternatives:

- TSF Option 3
- TSF Option 4
- TSF Option 5

The TSF delivery line servitude includes a pipeline servitude and a service road. The access road and TSF Option 5 Pipeline cross the Haib River and requires a low-level river crossing that includes a pipeline servitude and roadway.

4.5.5 SUPPORT INFRASTRUCTURES AND SERVICES

The following mining infrastructure is required to support safe and efficient mining operations:

- Mining office blocks (office space for mining personnel)
- Geological core shed (storage of core and geological samples)
- Mining change house (ablutions and labour check in)
- Warehouse (storage of all critical and operational spares, as well as office and other consumables)
- Heavy mobile equipment workshop (main shop for maintenance and rebuilds of mining equipment)
- Light vehicle workshop (maintenance of all mine light vehicles, including those operating in the processing plant areas)
- Fuel facility (diesel for mine operations will be delivered by trucks to a designated area. A designed site fuel facility will be inclusive of a hard stand pad for minor maintenance and servicing of mining equipment outside the pit perimeter)
- Explosives magazine and bulk emulsion storage (siting is in conformance with the requirements of the Namibian Labour Act, Namibian Mining Legislation, Regional Explosives Standards or Regulations, and the Explosives Act 26 of 1956 (as amended and made applicable in Namibia; and the Explosives Regulations 1972 (and amendments))
- Communications infrastructure (infrastructure, including communication masts, will be installed, and provisions will be made with the relevant service provider).

4.6 OTHER INFRASTRUCTURE

4.6.1 SITE ACCESS ROAD

The Project area can be accessed from Windhoek or Noordoewer through the B1 National Highway and then sets of farm roads and tracks developed during the various exploration programmes. Two main access routes from the National Highway to the Mine Processing Infrastructure were investigated during the conceptual design stage, mainly a route going through the elevated plateau, and down very steep terrain, and an alternative route aligned on the side of the Haib Riverbank on more favourable geometrics, gradients, and cut and fill material balance.

The route along the Haib Riverbanks was selected for the conceptual design from a geometry perspective. The terrain makes it easier to achieve vertical and horizontal alignments within specification at lower costs and risks for the proposed Project. This route going through the Haib River basin will require further hydrological and engineering mitigation to manage extreme flood events, such as additional fill, river/flood plain crossing/drifts, and sidehill erosion protection/flood mitigation.

The bi-directional access route conceptual alignment (Figure 4-11) and a typical section on the conceptual level access road meanders along the side of the Haib River topography and creates intentional river course crossings to establish low-level crossings. Notably, the routing consists primarily of the LDV and Hauler type cross-section originating from the area of the process plant and terminating at an intersection with the B1 trunk road (Figure 4-12).

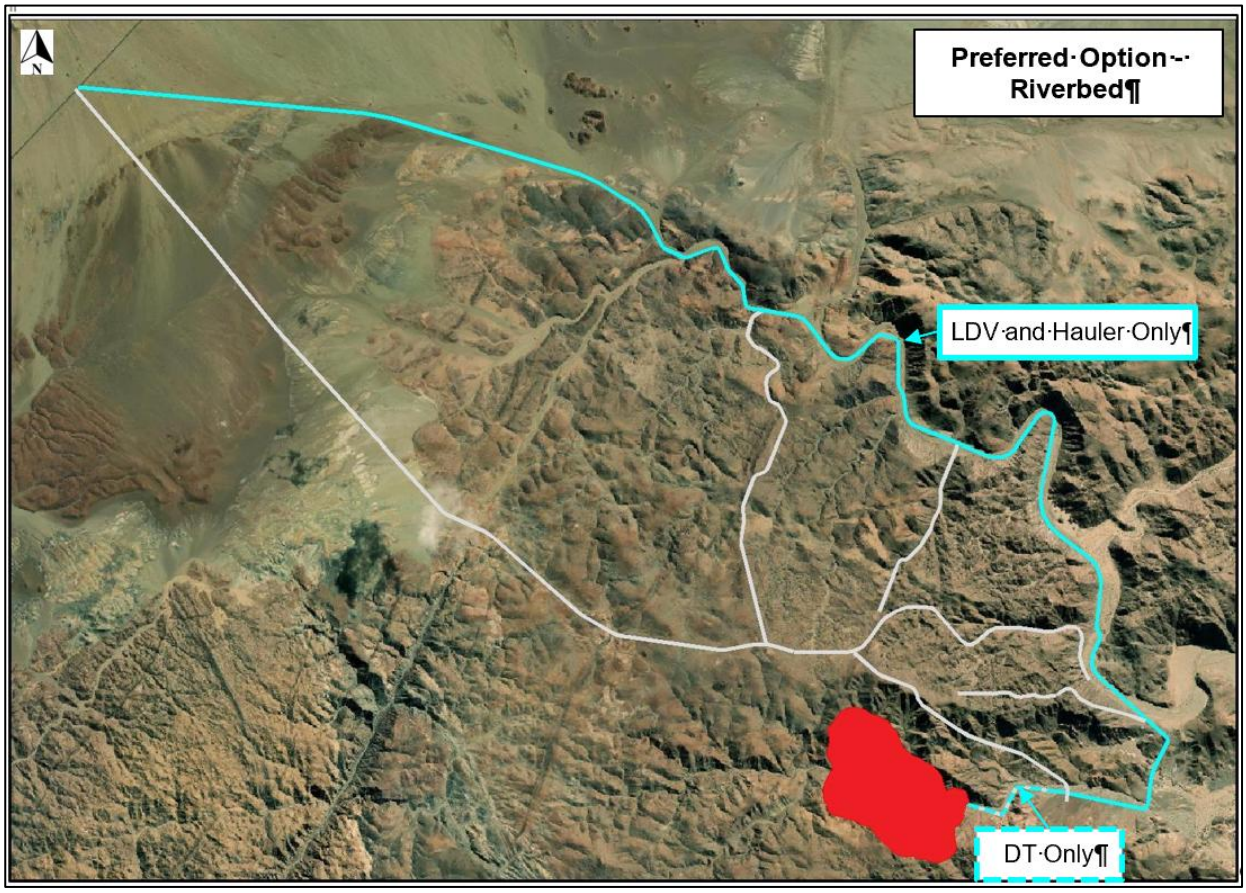

Figure 4-11: Main access route to the mining and processing area shown in blue

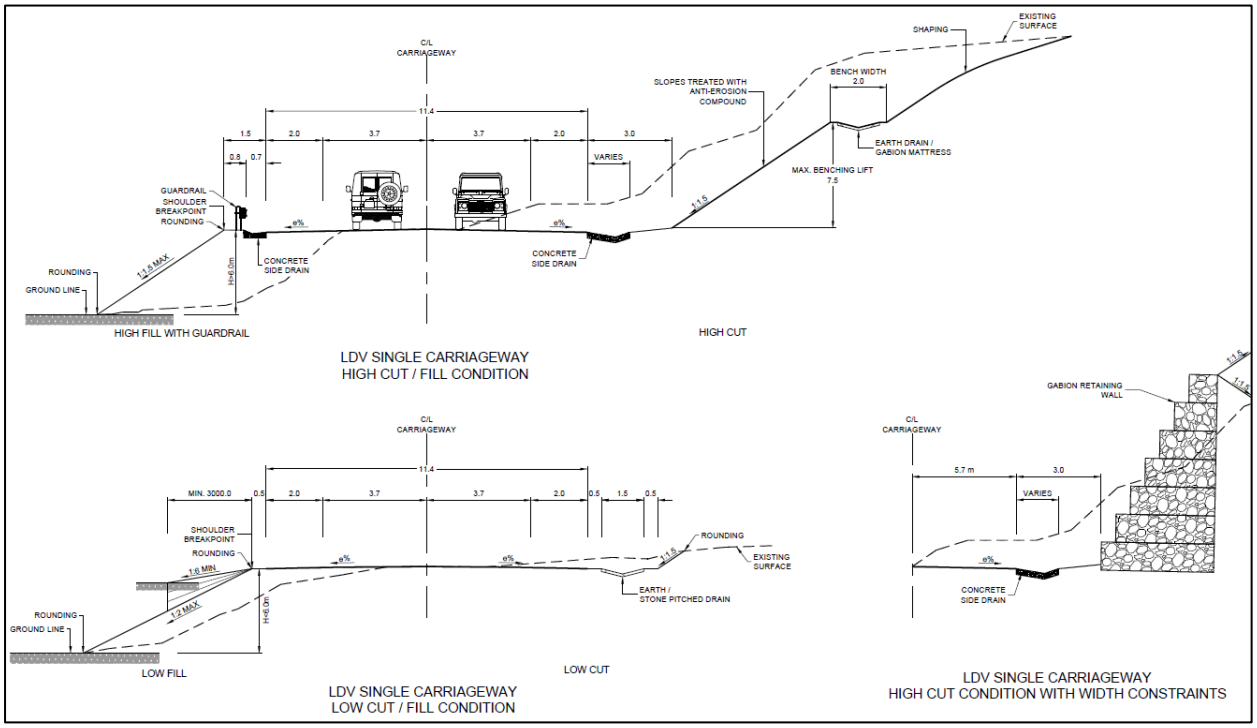

Figure 4-12: Typical section along the Project access route

The high-level geometric parameters comply with the design speed criteria of 60 kilometres per hour (km/h). The access road is to be sealed with an asphalt-based pavement at the start of the mine operation. The road upgrade also includes drainage improvement for long-term flood and erosion protection.

Other major internal roads include access to the TSF options, the Project utilities such as power and water supply and delivery routes, and the main mine camp and warehouses. A gravel wearing course has been specified for the internal roads, and adjusted to the anticipated traffic load, erosion, ease of maintenance, and cost optimisation for the internal roads and construction roads. In total, there is an allocation for 60 km of internal access roads for site utilities and infrastructure.

4.6.2 MINE CAMP INFRASTRUCTURE

As described above, on-site accommodation will accommodate 2,500 rotation-based personnel during construction and transitioned to the operations phase. It is assumed that all housing units and bulk infrastructure will be constructed from year zero, with no phasing allowed.
The mine camp is to be placed north of the main mining activities on flatter ground near the Project access road and solar PV power plant. The design includes workers' accommodation, multi-purpose warehouses, a gravity-fed water and sewer system, and associated infrastructure services to ensure functionality. The following additional services are also planned for the mine camp:

- Potable and fire water supply
- Gravity sewer reticulation and wastewater treatment
- Grey water storage
- Internal road infrastructure
- A designated solid waste management area
- Electrical supply and reticulation network, including both overhead and underground options.

Raw water will be sourced from the planned on-site reservoir via a gravity pipeline and treated at a containerised water treatment plant.

Effluent flows are estimated at 250 m³/day. Wastewater will be conveyed via a gravity network to a containerised treatment plant sized for an inflow of 275 m³/day. The treated effluent will be stored in a 420 m³ greywater reservoir for reuse. Access to the camp will be facilitated by a gravel road linked to the planned access road route, while internal traffic will be managed via a gravel road network.

Solid waste will be managed at a 0.5 ha security-fenced site, prepared through clearing and grubbing.

Electrical supply will be via a 33 kV overhead line connected to the main substation, with a dedicated mini substation near the camp and internal overhead or underground distribution, including street lighting.

4.7 UTILITIES

4.7.1 POWER MANAGEMENT

The total electrical power demand for the proposed Haib Mine has been determined based on estimated plant operating loads, power required for water abstraction, and supporting infrastructure loads.

The estimated monthly energy consumption is 88,600 MWh, of which approximately 30% is expected to be supplied by a photovoltaic farm. Consequently, the monthly energy requirement to be sourced from NamPower is projected to be up to 62,000 MWh. The conceptual grid connection infrastructure is sized to supply the full power demand with a double circuit overhead transmission line configuration, while the PV farm will provide a cost saving on the Project's long-term power consumption. The total annual energy consumption is estimated at a maximum of 1,124 GWh, including loads from support infrastructure,

however, power optimisation studies are still ongoing and expected to provide improvements through introducing efficiencies.

4.7.1.1 BULK POWER SUPPLY (NAMPOWER)

The primary grid connection to the NamPower infrastructure consists of a 220 kilovolt (kV) overhead transmission line (OHTL) to link the proposed Haib Substation (site) to the existing Harib NamPower Substation. Engagement with NamPower was made early in the Project's conceptual studies to complete an in-depth grid integration study. Early findings confirm grid capacity, and the complete grid assessment is anticipated to be provided as part of NamPower's own network capacity analysis.

Deep connection works are to be determined by NamPower. These works will include all upgrades required on the NamPower network to the Harib Substation.

Shallow connection works will include the upgrades and expansion of the Harib Substation, the OHTL to the Project, a new NamPower Metering station near the Project access point, further OHTL into the Project site, and the main 220/33 kV Substation at the north side of the flotation processing plant.

Extensions to the Harib Substation will be constructed, owned and maintained by NamPower, while the 220 kV line to the Haib Substation will be constructed by the Mine and handed to NamPower for operation and maintenance. Note Transmission line upgrades and construction that do not fall within EPL 3140 will be assessed in an alternative ESIA.

4.7.1.2 SITE-WIDE ELECTRICAL RETICULATION

Electrical power reticulation from the Mine Switchyard will primarily take place at 33 kV. A 33 kV Consumer Substation will be established on the process plant terrace in close proximity to the Mine Switchyard.

Four additional primary substations will support site-wide power distribution:

1. Comminution 33 kV Substation.
2. Flotation 33 kV Substation.
3. Raw Water Pump Station 33 kV Substation.
4. Plateau 33 kV Substation.

Reticulation to the Comminution and Flotation 33 kV Substations shall be undertaken via redundant cable feeders, whilst reticulation to the TSF Infrastructure, the Orange River raw water pumping station, the mine camp, and the Plateau 33 kV Substation shall be undertaken via overhead line circuit.

4.7.1.3 EMERGENCY POWER GENERATION

Emergency power will be supplied by high-speed diesel generator sets, appropriately sized to meet the proposed Mine's critical load requirements and emergency motor starting demands. These generator sets will be integrated with the 33 kV electrical network via the 33 kV Consumer Switchboard.

4.7.1.4 ALTERNATIVE AND SUPPLEMENTARY RENEWABLE POWER SUPPLY

The option selected for is a Solar PV farm through an Independent Power Producer (IPP) agreement to supply 30% of the total energy consumption as per NamPower's current limitation under the Modified Single Buyer (MSB) framework for IPP producers in Namibia. To account for the MSB 30% limitation, the phase 1 plant size is sized at 150 MWp. An option to increase that contribution to 100% of the supply requirement was also investigated.

4.7.2 BULK WATER SUPPLY INFRASTRUCTURE

The proposed Project's water demand was estimated to be up to 20 million cubic metres per year (Mm^3/yr) of which supply is being investigated from two supply points on the Orange River. Water use optimisation studies are still ongoing and expected to provide improvements through introducing efficiencies.

Raw water supply from the Orange River (included under this assessment) assumes seasonal reliability of supply. Off-channel storage facilities are thus proposed to offset the impacts of limited to nil water abstraction during the dry season or drought periods.

The water supply strategy proposes two water supply alternative locations within the Orange River. The first being directly downstream of the Vioolsdrift / Noordoewer border post with a pipeline route mainly following existing road corridors, reducing additional environmental impact, simplifying environmental permitting, and minimising land acquisition complexities. The second being directly upstream of the Haib/Orange river confluence with a pipeline route, much shorter than the first option, following up the Haib River.

The downstream alternative comprises an abstraction weir, intake structure, a low-lift pumping station and two high-lift booster pumping stations, as well as a pipeline to a site reservoir. The upstream alternative comprises an intake structure, a low-lift pumping station and high-lift booster pumping stations, as well as a pipeline to a site reservoir Reservoirs are included to allow for operational flexibility and short-term storage. Key engineering considerations in designing these options include energy efficiency, sediment control in the river intake structure, and potential flood protection.

