

Environmental Assessment for Eight Exclusive Prospecting Licenses in the Omaheke Region

Draft Environmental Management Plan

October 2018



Trans Kalahari Copper Namibia (Pty) Ltd



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Abbreviations and Acronyms

DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
GG	Government Gazette
GN	Government notice
I&AP	Interested and Affected Party
MME	Ministry of Mines and Energy
RA	Roads Authority

Appendices

Appendix A: Chance Find Procedures (National Heritage Council)

Glossary

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

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

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

Mitigate - practical measures to reduce adverse impacts.

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

1 Introduction

This Environmental Management Plan stipulates the environmental management actions and impact mitigation measures for the mining exploration activities intended by Trans Kalahari Copper Namibia (Pty) Ltd (the Proponent) on eight Exclusive Prospecting Licenses (EPLs) (EPL 7049, EPL 7050, EPL 7051, EPL 7052, EPL 7053, EPL 7054, EPL 7055 and EPL 7056) (see Figure 2-1 below).

Regulation 8 of the Environmental Management Act's (EMA) (No. 7 of 2007) Environmental Impact Assessment Regulations ((GN) No. 30 of GG No. 4878) requires that an EMP should accompany a scoping report, which is submitted to the Department of Environmental Affairs (DEA) as part of an application for an Environmental Clearance Certificate (ECC).

An EMP is one of the most important outputs of an Environmental Assessment (EA) process because it synthesises the recommended management actions and mitigation measures laid out in the scoping report (and assessment report if applicable), associated with specific project phases and with specific assigned responsibilities. This EMP details the management actions and mitigation measures to be implemented during the operational phase of the proposed activity. This EMP should be read in conjunction with the scoping report, which provides greater context to the project and general environmental management requirements.

2 Project Overview

The project is located approximately 180 km northeast of Gobabis in the Omaheke Region (Figure 2-1). The eight EPLs cover an area measuring approximately 660,000 ha. The Proponent aims to evaluate and explore across all its granted EPL areas.

