



PROJECT DETAILS

Title	ENVIRONMENTAL MANAGEMENT PLAN FOR THE ESTABLISHMENT AND MINING OF BASE AND RARE METALS ON MINING CLAIM; 72530, 72531 AND 72531 AT OUNDOMBO VILLAGE, OPUWO RURAL CONSTITUENCY, KUNENE REGION.		
APP Number	APP- 221121000386		
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Report date	June 2022 Resubmitted 02/02/2023		
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ABBREVIATIONS

AIDS	Acquired Immuno-Deficiency Syndrome
PR	Proponent's Representative
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
HIV	Human Immuno-deficiency Virus
I&APs	Interested and Affected Parties
NHC	National Heritage Council
Reg.	Regulation
S	Section
TB	Tuberculosis

1 INTRODUCTION

Ms. Karimunika Wendy Matundu, hereafter referred to as the proponent intend to undertake mining activities for base and rare metals on mining claims; 72530, 72531 and 72532. The proponent is a holder of an application for the mining claims; 72530, 72531 and 72532 which was lodged on the 02/09/2021 with the Ministry of Mine and Energy (MME) after following all the necessary procedures to satisfy the relevant Authorities enabling him to mine base and rare metals from the allocated portions. The proponent has secured both financial and technical partners to carry out the proposed small-scale; base and rare metals mining activities. The proposed project is a listed activity as per the Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) and an Environmental Clearance Certificate (ECC) is therefore, required to commission such a project. Healthy Earth Environmental Consultants (HEEC) has been appointed by **Ms. Karimunika Wendy Matundu** to carry out an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the proposed mining project at Oundombo Village within the Opuwo rural constituency in Kunene Region.

The demand for copper is anticipated to outpace the supply in the near future. The global steep rise in the demand for copper is forecasted to escalate because copper is a metal used for electrification. Copper has been used for many decades in electric wiring for domestic and industrial purposes in electric circuits, power generation, transmission and electrical equipment. The fact that copper is conductive, thermal resistant, strong and fairly cheap to produce has made it the most preferred choice for most if not all electrical wirings. The global approach of shifting away from fossil fuel to renewable energy is contributing enormously to the demand for copper because mostly copper is widely used in solar energy and power grids which transmit power. The significant increase in the Electric Vehicle (EV) market has also exacerbated the demand for copper in the global market. The conductivity of copper has made suitable and essential in the healthcare sector particularly its use in the medical equipment. The demand for copper in the global market and its wide utilization in key sectors of the economy which prompted **Ms. Karimunika Wendy Matundu** to explore for areas with

high copper mineralisation and ultimately venturing into mining of this essential commodity. Therefore, it is against this background that the proponent has appointed Healthy Earth Environmental Consultants (HEEC) to undertake an Environmental Impact Assessment (EIA) and formulate an Environmental Management Plan (EMP) for the envisaged project in order to assess the potential social and environmental impacts associated with the establishment and mining of base and rare metals and also to provide methods of rehabilitation once the available mineral resources are depleted to an uneconomically viable levels which will result in the operation of the mine to ceases. **Ms. Karimunika Wendy Matundu**, hereinafter referred to as the proponent intends to carry out the following activity:

- **Environmental Impact Assessment (EIA) for the establishment and mining of base and rare metals on mining claim; 72530, 72531 and 72532 at Oundombo Village, Opuwo Rural Constituency, Kunene Region.**

The objective of the intended Environmental Assessment is consequently required in order to evaluate the potential social and environmental impacts associated with the establishment and mining of copper ore on mining claim; 72530, 72531 and 72532, Opuwo Rural Constituency, Kunene Region and also to formulate methods of rehabilitation of the open quarry pits at the claims.

The above is a listed activity in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed project:

Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed project

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 3.1 (Mining and Quarrying Activities)	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.	The proposed project includes the mining of copper ore for commercial purposes.
Activity 3.2 (Mining and Quarrying Activities)	Other forms of mining or extraction of any natural resources whether regulated by law or not.	The proposed project entails the extraction of copper ore for commercial purposes.
Activity 3.3 (Mining and Quarrying Activities)	Resource extraction, manipulation, conservation and related activities.	The proposed project entails the extraction of copper ore for commercial purposes.

An Environmental Management Plan (EMP) is one of the most integral outputs of the EA process as it outlines all of the mitigation and monitoring actions and further set timeline and with specific allotted responsibilities. This EMP details the mitigation and monitoring actions to be applied during the following phases of the establishment and mining of copper ore:

- Copper ore mining Phase – the period during which the proponent, having dealt with the necessary legislative and administrative arrangements, appoints a contractor to engage in the extraction of copper ore from the site and then transported to the Walvis Bay Port for export purposes;

- Transportation Phase - the period during which the proponent transports the Copper ore from the site to Walvis Bay port for export.
- Dressing Phase - the period during which the proponent processes the mined copper-ore into copper concentrates, further processing will be done in China and hence is not in the scope of this EMP.

The rehabilitation of the quarries where the copper-ore has been mined as soon as mining operation have stopped is highly suggested so, to ensure that the subject area assumes economically viable alternative land uses and not pose a drowning threat/injury to the livestock and local people can make use of these lands; when the event occurs then some recommendations have been outlined in **Table 4**.

2 ROLES AND RESPONSIBILITIES

The proponent (Ms. Karimunika Wendy Matundu) is ultimately responsible for the implementation of the EMP during the mining phase until the rehabilitation phase of the mining claims; 72530, 72531 and 72532 at Oundombo Village, within the Kunene region. The proponent will delegate this responsibility as the project advances through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Proponent's Representative;
- Environmental Control Officer; and
- Proponent (Ms. Karimunika Wendy Matundu).

