Environmental Management Plan (EMP) For:

THE PROPOSED ESTABLISHMENT AND OPERATION OF THE OTJIHEKE COPPER PROCESSING FACILITY LOCATED NEAR OPUWO, IN KUNENE REGION, NAMIBIA.

ECC Application Reference: APP- 007401

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2026

Table Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviation	Description
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EAP	Environmental Assessment Practitioner
I&APs	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MET	Ministry of Environment and Tourism
NCS	Namibian Correctional Service
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment

1. INTRODUCTION

1.1 Project Background

Helao World Energies CC (hereinafter “the Proponent”) proposes to establish and operate an integrated copper smelting facility and beneficiation. The Otjiheke Copper Processing Facility on a 299.852-hectare centered at coordinates -18.12997161°S, 13.90025509°E is located southeast of Opuwo in the Kunene Region, Namibia. The proposed project location is illustrated in **Figure 1.**

The project will utilize conventional open-pit mining methods to extract copper oxide ore, followed by crushing, screening, X-ray fluorescence (XRF) sorting, and side-blown smelting to produce copper matte and blister copper. This integrated value chain aligns with Namibia’s minerals beneficiation and value-addition policies, ESG priorities, and localization objectives.

Namibia lies within several globally significant copper mineralization belts, the Otavi, Matchless, and Kalahari belts which host substantial copper oxide resources well-suited to beneficiation and side-blown smelting. Despite this resource endowment, the majority of Namibia’s copper has historically been exported as raw or minimally processed material, limiting in-country value addition and economic benefit.

The Otjiheke Copper Processing Facility represents a transformative opportunity to process copper oxide resources locally, producing copper matte and blister copper for export and domestic use. The project is strategically positioned to capitalize on the projected structural supply deficit in global copper markets, driven by electrification, renewable energy, electric vehicles, and data centre expansion.

The initiative is driven by the need to promote local mineral beneficiation and value addition through the processing of copper-bearing ore into saleable copper products within Namibia, while supporting small-scale mining operations and enhancing regional economic development

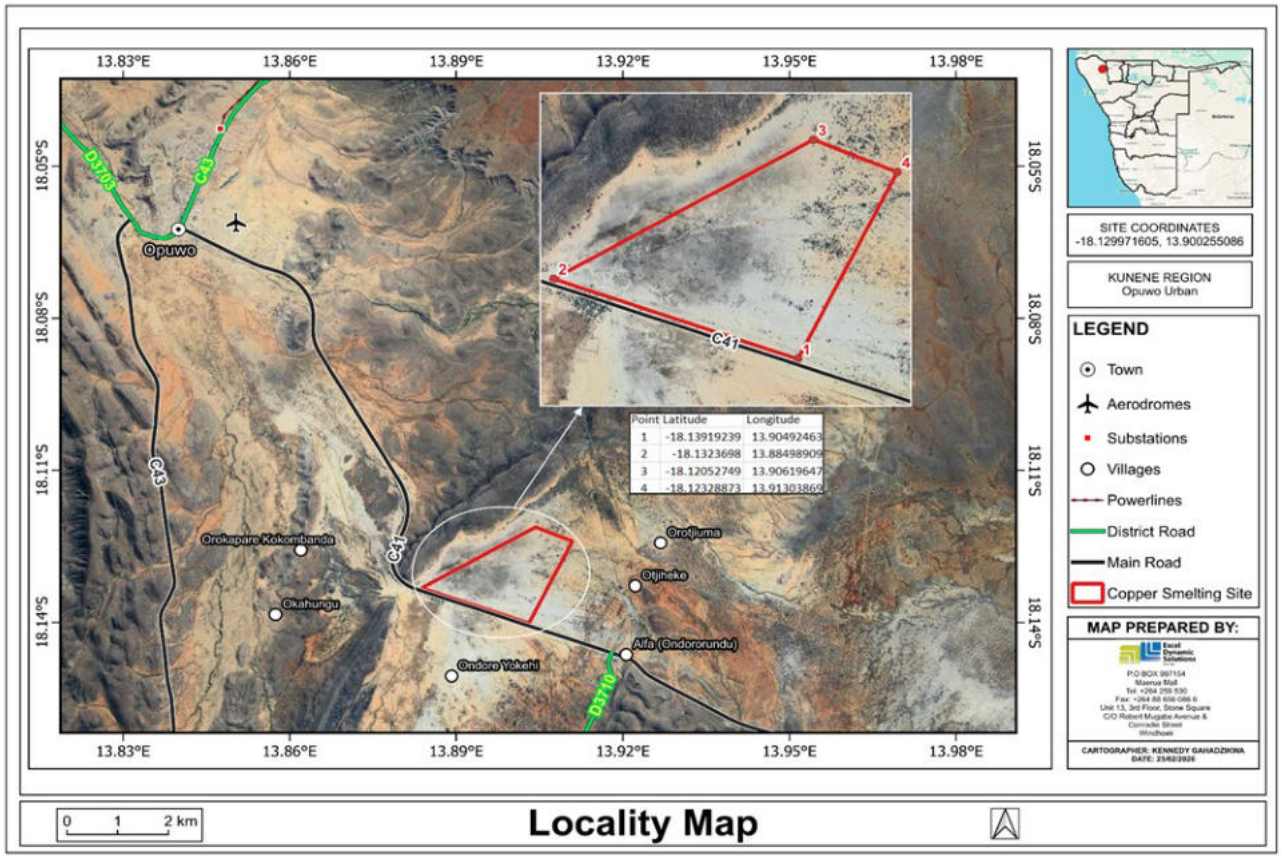

Figure 1: Locality map.