2.1 Project Inputs, Processes and Outputs

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

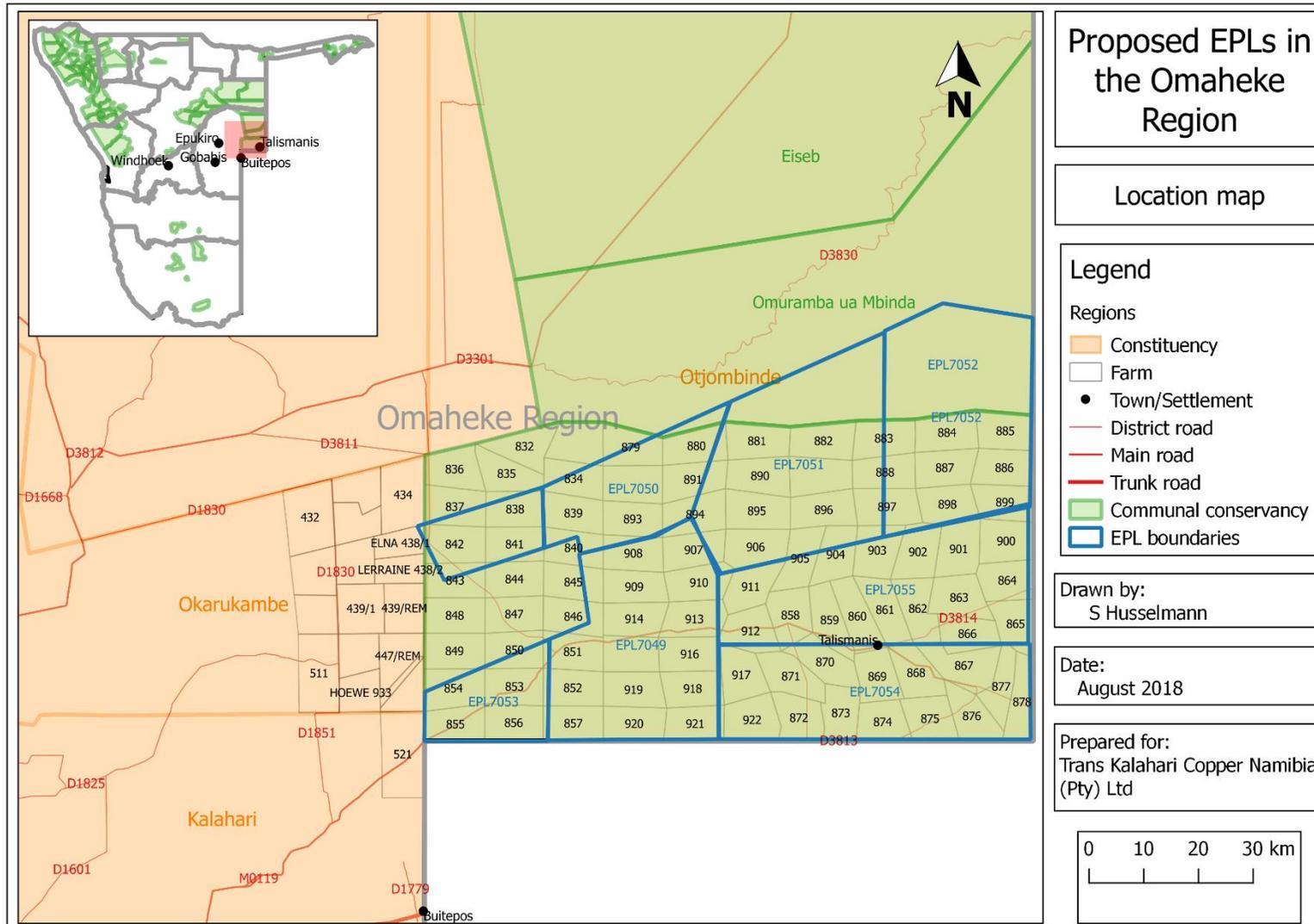


Figure 2-1: Location of 8 EPLs in the Omaheke Region

2.1.1 Project Inputs

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

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

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

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

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

2.1.2 Project Processes

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

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

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

3 Roles and Responsibilities

The EMP has identified the Exploration Manager and the Safety, Health and Environment (SHE) Officer as important roles to guide the environmental management of the exploration activities. These roles might however in practice, owing to various circumstances, be undertaken by one person. A list of specific responsibilities and duties to be undertaken by each are provided below.

It should be noted that the aforementioned roles are delegated roles and the owners of Trans Kalahari Namibia (Pty) Ltd are ultimately responsible for the implementation of the EMP.

3.1 Exploration Manager

The Exploration Manager will be responsible for the following:

- Managing/overseeing the implementation of this EMP and updating and maintaining it when necessary.
- Issuing fines to individuals who contravene EMP provisions and if necessary, removing such individuals from site.
- Setting up and managing the schedule for the day-to-day activities.
- Liaison with all relevant interested and affected parties/stakeholders.
- Ensuring all incidents are recorded and documented.
- Undertaking an annual review of the EMP and amending the document when necessary.

3.2 Safety, Environment and Health (SHE) Officer

The SHE Officer will be responsible for the following activities:

- Planning and carrying out site inductions to the workers on-site and visitors to the worksite(s).
- Ensure that the requirements of the EMP are carried out during applicable activities throughout the project life span.
- Monitor the overall implementation of the EMP.

4 Environmental Management Plan Actions

The aim of the management actions laid out below is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the mitigation measures recommended to manage the potential impacts identified in the scoping report for the project. These mitigation measures have been arranged in the EMP as follows:

- Applicable legislation (Table 4-1);
- Operation and maintenance phase management actions (Table 4-2);
- Environmental monitoring requirements (Table 4-3); and
- Decommissioning phase management actions (Section 4.3)

The Proponent should assess these commitments in detail and should acknowledge their obligation to the specific management actions detailed in the tables of the following sub-chapters.

Table 4-1: Legislation applicable to the project

Legislation	Provisions	Contact Details
Environmental Management Act 2007 Environmental Impact Assessment (EIA) Regulations (EIAR) (GG No. 4878)	Activities listed in Government Notice (GN) No. 29 of GG No. 4878 require an Environmental Clearance Certificate (ECC). The amendment, transfer or renewal of the ECC (EMA S39-42; EIAR Regs19 & 20). Amendments to this EMP will require an amendment of the ECC. The ECC needs to be renewed every 3 years.	Mr Damian Nchindo (Ministry of Environment and Tourism – Chief Conservation Scientist) Tel: 061 284 2701

Legislation	Provisions	Contact Details
Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers.	Eugene de Paauw (Roads Authority – Specialist Road Legislation) Tel.: (061) 284 7027
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”	Carlo Mcleod (Ministry of Mines and Energy: Acting Director – Petroleum Affairs Tel.: (061) 284 8291
Forestry Act (No. 12 of 2001)	Permits are required for the removal of protected plants species.	Talismanis Forestry Office (Ministry of Agriculture Water and Forestry)
Nature Conservation Ordinance No. 4 of 1975 (as amended)	Permits are required for the removal of protected plants species.	Tel: (062) 560 834
Namibian Civil Aviation Regulations, 2001	Regulation 133.01.2 lays out requirements for commercial external- load operations	Angeline Simana (Executive Director – Namibia Civil Aviation Authority Tel: 083 235 2101

4.1 Operation Phase

The mitigation measures included in Table 4-2 below apply to the operation phase of the project.