2.1 PROPONENT'S REPRESENTATIVE

Ms. Karimunika Wendy Matundu, the proponent; should assign the responsibility of managing all aspects of this development from the initial phases which range from inception (including all contracts work outsourced) to a designated staff member, referred to in this EMP as the Proponent's Representative (PR). The proponent may decide to allot these roles to one person for the entire operational period of these developments, or may allocate a different PR to each of the development phases – i.e. one for the copper-ore mining & one for the rehabilitation phases of the pits. The PR's responsibilities are as follows:

Responsibility	Project Phase
Making sure that the necessary approvals and permissions laid out in Table 2 are obtained/adhered to	Throughout the lifecycle of this project
Appending/removing individuals and/or equipment not complying with the EMP	<ul style="list-style-type: none"> • Copper-ore mining • Transportation of Copper - ore • Pit rehabilitations
Issuing fines for contravening EMP provisions	<ul style="list-style-type: none"> • Copper - ore mining • Transportation of Copper - ore • Pit rehabilitation.

2.2 ENVIRONMENTAL CONTROL OFFICER

The PR should allocate the responsibility of overseeing the execution of the entire EMP on the ground during the mining phase and pit rehabilitation phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The PR or/and Ms. Karimunika Wendy Matundu may resolve to allocate this role to one person for all three activities, or may assign a different ECO for each task. The ECO will have the following responsibilities during the mining, operation and rehabilitation phases of these project:

- Management and facilitation of communication between the Proponent, PR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Carrying out regular inspections (recommended minimum frequency is once every six months) with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Supporting the Contractor in finding solutions with respect to matters concerning the implementation of this EMP;
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

2.3 COPPER ORE MINING & PITS REHABILITATION

A contractor, in this case being the proponent, carry out mining and rehabilitation of pits at the mining claim; 72530, 72531 and 72532 at Oundombo Village in Kunene Region and is therefore inevitably accountable for implementing all provisions contained within the relevant chapters of this EMP. The mining of copper-ore and rehabilitation of pits should be the responsibility of the contractor to implement this EMP and ensure that all subcontractors adhere to this EMP. **Table 3** applies to contractor appointed during the mining phase and **Table 4** to those appointed during the continuous pit rehabilitation phase. In order to ensure effective environmental management, the afore mentioned chapters should be included in the applicable contracts for outsourced work relating to the proposed activities.

The tables in the following chapter will detail the management measures linked with the roles and responsibilities that have been laid out in this chapter.

3 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to circumvent latent impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level environmental assessment carried out for these activities. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 2**);
- Copper- ore mining Actions (
- **Table 3**);
- Pits rehabilitation Management Actions (**Table 4**); and
- Decommissioning phase management actions (**Table 5**).

The responsible persons from the proponents' team have assessed these obligations in detail and have devoted to specific management actions where indicated in the tables below.

3.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted based on the scoping-level Environmental Assessment carried out for the operation and management of the proposed copper- ore mining and rehabilitation of pits post mining as represented in **Figure 2**. HEEC will not be held accountable for the probable consequences that may occur from any modifications to the agreed course of action in terms of the proposed activities on the mining claims; 72530, 72531 and 72532 and immediate surrounding area.

It is expected that labourers will be sourced by the local people mainly from Oundombo Village and within the Opuwo rural constituency area and that migrant labourers (if applicable) will be housed within established pre-fabricated accommodation facilities at the designated base camp.

3.2 APPLICABLE LEGISLATION

There are manifold legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 2** below provides a summary of the legal instruments considered to be relevant to the copper ore mining project and rehabilitation of the pits post mining activities and the environmental assessment process.

Table 2: Legal provisions relevant to these activities

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	<p>Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”</p> <p>Article 95(l) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.</p>	Sustainable development should be at the fore front of management of the intended mining activities.
Environmental Management Act No. 7 of 2007 (EMA)	<p>Section 2 outlines the objective of the Act and the means to achieve that.</p> <p>Section 3 details the principles of Environmental Management</p>	The management of this project must be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	<p>GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.</p> <p>GN 30 provides the regulations governing the environmental assessment (EA) process.</p>	<p>Activity 3.1 (Mining and Quarrying Activities) 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.</p> <p>Activity 3.2 (Mining and Quarrying Activities) Other forms of mining or extraction of any natural resources whether regulated by law or not.</p> <p>Activity 3.3 (Mining and Quarrying Activities) Resource extraction,</p>

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
		manipulation, conservation and related activities.
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The mining of copper ore and rehabilitation of pits should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that mining of copper ore and pit rehabilitation activities do not lead to the degradation of the natural beauty of the surrounding farmland area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during Copper Ore mining & quarry rehabilitation activities.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with similar projects has shown that a significant health risk is created when migrant construction workers/labourers interact with local communities.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council. Sections 34-47 make provision for the aspects of water and sewerage.	Copper Ore mining & quarry rehabilitation activities have to comply with provisions of the Local Authorities Act.
Labour Act No. 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the mining of copper ore and pits rehabilitation activities, compliance with the law is essential.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually-transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	Copper – ore mining and pit rehabilitation activities are to comply with these legal requirements.
Nature Conservation Ordinance No. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants.	Indigenous and protected plants have to be managed within the legal confines.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EIA considers this term of Environment.
Minerals (Prospecting and Mining) Act, 1992 (Act 33 1 of 1992)	To provide for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto. “mineral” means any substance, whether in solid, liquid or gaseous form, occurring naturally in, on or	The intended activity involves the mining of copper ore for commercial purposes.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	<p>under any land and having been formed by, or subjected to, a geological process, excluding -(c) subject to the provisions of subsection (2), soil, sand, clay, gravel or stone (other than rock material specified in Part 2 of Schedule 1) if they are bona fide required for purposes of –</p> <p>(i) agriculture, building works, fencing or road making;</p> <p>(ii) the manufacture of bricks and tiles;</p>	
<p>Soil Conservation Act 6 of 1969 Ministry of Agriculture, Water and Forestry</p>	<p>This Act covers the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources</p>	<p>Soils should not be polluted or left unrehabilitated.</p>

3.3 PROJECT LOCATION

The mining claims 72530, 72531 and 72532 are situated at Oundombo Village approximately 60 Km South of Opuwo when using the D3705 which branch out from the C43 road from Opuwo to Sesfontein as shown in **Figure 1- 4**. The mining claim 72530 covers an area of 17.5061 Ha while mining claim 72531 covers an area of 16.7075 Ha and mining claim 72532 covers an area 18.0569 Ha. The total area covered by the 3 mining claims is 52.2705 hectares.