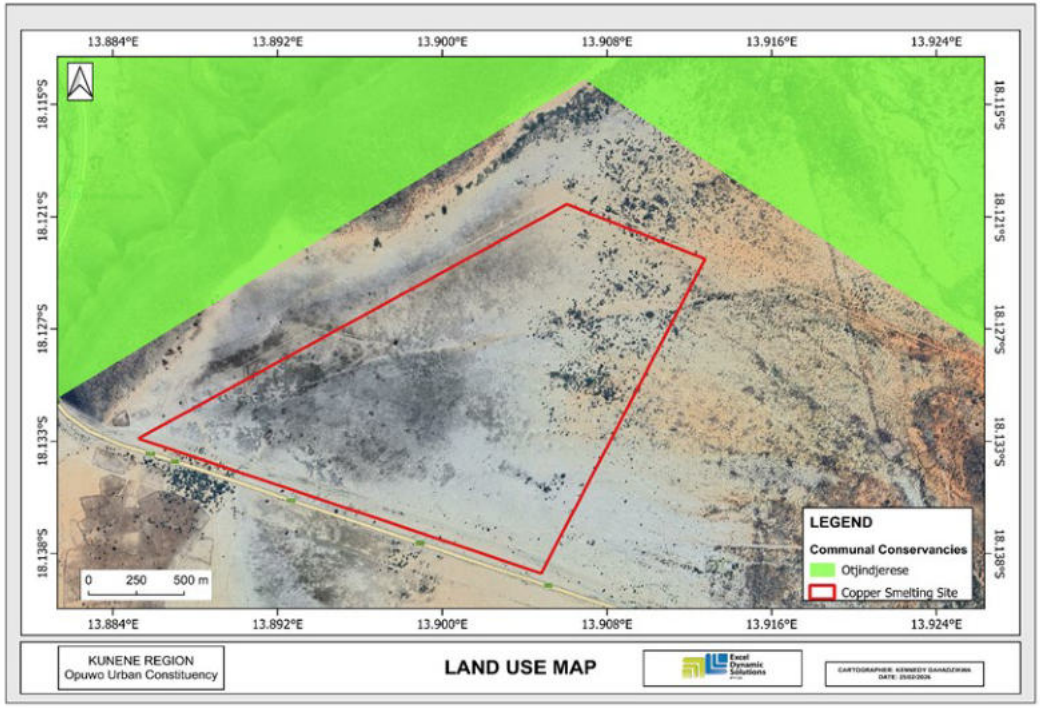

Figure 2: Land Use Map

The Environmental Management Act (Act No. 7 of 2007) (EMA) and its Environmental Impact Assessment Regulations of 2012 list activities that require an Environmental Clearance Certificate (ECC) prior to implementation. Land use and development activities, mineral processing operations, and the storage and handling of hazardous substances are among the listed activities requiring environmental authorization. The relevant listed activities applicable to the proposed Copper Processing Facility Project include:

LAND USE AND DEVELOPMENT ACTIVITIES

- Listed Activity 5.1: The construction of facilities and associated infrastructure.

MINING AND MINERAL PROCESSING ACTIVITIES

- Listed Activity: The processing, beneficiation, or treatment of mineral resources.
- Listed Activity: The storage, handling, and use of hazardous substances, including chemicals and fuels associated with processing operations.

This Environmental Management Plan (EMP) has been prepared as a legal requirement in terms of Section 8 of the Environmental Management Act (Act No. 7 of 2007). The compilation of this EMP is one of the outputs required of the Environmental Consultant by the Proponent.

In accordance with the EMA, the Environmental Consultant is required to:

- Prepare a detailed Environmental Management Plan to be used as a guideline to monitor compliance with the recommendations stipulated in the Environmental Scoping Assessment (ESA), and to assist in managing and monitoring activities throughout the proposed copper processing facility project.
- Clearly define and outline the roles and responsibilities of the Proponent, contractors, and any other identified stakeholders involved in the implementation of the EMP.

1.2 Aim of the Draft Environmental Management Plan (EMP)

Regulation 8(j) of the Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) be included as part of the Environmental Assessment (EA) process. A “Management Plan” is defined as:

"…a plan that describes how activities that may have significant environmental effects on the environment are to be mitigated, controlled and monitored."

An EMP is one of the most important outputs of the Environmental Assessment process. It synthesizes all proposed management, mitigation, and monitoring actions, assigns responsibilities, and aligns these actions with specific project phases. The EMP provides a direct link between the impacts identified during the EA process and the mitigation measures required to address those impacts.

It is important to note that the EMP is a statutory document, and any person who contravenes the provisions of this EMP may be subject to penalties, including fines and/or imprisonment, in accordance with the Environmental Management Act. This EMP is a living document and may be amended to accommodate project changes, operational requirements, environmental conditions, or feedback arising from compliance monitoring.

The purpose of this EMP is to guide environmental management throughout the different phases of the proposed Otjiheke Copper Processing Facility Project, namely:

- **Planning phase**: This is the stage during which the Proponent prepares all the administrative and technical requirements needed for the processing facility and site development. This planning phase will include securing land access permissions, finalising engineering designs, procuring processing equipment, and appointing construction and installation contractors.

- **Construction phase**: This is the phase during which the processing facility and associated infrastructure are installed, and the site is prepared through appointed contractor(s). This phase will entail limited site clearance, ground preparation, storage areas, upgrading of site access and fencing. The design of the processing units will take into consideration operational efficiency, safety standards, environmental containment, and suitability to local environmental conditions. All process areas will be located on lined and bunded surfaces to prevent soil and groundwater contamination.