Table 4-2: Operational phase mitigation measures

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Deadline
Water and soil pollution	Comprised water quality due to fuel and lubricant spills	Regular inspections and servicing of vehicles and machinery off-site or in designated areas. Fuels and lubricants must be stored in containers. If stored on the ground, these containers should be placed on a non-permeable surface (e.g. high-density polyethylene plastic sheets).	No complaints of contaminants in the water as a result of exploration activities No visible oil spills on the ground or contaminated spots.	SHE Officer	Complaints log book Waste containers Non-permeable material to cover ground.	Throughout exploration phase
Water and soil pollution	Wastewater generated by exploration workers living on-site.	Provision of toilet facilities for exploration workers (type of pit latrine or chemical toilet). Emptying of chemical toilets according to the manufacturer's specifications. Treating latrine waste to render non-polluting.	Adequate toilet facilities on site.	SHE Officer	Chemical toilets or excavator (pit creation), waste treatment agents/chemicals	At site setup and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Deadline
Air quality	Generation of dust from exploration activities resulting in increased particulate matter in the atmosphere which might negatively affect occupational and residential respiratory health.	Provision of Personal Protective equipment to each employee on site. Implementation of dust suppression measures where necessary, such as sprinkling of water in working areas, particularly close to homesteads. Vehicle speeds decreased further near homesteads to minimise potential dust impact.	No complaints from the public about excessive dust generation.	SHE Officer	Complaints log book Dust suppression implement e.g. water bowser	Throughout exploration phase
Air quality	Hydrocarbon emissions from vehicles	Vehicles and machinery on site should be serviced regularly to prevent emission of harmful gases.	No complaints from the public about vehicle emissions.	SHE Officer	Complaints log book Vehicle and machinery mechanic	Throughout exploration phase
Soils	Loss of top soil	Use of existing tracks to avoid disturbance of new areas.	No proliferation of informal vehicle tracks.	SHE Officer	Complaints log book	

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Deadline
			No new erosion gullies.			
Illegal hunting	Illegal hunting of wildlife	No hunting will be done by exploration personnel on-site.	Incident reports of illegal hunting of wildlife by the crew.	SHE Officer	Complaints log book	During site set up, and throughout exploration phase
Habitat loss	Localised loss of habitat and vegetation	All areas of interest to be clearly marked to prevent damage to areas unintended for exploration.	No disturbance to unmarked areas.	SHE Officer	Barricading tape (to indicate working areas)	Throughout exploration phase
Health and safety	General health and safety risks associated with exploration drilling.	Compile comprehensive health and safety plan for all exploration drilling activities.	Comprehensive health and safety plan for all exploration drilling activities compiled.	Exploration Manager	Time, printing resources.	Prior to site setup activities
Health and safety	Accidental fire outbreak	Portable fire extinguishers should be provided on site. No open fires to be created by exploration personnel.	No wildfires recorded (due to presence of workers)	SHE Officer	Fire extinguishers (1 per vehicle)	Throughout exploration phase
Archaeology and cultural heritage	Potential disturbance to archaeological and cultural heritage resources	A chance find procedure will be prepared prior to commencement of activities	Preservation of all artefacts that are discovered around project area	SHE Officer	Salvage equipment	Prior to site setup activities

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Deadline
		on site (see Appendix A for guideline document)				
Employment creation	Creation of employment opportunities	Non-skilled labour should be sourced from the locally affected area, in accordance with procedures approved by the relevant authorities.	Number of locals employed during exploration activities	Exploration Manager	None	Throughout exploration phase
Noise	Potential increase in noise levels	Members of the crew will be required to keep noise levels down. Machinery and vehicles should be serviced regularly so that they function normally without excessive noise. Exploration activities will be restricted to daytime between 6am in the morning and 7pm in the evening.	Complaints from local residents about noise.	SHE Officer	Complaints log book	At site set up and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Deadline
Traffic safety	Increase in traffic density.	Drivers should drive slowly (40km/hour or less), and on the lookout for livestock and wildlife	No complaints from members of the public	SHE Officer	None	Throughout exploration phase.
HIV and AIDS	Potential increase of prevalence of HIV and AIDS, as well as other STIs prevalence.	Provision of condoms and sex education through distribution of pamphlets. These pamphlets can be obtained from local health facilities.	No new infections recorded linked to exploration workers.	SHE Officer	None	During site setup and throughout exploration phase
Littering	Environmental pollution from solid waste during exploration activities.	Provision of animal-proof waste storage containers for storage of waste until disposal at a designated disposal site.	No visible litter around the project area	SHE Officer	Waste storage containers	Throughout exploration phase.

4.2 Monitoring

In order to support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented alongside the mitigation plan. The monitoring plan is presented in Table 4-3. The table provides details of required environmental monitoring in terms of each potential impact, parameters to be monitored, monitoring objective, reporting structures for monitoring, frequency, methods to be used, reporting structure, any thresholds that apply and relevant recommended actions.