Ownership and operation of the chosen alternative, and system once completed, will be transferred to NamWater, who will maintain and operate the scheme under an agreed volumetric tariff structure.

4.8 MINERAL AND NON-MINERALISED WASTE

4.8.1 WASTE ROCK

Dumps were designed as close to the pit exits as possible to optimise productivity and minimise waste mining costs or environmental impact. Rehabilitation requirements were considered in the dump location and design, and all dumping areas will undergo a mineralised material sterilisation campaign before waste dumping. The waste rock dumping strategy aims to reduce hauling distances and facilitate the progressive rehabilitation of waste dumps wherever possible. In-pit dumping will also be deployed where possible.

It is anticipated that waste dumps will be situated to the north (0.273 Mt) and south-west (1.017 Mt) of the open pit.

4.8.2 TAILINGS DISPOSAL

The Project mining schedule shows that approximately 626 Mt of tailings will be generated through the life of mine. Three (3) TSF design option alternatives are currently being assessed, inclusive of TSF Option 3, TSF Option 4, and TSF Option 5 (Figure 4-2). TSF Options are defined as the following:

- TSF Option 3 (1.5 km north of the Open Pit, next to WRD 2)
  - Zone embankment comprises an earth fill starter embankment with a filter zone, chimney drain, and upstream lined face tied into the foundation to reduce potential seepage ingress through the dam wall. The configuration also includes an underdrainage system and a downstream seepage cut-off trench to collect and reuse seepage water
  - Final height: max height of 74 to 94 m (580 to 630 mamsl).
  - Storage: 110 Mt
  - TSF Option 3 is suited to a co-disposal of waste rock and filtered tailings disposal site or coarse sand separation facility

- TSF Option 4 (3.5 km east of the B1 Highway)
  - Raised ring feed structure, sized to use a larger area to be self-raised with lower rate of rise, and with potential to be lined
  - Final height: 80 m
  - Storage: 120 to 160 Mt (Potential for expansion to store all tailings)
- TSF Option 5 (Remote – 5 km north-east of the Pit)
  - Zone embankment comprises an earth fill starter embankment with a filter zone, chimney drain, and upstream lined face tied into the foundation to reduce potential seepage ingress through the dam wall. The configuration also includes an underdrainage system and a downstream seepage cut-off trench to collect and reuse seepage water
  - Final height: max height of 232 m (340 to 557 mamsl)
  - Storage: 515 Mt

The water management system comprises of a pumping station set on a floating barge linked to a decant causeway. Laboratory testing to determine additional tailing properties, including compaction characteristics (dry density and moisture content), permeability, consolidation behaviour, and shear strength, is still ongoing.

Early metallurgical test results show that the mineralised material composition isn't anticipated to contain sulphides or significant metal leaching contaminants. It is anticipated that the final facility will not require geomembrane lining systems for pollution control. Considering the arid environment and importance of water conservation, the conceptual design includes provision for a basin underdrainage collection system and seepage collection pond.

4.8.3 GENERAL WASTE

Waste will be separated at source, stored in a manner that there can be no discharge or contamination 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 before removal and disposal to appropriate recycling or disposal facilities off-site (Noordoewer for general waste).

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. A dedicated waste management and recycling facility will be built on-site that specifically manages these waste types, and this will likely include an incinerator.

4.8.4 EFFLUENT AND WASTEWATER

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

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 rehabilitation of mining landforms.

4.9 ALTERNATIVES

4.9.1 NO-PROJECT

The potential environmental and social consequences of not proceeding with the proposed mining Project will be assessed during the ESIA phase.

4.9.2 SITE ALTERNATIVES

All infrastructure underwent alternative assessment, which considered designing the site around critical landform features such as topography, sensitive environmental habitats/areas, and heritage features. The process additionally considered the efficiencies required for the mining operation towards identifying an optimal layout. The presented site layout is a result of these considerations.

4.9.2.1 BULK WATER SUPPLY INFRASTRUCTURE

A range of possible or potential raw water supply sources was investigated and evaluated, including the options listed below. The Naute and Neckartal Dams are part of a regional southern bulk water system.

- Project groundwater sources (insufficient capacity)
- Existing Naute Dam (insufficient capacity)
- New desalination plant at the sea (technical complexity)
- Existing Neckartal Dam
- New abstraction intake points on the Orange River.

Sourcing water from the Orange River and/or Neckartal Dam proved to be a preferred option from a technical and financial perspective. Eight (8) locations were identified for possible abstraction works in the Orange River.

4.9.2.2 TAILINGS DISPOSAL

A high-level siting study and trade-off analysis completed in March 2024 identified five potential TSF locations in the EPL area. The TSF models were compared in terms of embankment construction volumes, footprint area, starter embankment requirements, distance to plant, geotechnical risks, environmental impact, and final height. TSF Options 3, 4 and 5 were selected for further study.

4.10 REHABILITATION AND CLOSURE

As part of the Consultant's scope to undertake the ESIA process, the Team will support the development of the mine closure component in the preliminary design report. This process will include the formulation of closure objectives, identification of closure land uses, identification of closure-related risks and opportunities, development of closure concepts for the major landforms (to enable design with closure in mind) and finally the development of high-level / first order closure cost estimates for major landforms.

5.0 PUBLIC CONSULTATIONS

A public participation process was undertaken in accordance with Regulation 21 of the EIA Regulations (2012). The formal Scoping Phase consultation period opened with newspaper notices on 17 July 2025 and remained open for written comments till 1 November 2025. The consultation timeline was as follows:

- Start of consultation: 17 July 2025 (newspaper adverts)
- Authority consultation: 8 August 2025 (Windhoek)
- Community and Traditional Authority meetings: 11–12 August 2025 (Noordoewer)
- Close of consultation period: 1 November 2025 (written submissions deadline)

All feedback received was integrated into the Final Scoping Report (this report) and considered in the next phase of the ESIA.

5.1 METHODOLOGY

The methodology ensures inclusivity and transparency through a multi-channel approach. Notification methods included newspaper notices, radio announcements, site notices and invitation letters, emails and word-of-mouth through Constituency and Settlement Offices. Methods of consultation included Authority meetings, public open houses, focus groups, and breakout sessions.

5.1.1 NEWSPAPER NOTICES

Public notices were placed in national and regional newspapers to announce the ESIA process and invite stakeholders to register and attend consultation meetings. Notices were published on 17 July 2025 and 24 July 2025 in the following newspapers:

- The Namibian (English readership, national distribution)
- Market Watch (business insert distributed with Namibian Sun, Republikein and Allgemeine Zeitung)

5.1.1.1 RADIO ANNOUNCEMENTS

To maximise outreach, public notices were broadcast on selected radio stations in the two weeks leading up to the consultation meetings. This provided information in languages accessible to local stakeholders including English, Nama and Afrikaans. Announcements were aired on two days per week, with two broadcasts per day (morning and afternoon/evening slots). This schedule ensured that both working individuals and community members at home were able to hear the announcements.

Broadcasts were placed on the following stations:

- Hartklop FM (local community focus)
- Karas FM (regional station with strong coverage in the //Karas Region)
- Kaisames FM (Nama language, national and regional audience)
- Nova FM (regional station with strong coverage in the //Karas Region)

The combination of national, regional, and community radio ensured that information reached a wide range of stakeholders, including vulnerable and remote community members.

5.1.1.2 INVITATION LETTERS

Formal invitation letters were sent to the key stakeholders. Letters were supported by follow-up communication through email, and WhatsApp to ensure receipt. All formal invitations included the Background Information Document (BID) to provide context on the Project and the ESIA process.

5.1.2 TARGETED STAKEHOLDERS

Stakeholders were identified through a mapping exercise led by the Project team, prioritising communities and land users near the Project area. The process also drew on the earlier mapping undertaken by the Project team and discussions with the //Karas Regional Council. Although the process facilitated public consultations, additional focus was placed on the following stakeholders:

- Residents of Noordoewer settlement – as the nearest community to the Project site
- Neighbouring farmers and land users – including grape producers and small-scale farmers potentially affected by land use, water abstraction, noise, visual impacts and dust
- Tourism operators – given the importance of agri-tourism and eco-tourism along the Orange River
- Neighbouring landowners – recognising that downstream users in Namibia and South Africa may be indirectly affected
- Regional and National Authorities – with statutory mandates over land, water, energy, and environmental management
- Traditional Authorities – including the Bondelswarts Traditional Authority, as custodians of cultural heritage and land
- Civil society, NGOs, and vulnerable groups – ensuring inclusivity of women, the youth, and disadvantaged households.

A continuously updated stakeholder database is used throughout the process.

5.1.3 PUBLIC MEETINGS, OPEN HOUSES AND FOCUS GROUPS

These meetings served as the primary platforms for direct engagement with stakeholders, ensuring transparency, inclusivity, and opportunities for meaningful participation. To accommodate a wider audience, flyers were translated into Afrikaans and distributed to stakeholders during the meetings.

Each meeting followed a structured agenda:

1. Welcome and introductions
2. Background on the Project and ESIA process (presentations by KP and Koryx Copper)
3. Open discussion and Q&A session
4. Recording of issues and concerns

Meetings were facilitated in English, with Afrikaans support provided where necessary. An Issues and Concerns Register was maintained for all sessions.

5.1.3.1 Authority Meeting – Windhoek

This meeting provided a high-level platform for engaging with national ministries and parastatals to ensure alignment with government policies, strategic plans, and regulatory expectations. The focus was on discussing water, energy, transport, and environmental oversight at a national scale.

- **Date & Time:** 8 August 2025, 09:00–12:00
- **Venue:** Opera House, Windhoek
- **Stakeholders:** National ministries and parastatals, including NamWater, NamPower, NamPort, MEFT, MIME, MAFWLR

Summary – Key Issues Raised:

Participants sought assurance that the Haib Copper Project would align with Namibia's development priorities, while the project team emphasised transparency, compliance with regulations, and opportunities for long-term partnership with government and civil society. Key points of discussion included:

- Workforce and influx management
- Project scope and ESIA Coverage
- Specialist studies and heritage
- Project timeline
- Value adding and smelting
- Water and hydrogeology
- Transport and logistics
- Environmental concerns
- Social engagement and partnerships
- Energy and renewable options

5.1.3.2 Public Meeting – Noordoewer

The public meeting in Noordoewer was constructive and well-attended, providing a platform for residents to engage directly with the project team.

- **Date & Time:** 11 August 2025, Open House (09:00 – 17:00), Public Meeting (17:30–19:20)
- **Venue:** EHW Baard Primary School, Noordoewer
- **Stakeholders:** Noordoewer Community and the general public

The participants sought clarity on long-term safety, youth opportunities, education, and value addition in Namibia. Concerns reflected the community's day-to-day realities, such as employment prospects and the implications of mine closure. Issues raised included:

- Mine closure and safety
- Education and skills development
- Youth employment and opportunities
- Community safety concerns
- Value addition

Women's Breakout Group

Following the Noordoewer community meeting, an additional breakout session with five women was held to specifically capture gendered perspectives. Discussions highlighted concerns around access to water, employment for women, and potential social impacts.

- **Date & Time:** 11 August 2025, 18:20 –19:10
- **Venue:** EHW Baard Primary School, Noordoewer
- Stakeholders: Local Women

The small group format allowed participants to speak openly about household and community-level challenges. Key concerns included youth alcohol and drug misuse, housing shortages, teenage pregnancy, and the high cost of goods. Participants also emphasised the importance of training, empowerment, and exposure to career opportunities as critical expectations from the Haib Copper Project. The session highlighted both risks and opportunities from the perspective of women managing families and livelihoods in Noordoewer.

5.1.3.3 FOCUS GROUP DISCUSSIONS (FGDS)

In addition to public meetings, Focus Group Discussions (FGDs) were organised to capture the perspectives of smaller, sector-based stakeholder groups. These sessions provided more interactive, technical, and detailed discussions than could be achieved in large open meetings.

Business Farmers and Tourism Sector Focus Group Discussion

- **Date & Time:** 12 August 2025, 09:00 –10:00
- **Venue:** Noordoewer Guesthouse, Noordoewer
- **Stakeholders:** Local business and tourism operators

The tone of the meeting was cautious but constructive. Participants voiced concerns about how the Haib Copper Project could affect agriculture, water resources, labour markets, and local operating costs. Farmers in particular sought detailed assurances on water allocations, biodiversity studies, and contamination risks, reflecting their dependence on the Orange River.
While stakeholders acknowledged the potential economic benefits of the project, they stressed risks to long-term agricultural viability, competitiveness for labour, and pressure on shared infrastructure such as water and power supply. The discussion remained solution-focused, with repeated calls for transparent sharing of technical studies and for collaboration on sustainable resource management to balance mining and agriculture in the area.

Bondelswarts Traditional Authority Focus Group Discussion

This meeting was convened to engage with the Bondelswarts Traditional Authority as custodians of communal land and cultural heritage. Discussions emphasised the importance of respecting traditional governance structures, safeguarding cultural sites, water, and ensuring local health and benefits.

- **Date & Time:** 12 August 2025, 11:00 –13:00
- **Venue:** Noordoewer Guesthouse, Noordoewer
- **Stakeholders**: Bondelswarts Traditional Authority, community representatives

The discussion centred on cultural and sacred site protection, access to the Haib area, communal land rights, and water resource management. Health, safety, and environmental risks were also raised, alongside calls for inclusivity, benefit-sharing, and opportunities for the youth . The Authority emphasised that traditional governance must be respected and that cultural values should guide project planning. The youth participants reinforced these themes by stressing the importance of training, employment readiness, and early community support.

Constituency Development Committee – Noordoewer

This meeting allowed for direct engagement with regional leaders and community representatives through the Constituency Development Committee. It provided a platform to capture local perspectives on employment, infrastructure, and socio-economic development needs.

- **Date & Time**: 12 August 2025, 14:00 –16:30
- **Venue:** Noordoewer Guesthouse, Noordoewer
- **Stakeholders:** Constituency Development Committee, community representatives

The discussion highlighted urgent needs in infrastructure, employment, and skills training, as well as the importance of coordination between government, local structures, and private investors. Participants also emphasised that procurement linked to the Haib Copper Project should promote local businesses and service providers. The tone of the session was constructive, with strong emphasis on ensuring that community voices guide how project benefits are shared.

Noordoewer Community Development Committee

This meeting allowed for direct engagement with local community representatives. It provided a platform to capture local perspectives on employment, infrastructure, and socio-economic development needs.

- **Date & Time**: 12 August 2025, 17:30 – 19:30
- **Venue:** Noordoewer Guesthouse, Noordoewer
- **Stakeholders:** Community Development Committee, community representatives

The focus group conversation centred on employment opportunities, youth and women's empowerment, housing pressures, and community challenges such as alcohol abuse and teenage pregnancy. Participants highlighted the need for transparent communication and continuous dialogue with the project team. They also emphasised the importance of social infrastructure investments and local business opportunities to ensure that Noordoewer benefits alongside the development of the Haib Copper Project.

//Karas Regional Council

This meeting allowed for direct engagement with representatives from the //Karas Regional Council in Keetmanshoop. It provided a platform to capture regional regulatory perspectives on employment, infrastructure, environmental impacts, and socio-economic development needs.

- **Date & Time:** 13 August 2025, 10:00 – 11:00
- **Venue:** //Karas Regional Council Offices, Keetmanshoop
- **Stakeholders:** Representatives of the //Karas Regional Council, with invited participation from line ministries and state-owned enterprises, including MIME, MEFT, MAFWLR, MoHSS, NamWater, NamPower, Roads Authority, and NamRA.