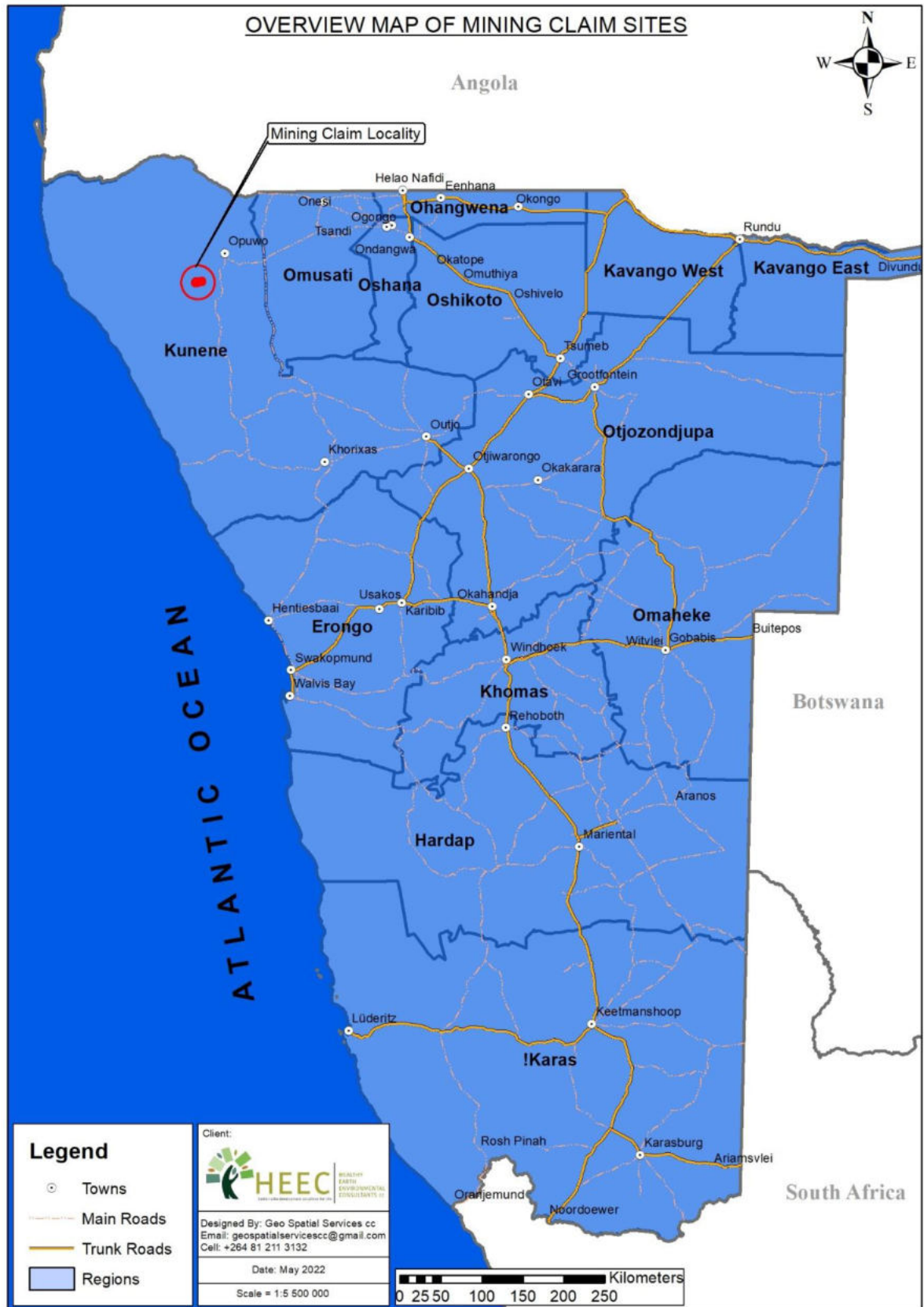


Figure 1: The location of mining claims; 72530, 72531 and 72532 at Oudombo Village, Opuwo rural constituency, Kunene Region (HEEC, 2022).