- **Operational phase**: This is the stage at which the Proponent will commence with the intended use of the site as a copper processing facility. During this phase the project will utilize the extracted copper oxide ore, followed by crushing, screening, X-ray fluorescence (XRF) sorting, and side-blown smelting to produce copper matte and blister copper

- **Closure (Decommissioning):** This phase refers to the cessation of processing activities at the site and the eventual decommissioning of plant infrastructure, removal of equipment, safe disposal or rehabilitation of contaminated materials, and restoration of disturbed areas, should this occur in the future. Although closure is not anticipated in the foreseeable future due to the expected continued demand for mineral processing and beneficiation, provisions for responsible decommissioning and site rehabilitation are included in this EMP.

Environmental Monitoring Requirements

To ensure that the proposed mitigation measures are achieving the desired outcomes, environmental monitoring must be implemented alongside the mitigation measures. Monitoring will enable early identification of non-compliance, facilitate corrective actions, and ensure continued compliance with legal and environmental requirements.

This EMP is intended for use by the Proponent, employees, contractors, subcontractors, and service providers to guide environmental management during construction and operation, address impacts identified in the Environmental Scoping Assessment and ensure that impacts on the biophysical and social environment are avoided or minimized where avoidance is not feasible.

1.3 Appointed Environmental Assessment Practitioner

To fulfil the requirements of the Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations of 2012, the Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent environmental consultancy, to conduct the Environmental Assessment process on the Proponent’s behalf.

This draft Environmental Management Plan (EMP) has been prepared as part of the Environmental Clearance Certificate (ECC) application for the proposed establishment of the Processing Facility located near Opuwo in the Kunene Region. The EMP will be submitted to the Environmental Commissioner at the Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT), for consideration as part of the ECC application process

2. LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES

The content of this Environmental Management Plan (EMP) has been prepared in accordance with the requirements of Section 8(j) of the Environmental Impact Assessment (EIA) Regulations of 2012. The EMP addresses the potential environmental impacts of the proposed activities on the environment throughout the project life cycle and includes a system for assessing the effectiveness of monitoring and management arrangements following project implementation.

The Proponent therefore has the responsibility to ensure that the proposed Copper Processing Facility activities, as well as the Environmental Assessment (EA) process, conform to the principles of the Environmental Management Act (Act No. 7 of 2007). The Proponent must also ensure that all employees, contractors, subcontractors, and service providers act in accordance with these principles. The table below lists the applicable legal requirements and permits relevant to the proposed establishment and operation of the Project, as stipulated under Section 8(e) of the EIA Regulations, with particular reference to approvals and permits that may be required for the proposed activities.

Table 2: Applicable legal requirements and permits to the activities of the proposed Project

Legislation / Policy / Guideline	Relevant Provisions	Implications for this Project
Environmental Management Act (EMA) (No. 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles that must guide all EIAs and provides for environmental clearance certification.	The EMA and its Regulations guide the EA process for the proposed copper processing facility. Should an Environmental Clearance Certificate (ECC) be issued, it must be renewed every three (3) years from the date of issue. Compliance with ECC conditions is mandatory throughout the project lifecycle.

Legislation / Policy / Guideline	Relevant Provisions	Implications for this Project
Environmental Impact Assessment (EIA) Regulations GN 28–30 (GG 4878)	Details requirements for public consultation (GN 30 Section 21). Specifies content requirements for an Environmental Scoping Report (GN 30 Section 8) and Environmental Assessment Report (GN 30 Section 15).	The Proponent must comply with public consultation, reporting, and disclosure requirements as administered by the Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner.
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Regulates mineral extraction, processing, and beneficiation activities and provides for licensing and operational controls. Requires compliance with environmental protection and rehabilitation obligations.	The Proponent must ensure that all mineral processing and beneficiation activities are undertaken in accordance with applicable mineral rights, permits, and conditions issued by the Ministry of Mines and Energy (MME). Rehabilitation obligations must be implemented where land disturbance occurs.
Water Act (No. 54 of 1956): Ministry of Agriculture, Water and Land Reform (MAWLR)	Prohibits pollution of water resources and establishes a duty of care to prevent pollution (Section 3(k)). Provides for protection of groundwater resources (Section 66). Establishes liability for clean-up costs after abandonment of an activity (Section 3(l)).	The Proponent must ensure protection of groundwater and surface water resources during construction and operation of the processing facility. Appropriate permits must be obtained for borehole drilling, groundwater abstraction, and wastewater disposal where applicable.

Legislation / Policy / Guideline	Relevant Provisions	Implications for this Project
Water Resources Management Act (No. 11 of 2013): MAWLR	Ensures that water resources are managed, developed, used, conserved, and protected in accordance with Section 66. Provides for protection of aquifers and prevention of water pollution (Section 68).	The Proponent will be required to apply for and renew groundwater abstraction and water use permits, and where applicable, wastewater disposal permits, from the Directorate of Water Resources Management.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) prohibits possession or storage of fuel without authorisation, except where quantities do not exceed 600 litres outside a local authority area.	The Proponent must obtain the necessary authorisation from the Ministry of Mines and Energy (MME) for onsite storage of diesel and other fuels required for generators, machinery, and vehicles exceeding prescribed thresholds.
Pollution Control and Waste Management Bill / Draft Waste Management Legislation	Regulates the prevention, reduction, storage, transport, treatment, and disposal of hazardous and non-hazardous waste. Establishes responsibilities for waste generators.	The Proponent and contractors must ensure safe storage, handling, and disposal of general, hazardous, and chemical wastes generated during activities, including contaminated soils, process residues, and used reagents, in accordance with approved waste management practices.
Hazardous Substances Ordinance (No. 14 of 1974)	Provides for control of toxic and hazardous substances, including manufacture, storage, use, and disposal.	The Proponent must ensure that all hazardous chemicals used in the process, including acids, reagents, fuels, and lubricants, are stored, handled, and transported safely to prevent risks to human health and the environment.