Summary – Key Issues Raised:

- **Public Health:** The Ministry of Health and Social Services (MoHSS) raised concerns about potential health impacts on local communities, referencing experiences in Tsumeb, and called for early planning of health risk monitoring and mitigation
- **Imports, Customs and Logistics:** The Namibia Revenue Agency (NamRA) and Roads Authority enquired about the procedures for importing large construction equipment and materials, and how eventual export or decommissioning would be managed in compliance with Namibian customs policies
- **Community Awareness:** Stakeholders questioned whether communities around Haib had been fully informed of the Project, emphasising the need for continuous public communication to prevent misinformation
- **Water Infrastructure:** NamWater and the MAFWLR highlighted the importance of assessing water availability and potential for pipeline infrastructure, noting both risks to existing users and opportunities for regional benefit
- **Employment and Skills Development:** The Regional Council stressed that the Project should maximise opportunities for local employment, training, and SME participation, ensuring equitable benefits across the region
- **Regional Coordination:** The Council encouraged Haib Minerals to align closely with regional planning bodies, constituency offices, and local government to maximise synergies in infrastructure and socio-economic development.

5.2 CROSS-CUTTING THEMES

Across the series of consultations, several themes consistently emerged. While stakeholders came from different levels of government, traditional authorities, civil society, business, and the community, the issues raised often overlapped. This reflects shared concerns about how the Haib Copper Project will affect local livelihoods, natural resources, and long-term development.

5.2.1 EMPLOYMENT AND TRAINING

Employment was the top priority across all meetings, with the following emphasised:

- The need for direct employment of local people, with fair promotion pathways beyond general labour
- Provision of training, bursaries, internships, and career exposure to prepare youth, women, and graduates for skilled jobs
- Requests from women and the youth for expo-style initiatives and empowerment programmes
- Calls for transparent recruitment aligned with the Namibia Integrated Employment Information System (NIEIS)

5.2.2 WATER RESOURCES AND IRRIGATION

Water availability and allocation were a recurring concern. Stakeholders emphasised:

- Risks that mine water use could undermine irrigation schemes or environmental flows
- The Orange River and Neckartal dam as critical resources for agriculture and livelihoods
- Suggestions to establish alternative supply points west of the main road to reduce grazing pressure inside the licence area

5.2.3 HOUSING AND COST OF LIVING

Communities linked rising costs of living to seasonal workers and warned the project could add further pressure. Stakeholders emphasised:

- Sharp increases in rentals and food prices in Noordoewer
- The importance of providing on-site housing for workers
- Calls for long-term social infrastructure investment to manage costs

5.2.4 COMMUNICATION AND TRANSPARENCY

Communities requested ongoing, accessible communication. Stakeholders emphasised:

- The need for regular, open communication with the company
- Clear updates on biodiversity, geochemistry, hydrogeology, and water quality studies
- Sharing of results in accessible formats with farmers and community committees
- The use of established structures (Centres for Disease Control and Prevention (CDC), Settlement Committee, Traditional Authority) for communication

5.2.5 SOCIAL RISKS AND COMMUNITY WELLBEING

Social risks were a recurring concern, particularly from women and health officials. Stakeholders emphasised:

- Risks of alcohol abuse, drug misuse, teenage pregnancy, and health impacts from dust and metals
- Pressure on existing services from possible in-migration
- The need for empowerment and social support programmes, particularly for women
- Monitoring of health exposure risks, drawing lessons from other mines.

5.2.6 PROCUREMENT AND LOCAL ECONOMIC DEVELOPMENT

Economic participation was seen as essential for regional benefit. Stakeholders emphasised:

- Local procurement opportunities to strengthen Small and Medium-Sized Enterprises (SMEs)
- Support for farmers, retailers, and service providers across the ǁKaras Region
- Development of SME surveys and supplier databases
- Preference for Namibian organisations in contracting

5.2.7 GOVERNANCE AND PARTNERSHIPS

Traditional Authorities and regional leaders stressed the importance of structured governance. Stakeholders emphasised:

- The need for structured engagement mechanisms, including Memorandums of Understanding (MoUs)
- Alignment with government ministries and regional council planning
- Ensuring the project complements, rather than replaces, government responsibilities

6.0 DESCRIPTION OF BIOPHYSICAL AND SOCIAL ENVIRONMENT

The context and status of the biophysical environment are developed from available literature and studies undertaken prior to and during the development of the Haib Copper Project and supplemented with feedback from the consultation process. It should be noted that early studies defining the biophysical and social baseline, were undertaken to inform the facility design process. This also informed trade-off studies and concept designs to avoid potential impacts at early design phase.

The following specialist studies were utilised to inform the early design phase and provide the details for this section:

- Terrestrial Biodiversity (Burke 1997, Griffen 1997, Simmons 1997 and Cunningham 2024).
- Heritage Impact Assessment (Kinahan 1997, Kinahan 2024).
- Aquatic Specialist study (Ecosun 1997 and KP 2025 under development).
- Hydrogeological specialist report (KP 2025 under development).
- Geochemistry specialist report (KP 2025 under development).
- Water Demand and Water Resource Assessment (WRP 2025).
- Previous PEA (METS 2020).
- Resource Report (MSA 2024).
- Scoping Study (KP 2023).
- Historical EMPs (SLR Consultants 2014, 2017 and 2020, KP 2023).
- Assessment of social needs and social scan (DWN 2025, SAIEA 2025).

6.1 LAND USE

The existing land use on the site is subsistence grazing of livestock. The sparse vegetation and low carrying capacity of the landscape prevents extensive livestock numbers. Currently, limited grazing activities (goats and sheep) occur on site. Remnants of historical mining activities can be found on site. The nearby towns of Noordoewer and Aussenkehr represent significant local agricultural settlements.

6.2 CLIMATE

6.2.1 GENERAL REGIONAL CLIMATE

According to the Koppen Geiger Classification, the site is classified as BWh (Hot Desert Climate). Temperatures range from as high as mid 40ºC in the summer months to as low as 0ºC in the winter months.

6.2.2 TEMPERATURE

Temperatures range from as high as mid 40ºC in the summer months to as low as 0ºC in the winter months.

6.2.3 CLOUD COVER AND PRECIPITATION

The average annual rainfall is 25-50 mm. Rainfall in winter is generally soft and with more intense rainfall experienced occasionally. In summer, the rainfall is associated with occasional thunderstorms with short duration, and heavy intensity is typical.

Rainfall records from the Vioolsdrift station provide the average monthly rainfall (Table 6-1); the storm depths for selected Annual Exceedance Probabilities (AEP) is presented in Table 6-2. There is no distinct rainy season, although the wetter months occur at the end of summer/beginning of autumn.

Evaporation in the area is high, with annual evaporation amounting to 1,900 mm.

Table 6-1: Average Monthly Rainfall and Evaporation

Month	Average Monthly Rainfall Distribution (mm)	Average Evaporation Distribution (mm)
January	4	240
February	5.7	194
March	7.9	182
April	7.4	131
May	4.6	103
June	2.7	90
July	4.6	86
August	2.2	105
September	2.1	135
October	2.4	182
November	2	217
December	4.9	234
Total	50.5	1,899

Table 6-2: Storm Depths for Selected AEP storms

Return period (years)	Rainfall depth (mm)
2	16
5	30
10	42
20	56
50	77
100	95
200	116

The region is mostly sunny with more than 60% of days being sunny; the remaining days are mostly partly cloudy, and overcast weather is only expected on precipitation days, the latter that amounts to less than 40 days per year. All the drainage lines within the area are ephemeral, but rivers can flow very strongly after summer storm rainfall.

6.2.4 WIND

The prevailing wind direction is from the south-west (Figure 6-1). Wind speeds tend to be between 10-20 km/h but can get up to 30-40 km/h for short durations.

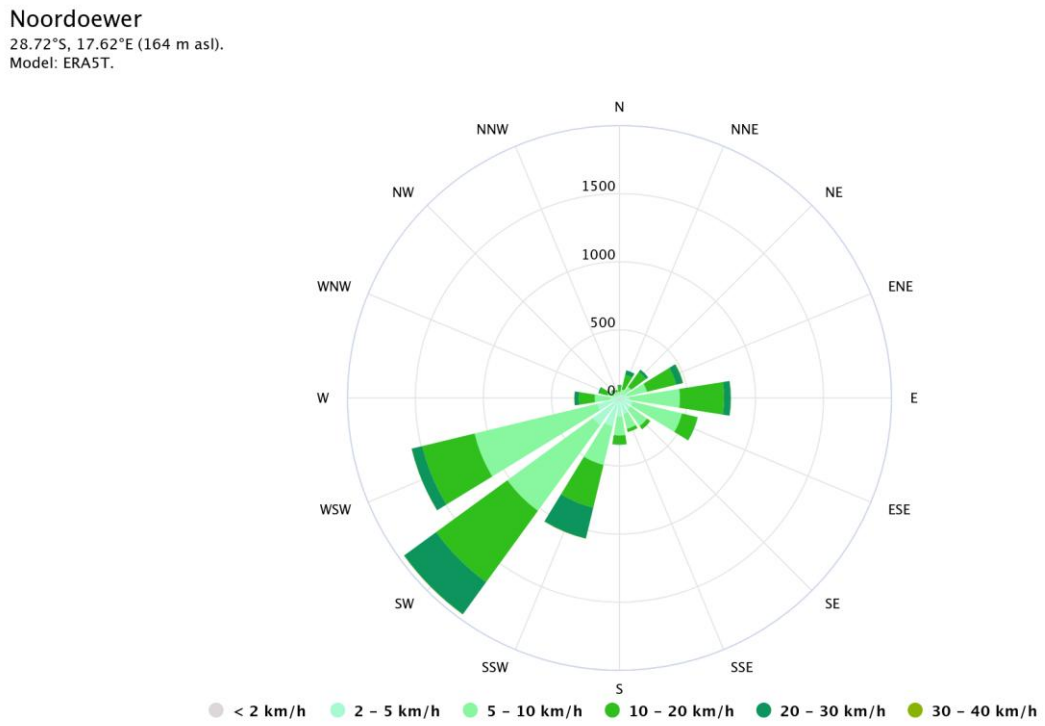

Figure 6-1: Wind rose for the Noordoewer area *(Meteoblue, Accessed 7/7/2025)*

6.3 TOPOGRAPHY AND DRAINAGE

The topography is varied (Figure 6-2) and characterised by relatively flat gradients in the west and extensive hills with prominent dolerite sills in the east within the Gomkab Basin (Figure 6-3). Elevations vary from 200 to 700 metres above mean sea level (mamsl). The topography for most of the pit area and eastern portion of the EPL is rocky with undulating hills that have gentle rises and dips.

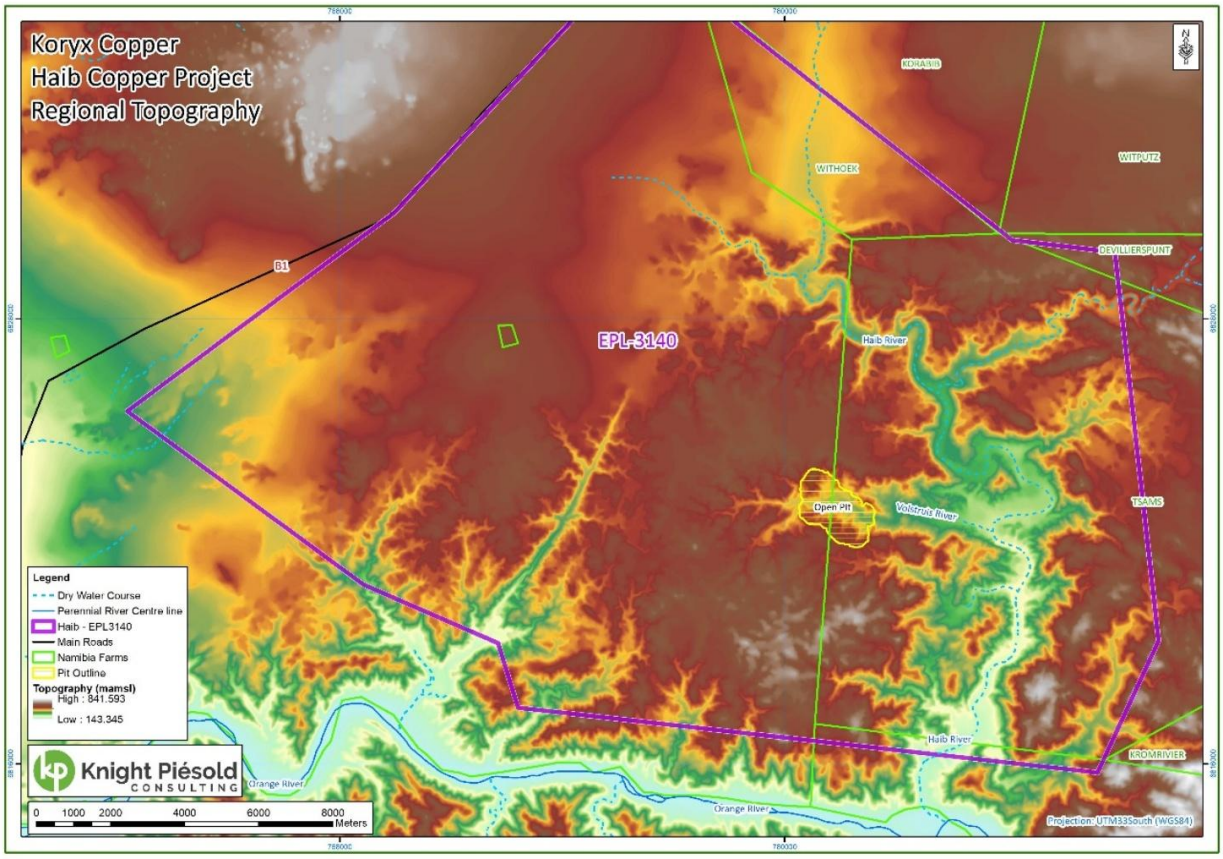

Figure 6-2: Regional topography

Figure 6-3: Flat gradient topography in the West and extreme topography in the East of EPL 3140

6.4 GEOLOGY

6.4.1 REGIONAL GEOLOGY

The Haib porphyry copper deposit is located within the Richtersveld Sub-province of the Namaqua-Natal Province and consists of 1,800 to 2,000 Ma volcanic and plutonic rocks (Miller 2008) (Figure 6-4). Haib is hosted within the Palaeoproterozoic Orange River Group (ORG) basaltic-rhyolitic lavas and Vioolsdrift Intrusive Suite (VIS) plutonic rocks, consisting of granites and granodiorites. The ORG and VIS have similar

geochemical patterns, suggesting they are cogenetic and comagmatic. These rocks have been regionally metamorphosed to greenschist facies but are not highly altered despite their age.