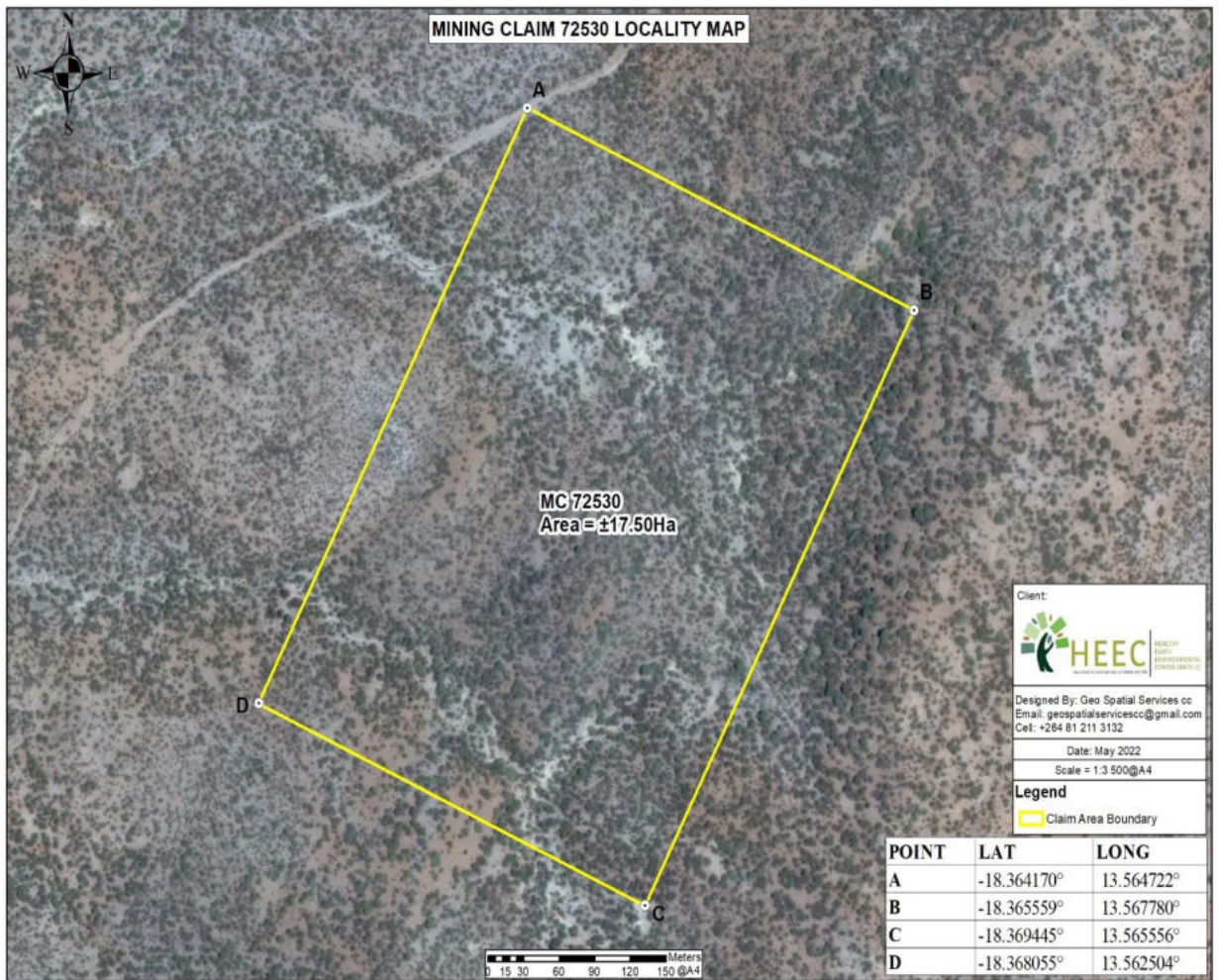


Figure 2: The geo-physical location of mining claim; 72530 at Oundombo Village, Opuwo Rural Constituency, Kunene Region (Shown by the yellow quadrant) covering a total area of 17.5061 Ha (HEEC, 2022).

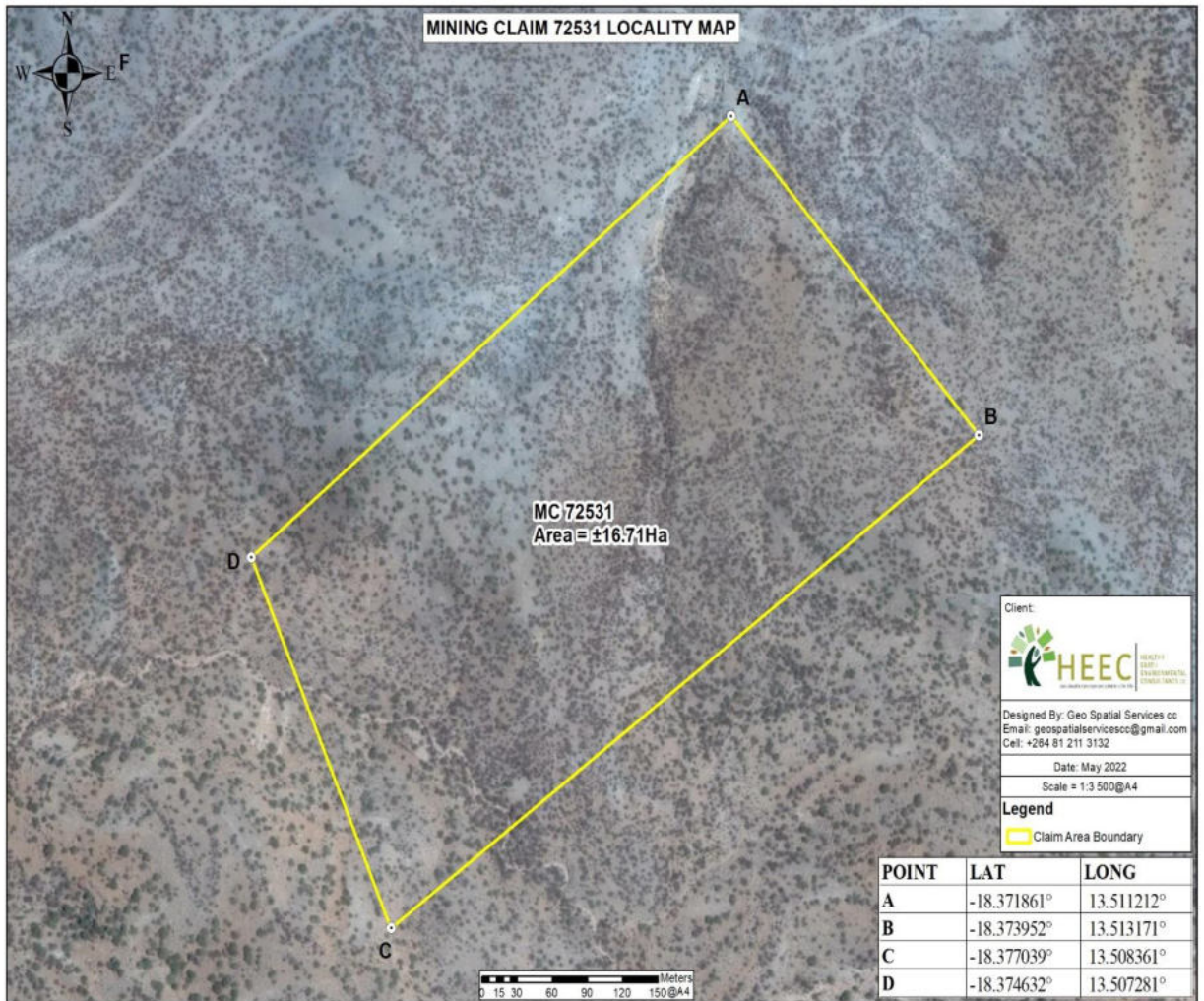


Figure 3: The geo-physical location of mining claim; 72531 at Oundombo Village, Opuwo Rural Constituency, Kunene Region (Shown by the yellow quadrant) covering a total area of 16.7075 Ha (HEEC, 2022).