Legislation / Policy / Guideline	Relevant Provisions	Implications for this Project
Labour Act (No. 11 of 2007) and Health and Safety Regulations GN 156/1997	Provides for occupational health and safety standards, protection of employees, and safe working environments.	The Proponent must ensure that construction and operational activities do not compromise worker safety. Personal Protective Equipment (PPE), training, and emergency preparedness measures must be implemented.
Road Traffic and Transport Act (No. 22 of 1999)	Regulates the use of public roads, vehicle licensing, and transport of goods.	The Proponent must ensure that transport of ore, materials, chemicals, and equipment complies with road safety and transport regulations and that access roads are maintained in a safe condition.
National Heritage Act (No. 27 of 2004)	Provides for protection and conservation of archaeological, historical, and cultural heritage resources. Requires reporting of chance finds.	Should archaeological materials (e.g., artefacts, bones, graves) be discovered during construction or earthworks, work must cease immediately and the National Heritage Council of Namibia must be notified for further instruction.

2.1 EMP Limitations

This Environmental Management Plan has been drafted with the acknowledgement of the following limitations:

- This EMP has been developed based on the Environmental Assessment conducted for the proposed establishment of the Otjiheke Copper Processing Facility located near Opuwo in the Kunene Region.

- The mitigation measures recommended in this EMP are based on the risks and impacts identified in the Environmental Scoping Assessment, the project description provided by the Proponent, site investigations, and public consultation inputs. Should the scope, design, processing capacity, or operational activities of the proposed project change, the identified risks and impacts will require reassessment, and the EMP may need to be updated accordingly.

3. EMP IMPLEMENTATION, ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of this Environmental Management Plan (EMP). However, the Proponent may delegate this responsibility at any stage of the project, as deemed necessary during the various project phases. The roles and responsibilities of all parties involved in the effective implementation of this EMP are outlined in **Table 3** below.

Table 3: Persons and institutions responsible for the implementation of the Draft EMP

Role (Person/Institution)	Responsibilities
Proponent (Helao World Energies CC)	- Overall responsibility for EMP implementation. - Ensure that adequate resources (financial, human, and technical) are allocated for environmental management. - Oversee compliance with the Environmental Management Act (2007), Public and Environmental Health Act (2015), and other relevant legislation. - Approve and update the EMP annually or as required. - Enforce compliance by contractors and operators, including application of corrective actions for non-compliance.
Project / Operations Manager	- Coordinate day-to-day project implementation during planning, construction, and operation phases. - Ensure that mitigation measures outlined in the EMP are implemented effectively. - Maintain records of environmental incidents, inspections, and corrective actions. - Ensure that all staff and contractors receive environmental, health, and safety induction training. - Liaise with the Environmental Control Officer (ECO) and ensure timely reporting.
Environmental Control Officer (ECO) / Safety, Health and Environment (SHE) Officer	- Act as the designated authority for EMP compliance. - Conduct routine site inspections and audits to ensure adherence to EMP provisions. - Monitor environmental performance indicators (e.g., waste management, dust control, water use, site rehabilitation). - Provide environmental awareness training and guidance to staff and contractors. - Report non-compliance to the Proponent and recommend corrective measures.

Role (Person/Institution)	Responsibilities
	- Undertake periodic reviews of the EMP and recommend updates where necessary.
Public Relations Officer (PRO)	- Act as a liaison between the Proponent, affected communities, and stakeholders. - Ensure transparent communication with local communities, traditional authorities, and other stakeholders. - Address community grievances in accordance with an established grievance redress mechanism. - Facilitate stakeholder engagement meetings and prepare reports on community relations.
Contractors and Subcontractors	- Comply with all provisions of the EMP during construction and associated activities. - Ensure that workers are trained in safety, health, and environmental (SHE) requirements. - Implement mitigation measures to minimise dust, noise, waste generation, and other environmental impacts. - Ensure safe storage and handling of hazardous substances and fuels. - Report environmental incidents, accidents, and near-misses to the Project Manager and ECO.
Workers and Operators	- Comply with site rules, safety procedures, and EMP requirements. - Report environmental hazards or incidents immediately to supervisors. - Follow waste segregation and handling procedures. - Exercise caution during daily activities to prevent spills, damage to infrastructure, or unsafe practices.

Role (Person/Institution)	Responsibilities
Archaeology: Chance Finds Procedure (CFP)	- Operator: Exercise caution during ground disturbance works and immediately stop work if archaeological remains are encountered. - Site Manager / ECO: Secure the site and notify project management and relevant authorities. - Archaeologist: Inspect the find, assess its significance, and provide recommendations for protection, recovery, or preservation in accordance with the National Heritage Act (No. 27 of 2004).

4. ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES

4.1 Management of Key Potential Adverse Environmental Impacts

The Environmental Scoping Assessment (ESA) conducted for the proposed Copper Processing Facility identified several potential adverse environmental and social impacts across the project life cycle. These include disturbance of land during site clearing and construction activities; physical soil disturbance and erosion; and localized loss of vegetation cover. If not effectively managed, construction activities and the establishment of access routes, processing areas, and infrastructure may result in unnecessary land degradation and increased pressure on surrounding areas.