Table 4-3: Monitoring requirements for impact mitigation measures

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
Water and soil pollution									
Compromised water quality due to fuel and lubricant spills or wastewater	Complaints from farmers within the project sites	To prevent contamination of surface water groundwater.	No complaints from farmers about visible oil spills	Inspection of complaints log books	Weekly	SHE officer	SHE Officer> Exploration Manager	A logged complaint	Further consultations with the farmer and tests
Wastewater generated by exploration workers living on-site.	Open defecation and urination.	To prevent environmental pollution	Adequate toilet facilities on site. Complaints from the public about open defecation and urination.	Visual observation. Inspection of complaints log book.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Clean-up of affected areas.
Soils									
Loss of top soil	Increased loss of soil	To prevent loss of top soil	No proliferation	Visual observation	Weekly	SHE Officer	SHE Officer> Exploration Manager	Proliferation of new vehicle tracks	Rehabilitation of affected areas

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
			of informal vehicle tracks. No new erosion gullies					Formation of new gullies in work areas	
Air quality									
Increase in dust generation, which might negatively affect occupational and residential respiratory health.	Complaints from public about increased in dust generation.	To reduce public complaints and prevent negative changes in air quality due to exploration activities	No complaints from the public about increased dust generation.	Inspection of complaints log book.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Dust suppression around working areas to reduce fugitive dust
Hydrocarbon emissions from vehicles	Complaints from the public about increased	Same as above.	No complaints from the public about increased	Inspection of complaints log book.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Servicing of vehicles and machinery by a certified

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
	vehicles fumes		vehicle emissions						service provider
Poaching									
Illegal hunting of wildlife	Reported poaching incidents by projects team	To prevent illegal hunting of wildlife	Incidents reports of illegal hunting of wildlife by exploration workers.	Consultation with the local Police Service for reported incidents of poaching.	Weekly	SHE Officer	SHE Officer> Exploration Manager> local police service	An incidents report logged with the local Police Service	Appropriate action will be decided by the local Police Service
Habitat loss									
Localised loss of habitat and vegetation	Loss of habitat	To prevent loss of habitat outside areas of interest	No disturbance to unmarked areas within the project area	Visual observation	Weekly	SHE Officer	SHE Officer> Exploration Manager	Vegetation clearance outside of marked areas.	Rehabilitation of affected areas to the satisfaction of the SHE Officer
Health and safety									

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
No health and safety plan for exploration activities.	Compiled health and safety plan for exploration activities.	To prevent health and safety impacts	No significant health and safety incidents (i.e. serious injuries or loss of life)	Visual observation Inspection of complaints log books	Daily/ weekly	SHE Officer and Exploration Manager	SHE Officer> Exploration Manager	Health and safety incident	Remedy the consequences
Potential increase in outbreak of wildfires due to project activities	Occurrence of wildfires	To prevent environment damage caused by wildfires	No wildfires recorded (due to presence of exploration workers)	Visual observation	Daily	SHE Officer	SHE Officer> Exploration Manager> local police service	Outbreak of wildfires due to the exploration workers	Rehabilitation of affected areas
Archaeology and cultural heritage									
Potential disturbance to archaeological and cultural heritage resources	Presence or unearthing of archaeological or cultural heritage resources	To prevent destruction of artefacts	Preservation of all artefacts that are discovered around project area	Inspection of records of findings	Daily	SHE Officer	SHE Officer> Project Archaeologist>National Heritage Council (NHC)	Unearthing of archaeological or cultural heritage resources	Cease all activity on site and wait for NHC to inspect site
Employment creation									

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
Creation of employment	Creation of employment opportunities	To ensure that locals benefit from the project	Number of locals employed during exploration activities	Inspection of employment records	Monthly	Exploration Manager	Project Manager	Number of those employed	None
Noise									
Potential increase in noise	Above ambient noise levels.	To ensure that generated noise does not disturb local residents.	Complaints from local residents about noise generated.	Inspection of complaints log book	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint about above normal noise levels	Revision of site activities
Traffic									
Increase in traffic density on declared Roads Authority (RA) roads or damage to these.	Complaints from the public about increase in traffic on RA roads. Complaints about damage	To ensure continued ease of access to RA roads by local residents	No complaints from the public about increase off traffic due to exploration activities	Inspection of log books	Weekly	SHE Officer	SHE Officer> Exploration Manager> Roads Authority	A logged complaint about traffic increase or damage to RA roads	Find alternative access roads for the team. Rehabilitation of affected roads

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
	to RA roads caused by movement of project vehicles and machinery.								
HIV and AIDS									
Potential increase in HIV and AIDS prevalence.	New HIV or STIs infections	To prevent new infections in the area	No new HIV or STIs infections recorded	Liaison with local health facilities	Monthly	SHE Officer	SHE Officer> Exploration Manager> Ministry of Health and Social Services	Recorded new HIV or STIs linked to the exploration workers	Continued sex education and provision of condoms
Littering									
Environmental pollution from solid waste during exploration activities.	Scattered litter	To prevent littering of the general project area	No visible litter around the project area	Visual observation	Daily	SHE Officer	SHE Officer> Exploration Manager	Visible littering around project site	Clean-up of the affected areas and ensuring exploration workers utilise waste

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
									containers provided.