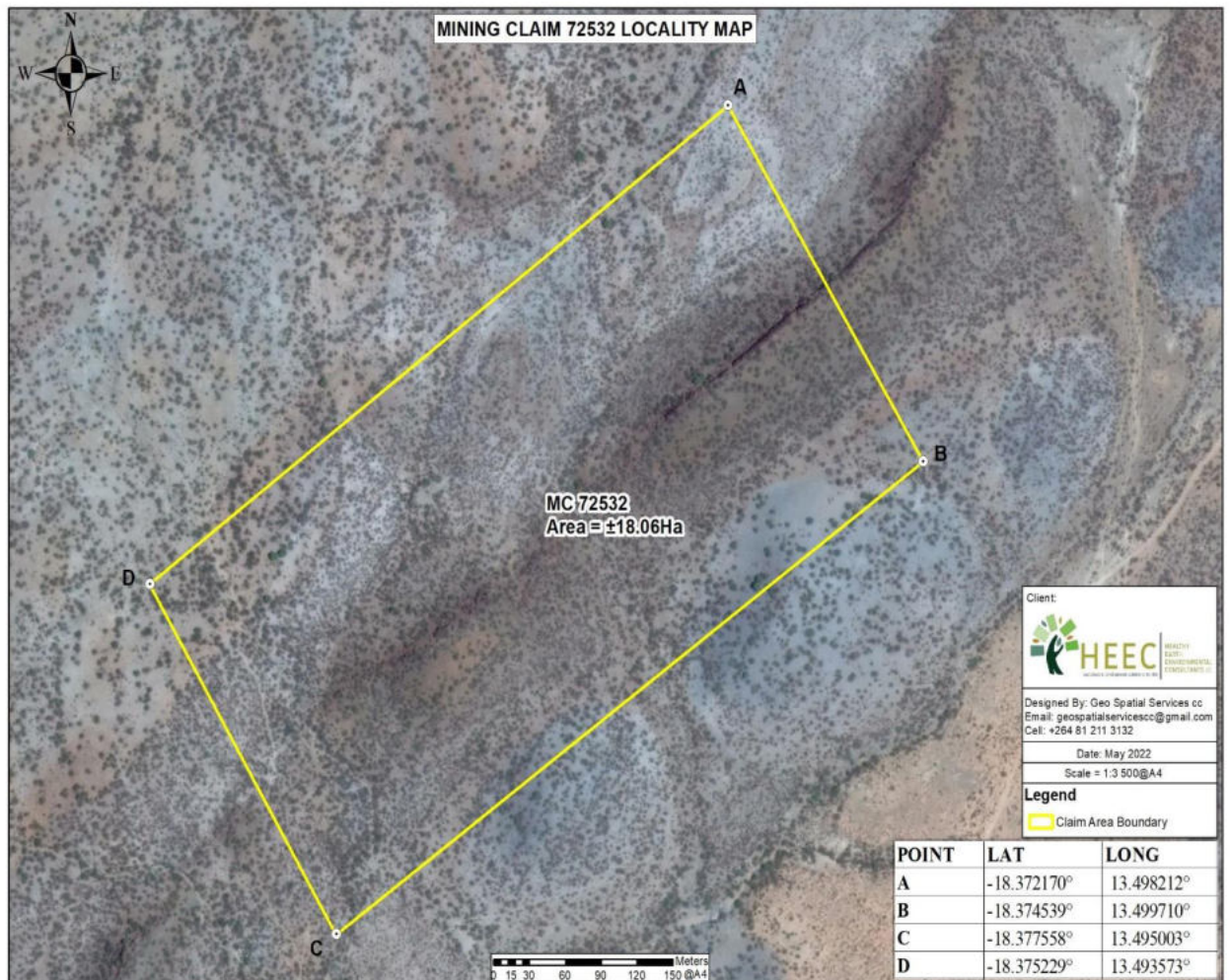


Figure 4: The geo-physical location of mining claim; 72532 at Oundombo Village, Opuwo Rural Constituency, Kunene Region (Shown by the yellow quadrant) covering a total area of 18.0569 Ha (HEEC, 2022).

3.4 COPPER ORE MINING PHASE

The PR should ensure that the management actions detailed in

Table 3 below should be adhered to during the operation of the Copper Ore mining activities and should be undertaken together with the mitigation measures in **Table 8** of the FESR.