Infrastructure development and mineral processing operations associated with the copper processing

facility pose potential risks to soil and water quality, particularly through accidental fuel or chemical spills, improper storage of hazardous substances and processing reagents, and inadequate management of wastewater and solid waste generated during construction and operation. Air quality may be negatively affected by dust emissions from earthworks, vehicle movements, and ore handling activities, while noise and vibrations from construction machinery and plant equipment may disturb surrounding land users.

Occupational health and safety hazards are significant throughout the project, as workers may be exposed to construction-related risks, heavy machinery, chemical reagents, fuel storage areas,

and unsafe working conditions if controls are not enforced. Increased vehicular traffic may pose safety risks and exert pressure on local access roads. There is also a possibility of disturbing archaeological or cultural heritage resources during excavation activities. Social nuisance impacts, including community expectations, job-seeking pressures, and conflicts, may arise if stakeholder engagement is not effectively managed.

4.2 Aim of the Environmental Management Plan Actions

The central aim of the Environmental Management Plan (EMP) actions for the Copper Processing Facility is to avoid, minimise, and manage adverse environmental and social impacts while enhancing positive socio-economic benefits. Wherever possible, impacts should be avoided through appropriate planning and design. Where avoidance is not possible, mitigation measures will be implemented to reduce the scale, intensity, or duration of impacts to acceptable levels, in line with the Environmental Management Act (EMA) of 2007 and relevant regulations.

The EMP actions are designed to address the specific environmental and social conditions of the project area and aim to:

- Safeguard the health and safety of workers and surrounding communities.
- Protect soils and water resources from pollution and degradation.
- Minimise dust, noise, and other nuisance impacts during construction and operation.
- Prevent unnecessary vegetation clearance and rehabilitate disturbed areas.
- Promote responsible waste management, chemical handling, and efficient resource use.
- Ensure compliance with legal, institutional, and best practice requirements.

The EMP measures are structured according to the planning and construction phase, the operational and monitoring phase, and the decommissioning and rehabilitation phase.

4.3 Planning and Construction Phase Management Action Plans (Mitigation Plan)

During the planning and construction phase of the proposed project, management action plans focus on minimising land disturbance, preventing pollution, and ensuring compliance with environmental best practice.

Key measures include:

- Clearly demarcating the construction footprint to prevent unnecessary land disturbance.

- Implementing erosion control and stormwater management measures.
- Applying dust suppression measures and restricting vehicle speeds.
- Establishing proper waste storage, segregation, and disposal systems.
- Providing workers with induction training and appropriate personal protective equipment (PPE).
- Implementing occupational health and safety procedures.
- Managing traffic movements and access routes safely.
- Maintaining communication with relevant authorities and surrounding stakeholders.

The management action plans recommended for this phase are presented in **Table 3**

Table 4: Environmental management and mitigation measures for the Planning and Construction Phases.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
EMP implementation and training	Lack of EMP awareness	- Compile a comprehensive Health, Safety and Environmental (HSE) Plan. - Appoint a SHE/ECO Officer. - Conduct EMP induction and training. - Enforce non-compliance procedures.	- HSE Plan approved. - SHE/ECO appointed. - Training records available.	Proponent; ECO	Pre-construction
Site planning and layout	Unnecessary land disturbance	- Clearly demarcate construction footprint, including plant area, leach pads, and storage zones. - Restrict access to designated areas only.	- Footprint demarcated. - No disturbance outside footprint.	Proponent; Contractor	Pre-construction
Soil disturbance	Erosion and degradation	- Implement erosion control measures. - Stabilise exposed soils. - Rehabilitate disturbed areas.	- No visible erosion. - Rehabilitation implemented.	Contractor; ECO	Construction

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Dust generation	Air quality nuisance	- Water spraying during earthworks and ore handling. - Speed limits enforced. - Dust masks provided when required.	- Reduced dust complaints. - Dust control records.	Contractor	Construction
Waste management	Pollution	- Provide waste bins for hazardous and general waste. - Dispose waste at licensed facilities. - Prohibit burning or burying of waste.	- Waste records maintained. - Clean site conditions.	Contractor; Proponent	Construction
Health and safety	Injury or accidents	- Provide PPE. - Enforce safety procedures. - Implement site-specific H&S Plan.	- PPE usage records. - No major incidents.	Contractor; SHE Officer	Construction
Traffic management	Road safety risks	- Implement traffic management plan. - Restrict delivery times. - Enforce speed limits.	- No traffic incidents. - Vehicle records maintained.	Contractor	Construction

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Employment opportunities	Social conflict	- Prioritise local labour. - Transparent recruitment process.	- Local employment records. - No labour disputes.	Proponent; Contractor	Construction

4.4 Monitoring Action Plans (Monitoring Plan)

Monitoring is essential to ensure that mitigation measures are effective throughout construction, operation, and maintenance phases. The monitoring measures are presented in **Table 5** below.