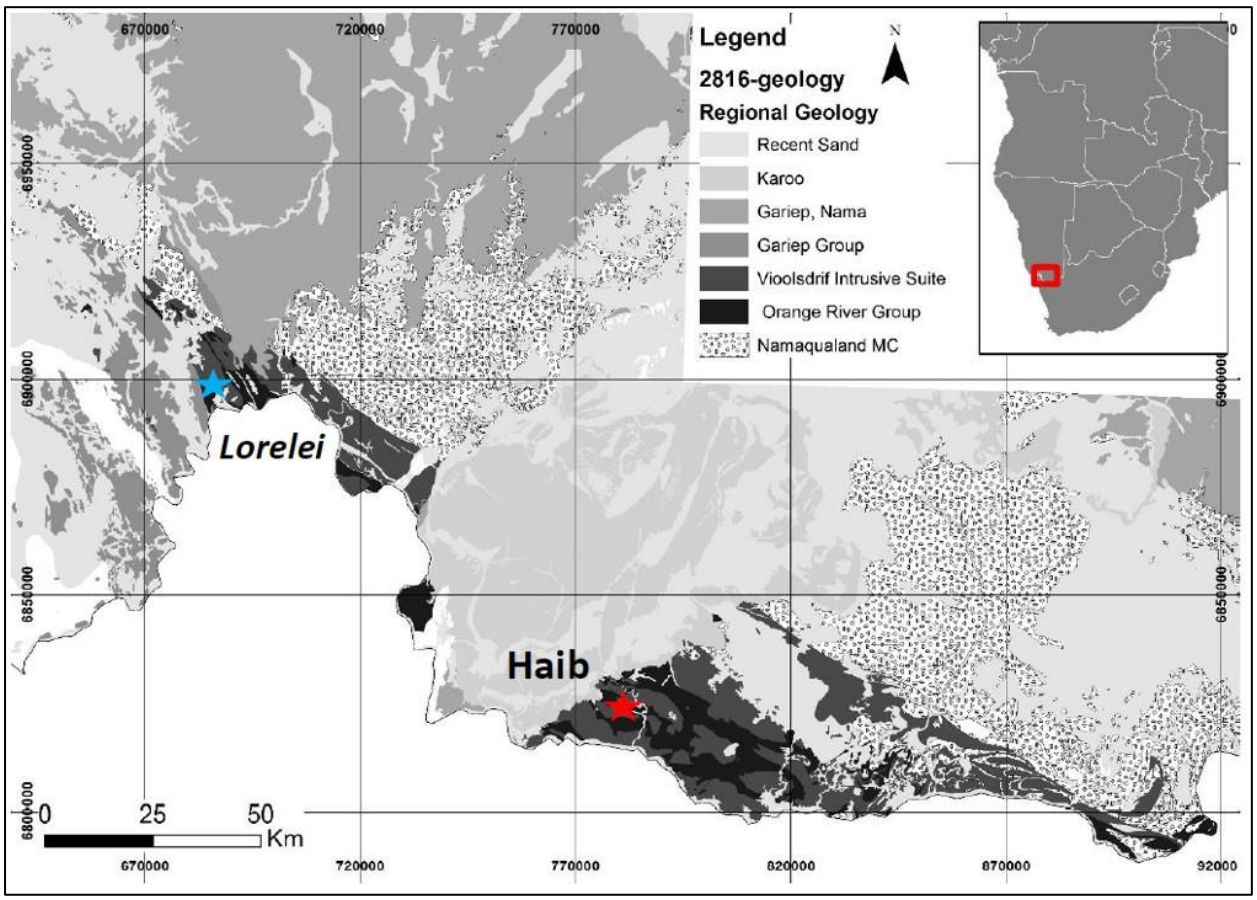

Figure 6-4: Regional geology of the Haib Project area (Grumbley 2015)

The basement igneous rocks are covered by younger Karoo sediments roughly in the centre of the belt, which are related to the Karasburg Rift Basin, and comprise a basal tillite grading into limestones, siltstones and shales. The basal tillite contains clasts of the Vioolsdrift and Haib basement. The basement and Karoo are all cut by north-west trending dolerite-gabbro dykes and sills of late Cretaceous age.

6.4.2 LOCAL GEOLOGY

The Haib license is underlain by the Haib Subgroup volcanics of the ORG and VIS rocks on the eastern half, with an unconformity into the Karoo Sediments on the western half (Figure 6-5). The Haib volcanics are primarily composed of a Feldspar Porphyry andesite with minor amounts of intercalated rhyolite in the north. The VIS intrusive are a mix of granodiorite-granite composition rocks, generally forming large batholiths intruding the Haib volcanics.

All the rocks on the license have an east-west orientation/elongation, which is interpreted to be arc-parallel. There are two large east-west shear zones identified on the property: one just north of the deposit which is 20 m to 50 m wide; and a broader one several kilometres south of the deposit which is over one (1) km wide in parts. A structural analysis shows most veins, faults, and shears trend east-west and dip south, with a minor amount trending north-south and dipping east. There are a few faults with large offsets, with most faults having only several metres offset (Figure 6-5). The shear zones accommodate the most displacement.

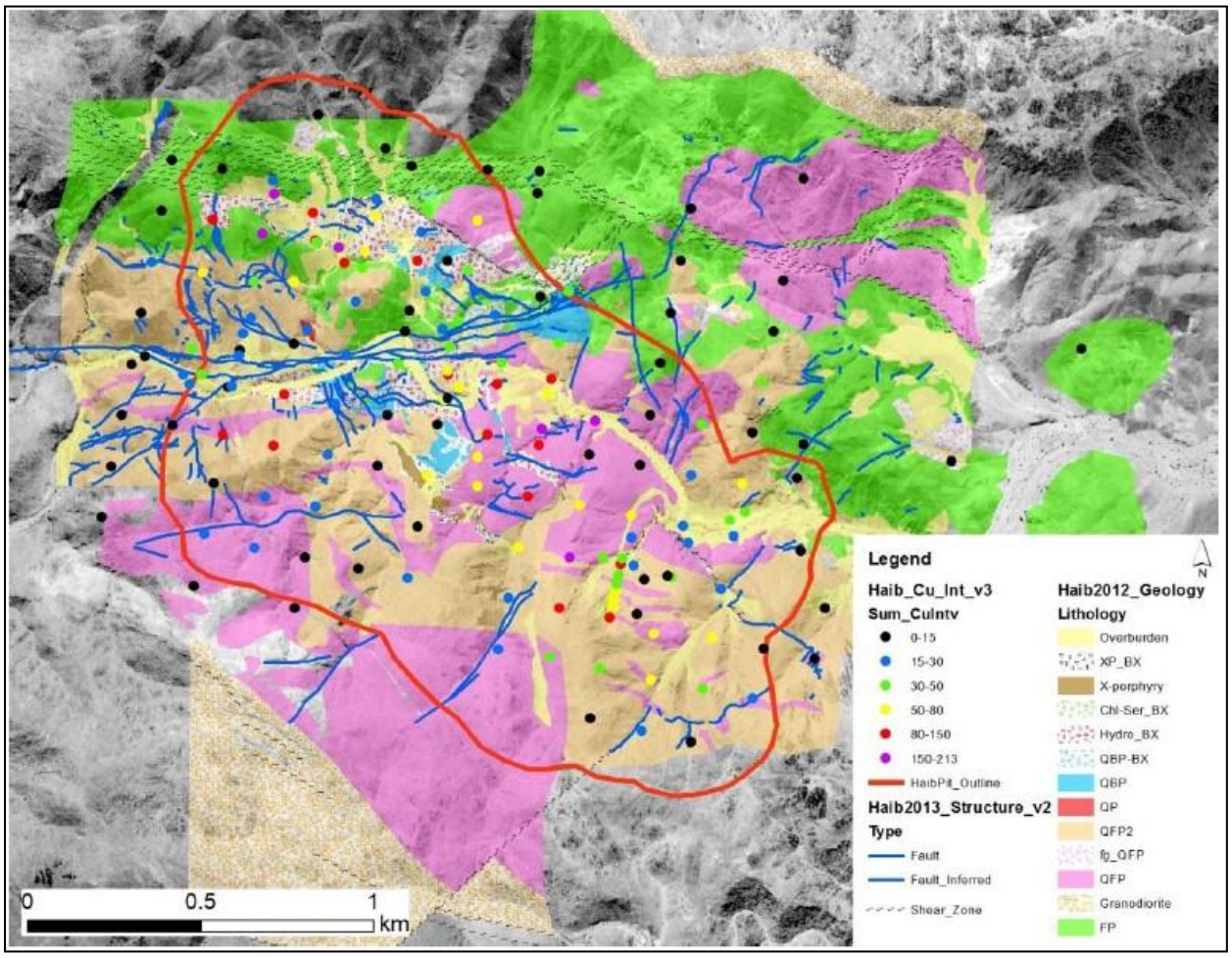

Figure 6-5: Main geological units and structures at Haib (Grumbley 2017)

The Haib deposit contains the main rock types: Granodiorite (GD), Feldspar Porphyry (FP), Quartz Feldspar Porphyry (QFP), Quartz Feldspar Porphyry 2 (QFP2), Quartz Biotite Porphyry (QBP), and X-Porphyry (XP) (Figure 6-5).

Work by Koryx has built on that by Teck, confirming that much of the contained copper is within igneous-hydrothermal breccias. These mark the roots of the porphyry system and are targets for deep drilling and further copper mineralisation.

The Haib porphyry system is interpreted to have been emplaced at a deep level. This is indicated in the hydrothermal alteration, Early Halo veins and general lack of A veins (cf. Cernuschi *et al*. 2023). It has also been deeply eroded, which means that any original advanced argillic lithocap or sericitic (phyllic) blanket has been removed.

6.5 HYDROLOGY (SURFACE WATER)

The Haib deposit straddles the Volstruis River, a tributary of the Haib River, which is an ephemeral tributary of the Orange River located approximately 15 km south of the deposit area (Figure 6-6). Local water resources are limited to the Orange River and limited groundwater resources.

An on-site surface water hydrological assessment by Knight Piésold Consulting is currently underway to assess the character of surface water patterns against the Project and assess impacts and design management measures (such as a stormwater management plan) to ensure mitigation of impacts both to the biophysical environment as well as the Project infrastructure and operations. All of the streams within the area are ephemeral but can flow very strongly after summer storm rainfall (Parkman Namibia 1997).

The Volstruis River catchment is 22.6 square kilometres (km^2) in size, compared to the Haib River catchment of 3,610 km^2. Small Annual Exceedance Probability (AEP) storms have low runoff potential (e.g. a 2-year AEP storm has a runoff coefficient as low as 0.0003) as the dry soils and ephemeral nature of the river mean that low storm depths mostly result in infiltration. Larger storms have better runoff potential once the riverbeds become saturated (e.g. 50-year AEP storm has a runoff coefficient of 0.19). The Volstruis River contributes less than 1% of runoff volume to the Haib River.

Due to the small catchment size, the sediment potential in the Volstruis River is not considered high, with sediment loads expected to be in the order of 4,000 tonnes per annum. Infiltration in the river basin is expected to be typical of clean sands and sand-gravel mixtures, with permeability rates in the range of 10 - 2 and 10 - 4 metres per second (m/s).

Due to the nature of limited surface water features in the Project area and the limited rainfall, other than high intensity events during the summer wet periods, the anticipated impacts are limited to storm water management requirements and maintenance of natural input flows to the Orange River via the Haib River.

The Orange River is a shared watercourse, between Lesotho, South Africa, Botswana and Namibia. To align the member states of the shared watercourse, the Orange-Senqu River Commission (ORASECOM) was established in 2000. The aim of ORASECOM is to develop and manage a comprehensive basin perspective, determine water use and plan for future use and intervention, as well as to determine flow monitoring requirements, and to conduct flood management.

The Project's water demand is estimated to be up to 20 million cubic metres per year (Mm3/yr), of which supply is being investigated from the Orange River. Studies are still ongoing and expected to provide improvements through introducing efficiencies.

A Water Resource Analysis currently being undertaken by WRP with early results in 2025 towards evaluating the impacts of Haib Copper Project water abstraction. The focus is to identify potential impacts to the Orange River Project (ORP) water supply systems and downstream users and to propose mitigation towards managing the potential Haib abstraction and minimise impacts on other users. The analysis was conducted in line with best practice methodologies utilised to inform applications for water use authorisations in South Africa.

Results show there are risks to assurance of supply in the dry months. To avoid these risks completely the Project can utilise off-channel storage during the wet season when surplus water is available. This will result in no impact on assurance of supply to both the mine and downstream users. Investigations are ongoing to inform the most feasible option.

The project has implemented a water supply strategy looking at mitigating supply risks through diversifying supply options. A key alternative option being a hybrid option based on a combination of supply from the Orange River and the Neckartal dam.

Figure 6-6: Viewpoint along the banks of the Orange River

6.6 HYDROGEOLOGY (GROUNDWATER)

KP is currently conducting a hydrogeological specialist study to characterise the baseline hydrogeological conditions on the Haib Copper Project site. The baseline conditions will be used as reference point to characterise and quantify the expected impacts from the proposed mining activities on the surrounding groundwater environment in terms of groundwater quantity and quality.

Preliminary progress under the hydrogeological aspects includes an updated conceptual model detailing aquifers present on site, recharge, and local and regional geological and hydraulic boundary conditions. A hydrocensus was performed on- and off-site, during which monitoring boreholes were confirmed, and groundwater samples collected for chemical analysis. Potential impacts on groundwater volumes and qualities are being conceptualised.

According to the Groundwater Division of the Department of Water Affairs, and National Groundwater Archive (NGA) database, the Haib project is located within the Namibian hydrogeological zone characterised by very low and limited groundwater potential (yields range from 0 to 2.7 L/s within a 35 km range of the Project site). This is associated with groundwater occurrence within fractures and potential yields of 0 to 0.1 L/s. The fractured zones are poorer aquifers probably due to low connectivity between the individual fractures and the decreasing fracture aperture with depth. The fresh rock units are usually characterised by very low hydraulic conductivity.

During the hydrocensus a total of 31 boreholes were visited and water levels measured in a total of 10 boreholes that were accessible. The measured depth to groundwater level ranged between 4.71 and 39.03

metres below ground level (mbgl) (omitting outliers). The average depth to groundwater level is calculated at 26.81 m.

Discussions with surrounding landowners continues towards ongoing sampling of existing regional boreholes. Sampling is progressing with samples currently under analysis. Information on these boreholes was collected via discussion with landowners and summarised below:

- Groundwater use is mostly for (migratory) game, including kudu and oryx.
- Selected boreholes have good quality water being used sporadically for domestic use.
- Groundwater use volumes are currently unknown.

Groundwater samples were collected from the Haib mine area for chemical analysis, one sample was collected from the Orange River and a rainwater sample was also taken.

The hydrochemical results show that Ca and Na are the dominant cations while SO4 and HCO3 are the dominant anions for all the samples. The chemical signature of both the rainwater and the river samples shows that no to little ion exchange have taken place.

Impacts on the groundwater resource will be related to both the groundwater quantity, and the groundwater quality. The mine pit will be excavated below the elevation of the natural groundwater level, causing groundwater inflows into the pit. This water will be pumped to surface and incorporated into the mine water system, thereby dewatering the aquifers.

The mine dewatering will cause a drawdown in the natural groundwater level in the aquifers around the pit area. As the pit floor depth increases the vertical drawdown in groundwater level, and the associated zone of influence of the drawdown cone, will increase.

With the pit directly intercepting the Volstruis River, it can be expected that there will be an impact on the groundwater baseflow contribution to the river within the zone of influence of the groundwater level drawdown cone. However, the Volstruis River is classified as an ephemeral stream.

Ephemeral rivers are seen as having little to no hydraulic connection with the aquifers underlying the river, and there is no groundwater baseflow contribution to the stream. Therefore, it is expected that the extent of the zone of influence of the groundwater level drawdown cone will have little to no impact on the stream flow volumes.

Storage of waste rock and tailings material on surface stockpiles can have an impact on the underlying aquifers. Rainfall recharging into the waste rock stockpiles, and wet deposition of tailings material onto an unlined facility can artificially increase recharge to the underlying aquifers. This will create mounding of the groundwater levels underneath the facilities and can lead to changed groundwater flow patterns and velocities.

In addition, groundwater contamination can occur through spillage of hazardous substances or direct contamination.

These potential impacts will be confirmed and assessed against the current baseline towards implementation of mitigation measures in line with the mitigation hierarchy. Additional impacts not currently foreseen as discussed here will be identified as the investigation continue

6.7 GEOCHEMISTRY

KP is currently conducting a geochemical specialist study to characterise the material that will be mined, processed and stored on site. The geochemical sampling program was planned based on the updated resource classification and project plan:

- High grade material. Ore with a copper content of > 0.3% will be processed in the plant.