Table 3: Copper-ore Mining Phase Management Actions

Aspect	Management Actions	Monitoring indicators	Responsibility
Environmental Incidents	<ul style="list-style-type: none"> • Environmental incidents shall be recorded include (but are not limited to): <ul style="list-style-type: none"> ➤ Fires; ➤ Drowning; ➤ Accidents (e.g. traffic); ➤ Spills of hazardous materials, contaminating soil or water resources; ➤ Non-compliances with applicable legislation; and ➤ Non-compliances with this EMP. • Report all environmental incident and include (as a minimum) a description of the incident, the actions taken to contain any damage to the environment, personnel, or the public, and the actions taken to repair / remediate any such damage. 	<ul style="list-style-type: none"> • Registry of all environmental incidents occurring as a result of the activities associated with the project. • Environmental incident reports 	<ul style="list-style-type: none"> • PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Additional measures shall be prescribed that may be required to remediate damage resulting from the incident and / or to prevent similar incidents occurring in the future. 		
Traffic	<ul style="list-style-type: none"> • Ensure that road junctions have good sightlines. • Limit the type of vehicle (heavy trucks) allowed on site. • Adhere to the speed limit. If permissible, caution signs and 40 km/hr signs shall be placed at regulation distance from heavy vehicle crossing signs at the intersections of the access tracks and the C33 road. • Designate no-drive zones. • Implement traffic control measures where necessary by keeping a number plate register of all vehicles transporting copper ore at the site and restricting access to authorised contractors. 	<ul style="list-style-type: none"> • Road signages 	<ul style="list-style-type: none"> • PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
Pits/Copper-ore mining claim areas (72530, 72531 and 72532)	<ul style="list-style-type: none"> • Copper-ore should be sourced from mining claims with valid ECC. • The mining claims must be clearly pegged. • Mining of copper-ore and resultant operations shall only take place within this pegged and allocated mining claims 7. • A detailed photographic record of the demarcated mining claims areas, prior to any mining activities, shall be taken. These records are to be kept by the Proponent and PR for reference purposes during the rehabilitation of the sites. • There will be 'No unauthorised access' signs at the mining claims entrances until to restrict entry and/or harm to people not involved in the mining operations. 	<ul style="list-style-type: none"> • Valid ECC • Photo -image • Access control 	<ul style="list-style-type: none"> • PR /ECO • PR /ECO • PR /ECO
EMP training	<p>All workers at the site must undergo EMP training that should include as a minimum the following:</p> <ul style="list-style-type: none"> • Explanation of the importance of complying with the EMP. 	<ul style="list-style-type: none"> • Training manual and certificate of attendance 	<ul style="list-style-type: none"> • PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Discussion of the potential environmental impacts of the planned copper mining and pits rehabilitation activities. • Employees' roles and responsibilities, including emergency preparedness and response requirements. • Explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities. • The potential consequences of departure from specified operating procedures; and rewards for enhancing mitigation measures or avoiding negative environmental effects. 		
Fauna and Flora	<ul style="list-style-type: none"> • Prevent the destruction of protected tree species. • Encourage the regrowth and regeneration of trees with exposed roots at the site. • The excavation of copper-ore should incorporate existing trees. 	<ul style="list-style-type: none"> • Vegetation management plan 	<ul style="list-style-type: none"> • PR /ECO • PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • The contractor should compile a Vegetation Management Plan which should include the following as a minimum: <ul style="list-style-type: none"> ○ Trees if not already accounted for in an existing Geographic Information System (GIS), should be surveyed, co-ordinates/location incorporated into the Contractor's GIS, marked with paint (or other means so as to be readily visible) and protected; ○ Trees, which are impossible to conserve, need to be identified and their location recorded on a map; ○ The Contractor should apply to the relevant authority (Ministry of Environment, Forestry and Tourism) for a permit to remove these trees. 	<ul style="list-style-type: none"> • Removal permit 	<ul style="list-style-type: none"> • PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> ○ A list should be compiled of all trees to be removed detailing the location of the tree, the species as well as which trees will be planted to replace these. The nursery where these trees will be sourced from should also be included; ○ Each tree that is removed needs to be replaced with an indigenous tree species; ○ Some of these trees can be obtained at the nearest forestry office or at state nursery such as the Forestry nursery in Opuwo. Assistance can be sought from the nearest forestry office regarding nearby nurseries where additional trees may be bought and advice sought. ● Only a limited width +/- 5 m on the side of the access roads may be partially cleared of vegetation. ● Workers are prohibited from collecting wood or other plant products on or near the site. ● No alien species may be planted on or within the existing site. 	<ul style="list-style-type: none"> ● Alien task force team 	<ul style="list-style-type: none"> ● PR /ECO ● PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> Prevent contractors from collecting wood and veld food such as amphibians, migrating birds, etc. during the mining phase. 		
Lay-down areas and materials camp	<p>Suitable locations for the contractors lay-down areas and materials camp should be identified with the assistance of the traditional authority and the following should be considered in selecting these sites:</p> <ul style="list-style-type: none"> The areas designated for the services infrastructure should be used as far as possible. Second option should be degraded land. Avoid sensitive areas (e.g. ephemeral rivers/drainage lines) 		<ul style="list-style-type: none"> PR /ECO
Hazardous waste	<ul style="list-style-type: none"> All heavy-duty vehicles and equipment on site should be provided with a drip tray. All heavy-duty delivery vehicles should be maintained regularly to prevent oil leakages. Maintenance and washing of vehicles should take place only at a designated workshop area. 	<ul style="list-style-type: none"> Service books 	<ul style="list-style-type: none"> PR /ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Workshops may be prone to hydrocarbon spillages that change the soil chemistry and may affect groundwater quality (only in severe cases). If fuel is stored on site, there is a possibility of spontaneous combustion that may lead to uncontrollable fires, groundwater and soil contamination. • All hazardous substances (e.g. fuel etc.) or chemicals should be stored in a specific location on an impermeable surface that is bunded - with a volume of 120 % of the largest single storage container or 25 % of the total storage containers, whichever is greater. 	<ul style="list-style-type: none"> • Lockable containers 	<ul style="list-style-type: none"> • PR /ECO
Surface and Ground Water Impacts	<ul style="list-style-type: none"> • It is recommended that mining of copper takes place outside of the rainy season in order to limit erosion and flooding on site and surface water pollution. • No dumping of waste products of any kind in or in close proximity to surface water bodies. • Heavy duty vehicles should be kept out of any surface water bodies and the movement of vehicles 	<ul style="list-style-type: none"> • Mining program 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<p>should be limited where possible to the existing access roads and tracks. The stationary plant must be fitted with drip trays to avoid groundwater contamination.</p> <ul style="list-style-type: none"> • Contaminated runoff from the sites should be prevented from entering the surface water bodies. • Workers should be given ablution facilities at the sites that are located at least 30 m away from any surface water and regularly serviced. • Washing of personnel or any equipment should not be allowed on site. 	<ul style="list-style-type: none"> • Ablution facilities 	<ul style="list-style-type: none"> • PR/ECO
Topsoil	<ul style="list-style-type: none"> • When stripping and excavation are carried out, topsoil¹ should be stockpiled in a demarcated area and used in profiling and rehabilitating of the depleted, open quarries at the mining claims at the farm. 	<ul style="list-style-type: none"> • Topsoil stockpiles 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Stockpiled topsoil should be used to rehabilitate post-harvesting degraded areas and/or other nearby degraded areas within Oundombo village in consultation with the traditional authority and constituency councillor. 	<ul style="list-style-type: none"> • Graded roads 	<ul style="list-style-type: none"> • PR/ECO
Soil Erosion	<ul style="list-style-type: none"> • Clear the vegetation in the project area in phases during the mining period in order to keep the soil more compacted as well as to limit overall disturbance to the area over time. • It is recommended that most mining must takes place outside of the rainy season in order to limit potential flooding and the run off of loose soil causing further erosion. • Appropriate erosion control structures must be put in place where soil may be prone to erosion. 	<ul style="list-style-type: none"> • Soil erosion control measures 	<ul style="list-style-type: none"> • PR/ECO • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Checks must be carried out at regular intervals to identify areas within the mining claims site where erosion is occurring. Appropriate remedial actions are to be undertaken wherever erosion is evident. 		
Rehabilitation	<ul style="list-style-type: none"> • Upon completion of the copper mining phase consultations should be held with the traditional authority and local community regarding the post copper mining use of remaining pits (if applicable) and to identify priority areas. • Sand/waste rock at the site should be levelled so it can be reclaimed for other purposes once the mining has ceased and rather than leaving the pits open which will pose a threat to people and animals in the area. • In the event that no post-operation uses are requested, all pit/degraded areas need to be rehabilitated as follows: 	<ul style="list-style-type: none"> • Rehabilitation plan 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> ○ Excavated areas may only be backfilled with clean or inert fill. No material of hazardous nature (e.g. sand removed with an oil spill) may be dumped as backfill. ○ Rehabilitated excavated areas need to match the contours of the existing landscape. ○ The rehabilitated area should not be higher (or lower) than nearby drainage channels. This ensures the efficiency of re-vegetation and reduces the chances of potential erosion. ○ Topsoil is to be spread across excavated areas evenly. ○ Deep ripping of areas to be rehabilitated is required, not just simple scarification, so as to enable rip lines to hold water after heavy rainfall. ○ Ripping should be done along slopes, not up and down a slope, which could lead to enhanced erosion. 		