Table 5: Environmental management and mitigation measures for Construction, Operational, and Maintenance Phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
EMP compliance	Non-compliance	- Conduct regular inspections and audits. - Maintain ECC validity.	- Audit reports available. - ECC valid.	ECO; Site Manager

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
Infrastructure condition	Deterioration	- Routine inspections of processing plant, leach pads, containment areas, and storage facilities. - Maintenance logbooks kept.	- Maintenance records.	Site Manager
Waste management	Pollution	- Waste segregation. - Weekly disposal to licensed facilities.	- Disposal records available.	Site Manager
Health and safety	Injury risk	- PPE provided and used. - Safety audits conducted.	- PPE records. - Audit reports.	SHE Officer
Noise	Nuisance	- Restrict working hours where feasible. - Maintain equipment.	- Reduced complaints.	Site Manager
Biodiversity	Habitat disturbance	- Restrict clearing to approved areas. - Prohibit hunting or harvesting.	- No reported disturbances.	ECO
Heritage resources	Damage	- Implement Chance Finds Procedure. - Report findings to authorities.	- Heritage reports submitted.	ECO; Site Manager

4.5 Monitoring Action Plans

To ensure mitigation effectiveness, a monitoring plan shall be implemented as outlined in **Table 6** below.

Table 6: Monitoring Action Plan

Environmental Feature	Impact	Monitoring Actions	Responsibility	Frequency	Threshold	Action if Threshold is Exceeded
Soil stability	Erosion	Visual inspections	ECO	Monthly	Visible erosion	Immediate rehabilitation
Waste	Pollution	Site inspections	Site Manager	Weekly	Improper disposal	Clean-up and retraining
Air quality	Dust	Visual monitoring	ECO	Weekly	Dust complaints	Apply dust suppression
Health & safety	Injury	Safety inspections	SHE Officer	Daily	Incident reported	Corrective action
Traffic	Safety risk	Vehicle checks	Site Manager	Weekly	Unsafe driving	Retraining and enforcement

4.6 Decommissioning and Rehabilitation

Successful rehabilitation requires careful consideration of the local ecological context in combination with the rehabilitation goals of the proposed Copper Processing Facility. The most important steps in undertaking a successful rehabilitation process are proper planning and environmental awareness (environmental education), particularly on the importance of progressive rehabilitation (or post-activity rehabilitation) and its long-term benefits to the environment.

Furthermore, the successful implementation of the planned rehabilitation measures will depend on several factors, including the rehabilitation programme, site-specific characteristics, the nature and extent of disturbance, rehabilitation methods employed, and the availability of financial and technical resources.

Table 7: Environmental Management and Mitigation Measures for the Decommissioning Phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Site infrastructure	Abandoned plant and infrastructure posing safety risks	- Dismantle and remove all redundant processing plant infrastructure, including modular units, leach pads, tanks, storage facilities, pipelines, fencing, utilities, and auxiliary structures. - Salvage reusable materials for other projects where feasible. - Transport non-reusable materials to licensed disposal facilities.	- Decommissioning records maintained. - No abandoned structures remaining on site. - Waste transfer receipts available.	Proponent; Site Manager	Immediately upon closure

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Soils	Soil contamination from process residues or fuel and chemical spills	- Remove all contaminated soils and processing residues. - Conduct a soil contamination assessment by a qualified soil scientist where spills occurred. - Implement remediation measures (excavation, stabilization, or bioremediation) if contamination is detected.	- Soil assessment reports filed. - Remediation actions documented. - No visible contamination.	Proponent; Soil Scientist	During closure
Water resources	Risk of groundwater contamination	- Remove all fuels, oils, chemicals, reagents, and wastewater storage systems from site. - Inspect and rehabilitate areas used for chemical and fuel storage or processing activities. - Monitor nearby boreholes (if applicable) during closure activities.	- Monitoring reports available. - No contamination detected.	Proponent; SHE Officer; MAWLR (oversight)	Closure period

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Public safety	Hazards from abandoned excavations and structures	- Secure the site until all decommissioning and rehabilitation works are completed. - Backfill and compact all excavated areas, foundations, and containment structures. - Maintain fencing and warning signage until the site is safe for alternative use.	- Excavations rehabilitated. - Site secured during closure. - No unauthorized access incidents.	Proponent; Site Manager	Closure phase
Air quality	Dust and nuisance during demolition works	- Wet exposed surfaces during demolition and backfilling to suppress dust. - Cover vehicles transporting demolition waste. - Schedule demolition works to minimize nuisance.	- Reduced dust levels. - No dust complaints recorded.	Site Manager; Contractor	Closure phase
Biodiversity	Loss of vegetation and habitat	- Rehabilitate disturbed areas using indigenous vegetation consistent with surrounding	- Rehabilitation plan implemented. - Vegetation	Proponent; SHE Officer; Forestry Dept. (advisory)	Closure + 3 years

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		ecosystems. - Avoid introduction of alien invasive species. - Monitor vegetation regrowth for a minimum of 3 years post-closure.	monitoring reports available. - Evidence of indigenous regrowth.		
Archaeology and heritage	Accidental disturbance during rehabilitation	- Apply the Chance Finds Procedure during decommissioning and rehabilitation works. - Halt works immediately if artefacts are discovered and notify the National Heritage Council of Namibia.	- Heritage resources preserved. - Compliance reports submitted.	Site Manager; ECO	During closure works
Waste management	Pollution from demolition and rehabilitation waste	- Segregate waste streams (scrap metal, concrete rubble, plastics, hazardous materials, and contaminated residues). - Recycle materials where feasible.	- Waste register maintained. - Disposal and recycling records available.	Proponent; Site Manager	Throughout closure

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		- Dispose of remaining waste at licensed facilities.			
Health and safety	Worker and public safety risks	- Provide PPE to all workers involved in decommissioning activities. - Conduct safety induction prior to closure works. - Maintain fire-fighting and first-aid equipment on site.	- No recorded accidents. - Training records available. - PPE usage verified.	SHE Officer; Contractor	Closure period