4.3 Decommissioning and Rehabilitation

Decommissioning and rehabilitation will involve the following:

- Capping of all drilled boreholes.
- Collection and disposal of domestic waste at the nearest solid waste disposal site.
- Levelling of any topsoil stockpiled during exploration activities.
- Any temporary work camps setup should be dismantled, and the area rehabilitated as far as practicable, to their original state.

**APPENDIX A CHANCE FIND PROCEDURES (NATIONAL HERITAGE
COUNCIL)**



CHANCE FIND PROCEDURES

August 2017

Commissioned by:
Department of Archaeology & Heritage Research
National Heritage Council of Namibia

EXECUTIVE SUMMARY

The purpose of this document is to provide general guidelines to the Namibian public with the appropriate response guidelines to follow where heritage resources are discovered in Namibia. It further aims to encourage the protection and conservation of heritage resources in Namibia and to facilitate the respectful and appropriate treatment of heritage resources. This guide is developed in accordance with the National Heritage Act (*Act No. 27 of 2004*), especially Section 55 (4), taking into consideration international best practice based on 1972 UNESCO Convention on the Protection of World Cultural and Natural Heritage (World Heritage Convention) and ICOMOS Guideline on Heritage Impact Assessment. It is expected that no known heritage sites may be disturbed or altered without a National Heritage Council Permit, and explicit conditions in the permit must be followed. Particular critical heritage sites will include Namibia's coastline, the Namib Desert, Southern Namibia, Khomas Highlands and Northwestern areas such as Erongo Mountains and its neighboring outcrops and hills, Brandberg, Twyfelfontein and Spitzkoppe areas. Within this context, it is very important to consult the National Heritage Council of Namibia.

These guidelines should therefore be implemented in the event of discovery of heritage resources in Namibia. The Chance Find Procedures (CFPs) can be adapted by the general public, companies, contractors or/and incorporated into institutional policies that may have relevance during development/construction and operational phases to avoid and/or reduce risks that may result in the chance finds of heritage resources, whilst considering international best practice.

ACRONYMS

AIA	Archaeological Impact Assessment
BGG	Burial Grounds & Graves
CFPs	Chance Find Procedures
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
GSN	Geological Survey of Namibia
NHC	National Heritage Council of Namibia
NHA	National Heritage Act (Act. No. 27. Of 2004)
NMN	National Museum of Namibia
NNHR	Namibia's National Heritage Register
UNESCO	United National Education and Scientific Organisation

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1. DEFINITIONS

The term 'heritage resource' includes both cultural and natural heritage resources as defined in the Namibia's National Heritage Act (Act No. 27 of 2004) Sections 1. In the National Heritage Act No. 27 of 2004, the term:

- Heritage: Means *places* and *objects* of heritage "significance".
- Heritage significance: Means aesthetic, archaeological, architectural, cultural, historical, scientific or social significance.
- Place: means an area of land, with or without improvements, and includes:
- a) A building;
 - b) A garden;
 - c) A tree;
 - d) The remains of a ship or part of a ship;
 - e) An archaeological site;
 - f) A site;
 - g) Land associated with anything specified in paragraphs (a) to (e);
- Alter: In relation to a *place* or *object*, means to modify or change the structure, appearance or physical properties of the place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.
- Land: Includes any right to, privilege over, claim to, or any interest, whether corporeal or incorporeal, in the land or proceeds derived from that land.
- Objects: Means any movable article, and includes:
- a) An archaeological object;
 - b) Palaeontological and rare geological objects;
 - c) Meteorites;
 - d) Ethnographic art objects;
 - e) Military objects;
 - f) Objects of decorative or fine art;
 - g) Objects of scientific or technological interest;
 - h) Books, records, documents, photographic positives and negatives, film, or video material or sound recordings, excluding those that are public records to which the Archives Act, 1992 (Act No. 12 of 1992) applies;
- Archaeological: In relation to a place or an object, means:
- a) Any remains of human habitation or occupation that are 50 or more years Old found on or beneath the surface on land or in the sea;
 - b) Rock art, being any form of painting, engraving or other representation on a fixed rock surface or loose rock or stone, which is 50 or more years old.
- Archaeological site: Means an area in which archaeological objects are situated.
- Building: Includes a structure, work or fixture and any part of a building, work or fixture or "conservation" includes -
- a) The retention of the heritage significance of a place or object; an
 - b) The protection, maintenance, preservation, restoration, reconstruction or sustainable use of a place or object;
- Develop: In relation to a place, means -
- a) To construct or alter a place or a building on the place;
 - b) To demolish or remove a building or works on the place;

- c) To carry out any works on, over or under the place;
- d) To subdivide or consolidate land comprising the place or any buildings on the place; or
- e) To place or relocate a building or works on the place.