Aspect	Management Actions	Monitoring indicators	Responsibility
HIV/AIDS and TB awareness	<ul style="list-style-type: none"> • The Contractor should approach the Ministry of Health and Social Services to co-opt a health officer to facilitate HIV/AIDS and TB education programmes periodically on site during the project operation. • Raise awareness on health issues, especially the impact of sexually transmitted diseases. • Provide free condoms in the workplace and to local community throughout project operation. • Facilitate access to Antiretroviral medication • Personnel should not overnight at the Copper Ore mining claim sites, but only the security personnel. 	<ul style="list-style-type: none"> • Awareness campaigns 	<ul style="list-style-type: none"> • PR/ECO
Road safety	<ul style="list-style-type: none"> • Demarcate roads clearly. • Off-road driving should not be allowed. • All vehicles that transport materials to and from the site must be roadworthy. 	<ul style="list-style-type: none"> • Road signages • Valid license discs 	<ul style="list-style-type: none"> • PR/ECO • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules. • Loads upon vehicles should be properly secured to avoid items falling off the vehicle. • Limit and control the number of access points to the mining claim sites. • The road leading to the mining claims should be properly maintained so as to reduce dust emissions when heavy vehicles travel on them. 		
Safety around work sites	<ul style="list-style-type: none"> • Demarcate pits/excavated areas and topsoil stockpiles with danger tape. • Provide additional warning signage in areas of movement and in "no personnel" areas where workers are not active. • Work areas must be set out and isolated with danger tape on a daily basis. • All materials and equipment are to be stored only within set out and demarcated work areas. 	<ul style="list-style-type: none"> • Cordoned pits and excavation areas. 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Only mining personnel will be allowed within these work areas. • 2 fire extinguishers or more should be available at fuel storage areas. • Comply with all national waste management strategy on waste related management actions. 	<ul style="list-style-type: none"> • Fire extinguishers 	<ul style="list-style-type: none"> • PR/ECO
Ablutions	<ul style="list-style-type: none"> • Separate toilets should be available for men and women and should clearly be indicated as such. • Portable toilets (i.e. easily transportable) should be available at the quarry site: <ul style="list-style-type: none"> ○ 1 toilet for every 15 females. ○ 1 toilet for every 30 males. ○ Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site in Opuwo. Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. ○ Workers responsible for cleaning the toilets should be provided with latex gloves and masks. 	<ul style="list-style-type: none"> • Ablution facilities 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
Open fires	No open fires may be made anywhere on the mining claim site.		
General health and safety	<ul style="list-style-type: none"> • A fully stocked first aid kit (with unexpired medicines, include a snake bite kit) should permanently be available on-site as well as an adequately trained member of staff capable of administering first aid. • All workers should have access to the relevant personal protective equipment (overalls, hard toe boots, goggles, dust masks, sun hats heavy duty gloves etc.). • Sufficient potable water reserves should be available to workers at all times. • No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable). • No workers should be allowed to drink alcohol during work hours. 	<ul style="list-style-type: none"> • First Aid Kits • PPE 	<ul style="list-style-type: none"> • PR/ECO • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> No workers should be allowed on the mining claims/pits if under the influence of alcohol. 	<ul style="list-style-type: none"> Breathalyser Testing 	PR/ECO
Dust	<ul style="list-style-type: none"> A watering truck should be used on gravel roads with the heaviest vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought. The use of waterless dust suppression means (e.g. lignosulphonate products such as Dustex) should be considered. Cover any stockpiles with plastic to minimise windblown dust. Dust protection masks should be provided to workers if they complain about dust. During high wind conditions the decision must be taken to cease works until the wind has calmed down. 	<ul style="list-style-type: none"> Maintained roads 	<ul style="list-style-type: none"> PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
Noise	<p>Work hours should be restricted to between 08h00 and 17h00 where excavation involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents and business owners within the 500 m radius should be given 1 week's written notice.</p> <ul style="list-style-type: none"> If workers are to be exposed to noise levels above 85dB for continuous extended periods of more than two hours, they are to be provided with ear muffs and allowed to take 10-15-minute breaks away from the noise source. 		<ul style="list-style-type: none"> PR/ECO
Recruitment of labourers	<p>The Contractor should compile a formal recruitment process including the following provisions as a minimum:</p> <ul style="list-style-type: none"> Adhere to the legal provisions in the Labour Act No. 11 of 2007 for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.). 	<ul style="list-style-type: none"> Employee list 	PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • Recruitment should not take place at the Copper Ore mining claim site. • Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside these agreed upon procedures. • All contractors should give preference in terms of recruitment of sub-contractors and individual labourers to those who are qualified and from the project area and only then look to surrounding towns. • Clearly explain to all job-seekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary. 		
Communication plan	The proponent or PR should draft a Communication Plan, which should outline as a minimum the following:	<ul style="list-style-type: none"> • Communication plan 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • How Interested and Affected Parties (I&APs), who require on-going communication for the duration of the operation period, will be identified and recorded and who will manage and update these records; • How these I&APs will be consulted on an on-going basis; • Make provision for grievance mechanisms – i.e. how concerns can be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event that feedback is deemed unsatisfactory. 		
General communication	<ul style="list-style-type: none"> • The PR must appoint an ECO to liaise between the proponent, I&APs and management. • The proponent shall at every bi-monthly site meeting report on the status of the implementation of all provisions of the EMP. • The proponent should implement the EMP awareness training as stipulated above in this table. 	<ul style="list-style-type: none"> • Communication plan 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • The proponent must list the I&APs of the project and their contact details with whom on-going communication would be required for the duration of the contract. This list, together with the Communication Plan must be agreed upon and given to the PR before operation commences/resumes. • The Communication Plan, once agreed upon by the Developer, shall be legally binding. • A copy of the EMP must be available at the site office and should be accessible to all I&APs. • Key representatives from the above-mentioned list need to be invited to attend monthly site meetings to raise any concerns and issues regarding progress to rehabilitate the excavated areas and surrounding quarries. 		