Site Specific Rehabilitation Plan

To ensure that all disturbed areas are adequately rehabilitated and environmental risks minimized following the closure of the Processing Facility, the Proponent shall implement the following measures:

- Utilize stockpiled topsoil and suitable subsoil material to backfill and level all excavated areas, foundations, containment zones, and disturbed surfaces, ensuring long-term stability and erosion control.
- Make adequate financial provision to fund the full post-closure rehabilitation programme, including soil and groundwater remediation, vegetation restoration, and post-rehabilitation monitoring.
- Dismantle and remove all processing facility structures, including modular plant units, leach pads, cementation tanks, pipelines, storage areas, utilities, fencing, and auxiliary infrastructure, and transport demolition waste to approved disposal facilities.
- Safely remove all hazardous substances, fuels, lubricants, reagents, and process chemicals from the site and dispose of them at licensed facilities.
- Remove all accumulated solid, hazardous, and general waste, including processing residues and contaminated materials, prior to final site closure.
- Rehabilitate the site using indigenous vegetation compatible with the surrounding environment to restore ecological integrity and prevent erosion.
- Withdraw all vehicles, machinery, processing equipment, and temporary infrastructure from the site and relocate them to approved off-site facilities.
- Restore the site to a safe, stable, and environmentally acceptable condition, free from pollution, chemical contamination, hazards, and abandoned infrastructure, making it suitable for alternative future land uses.

5. CLOSURE MEASURES FOR THE PROCESSING PLANT, LEACH PADS AND CONTAINMENT AREAS

The closure phase of the Copper Processing Facility will require systematic decommissioning to ensure that no environmental or social hazards remain after operations have ceased. If closure is not properly managed, residual plant infrastructure, foundations, storage areas, processing pads, and disturbed land surfaces may pose risks such as soil and groundwater contamination, unsafe public access, illegal dumping, and long-term land degradation, as has been observed at abandoned industrial and processing facilities elsewhere in Namibia (Spellman, 2014; Dunamis Consulting Engineers, 2020).

The objectives of the closure plan are therefore to:

- Restore the site to a safe and environmentally stable condition.
- Ensure that infrastructure and materials are either reused, recycled, or disposed of responsibly.
- Return the land to a productive or compatible future use where possible (e.g. light industrial, community, or open land use).
- Prevent long-term contamination of soil and water resources.

The key closure measures are outlined in Table 7 below.

Table 8: Closure phase management and mitigation measures

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Site and Fencing	- Maintain fencing to secure the site until all decommissioning activities are complete. - Once decommissioning is finished, dismantle fencing or repurpose it for alternative industrial or community projects if the land is reassigned. - Ensure site access is controlled to prevent illegal dumping or unsafe entry during closure.	- Site secured until closure is complete. - Fencing dismantled or repurposed appropriately. - No evidence of illegal access or dumping.	Proponent (Veld Metals)	Upon cessation of processing operations
Infrastructure and Structures	- Dismantle and remove infrastructure (processing units, leach pads, cementation	- Structures reused where possible. - Waste materials transported to	Proponent SHE Officer / ECO	At the end of site operations

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	tanks, storage facilities, pipelines, utilities, and auxiliary structures) that are no longer required. - Reuse salvageable materials within other operations where feasible. - Dispose of non-reusable materials at licensed disposal facilities. - Transport all equipment to designated off-site storage facilities.	approved disposal sites. - Equipment accounted for and relocated.		
Waste Management	- Collect and transport all remaining solid and hazardous waste to approved facilities. - Remove and dispose of residual fuels, oils, chemicals,	- Waste properly segregated and disposed of. - Hazardous materials safely removed and documented.	Proponent SHE Officer / ECO	End of operations and decommissioning

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	reagents, and maintenance materials in line with environmental health requirements. - Ensure no waste is left unattended on site.			
Access Roads	- Close and rehabilitate temporary access roads created for construction or operations that are no longer required. - Re-vegetate disturbed surfaces using indigenous species where feasible.	- Access roads decommissioned and blocked off. - Disturbed land stabilized and rehabilitated.	Proponent Contractor (during closure)	After cessation of activities
Processing Areas and Foundations	- Decommission processing areas, containment pads, and foundations by levelling and stabilizing	- Processing areas rehabilitated. - No unsafe structures remain.	Proponent SHE Officer / ECO	During decommissioning phase

Aspect	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	surfaces. - Remove concrete slabs, liners, or foundations where necessary. - Rehabilitate the area for future approved land use.	- Site suitable for future use.		

6. ENVIRONMENTAL MONITORING

6.1 Purpose of Environmental Monitoring

Environmental monitoring is a critical component of the Environmental Management Plan (EMP), ensuring that mitigation measures are effectively implemented and that potential environmental and social impacts are detected early. Monitoring provides the data required to evaluate compliance with Namibian legislation, including the Environmental Management Act (No. 7 of 2007), the Public and Environmental Health Act (2015), the Labour Act (No. 11 of 2007), the Minerals (Prospecting and Mining) Act, and other applicable environmental and occupational health and safety standards.

For the Copper Processing Facility, environmental monitoring will be conducted throughout the construction, operational, and decommissioning phases. The objectives of monitoring are to:

- Ensure compliance with environmental clearance conditions and EMP requirements.
- Track the effectiveness of mitigation measures.
- Safeguard worker health, operator safety, and surrounding community well-being.
- Detect environmental changes (soil, water, air quality, and biodiversity) associated with project activities.
- Provide transparency, accountability, and early warning to the Proponent and regulatory authorities.