Protected object: Means an object declared and registered as a heritage object under Division 3 of PART IV;

Protected place: Means a place declared and registered as a heritage place under Division 3 of PART IV;

Historic shipwrecks and objects: The remains of all ships that have been situated on the coast or in the territorial waters or the contiguous zone of Namibia for 35 years or more are historic shipwrecks for the purposes of this section

2. CHANCE FIND PROCEDURES

There are more than 500 heritage sites currently recorded in Namibia with many more being added to the National Heritage Register (NHR) every year. For this reason, it is very likely that one will encounter an archaeological, geological, historical or even a palaeontological site at a time either knowingly or unknowingly. The following CFPs protocol have been established to increase awareness of these important heritage resources and to assist the Namibian public, institutions and companies in identifying remnants of Namibia's prehistoric cultures represented in today's landscape by a wide variety of site types, most of which are related to prehistoric habitations, hunting and gathering, tool making productions, and traditional ceremonies or ritual activities.

In Namibia, areas of proposed mining and infrastructure development are subject to heritage/archaeological surveys and assessments at the earlier stage of planning. However, these surveys are based on surface indications alone, and it is therefore possible that sites or materials of heritage significance will be found in the course of development. These CFPs actions are therefore intended to raise heritage awareness and sensitize the general public so that they may recognize heritage "chance finds" in the course of their everyday life or work. Sites or areas that might be immediately visible to a non-archaeologist and heritage specialists includes:

- Rock art, including pictographs and petroglyphs;
- Surface features such as depressions created by former habitations, earthen fortifications; rock cairns, historic graves and ammunitions, shipwrecks, human remains (bones), fossils and human footprints etc.
- Artifacts that have become visible on the land surface owing to erosion or recent land altering activity. These may be produced in a variety of materials such as stone, bone, potteries, wood or even shell etc.
- Buried cultural remains that may be sighted in a cut-bank, excavation, eroded shoreline and sand dunes or other exposed deposits.

The following procedural guidelines must be considered in the event that previously unknown heritage resources or BGG are exposed or found either in the private or public land or during the life of the project.

2.1. Chance Find Procedures: Heritage Resources on Private Land

In the event that previously unidentified heritage resources are identified and/or exposed during field walking, herding, cultivation, ploughing, construction or operation of a project, the following steps must be implemented:

1. The Farm/private land owner must be notified immediately of the discovery;
2. The discoverer must not damage, remove, collect or alter the object (s) or sites
3. If possible, the owner should take photographs and GPS coordinates of the site/object and send details including farm name, owners' details, constituency and region.
4. The Archaeology Unit of the National Heritage Council must be notified immediately of the discovery via telephone, email or even office visit.
5. A qualified heritage specialist to consider the significance heritage resource discovered based on a site visit;
6. Appropriate measures will then be presented to the National Heritage Council Secretariat for further research.

7. Should the specialist conclude that the find is of heritage significance, scientific research must be conducted to allow the proclamation of such site/object into the National heritage Register as regulated by the National Heritage Act (No.27 of 2007).

2.2. Chance Find Procedures: Heritage Resources on Public Land

In the event that previously unidentified heritage resources are identified and/or exposed during field walking, herding, cultivation, ploughing, development/construction or operation of a project, the following steps must be implemented:

1. The person must immediately report to the nearest police station, local authority office, heritage inspectors or the village council.
2. The notified officer in (1) should not damage, remove, collect or alter the object (s) or sites
3. If possible, the officer should take photographs and GPS coordinates of the site/object and send details including farm name, owners' details, constituency and region.
4. The officer via telephone, email or even office visit must notify the Archaeology Unit of the National Heritage Council immediately.
5. A qualified heritage specialist to consider the significance heritage resource discovered based on a site visit;
6. Appropriate measures will then be presented to the National Heritage Council Secretariat for further research.
7. Should the specialist conclude that the find is of heritage significance, scientific research must be conducted to allow the proclamation of such site/object into the National heritage Register as regulated by the National Heritage Act (No.27 of 2007).

2.3. Chance Find Procedures: Archaeological materials during mining or construction

Due to the subsurface nature of archaeological material and unmarked graves, the possibility of the occurrence of such finds cannot be excluded. If during mining or infrastructure developments projects any possible finds such as stone tool scatters, human remains, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find/s.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the studies. Contracted Archaeologists and their personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

2.3.1 Response of personnel

The following responses and actions should be undertaken by personnel in the event of archaeological finds:

Responsibilities:

1. Operator
2. Foreman
3. Superintendent
4. Archaeologist

Procedures:

Exercise due caution if archaeological remains are found
Secure site and advise management timeously
Determine safe working boundary and request inspection
Contact the contracted archaeologist.
Inspect, identify, advise management, inform the NHC and NMN in order to recover the remains.