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> • The proponent should liaise with the proponent regarding all issues related to community consultation and negotiation before operation commences/resumes. • A procedure should be put in place to ensure that concerns raised have been followed-up and addressed. • All people on the I&APs list should be informed about the availability of the complaints register and associated grievance mechanisms in writing by the PR prior to the commencement of site activities. 		
Archaeology	<ul style="list-style-type: none"> • Should a heritage site or archaeological site be uncovered or discovered during the copper-ore mining phase of the project, a “chance find” procedure should be applied in the order they appear below: <ul style="list-style-type: none"> ○ If operating machinery or equipment stop work; ○ Demarcate the site with danger tape; ○ Determine GPS position if possible; 	<ul style="list-style-type: none"> • Archaeological resource assessment report. 	<ul style="list-style-type: none"> • PR/ECO

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> ○ Report findings to the site fore man; ○ Report findings, site location and actions taken to superintendent; ○ Cease any works in immediate vicinity; ○ Visit find site and determine whether work can proceed without damage to findings; ○ Determine and demarcate exclusion boundary; ○ Site location and details to be added to a Geographic Information System (GIS) for field confirmation by archaeologist; ○ Inspect site and confirm addition to copper-ore mining site GIS; ○ Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and ○ Recovery, packaging and labelling of findings for transfer to National Museum. ● Should human remains be found, the following actions will be required: 		

Aspect	Management Actions	Monitoring indicators	Responsibility
	<ul style="list-style-type: none"> ○ Apply the chance find procedure as described above; ○ Schedule a field inspection with an archaeologist to confirm that remains are human; ○ Advise and liaise with the NHC and Police; and ○ Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory. 		

3.5 QUARRY REHABILITATION PHASE (Continuous)

The management actions included in **Table 4** below applies during the continuous pits rehabilitation phase post mining operations and should be undertaken together with the mitigation measures in **Table 9** of the Final Environmental Scoping Report.

Table 4: Quarry Rehabilitation Phase Management actions

Environmental Feature	Management Actions
EMP training	All proponent must ensure that the that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work for the transportation of copper-ore from mining claims 72530, 72531 and 72532.
Monitoring	<p>The ECO should monitor the implementation of the EMP:</p> <ul style="list-style-type: none"> • The ECO should regularly inspect the conditions around the mining claim sites before work starts; and • The ECO should inspect the mining claim sites at the end of each extraction period.

Environmental Feature	Management Actions
Water and waste management	<ul style="list-style-type: none"> • Ensure that the ablution facility at the mining sites are connected to the drainage and wastewater reticulation. • Regular preventative maintenance should be carried out on the infrastructure to ensure that risks of over spills/leakages are minimised. • A no-go buffer area of at least 30 m should be allocated to any water bodies in the area. • No dumping of waste products of any kind in or in close proximity to any surface water bodies. • Sufficient weather and scavenger-proof bins (with lids, to prevent the escape of litter) shall be provided, and be easily accessible at all points where wastes are generated. • The site shall be kept clean and free of litter and no litter from the site shall be allowed to disperse to surrounding areas. • All personnel shall be instructed to dispose of all waste in the proper manner. • The proponent shall identify and separate materials that can be reused or recycled to minimise waste e.g. metals, packaging and plastics, and provide separate marked bins for these items. • All materials (e.g. explosive cartridges) must be suitably stored and protected, so that they do not become damaged and unusable. • The proponent shall be responsible for the regular disposal (at suitable and licensed municipal waste disposal facilities) of all waste generated as a result of the copper mining.

Environmental Feature	Management Actions
	<ul style="list-style-type: none"> • Contaminated runoff from the various operational activities should be prevented from entering any surface water bodies. • Disposal of waste from the mining and camping site should be properly managed. • No waste may be burned on site. • General waste is to be collected either by the local Municipality or removed by the proponent. • The frequency of collections will be such that waste containment receptacles do not unduly accumulate or overflow.
Energy efficiency	<ul style="list-style-type: none"> • The use of solar energy should be encouraged to provide for general lighting and heating of water and buildings. • The use of water saving initiatives should be incorporated within the workers' pre-fabricated housing design in order to reduce water demand.

3.6 DECOMMISSIONING PHASE

Mine closures can be premeditated for and should form part of a cohesive land use strategy that includes the community. The decommissioning of mining at the claim sites is envisioned in the future. The mine closure must be planned in close collaboration with the community and traditional authority. The opportunity should also be afforded to develop alternative land uses through rehabilitation, and to use the remaining infrastructure for other economic purposes such as small livestock farming and aquaculture. When the event occurs, some recommendations have been outlined in **Table 5**.

Table 5: Decommissioning phase management actions

Environmental Feature	Management Actions
Deconstruction activity	Many of the mitigation measures prescribed for the mining and pit rehabilitation activities (Table 3 & 4 above) would be applicable to some of the decommissioning activities. These should be adhered to where applicable.
Rehabilitation	In the event that decommissioning is deemed necessary, excavations need to be rehabilitated according to the management actions outlined in Table 3 & 4 above and in Table 8 & 9 in the Final Environmental Scoping Report.