6.2 Monitoring Approach

Monitoring will be both initiative-taking (through routine inspections, audits, and measurements) and reactive (through responses to incidents, complaints, or non-compliance reports). Monitoring data will be compiled into regular monitoring reports and submitted to the Ministry of Environment, Forestry and Tourism (MEFT) and other relevant authorities where required.

The Environmental Control Officer (ECO) or Safety, Health and Environment (SHE) Officer will be responsible for day-to-day monitoring, supported by contractors, facility management, and external specialists where specialist assessments or laboratory testing are required. Monitoring results will be recorded in a centralized environmental monitoring register and used to inform corrective and adaptive management actions.

6.3 Monitoring Plan

The monitoring plan addresses potential impacts identified in the Environmental Scoping Assessment (ESA) and the EMP for the Copper Processing Facility. Key focus areas include:

- Soil disturbance and land degradation (erosion, contamination).
- Water use and water quality (boreholes, process water, runoff).
- Air quality (dust generation).
- Biodiversity and vegetation disturbance.
- Occupational health and safety performance.
- Waste and hazardous substance management practices.
- Community relations and grievance management.
- Protection of cultural and heritage resources (chance finds).

The key monitoring measures are outlined in Table 8 below.

Table 9: Environmental Monitoring Plan

Aspect	Monitoring Parameter(s)	Indicator / KPI	Frequency	Responsibility
Soil and Land Disturbance	- Visual inspection of erosion, compaction, and disturbed areas. - Evidence of fuel, oil, or chemical spills.	- No visible erosion beyond site boundaries. - Spillages cleaned up immediately. - Disturbed areas stabilized or rehabilitated.	Monthly (construction & operation). After heavy rainfall events.	ECO / Contractor
Water Resources	- Borehole abstraction volumes (if applicable). - Signs of contamination or runoff pollution.	- Water use within permitted limits. - No contamination of groundwater or surface runoff.	Quarterly (operation).	ECO / Site Management

Aspect	Monitoring Parameter(s)	Indicator / KPI	Frequency	Responsibility
Air Quality (Dust)	- Dust generation from earthworks, ore handling, and vehicle movement.	- Dust suppression measures applied. - Minimal dust complaints.	Weekly (construction). Monthly (operation).	Contractor / ECO
Noise	- Noise levels from construction activities and processing plant operations.	- Noise limited to daytime hours. - No sustained community complaints.	Weekly during construction.	Contractor / ECO
Biodiversity (Flora & Fauna)	- Vegetation clearing extent. - Evidence of illegal harvesting or wildlife disturbance.	- Clearing limited to approved footprint. - No poaching or illegal harvesting incidents.	Quarterly (construction & operation).	ECO / Forestry authority (if required)
Health & Safety	- PPE compliance. - Incident and accident records. - Toolbox talks and safety inductions.	- 100% PPE compliance. - Zero fatalities. - Incident register maintained.	Daily supervision; Monthly review.	SHE Officer / Contractor
Waste Management	- Waste segregation and storage. - Disposal records	- Waste disposed at approved sites. - Hazardous	Weekly inspections.	Contractor / ECO

Aspect	Monitoring Parameter(s)	Indicator / KPI	Frequency	Responsibility
	for general and hazardous waste.	waste stored securely. - Records available.		
Community Relations	- Complaints and grievance register. - Stakeholder engagement records.	- Complaints resolved within agreed timeframes. - Engagement records maintained.	Quarterly (operation).	PRO / Site Management
Cultural Heritage (Chance Finds)	- Monitoring during excavation activities. - Implementation of Chance Finds Procedure if required.	- Chance finds procedure followed. - Finds reported to National Heritage Council.	As required.	Contractor / ECO / Archaeologist

6.4 Reporting Requirements

Environmental monitoring results shall be recorded and documented in a systematic manner. Records shall include inspection checklists, monitoring logs, waste manifests, incident reports, and complaints registers.

Any significant environmental incidents, non-compliance events, or complaints shall be reported to the Proponent immediately and addressed in accordance with the corrective action procedures outlined in this EMP. Where required, incidents shall also be reported to the relevant authorities in line with permit or legal requirements.

6.5 Review and Adaptive Management

This Environmental Monitoring Plan is a dynamic tool and may be reviewed and updated if monitoring results indicate that mitigation measures are not effective or if new risks emerge during project implementation. Any amendments to the monitoring plan shall be undertaken in consultation with the Proponent and, where necessary, the relevant competent authority. Environmental monitoring is a critical component of the EMP and ensures that environmental management commitments are translated into measurable actions. The monitoring measures outlined in this section provide a structured approach for verifying compliance, managing risks, and supporting responsible implementation of the proposed Copper Processing Facility.

APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

Areas of proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The "*chance finds*" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): "*a person who discovers any archaeological …. Object ……must as soon as practicable report the discovery to the Council*". The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Manager/Supervisor must report the finding to the following competent authorities:

- National Heritage Council of Namibia (061 244 375 / Technical Office +264 61 301 903)
- National Museum (061 276800),
- National Forensic Laboratory (061 240461).

Archaeological material must NOT be touched. Tempering with the materials is an offence under the heritage act and punishable upon conviction by the law.

Responsibility:

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advice management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

a) If operating machinery or equipment stop work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

a) Report findings, site location and actions taken to superintendent

b) Cease any works in immediate vicinity

Action by superintendent

a) Visit site and determine whether work can proceed without damage to findings

b) Determine and mark exclusion boundary

c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.