- Low grade material. Ore with a copper content between 0.1 and 0.3% will be processed on the heap leach facility.
- Waste. Material with a copper content of < 0.1% will be stored on waste rock stockpiles.

Based on the above, a total of 14 samples were collected in March and contributed to in July 2025 by KP. The sampling program made provision for waste, high-grade, and low-grade material, and also takes into consideration state of oxidation to capture distinct geochemical variations at various depths. A sample of tailings material was obtained from the pilot test program.. Figure 6-7 provides the location of the samples collected.

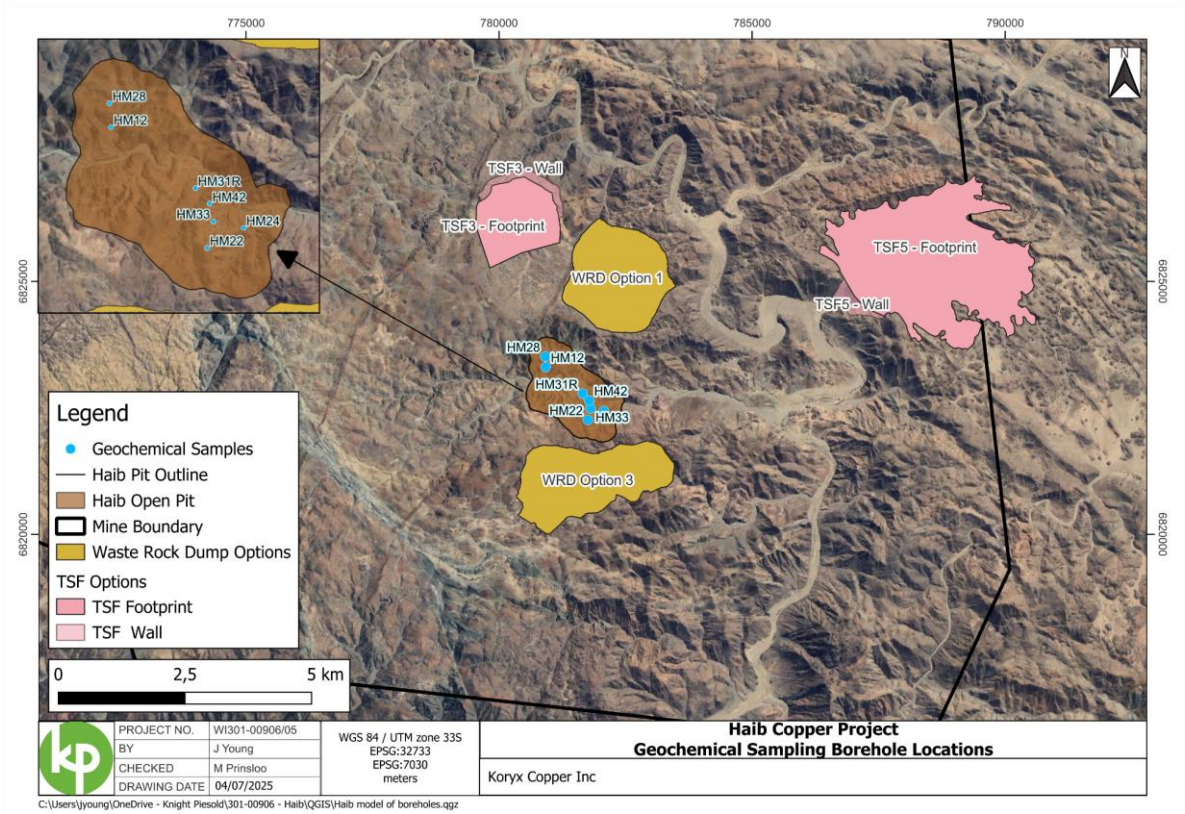

Figure 6-7: Geochemical sampling points

Geochemical analysis that is currently completed includes:

- Acid-base-accounting (ABA) testing following the Modified Sobek test procedure: Sulphur and carbon speciation; NAG pH; Total Dissolved Solids; Acid generation potential (AP); Acid neutralisation potential (NP); Net neutralising potential (NNP); Acid neutralising potential ratio (NPR).
- Mineralogy via XRD
- Total concentration (TC) of inorganic ions and metals
- Static leach concentration (LC) of inorganic ions and metals

Preliminary results of static leach testing has informed ongoing kinetic leach testing. Once the kinetic leach test results are available geochemical modelling will be done to calculate the long-term source concentrations for the various elements in leachate from the high-grade, the low-grade, and the waste material. The geochemical modelling will confirm which elements are expected to be present in elevated concentrations in the short, medium and long term. Further assessment of the surface and groundwater flow and contaminant transport model will be done to assess long term impact and potential remediations.

6.8 FAUNA AND FLORA

Peter Cunningham undertook a Terrestrial Vertebrate Fauna and Flora specialist assessment in December 2023. The baseline assessment informed site layout placement and operational aspects of the design to avoid sensitive areas. A second seasonal assessment will be conducted in mid-2025 and will include an impact assessment and mitigation against the more advanced Project layout.

Results show that the general Noordoewer area is regarded as “low” in overall (all terrestrial species) diversity while the overall terrestrial endemism is “average”. It is estimated that at least 53 reptile, 11 amphibian, 64 mammal, 153 bird species (breeding residents), at least 54 species of larger trees and shrubs (>1 m in height), and up to 49 grasses are known to or are expected to occur in the general area. A high proportion are endemics.
Of the reptiles expected to occur, only two species have been identified as species of conservation concern including *Psammobates tentorius veroxii* (Bushman Tortoise) and *Varanus niloticus* (Monitor Lizard).
According to the literature, at least 11 species of amphibians can occur in suitable habitat in the general area (most notably the perennial Orange River). The most important species from the area is the endemic *Phrynomantis annectens* (Marbled Rubber Frog), although they are widespread in Namibia and not exclusively associated with the Haib Copper Project area. None of the amphibians, especially the important species, are exclusively associated with the Haib Copper Project area. No amphibians were identified in the general area during the fieldwork and no standing surface water was observed in the various drainage lines throughout the area either – i.e., likely amphibian breeding habitat.

Figure 6-8: *Trachylepis occidentalis* (western three-striped skink) located in the northern section of the Haib River riparian habitat

According to the literature, at least 64 species of mammals are known and/or expected to occur in the general area, of which six species (9.4%) are classified as endemic. The most important species from the general area are those classified as:

- International Union for Conservation of Nature (IUCN) (2022) classifies the following mammals as vulnerable (*Panthera pardus* (Leopard), *Felis nigripes* (Black-Footed cat), and *Equus zebra hartmannae* (Haartmans mountain Zebra), and near threatened (*Eidolon helvum* (Straw-coloured fruit bat), *Parahyaena brunnea* (Brown hyena), and *Aonyx capensis* (African clawless otter)).
- Namibian legislation classifies *Cistugo seabrae* (Angolan hairy bat), *Felis nigripes* (Black-footed cat), and *Galerella pulverulenta* (Cape gray mongoose) as protected species.

However, these species are either associated with the Orange River (e.g., *Aonyx capensis* (African clawless otter)) and/or only pass through the area occasionally and are not necessarily permanently associated with the proposed development sites (e.g., *Panthera pardus* (Leopard), *Parahyaena brunnea* (Brown hyena), etc.). None of the mammals, especially the important species, are exclusively associated with the Haib Copper Project area. Large portions of the Haib Copper Project area have been heavily impacted due to various historical anthropomorphic activities (e.g., informal farmsteads, transmission line, roads/tracks, old and current mining/prospecting activities, etc.).

Figure 6-9: *Raphicerus campestris* (steenbok) – protected game – observed in the Haib River.

At least 153 species of terrestrial [“breeding residents”] birds occur and/or could occur in the general area at any time (Maclean 1985, Tarboton 2001, and Hockey *et al*. 2006). The most important species expected to occur in the general area are:

- Endemic birds – Rosy-faced Lovebird (although it is common and widespread throughout much of Namibia).
- IUCN (2022) classifies the following birds as critically endangered (White-backed Vulture), endangered (Ludwig’s Bustard and Lappet-faced Vulture), vulnerable (Black Harrier, Tawny Eagle, Martial Eagle, Secretary Bird), and near threatened (Kori Bustard).
- The following birds from Namibia, as classified by Simmons *et al*. (2015), are considered endangered (Ludwig’s bustard, white-backed vulture, black harrier, tawny eagle, booted eagle, martial eagle, black

stork), vulnerable (African fish eagle, lappet-faced vulture, secretary bird), and near threatened (Cape eagle owl, kori bustard, Verreaux's eagle, peregrine falcon, marabou stork).

None of the birds, especially the important species, are exclusively associated with the Haib Copper Project area.

Figure 6-10: Karoo korhaan observed on gravel plains habitat

Of the 54 larger tree/shrub species known/expected from the general area, 30 (55.6%) species have some form of protected status (including endemic and near-endemic) including:

- One species is classified as rare (*Ozoroa namaquensis* (Gariep Resin Tree)).
- Nineteen species are protected by the Forest Act No. 12 of 2001 (35.2%).
- Two species are protected by the Nature Conservation Ordinance No. 4 of 1975.
- Seventeen species are classified as near-endemic (31.5%).
- IUCN (2022) classifies one species as endangered (*Commiphora buruxa*) and one species as vulnerable (*Aloidendron dichotomum* (Quiver Tree)). All other species are classified as least concern or have not yet been assessed by the IUCN Red List.

Important plant species known and/or expected from the general Project area and included in the Red Data Book for Namibia include at least nine species of which:

- One species is listed as endemic (*Moraea garipensis*),
- Three species are listed as rare (*Aloe meyeri, Othonna cyclophylla, Ozoroa namaquensis (*Gariep resin tree*)*), and
- Two species are listed as near threatened (*Lapidaria margaretae, Moraea garipensis*)

None of the larger trees and shrubs (> 1m in height), especially the important species, are exclusively associated with the Haib Copper Project area.

Up to 49 grasses are expected in the general area, none of which are viewed as endemic or particularly unique. None of the grasses, especially the important species, are exclusively associated with the Haib Copper Project area.

A total of 55 "other" species – i.e. herbs, succulents, small woody spp., etc. – were identified in the various habitats throughout the general area. The overall dry conditions resulted in fewer species than expected with most species associated with the rocky (33 species) and ephemeral drainage line (24 species) habitats. The most important species are viewed as *Aloe gariepensis, Hoodia gordonii* (Kalahari cactus), *Ruschia divaricata, Sarcaucolon crassicaule, S. flavescens* (Kushen), *Stroeberia gigas* and *Tylecodon rubrovenosus*. Most of these important species are associated with the rocky area habitats, especially areas at highest elevations such as the "plateau".

The most sensitive areas to avoid as far as possible would be (Figure 6-11):

- Orange River riparian habitat.
- Haib River riparian habitat.
- Ephemeral drainage lines.
- Rocky habitats.
- Booted Eagle nest sites.
- Bird flyways (defined route used by migratory birds during their seasonal journeys between breeding and wintering grounds).

Planning of the mine activities and associated infrastructure has taken cognisance of the above sensitive habitats/areas/features and attempted not to disrupt wildlife corridors and the overall interconnectivity of various habitats.

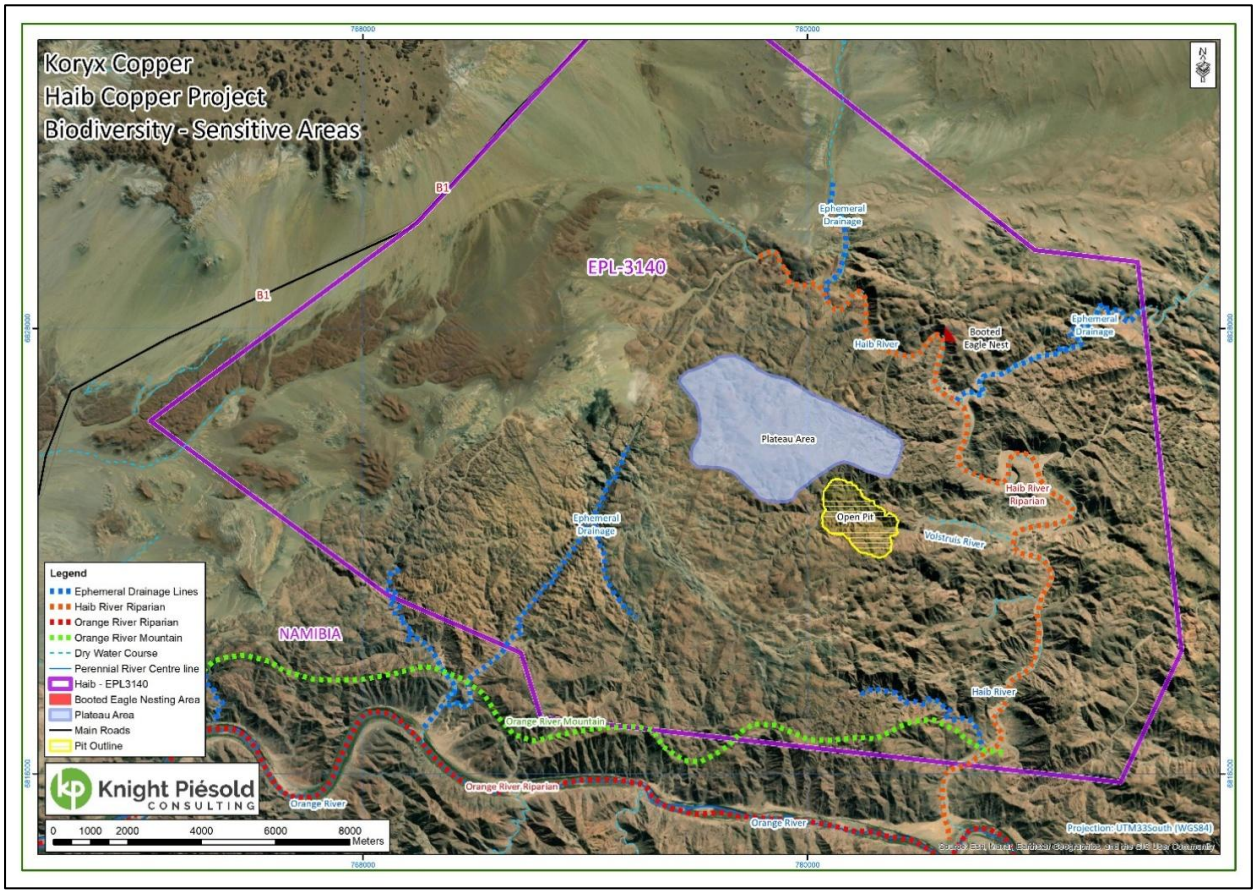

Figure 6-11: Biodiversity sensitive areas

6.9 AQUATIC ECOSYSTEMS

Two seasonal surveys were undertaken by Knight Piésold in June 2024 and March 2025, assessing the aquatic fauna and water quality of the Project area (Figure 6-13). Due to the dry climate and limited rainfall events, aquatic ecosystems are limited to the Orange River outside the southern border of EPL 3140. Historic and current exploration activities over the years in the EPL have led to the development of access routes and drill rig laydown areas, but other than that there has not been any significant change to aquatic biodiversity in the EPL.

Macroinvertebrate communities within the Project area present low diversity, ranging between 5 - 12 taxa with an average score per taxon varying between 3.5 - 5.5. Taxa are primarily pollution tolerant within the surveyed area, with Atylidae (freshwater shrimp) and Leptophlebiidae (mayflies) as the most sensitive taxa.