Actions by operator:

Action by person (operator) identifying archaeological or heritage resource material

- a) If operating machinery or equipment: stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Take Photographs if possible
- e) Report findings to foreman

Action by Site Foreman:

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in the immediate vicinity
- c) The responsible field person (site foreman) must record the following information:
 - Position (excavation position);
 - Depth of find in hole;
 - Digital image of the hole showing the vertical section (side); and
 - Digital images of the archaeological material.

Action by Site 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 Archaeological Heritage Geographical Information System AH GIS for field confirmation by archaeologist

Action by archaeologist

- a) Inspect the site and confirm in addition to S & F report
- b) Advise National Heritage Council (NHC) and request written heritage permission either to remove findings from work area or as directed.

Response by the archaeologist in the event that Human remains are discovered:

- a) Actions as above;
- b) Field inspection by archaeologist to confirm that remains are human
- c) The archaeologist will assess the information and liaise with the developer of the project in consultation with the environmental consultant, Police and NHC in which a field assessment will be commissioned. Such field assessment will most likely to have the following outcomes:
 - If a human burial, human remains or a highly significant heritage resources are found, the appropriate authorities, in these cases (the National Heritage Council of Namibia, the National Museum of Namibia, National Forensic Laboratory, or as directed) are to be contacted.
 - The find are in an archaeological or palaeontological contexts, the site (s) must be evaluated by a qualified archaeologist or human remains specialist (a palentropologist) to decide if a rescue excavation is feasible, or an avoidance of the site is optional.

It will be probably be feasible to avoid the find (and its site) and continue to the excavation farther along, or proceed to the next excavation, so that the work schedule is minimally disrupted. In consultation with the developer/owner of the project and the environmental consultant, the following options should be considered by the archaeologist when deciding on how to proceed in the event of a Human remains.

Option 1: Avoidance

Avoidance of the highly significant site through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from heritage resource practitioners.

Option 2: Rescue Excavation

Rescue excavation refers to the “no option” situation where avoidance is not feasible due to magnitude of the finds, financial and time constraints. The process can inevitably delay construction and rescue excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It will involve the following:

- Obtaining a heritage permit to remove the archaeological remains;
- It could involve the removal of remains from the immediate site to a suitable place for temporary “stockpiling”.
- Removal of remains to National Museum or National Forensic Laboratory, as directed or;
- If human reburial is the appropriate measure, the authority is to be contacted. A human burial specialist must evaluate the find.

In principle, the strategy during the mitigation is to “rescue” the material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the condition of the remains. The methods of collection would depend on the preservation or fragility of the remains and whether in loose or in lithified sediment. These could include:

- On-site selection and sieving in the case of remains in sand or sand dune and;
- If the remains occurrence is dense and is assessed to be a “Major Find”, a carefully controlled excavation is required.

2.4. Chance Find Procedures: Burial Grounds and Graves (BGG)

In the event that previously unidentified BGG are identified and/or exposed during construction, field walking, sand dunes, recreational areas or operation of a project, the following steps must be implemented subsequent to those outlined under Section 3.2.1 above:

1. The nearest police station must be notified immediately of the discovery;
2. The discoverer must not damage, remove, collect or alter the object (s) or sites
3. The Police officer must notify immediately the National Heritage Council of Namibia, the National Museum of Namibia, National Forensic Laboratory, or as directed) via telephone, email or even office visit.
4. A qualified specialist will be deployed to inspect the exposed burial and determine in consultation with the NMN, Police or NHC the temporal context of the remains, i.e.:
 - a) Forensic;
 - b) Authentic burial grave (informal or older than 50 years, NHA (No. 27 of 2007, Section (1b) 36) as well as the National Forensic Science Institute;
 - c) Archaeological (older than 50 years, NHA (1) Section and;
 - d) If any additional graves may exist in the vicinity.
5. Should the specialist conclude that the find is a heritage resource protected in terms of the NHA (No.27 of 2004), may require that an identification of interested parties, consultation and /or grave relocation taking place.

2.4.1. Response by Paleoanthropologist or Forensic Specialist

The paleoanthropologist or forensic Specialist will assess the information and liaise with the developer, Police or environmental Officer in which a suitable response will be established. It is highly likely that a Field Assessment by the will be carried out. It will be probably be feasible to avoid the find and continue to the excavation (in case the graves are found in a construction site, mining area or private land) farther along, or proceed to the next excavation, so that the work schedule is minimally disrupted. The Field Assessment could have the following outcomes:

- If a human burial, the appropriate authority (NHC, NMN, Police and Forensic Office) are to be contacted. The find must be evaluated by a human burial specialist to decide if Rescue Excavation is feasible, or if it is a Major Find.
- If the graves are in an archaeological context, an archaeologist must be contacted to evaluate the site and decide if a *rescue excavation* is feasible, or if it is a Major Find.
- If the graves are in a biological context, a forensic specialist must evaluate the site and decide if a rescue excavation is feasible, or if it is a Major Find.