Two fish species of conservation concern include *Namaquacypris hospes (*Namaquab barb*)*, previously named *Barbus hospes* and *Austroglanis sclateri (*Rock-catfish*)*, however, neither of these two species were confirmed during the surveys. Other fish recorded within the Project area include *Engraulicypris brevianalis* (River sardine)*, Enteromius trimaculatus* (Threespot barb)*, Labeo capensis* (Orange River Mudfish)*, Labeobarbus aeneus (*Smallmouth yellowfish*)*, *Pseudocrenilabrus philander* and *Tilapia sparrmanii.*

Figure 6-12: Variety of fish species observed during the aquatic habitat survey

Habitat within the Orange River varies, but the most dominant type is stone habitat with the surveyed region presenting gravel, sand and mud biotopes isolated towards the banks. Marginal vegetation is scarce and limited to submerged roots and overhanging leaves. The stretch of the Orange River is dominated by steep slopes on the Namibian side, with gentle gradients available near Noordoewer and along drainage channels and the confluence with the ephemeral Haib River.

Diatom community assemblages are assessed to provide an indication of ecosystem health, determined through the dominance of particular species with specific water quality preferences. The classifications range from Category A (High Quality) through to Category F (Bad Quality). The diatom community assemblages indicate that the stretch of the Orange River falls predominantly within a Category C/D, indicative of moderate water quality with elevated salinity content and nutrient levels, attributed to agricultural activities within the catchment and upstream of the surveyed area.

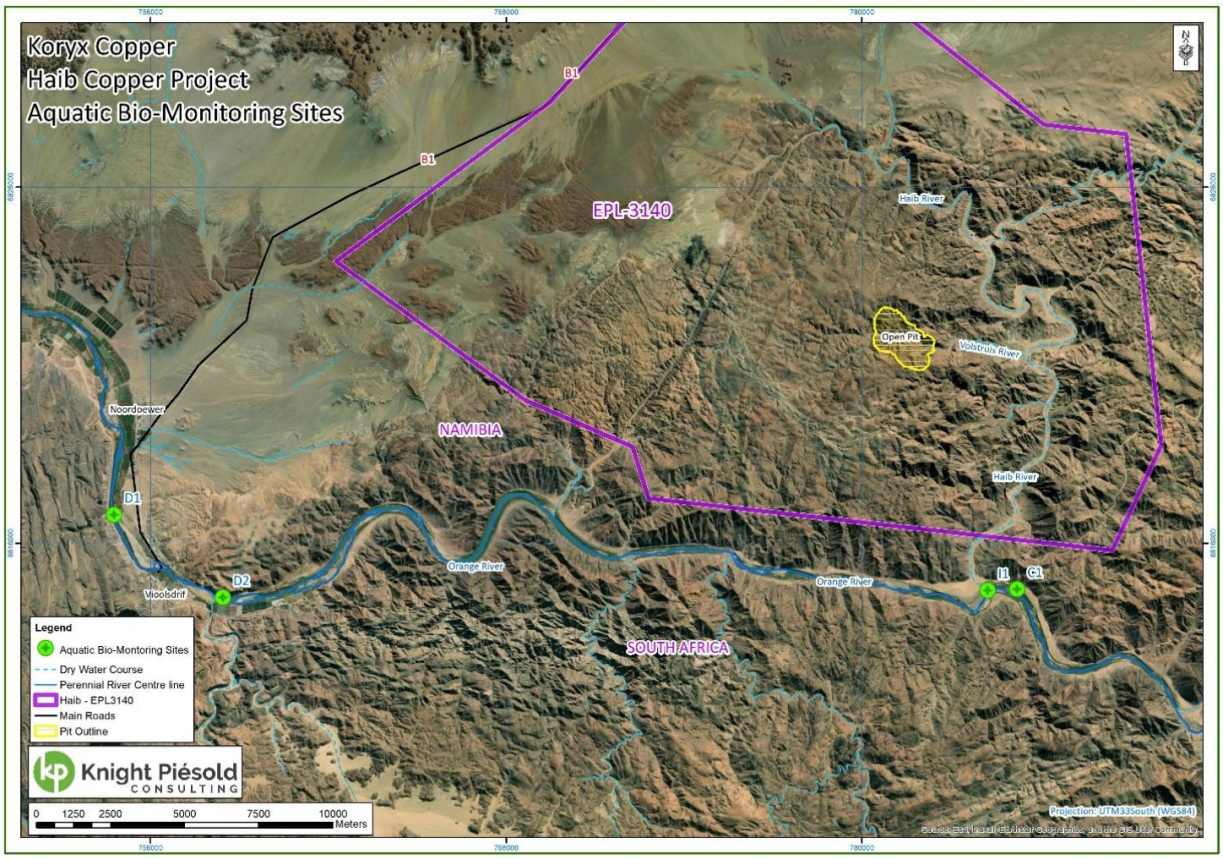

Figure 6-13: Aquatic bio-monitoring sites

6.10 AIR QUALITY AND NOISE

The air quality and noise specialist study is currently underway by WKC Group. The focus of the specialist study will be to assess impacts of activities and emissions leading to ambient dust, SO_2, NO_2, $PM_{2.5}$ and PM_{10}. Emissions and noise modelling will be undertaken utilising the Project layout towards predicting impact hotspots and the significance of these perceived impacts.

In addition, a monthly air quality routine monitoring programme has been initiated that will focus on improving the monthly baseline focusing on the same contaminants identified above.

6.11 VISUAL, SENSE OF PLACE AND TOURISM

The Haib copper Project is situated in a sparsely populated area, with a single farmstead and limited additional possible receptors. Apart from the tourism activities associated with the Orange River, no other tourist sites are known in the immediate vicinity of the proposed Mine. The sense of place of the Project area has already been disturbed by historical exploration and mining activities since the early 1900s.

In addition, given the topographic characteristics of the site and limited viewpoints of the proposed activities, it is still under discussion whether or not a viewshed survey is required. This survey would specifically focus

on visible sections of the mine from public accessible areas such as the B1 Highway and along the Orange River (which is a popular Kayaking route).

6.12 ARCHAEOLOGY AND CULTURAL ENVIRONMENT

An archaeological field survey and assessment of the Haib Copper Project was conducted in 1997, late 2023, and a follow-up targeted assessment was conducted in September 2024 by John Kinahan who in total documented 51 archaeological, historical and other sites protected under the National Heritage Act of Namibia (No. 27 of 2004). Most of the sites were assessed to be of low archaeological significance. All site locations have been continuously considered through the planning of mining activities for the site.

It is recommended that specific mitigation measures are adopted, including further investigation of the sites and their demarcation as “no-go” sites. It is also proposed that the heritage authorities should consider having the most important historical sites excised from the lease of Haib Copper to protect them from any future possibility of damage in the course of mining operations.

The Project is currently fully compliant with consent requirements as per the National Heritage Act of Namibia (No. 27 of 2004). Ongoing design of the facility will take cognisance of these identified features and where necessary manage any impacts in line with international best practice.

6.13 SOCIO-ECONOMICS

Karasburg West has a population of 17,741, making it one of the most populous constituencies in the //Karas Region, which has a total population of 109,893.

Karasburg West displays a mixed socioeconomic profile characterised by a relatively young population, moderate educational attainment, and limited formal economic activities (NSA, 2024). A higher population is noted in the working-age groups (20–39 years). Education levels indicate that the majority have attained secondary education, but access to higher education remains low, with only 306 people having tertiary qualifications. Income sources are heavily dependent on salaries and wages, likely from agricultural activity given that it is the primary economic activity within the area. While the majority are employed, a notable portion of the population (449 people) reports having no stable income. Access to drinking water varies, with many relying on public piped water and others dependent on potentially unsafe sources such as rivers and streams or open tanks. The main source of energy for cooking is gas and wood/firewood, while battery powered devices are used for lighting. Sanitation is also a major concern in the area as ablution facilities are not available to majority of the population.

Overall, while there are signs of economic participation and basic education, Karasburg West faces challenges in income diversity, employment security, and access to safe water, pointing to broader developmental needs.

Two major settlements in the Project’s sub-region are Noordoewer and Aussenkehr with respective populations of approximately 2,000 and 4,500 in 2011. The region is predominantly characterised by irrigation-supported agricultural activities with numerous farms situated along the Orange River. Principal crops include grapes, lucerne and vegetables.

Aussenkehr, the larger of the two settlements, is situated approximately 60 km to the west of Noordoewer. The broader agricultural complex has been expanded over the past 20 years, growing from 381 ha under irrigation in 1985 to 1,385 ha in 2018. The primary agricultural activity is the production of table grapes for export. Both communities suffer similar development challenges, inclusive of large informal settlement, illegal dumping due to ineffective solid waste management, and suboptimal health services. Anticipated impacts associated with the development include alteration of the current economic nature of the region (economic opportunities and impacts) and population influx (social impacts). These impacts will be

confirmed and assessed against the current baseline towards the implementation of mitigation measures in line with the mitigation hierarchy.

A preliminary socio-economic screening has been developed by DWN and SAIEA in April 2025 and a detailed socio-economic baseline and impact study will be conducted by Urban Dynamics starting in July 2025. The aim will be to define the baseline and assess potential impacts of the proposed activities on the socio-economic condition of the region.

7.0 IMPACT ASSESSMENT

The Knight Piésold impact significance rating system will be utilised to assess the significance of impacts of the Project before and after mitigation. The rating system is compliant with both Namibian legislation and IFC standards and is described below.

7.1 DEFINING THE NATURE OF THE IMPACT

An impact is essentially any change to a resource or receptor brought about by the presence of the proposed project component or by the execution of a proposed project-related activity. The terminology used to define the nature of an impact is detailed in Table 7-1 below.

Table 7-1: Impact Nature

Term	Definition
Positive (+)	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative (-)	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct impact (D)	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact (I)	Impacts that result from other activities that are encouraged to happen as a consequence of the project (e.g. in-migration for employment placing a demand on resources).
Cumulative impact (C)	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the project.
Residual impact	Those impacts that remain following the implementation of the mitigation measures proposed.

Assessing Significance

The Knight Piésold impact significance rating system is based on the following equation:

Significance of Environmental / Social Impact = Consequence x Probability

The consequence of an impact can be derived from the following factors:

- Severity / Magnitude – the degree of change brought about in the environment.
- Reversibility - the ability of the receptor to recover after an impact has occurred.
- Duration - how long the impact may be prevalent; and
- Spatial Extent - the physical area which could be affected by an impact.

The severity, reversibility, duration, and spatial extent are ranked using the criteria indicated in Table 7-2 and then the overall consequence is determined by adding up the individual scores and multiplying it by the overall probability (the likelihood of such an impact occurring). Once a score has been determined, this is checked against the significance descriptions indicated in Table 7-3.

Table 7-2: Ranking Criteria

Severity / magnitude (M)	Reversibility (R)	Duration (D)	Spatial extent (S)	Probability (P)
5 – Very high – The impact causes the characteristics of the receiving environment/ social receptor to be altered by a factor of 80 – 100%	5 – Irreversible – Environmental - where natural functions or ecological processes are altered to the extent that it will permanently cease. Social - Those affected will not be able to adapt to changes and continue to maintain pre-impact livelihoods.	5 – Permanent - Impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime.	5 – International - Impacts that affect internationally important resources such as areas protected by international conventions, international waters, etc.	5 – Definite - The impact will occur
4 – High – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 60 – 80%		4 – Long term - impacts that will continue for the life of the project but ceases when the project stops operating.	4 – National - Impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.	4 – High probability – 80% likelihood that the impact will occur
3 – Moderate – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 40 – 60%	3 – Recoverable Environmental - where the affected environment is altered but natural functions and ecological processes may continue or recover with human input. Social - Able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support or intervention.	3 – Medium term - Impacts are predicted to be of medium duration (5 – 15 years)	3 – Regional - Impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.	3 – Medium probability – 60% likelihood that the impact will occur
2 – Low – The impact alters the characteristics of the receiving environment/ social receptor by a factor of 20 – 40%		2 – Short term - Impacts are predicted to be of short duration (0 – 5 years)	2 – Local - Impacts that affect an area in a radius of two (2) km around the site.	2 – Low probability - 40% likelihood that the impact will occur
1 – Minor – The impact causes very little change to the characteristics of the receiving environment/	1 – Reversible Environmental - The impact affects the environment in such a way that natural functions and ecological	1 – Temporary - Impacts are predicted to intermittent/ occasional over a short period.	1 – Site only - Impacts that are limited to the site boundaries.	1 – Improbable - 20% likelihood that the impact will occur

Severity / magnitude (M)	Reversibility (R)	Duration (D)	Spatial extent (S)	Probability (P)
social receptor and the alteration is less than 20%	processes are able to regenerate naturally. Social - People/ communities are able to adapt with relative ease and maintain pre-impact livelihoods.			

Table 7-3: Significance Definitions

Score According to Impact Assessment Matrix	Significance Definitions	Colour Scale Ratings	
		Negative Ratings	Positive Ratings
Between 0 and 29 significance points indicate **Low Significance**	An impact of low significance is one where an effect will be experienced, but the impact magnitude is sufficiently small and well within accepted standards, and/or the receptor is of low sensitivity/value.	**Low**	**Low**
Between 30 and 59 significance points indicate **Moderate Significance**	An impact of moderate significance is one within accepted limits and standards. The impact on the receptor will be noticeable and the normal functioning is altered, but the baseline condition prevails, albeit in a modified state. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is As Low as Reasonably Practicable (ALARP). This does not necessarily mean that "moderate" impacts have to be reduced to "low" impacts, but that moderate impacts are being managed effectively and efficiently to not exceed accepted standards.	**Moderate**	**Moderate**
60 to 100 significance points indicate **High Significance**	An impact of high significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resources/receptors. An impact with high significance will completely modify the baseline conditions. A goal of the EIA process is to get to a position where the project does not have any high negative residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects, there may be high residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors, such as employment, in coming to a decision on the project.	**High**	**High**

Table 7-4: Preliminary Impacts

Project activity or issue	Potential impact	Phase	Nature of impact + / -
LAND USE			
Conversion of existing land uses within the area	Loss of land to mining infrastructure (pits, TSFs, roads)	Construction	-
	Project will permanently change the existing land use	Construction / Ops	-
	Permanent land conversion limits the viability of future land uses	Construction / Ops	-
Restricted access to land	Limited access to grazing/communal lands	Construction / Ops	-
Land fragmentation	Infrastructure divides land units, reducing mobility/access	Construction / Ops	-
TOPOGRAPHY & DRAINAGE			
Alteration of drainage patterns	Disruption of permanent rivers and run-off patterns	Construction	-
Erosion and sedimentation	Steep terrain and clearing lead to soil wash-off	Construction	-
GEOLOGY			
Disturbance to geological formations	Open-pit development affects geological continuity	Operations	-
Resource sterilisation	Infrastructure placement may block ore access	Preliminary	-
SOIL			
Topsoil loss and erosion	Clearance and grading remove topsoil and expose subsoil	Construction	-
Soil contamination	Spills of chemicals or fuel during construction or operations	Construction / Ops	-
Soil compaction	Ongoing activities leading to compacted topsoil	Construction / Ops	-
FAUNA			
Habitat loss and fragmentation	Clearing of habitats affecting faunal assemblages	Construction	-
	Development of linear infrastructure affects faunal movement and fragmentation of habitats	Construction / ops	-
Land fragmentation	Ecological connectivity may be broken due to linear infrastructure development or disturbed areas, impacting migratory wildlife.	Construction / Ops	-

Project activity or issue	Potential impact	Phase	Nature of impact + / -
Species loss	Increased activities leading to injury or death of faunal species (roadkill, hunting, collections)	Construction	-
Chemical exposure	Spills may poison or deter animals	Construction / Ops / Decom	-
FLORA			
Vegetation clearing	Extensive vegetation removal for mine and infrastructure development	Construction	-
Plant health degradation	Dust and seepage affect native vegetation	Operations	-
AQUATIC ECOLOGY			
Surface water quality contamination.	Increased runoff contaminant loads making their way into aquatic ecosystems	Construction / Ops	-
Alteration of biodiversity	Direct disturbance of aquatic ecosystems through construction activities	Construction	-
ARCHAEOLOGY			
Loss/ impact to archaeological sites	Earthworks may disturb or destroy heritage resources	Construction	-
CLIMATE			
Greenhouse gas emissions contributing to climate change	Machinery, vehicles, and processing outputs leading to increased GHG emissions	Construction / Ops	-
Value chains contributing to climate change	The purchase of raw materials that in their production contribute to climate change	Construction / Ops	-
AIR QUALITY			
Dust generation	Activity-related (wind and machinery movement or blasting, dumping, and transport) increase airborne dust and particulate matter in the air	Construction / Ops	-
Process emissions	Release of contaminant emissions through process emissions and transportation	Operations	-
NOISE			
Operational noise	Mine activities (crushing, trucks, and machinery noise)	Operations	-

Project activity or issue	Potential impact	Phase	Nature of impact + / -
Blasting noise and vibration	Rock blasting creates periodic high noise/vibrations	Operations	-
VISUAL / AESTHETIC			
Impact on visual/Aesthetic nature	Permanent alteration of landscape (TSF, WRDs)	Construction / Ops	-
Impact on tourism industry	Impact on the Orange River and associated eco-tourism industry	Construction / Ops	-
SOCIO-ECONOMIC			
Employment opportunities	Job creation during mine phases.	Construction / Ops	+
Economic contribution	Increased national/local income through increased procurement and exports which boost the local economy	Construction / Ops	+
	Sourcing goods and services from regional suppliers boosts local SMEs	Construction / Ops	+
	Expect the local workforce to benefit from training and skills transfer in construction, processing, safety, and operations	Construction / Ops	+
	Impact on the local ecotourism economy	Construction / Ops	-
Service pressure	Population influx burdens available water, waste, housing and health services	Construction / Ops	-
	While permanent settlement may be limited, access restrictions could cause indirect displacement	Construction / Ops	-
Safety and Security	Population influx resulting in increased communicable disease and security issues	Construction / Ops	-
Traffic	Accidents/nuisance impacts due to increased traffic volumes from material and personnel movement	Construction / Ops	-
GROUNDWATER			
Groundwater contamination	WRDs, TSFs, stockpiles, geochemical seepage and leaching as well as chemical handling pose risks	Operations	-
Over-abstraction	Risk of drawdown from dewatering or high-water demand	Operations	-

Project activity or issue	Potential impact	Phase	Nature of impact + / -
SURFACE WATER			
Permanent river disruption	Infrastructure may obstruct or alter Haib/Volstruis River flow	Operations	-
Reduced water availability	Reduced Orange River flow from abstraction	Operations	-
Reduced water quality	Runoff may carry sediment and chemicals to surface water	Construction / Ops	-

7.2 IMPACT ASSESSMENT PER ENVIRONMENTAL ASPECT

A preliminary high level risk assessment was conducted informed by specialist inputs, past experience and feedback from the public, authorities and I&APs is included in Table 7-4. Descriptive results are provided below.

7.2.1 LAND USE

The development of the Haib Copper Mine Project will result in the conversion of existing land uses within the Project area. The establishment of mining infrastructure, including the processing plants, pit, tailings storage facilities (TSFs), waste rock dumps (WRDs), access roads, process plants, and accommodation camps, will lead to permanent land use change. These developments will occupy previously undeveloped land that have been historically used for grazing which, although a key livelihood in the region, is not especially evident at the time of this assessment. Alternative land uses such as grazing, ecotourism, or smallholder farming will no longer be viable within the Project footprint. The presence of physical infrastructure will also restrict access to surrounding communal and private lands, further compounding socio-economic impacts. Additionally, the fragmentation of the landscape caused by roads and fencing will reduce mobility and access, both for local communities and for wildlife movement across the terrain.

7.2.2 TOPOGRAPHY AND DRAINAGE

Mining activities will alter the natural topography of the region. The open pit, associated WRDs and TSFs, will reshape the landscape, particularly in the rugged Volstruis River valley. This transformation will disrupt existing drainage lines and natural runoff patterns, leading to the potential redirection or blockage of watercourses. Earthworks during construction will expose slopes and soils to rainfall and wind, increasing the risk of erosion and sedimentation in nearby water bodies. During the operations, hauling and use of heavy equipment will have a similar effect, only at a much lower impact. These impacts may affect the hydrological balance of the area and increase flood and sediment load risks during flow events. The ephemeral nature of these drainage lines and rivers, however, is considered in the assessment.

7.2.3 GEOLOGY

The Haib Copper Project will involve large-scale blasting and excavation that will significantly disturb the geological formations of the area. The open-pit mining method will remove and fragment existing bedrock, impacting geological continuity and exposing subsurface layers. In addition, the placement of infrastructure, such as waste dumps and TSFs, may sterilise parts of the mineral resource, making it inaccessible for future extraction. This risk of resource sterilisation underscores the importance and need for careful spatial planning in infrastructure layouts.

7.2.4 SOIL

Soil resources within the Project area may be impacted by construction and operational activities. Although observed to be limited at the project site, topsoil will be stripped and disturbed during site preparation, grading, and construction of the mine and associated infrastructure. This process will lead

to the increased vulnerability of the soil to wind and water erosion, especially in areas with steep slopes. Furthermore, there is a risk of soil contamination from accidental spills of fuel, lubricants, acids, and other hazardous materials during both construction and operations. Such contamination could degrade soil quality and affect the potential for future rehabilitation.

7.2.5 FAUNA

Anticipated impacts include habitat alteration, loss of biodiversity, loss of threatened and/or sensitive habitats, invasive alien plant species, alteration in faunal communities, direct impact through increased activities and harvesting/collection of species. The Project will result in the loss and fragmentation of faunal habitats through vegetation clearance, infrastructure development, and human activity. Fragmentation driven by road and fencing development would reduce ecological connectivity and affect species movement and migration. Mining activities and vehicle movement may additionally increase the likelihood of impact on species through injury, death or indirect influence on populations. Further to this, contaminant spills pose risks of poisoning or deterring fauna from using their natural habitats, thereby compounding biodiversity impacts. The early development of the terrestrial biodiversity baseline has informed the avoidance of sensitive habitats through the design process, thus mitigating faunal impacts early in the process. Moving ahead, the impacts will be confirmed and assessed against the current baseline towards the implementation of additional mitigation measures in line with the mitigation hierarchy.

7.2.6 FLORA

Similarly to the faunal component, anticipated impacts include habitat alteration, loss of biodiversity, loss of threatened and/or sensitive habitats/species, invasive alien plant species, alteration in floral communities, direct impact through increased activities and harvesting/collection of species. Vegetation within the Project area will be cleared extensively to make way for Project development in the construction phase. This clearance will lead to the loss of native plant species and changes in vegetation cover. The broad operation of the mine will generate dust and possible seepage, which may degrade the health of remaining flora beyond the direct Project footprint. These impacts will reduce the ecosystem's capacity to regenerate, even post-closure. The early development of the terrestrial biodiversity baseline has informed the avoidance of sensitive habitats through the design process, thus mitigating floral impacts early in the process. The impacts of the Project will be confirmed and assessed against the current baseline towards implementation of additional mitigation measures in line with the mitigation hierarchy.

7.2.7 AQUATIC ECOSYSTEMS

Anticipated impacts on the aquatic ecosystems, largely limited to the Orange River, due to Project activities include habitat alteration, increased sedimentation, alteration in aquatic faunal communities and surface water quality contamination. These impacts will be confirmed and assessed against the current baseline towards the implementation of mitigation measures in line with the mitigation hierarchy.

7.2.8 ARCHAEOLOGY

Anticipated impacts associated with the development of the Haib Copper Project include loss or destruction of features falling within the broader Project footprint. Note that this impact has largely been avoided or minimised given the availability of the heritage impact assessment at this early stage of the Project. Nonetheless, impacts will be confirmed and assessed against the current baseline towards

implementation of additional mitigation measures in line with the mitigation hierarchy. Additionally, unidentified or undocumented heritage resources, however, may be inadvertently disturbed or destroyed during construction activities.

7.2.9 CLIMATE

The Project will contribute to greenhouse gas (GHG) emissions through the use of diesel-powered machinery, generators, and transport vehicles. These emissions, although minor at a national scale, are relevant within the broader context of climate change. The import and export of equipment and raw materials would similarly make contributions. The Project is expected to generate considerable amounts of dust due to earthworks, vehicle movement, and blasting. Dust production risks are of particular concern in the arid environment where natural dust suppression is limited.

7.2.10 AIR QUALITY

Anticipated impacts associated with the development include the mobilisation of particulate matter and emissions leading to decreased air quality in the region, as well as deposition of contaminants on neighbouring land. Dust is generated during construction and operations, especially from blasting, ore hauling, and wind erosion from WRDs and TSFs. Contaminants and dust may travel off-site, affecting sensitive receptors including nearby communities, habitats, agriculture and livestock. This may lead to occupational and community health impacts. Additionally, gas emissions from fuel combustion and mineral processing (e.g. solvent extraction) could further degrade local air quality. Reduced air quality may also decrease the desirability or viability of alternative land uses such as tourism or agriculture.

7.2.11 NOISE

Noise will be generated from a range of activities, including drilling, blasting, crushing, hauling, and other general mining operations. Continuous operational noise, combined with intermittent high-decibel blasting events, may disturb sensitive receptors (inclusive of communities and fauna) in the surrounding areas. In some cases, it is possible noise pollution may reduce the viability or land value of nearby properties and disrupt the natural behaviour of sensitive species. Noise impacts are, however, expected to be limited to faunal assemblages present on the EPL. It is unlikely that local communities or neighbouring land users will be impacted due to the remoteness of the site. These impacts will be confirmed and assessed against the current baseline towards implementation of mitigation measures in line with the mitigation hierarchy.

7.2.12 GROUNDWATER

Storage of waste rock and tailings material on surface stockpiles can have an impact on the underlying aquifers. Rainfall recharging into the waste rock stockpiles, and wet deposition of tailings material onto an unlined facility can artificially increase recharge to the underlying aquifers. This will create a mounding of the groundwater levels underneath the facilities and can lead to changed groundwater flow patterns and velocities. Groundwater quality may also be impacted by oxidation of the pit walls and the waste rock stored on the waste rock dumps (WRDs), as well as effluent and seepage from the tailings storage facility (TSF). Contamination that enters the underlying aquifers will migrate down gradient away from the footprints of the WRDs and the TSF. Groundwater contamination can occur through the spillage of hazardous substances or direct contamination. Groundwater abstraction for water supply and pit dewatering may cause drawdown, potentially impacting surrounding water users or ecosystems dependent on groundwater. These risks are particularly important in the arid setting where water is

scarce and highly valued. Additional impacts not currently foreseen will be identified as the investigation continues.

7.2.13 SURFACE WATER

Although ephemeral, the Project development would disrupt the natural flow patterns of the Volstruis and Haib Rivers. These rivers may be important for seasonal drainage and groundwater recharge. Specifically, for the Volstruis, infrastructure placement and landform modification will block or redirect these flows, altering local hydrology. Water abstraction from the Orange River to support mine operations could similarly reduce downstream availability, especially in the dry season and times of drought. Furthermore, stormwater runoff from disturbed areas could carry sediment, hydrocarbons, or other pollutants into surface water bodies, affecting water quality and aquatic ecology.

7.2.14 VISUAL / AESTHETIC

Project activities will lead to both alteration of the landscape and generation of dust, which will influence the visual and aesthetic character of the surrounds. The extreme topography and isolated nature of the mine area, however, results in potential low impacts.

7.2.15 SOCIO-ECONOMIC

The socio-economic impacts of the proposed Project will be significant. On the positive side, the mine will create substantial employment opportunities, with a maximum of 2,900 staff during construction and maximum of 1,350 during operation. Local businesses and SMEs will benefit from procurement opportunities and service contracts, boosting the regional economy. Additionally, workers are expected to receive training in construction, mining operations, and safety. However, these benefits are tempered by potential adverse impacts. The influx of workers may strain local services such as water supply, housing, sanitation, and healthcare or impact the integrity of local communities and economies. Displacement of grazing areas relevant to the Project area could directly affect livestock-dependent households, and restricted access to land may lead to indirect displacement. Increased road traffic raises safety risks for both workers and local residents. The alteration from a largely agriculturally based economy to one of mining will have a significant impact on the local demographic profile of the region. There may also be potential impacts on the small ecotourism sector in the region.

Impacts on ecosystem services such as water provisioning (discussed above) would have a direct impact on the economic wellbeing of the region.

8.0 ESIA PHASE

8.1 ESIA PHASE TERMS OF REFERENCE

Results of assessments and processes conducted during the Scoping Phase have resulted in defining appropriate requirements for the study to be implemented during the ESIA phase of the Project.

The Terms of Reference for the ESIA, as informed by regulatory requirements, specialist inputs, past experience and feedback from the public, authorities and I&APs, include the following:

- Undertaking of specialist studies focusing on establishing the baseline environment, predicting and assessing potential impacts and recommending management interventions towards mitigating negative impacts and maximising positive impacts. Specialist studies required include the following:
  - Terrestrial Biodiversity Specialist Study – Focus on terrestrial biodiversity fauna, avifauna, flora and critical habitats
  - Aquatic Health Specialist Study – Focus on the Orange River surface water quality, aquatic health and biodiversity
  - Surface Water Specialist Study – Focus on stormwater and runoff management
  - Geohydrological Specialist Study – Focus on groundwater quality and quantity
  - Geochemical Specialist Study – Including acid drainage assessments and leachate impact assessments
  - Air Quality Specialist Study - Baseline parameters and impact modelling of Particulate Matter (PM), Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2)
  - Noise Specialist Study - Day and night noise levels monitoring and assessments
  - Water Resources and Water Demand Impact Study – Focus on water availability in the Orange River
  - Heritage Specialist Study
  - Traffic Specialist Study
  - Viewscape Specialist Study
  - Community Health Specialist Study – Focus on defining the area of interest and baseline, identifying health related vulnerabilities and recommend controls to manage potential impacts
  - Social Specialist Study – Focus on Noordoewer and communities neighbouring the proposed development
- Development of a comprehensive Environmental and Social Impact Assessment (ESIA) Report inclusive of the following technical chapters:
  - Project description
  - Legal Review
  - Environmental and Social Baseline (Summary of specialist findings)
  - Impact Assessment methodology and identification. The Knight Piésold impact significance rating system (described above) will be utilised, which is compliant with both Namibian legislation and IFC standards.
  - Impact mitigation and management. The impact assessment will inform the development of the ESMP, which will outline management measures appropriate to mitigate impacts. This will be inclusive of monitoring and evaluation of implementation.
  - Appendices will include all supplementary data inclusive of public consultation records and specialist studies.

Take note, additionally the Project team is currently undertaking a screening against the International Finance Corporation's performance standards to ensure all relevant studies appropriately inform the ESIA.

8.2 THE ESIA PROGESS IN NAMIBIA

The ESIA process being followed is in accordance with the Environmental Management Act 7 of 2007 and the EIA Regulations 2012.

The broad environmental scoping and impact mitigation, and permitting process in Namibia is included in Figure 8-1.

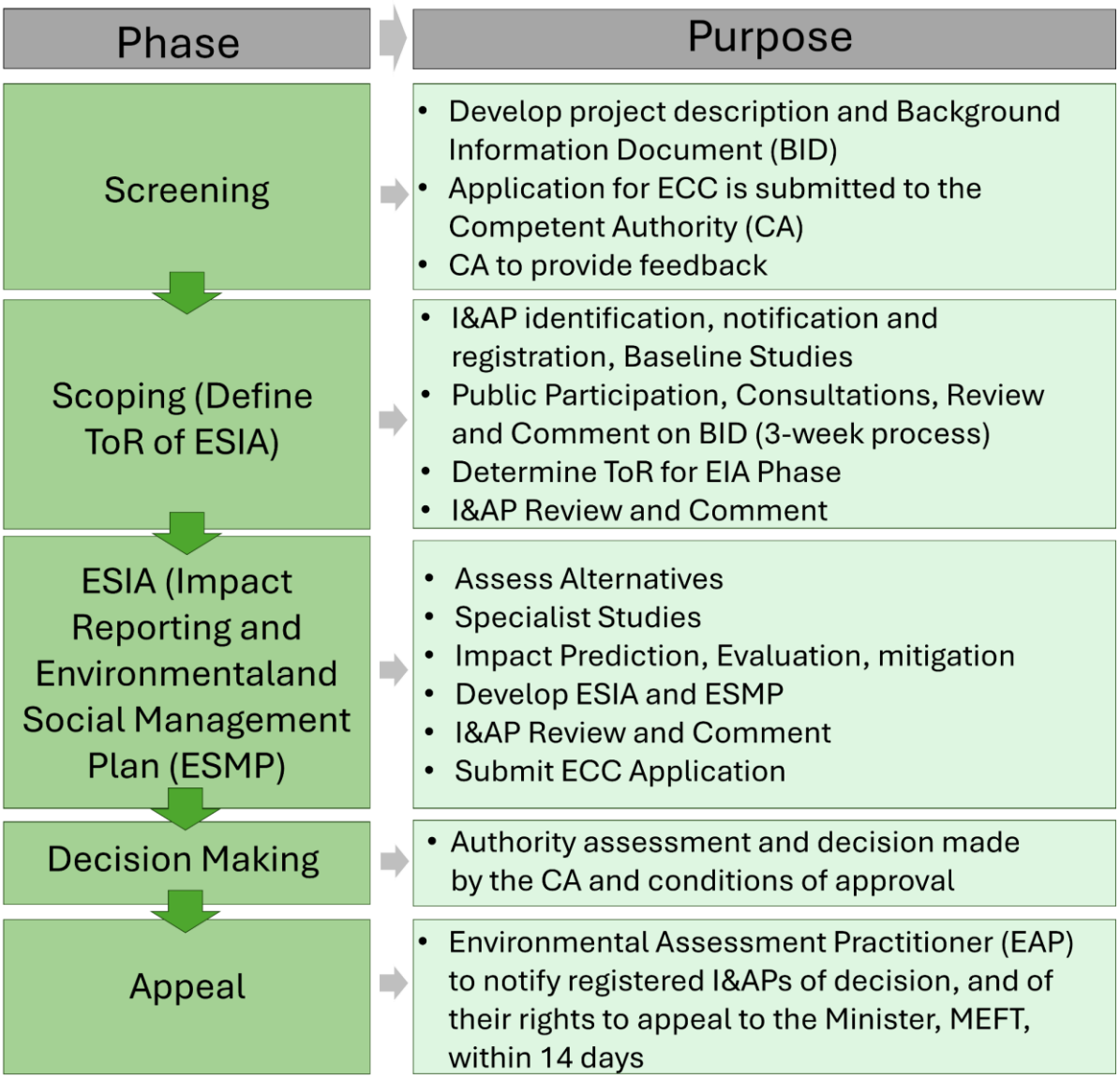

Figure 8-1: The Environmental and Social Impact Assessment Process

The ESIA process include the following phases:

Screening Phase

- Review design documents and project specifications.
- Develop Background Information Document (BID) and make applications to the Competent Authority (CA).
- Refine scope of work after feedback from MEFT. MEFT to guide if only Scoping Report and ESMP is required or if a detailed assessment is required (Environmental and Social Impact Assessment).

Scoping Phase

- The Project Scoping determines the extent of and approach to the detailed assessment. A Scoping Report is defined as "a document prepared by the proponent to present the case for the assessment of an activity as part of the initial assessment process" (Government of the Republic of Namibia (GRN) 2012). This phase in addition includes a Public Participation or Consultation step to provide stakeholders, including the public, an opportunity to participate in the Environmental Assessment Process, in order to ensure that the intended development initiatives consider broad-based concerns. It further improves governance in that the intended development must consider a wide range of issues, e.g. the need to conserve the natural environment and the need to maintain a functioning ecology. The Scoping Phase culminates in the Terms of Reference for the detailed Environmental and Social Impact Assessment.

ESIA Phase

- Depending on initial feedback from the CA, and based on the assessment of potential impacts, the ESIA Phase may be combined with the Scoping Phase and involves the undertaking of specialist baseline studies towards assessing alternatives and predicting the impacts and mitigation measures thereof. An Environmental and Social Impact Assessment is conducted against the proposed Project, which guides the development of an Environmental and Social Management Plan, the latter that guides the mitigation of the perceived impacts to an acceptable level.
- **Environmental** and Social **Impact Assessment** is the "process of identifying, predicting and evaluating the effects of proposed activities on the environment. It should include information about the risks and consequences of activities, possible alternatives, and steps which can be taken to mitigate (minimise or off-set) any negative impacts. It should also discuss steps to increase positive impacts and to promote compliance with the principles of environmental management": (Ministry of Environment and Tourism (MET) 2008).
- An **Environmental** and Social **Management Plan** is a "key document that should consist of the set of measures to be taken during implementation and operation to eliminate, offset, or reduce adverse environmental and social impacts to acceptable levels. Also included in the plan are the actions needed to implement them" (Directorate of Environmental Affairs (DEA) (now Environmental Affairs and Forestry (DEAF)) 2008).

Decision Phase

- The ECC Application is submitted to the Competent Authority (CA) which will assess and evaluate the potential impacts of the proposed project. A decision is made to authorise or not to authorise the ECC. If authorised, the ECC will include conditions of approval.

Appeal Phase

- Environmental Assessment Practitioner (EAP) to notify all registered I&APs that the ECC has been issued, and of their rights to appeal to the Minister, MEFT, within 14 days from the date of receipt of notification of a decision.

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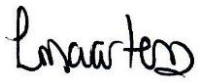
10.0 CERTIFICATION

This report was prepared and reviewed by the undersigned.

Prepared:

Joseph Mulders, Pr. Sci.Nat
Senior Environmental Scientist

Reviewed:



Lima Maartens,EAPAN Registered
Environmental Assessment Practitioner

Reviewed:

Veronique Daigle
Director: Mining
Knight Piésold Consulting (Pty) Ltd

Approval that this document adheres to Knight Piésold Quality Systems: JM

APPENDIX A

Curriculum Vitae

JOSEPH MÜLDERS (Pr.Sci.Nat.)

SENIOR ENVIRONMENTAL SCIENTIST

Joseph Mülders is Senior Environmental Scientist based at Knight Piésold's Sandton office. He has 12 years of experience in the environmental services industry and is a registered Professional Natural Scientist (Environmental Science). Joseph has been involved in social and environmental risk, safeguards assessments and monitoring, spatial classification of socio-economic and environmental systems. He specialises in environmental and social due diligence, impact assessments and risk analysis, environmental monitoring, rehabilitation and offset quantification and design, stakeholder consultation, environmental monitoring and compliance. Joseph has experience in various African countries in terms of delivering projects to international best practice standards focusing on socio-economically sustainable development and management of natural resources.

Knight Piésold (Pty) Ltd.
South Africa

REGISTRATIONS / CERTIFICATIONS

- South African Council for Natural Scientific Professions (SACNASP), Pr.Sci.Nat. Reg No. 115316

SPECIFIC RELEVANT EXPERIENCE

- **GISTM Gap Analysis for Kareerand TSF: Biodiversity Offset Implementation Planning- uMkhomazi Water Project Phase 1, South Africa:** Review, update Biodiversity Offset Report, secure landowner agreements, finalise Biodiversity Offset and Compensation Plan and manage implementation of site specific interventions and compensation programmes.
- **Project Preparation of DFFE/IUCN/GEF8 Full sized Project, South Africa:** Design of a 5 year full sized GEF 8 project aiming at the restoration and sustainable management of land for improved livelihoods in the degraded landscapes of Free State and Northwest Provinces of South Africa
- **Social Baseline Assessment, KCC, DRC:** Conduct and contribute to social baseline studies, impact assessment and social performance plan
- **ESIA and EMP Review and Update, Kamoa Kakula Copper, DRC:** Review and update the Environmental and Social Impact Assessment (ESIA) as per legal requirements at Kamoa Kakula Copper Project.
- **ESIA Update, Mumi Sulphide Project, DRC:** Update and develop Environmental and Social Impact Assessment (ESIA) as per additional activities at Mutanda Mine DRC.
- **Environmental Control Officer, Middelburg Ferrochrome, South Africa:** Conduct monthly compliance audits against licence and authorisations for dam construction activities at MFC
- **Environmental Scoping and EIA, Waste facilities in Lüderitz and Walvis Bay, Namibia**: Develop environmental and social feasibility studies for two oil & gas management facilities in Walvis Bay and Lüderitz towards submissions for the necessary authorisations with the competent authority.
- **Environmental and Social Due Diligence, Tsumeb Smelter, Namibia:** Conducted an environmental and social due diligence for the Tsumeb Smelter and develop a record of existing and potential social and environmental liabilities currently associated with the Tsumeb Smelter.
- **Environmental Support and EIA, Haib Copper Project, Namibia:** The development of feasibility studies for the Haib Copper Project towards development of a project level Environmental Management Programme (EMPr) and submissions for the necessary authorisations. Bi annual reporting and auditing.
- **Water Use License Application, Gamsberg TSF 2, South Africa:** Implement a WULA for the development of TSF for Phase 2 of the Gamsberg Mine in Northern Cape, South Africa
- **Regulatory EIA MMG Kinsevere, DRC:** Develop a regulatory EIA for the Ubuntu Farm Project in Southern DRC.
- **MUMI Biodiversity Offset Plan, DRC:** Development of a Biodiversity Offset Concept Note which provides an outline and rationale for a biodiversity offset and explores the

EDUCATION

- MSc, Environmental Management, University of Pretoria, South Africa, 2015
- BSc (Hons) Environmental Management and Analysis, University of Pretoria, South Africa, 2009
- BSc, Zoology, University of Pretoria, South Africa, 2008

SPECIALISATIONS

- Environmental monitoring
- Rehabilitation and offset quantification design
- Stakeholder Consultation
- Environmental due diligence
- Impact assessments and risk analysis
- Project management

COUNTRIES OF WORK EXPERIENCE

- Namibia
- Malawi
- Mali
- Mozambique
- South Africa
- Uganda

JOSEPH MÜLDERS (Pr.Sci.Nat.)

SENIOR ENVIRONMENTAL SCIENTIST

basic requirements, possibilities, and strategies available for MUMI to undertake a detailed and biodiversity offset plan costed within a frame.

- **DFFE/UNDP/GEF6 Full Sized Project, South Africa:** Developed and implemented the Social and Environmental Risk Management Program. Designed and implemented the project wide integrated monitoring and evaluation plan. Acting Project Manager for 4 months.
- **DFFE/IUCN/GEF7 Full sized Project, South Africa:** Project design and developed the Environmental and Social Management Plan (ESMP).
- **uThukela Water Resource Classification System (WRCS), South Africa**: Coordinated the classification and quantification of socio-economic impacts to communities as linked to changing water allocation scenarios.
- **Loulo, Gounkoto and Morila Gold Mines, Mal**i: Biodiversity Offset, quantifying residual impacts and proposing mechanisms for internalising costs of impacts back into the biodiversity capital value of Mali.
- **Kibali Gold Mine, DRC:** Biodiversity Offset, developed a biodiversity offset based on the past, current and future biodiversity impacts and benefits since the start of operations.
- **Makuya Nature Reserve, South Africa:** Park Management Plan, systems ecologist and spatial planner.
- **Kusile Power Station, South Africa:** Scoping and Basic Assessment, including public consultation and environmental specifications (EAP).
- **Kusile Power Station, South Africa:** Wetland Rehabilitation Strategy, baseline assessment, condition analysis and strategic design.
- **Kusile Power Station, South Africa:** Wetland Offset Strategy, baseline assessment, stakeholder engagement, offset quantification and strategy design.

WORK HISTORY

Company Name	Position	Dates
Knight Piésold (Pty) Ltd	Senior Environmental Scientist	July 2023 - Date
South African National Department of Forestry, Fisheries and Environment	Acting Director	2021 - 2023
South African National Department of Forestry, Fisheries and Environment	Deputy Director	2014 - 2021
Prime Africa Consult	Systems Ecologist	Nov 2014 - Nov 2021

lima@iway.na
limamaartens@gmail.com
+264 61 255750
+264 81 2458790
Windhoek, Namibia

Skills

Environmental Scoping
Environmental Impact Assessments
Environmental Management Plans
Environmental Auditing
Environmental and Social Due Diligence & Legal Compliance
Technical Reviews & Proofreading
Project Management
Research & Monitoring

Education And Training

2000
Ph.D.: Fisheries Science
Rhodes University
Grahamstown, South Africa

1992
B.Sc. Hons: Animal Physiology
Stellenbosch University
Stellenbosch, South Africa
1991
B.Sc.: Zoology and Physiology
Stellenbosch University
Stellenbosch, South Africa

1987
Senior Certificate
Windhoek High School
Windhoek, Namibia

Languages
Afrikaans: First Language
English: Proficient

Membership in Professional Bodies

Associate Membership, Institute of Sustainability and Environmental Professionals (ISEP), United Kingdom;
Lead Practitioner and Reviewer, Environmental Assessment Professionals of Namibia (EAPAN);
Full Member, Namibian Chamber of Environment (NCE);
Member, Namibia Scientific Society

Lima Maartens

Summary

I have 33 years of experience in natural resource management, lecturing, environmental science and management, and consulting. Sectors that I worked in as an Environmental Assessment Practitioner include exploration (including offshore oil and gas), mining and quarrying, renewable energy (solar and wind), tourism, manufacturing, agriculture, aquaculture and mariculture, township, property (including medicine storage facilities) and waterfront developments, transport (rail and road), and infrastructure.

Employment Record

LM Environmental Consulting – Environmental Assessment Practitioner
10/2009 – Current; Windhoek, Namibia
Valencia Uranium (Pty) Ltd – Environmental Manager
09/2006 – 09/2009; *Windhoek, Namibia*
De Beers Marine Namibia (Pty) Ltd – Senior Environmental Scientist
01/2004 – 08/2006, *Windhoek, Namibia*
Simonis Storm Securities – Analyst
09/2002 – 12/2003, *Windhoek, Namibia*
University of Namibia – Lecturer
10/2000 – 06/2002, *Windhoek, Namibia*
Ministry of Fisheries and Marine Resources – Fisheries Biologist
01/1993 – 09/2000, *Swakopmund, Namibia*

Additional Skills

Oxford Climate Society, Oxford School of Climate Change: *Completion of the School of Climate Change* (2023 and 2022)
SHEilds Ltd., United Kingdom: *NEBOSH Certificate in Environmental Management* (2018)
NOSA, Windhoek, Namibia: *Applying SHE (Safety, Health, Environment) Principles and Procedures* (2012)
Centre for Environmental Management, Potchefstroom, South Africa: *Introduction to Integrated Waste Management for Environmental Managers* (2009)
Prospectors and Developers Association of Canada (PDAC*): From theory to practice: Corporate social responsibility and sustainable development in mineral exploration* (2007)
Crystal Clear, South Africa: *IEMA Approved Foundation Environmental Auditor* (2006)
Centre for Environmental Management, Potchefstroom, South Africa: *Implementing Environmental Management Systems (ISO 14001:2004)* (2005)
University of Stellenbosch Executive Development: *Project Management* (2004)

Publications

I have published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 209 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.