2.5. Chance Find Procedures: Palaentological remains

Palaentological remains according to the National Heritage Act (No. 27 of 2004), includes any fossilized remains or fossil trace of animals or plants which lived in the past. Like other heritage resources, the National Heritage Act also protects these. In Namibia, the palaeontological heritage resources are found in various contexts including: surface and sub-surface finds in private and public land, conservancies, national parks or in areas of proposed mining and infrastructure development. These too, are subjected to heritage/paleontological surveys and research. Paleontological remains or areas that might be immediately visible to a non-paleontologist and heritage specialists includes:

2.5.1. Animal Bone Finds

In the process of field walking, tilling the land, digging or excavations, isolated bones may be found on the surface or in the hole sides or bottom, or as they appear on the spoil heap. By this is meant bones that occur singly, in different parts of the area. If the number of distinct bones exceeds six pieces, the finds must be treated as a bone cluster (below).

2.5.1.1 Response of personnel or individuals

The following responses should be undertaken in the event of bone finds:

1. The farm owner, individual or Foreman of the project must report the discovery at the nearest police station immediately.
2. The discoverer must not damage, remove, collect or alter the object (s) or sites
3. The Police officer must notify immediately the National Heritage Council of Namibia, the Geological Survey of Namibia (GSN), or as directed) via telephone, email or even office visit.
4. A qualified specialist will be deployed to inspect the exposed burial and determine in consultation with the GSN, Police or NHC.

Should the specialist conclude that the find is of a paleontological significance as per NHA (*No.27 of 2004*), the following actions may apply:

- Action 1:** An isolated bone exposed ion surface or n an excavation or spoil heap must be retrieved before it is covered by further spoil from the excavation and set aside;
- Action 2:** The farm owner, site foreman must be informed;
- Action 3:** The responsible field specialist must request the NHC permission to carryout the

- research and take custody of the fossil. The following information is to be recorded:
- Action 4:** The fossil should be placed in a bag (e.g. a Ziploc bag), along with any detached fragments. A label must be included with the date of the find, position information, and depth; and
- Action 5:** The Superintendent is to inform the developer who then contacts the archaeologist and/or paleontologist contracted to be on standby. The Superintendent is to describe the occurrence and provide images via email.

25.2. Dinosaur Footprints

In the process of field walking, tilling the land, digging or excavations, dinosaur footprints may be found on the surface. By this is meant that the prints can occur in singly or pairs in different parts of the area. If found, the following responses apply:

3.4.2.11 Response of personnel or individuals

1. The Farm/private land owner must be notified immediately of the discovery;
2. The discoverer must not damage, or alter the sites;
3. If possible, the owner should take photographs and GPS coordinates of the site and send details including farm name, owners' details, constituency and region;
4. The Earth Science Museum of the geological Survey or the National Heritage Council must be notified immediately of the discovery via telephone, email or even office visit;
5. A paleontologist to consider the significance heritage resource discovered based on a site visit;
6. If the footprints are in a paleontological context, as evaluated upon site visit, further steps including detailed research must follow.

2.6. Chance Find Procedures: Historical Sites

A large number of historic objects and sites in Namibia have been recorded. Historic sites are found everywhere and in different contexts in Namibia. Locations where remnants of political, military, cultural or social history are quite common. Historic sites in Namibia are also protected by the National Heritage Act, (*No. 27 of 2004*), and many are recognized as official national historic monuments. Like other heritage resources, historical heritage resources are found in various contexts including: surface and sub-surface finds in private and public land, desert, conservancies, national parks or in areas of proposed mining and infrastructure development. These too, are subjected to heritage surveys and assessments. Historical remains or sites that might be immediately visible to a non-historian, archaeologists and heritage specialists includes:

- Surface features from political and military contexts including: ammunitions, canons, guns, military clothes, bags, shoes, bottles etc.;
- Surface features such as depressions created by former historic habitations, historic graves, and human remains (bones) etc.,
- Artifacts that have become visible on the land surface owing to erosion or recent land altering activities may include a variety of materials such as household utensils, clothes, wooden objects, porcelain etc.

2.6.1 Response of personnel or individuals

The following responses should be undertaken in the event of historic finds:

1. The farm owner, individual or foreman of the project must report the discovery at the nearest police station or Superintendent of the project immediately.
2. The discoverer must not damage, remove, collect or alter historic the object (s) or sites
3. The Police officer must notify immediately the National Heritage Council of Namibia via telephone, email or even office visit.
4. A qualified heritage specialist from the National Heritage Council will be deployed to inspect the site and determine in consultation with the farm owner or superintendent of a project the significance of the discovery. Action 2: The responsible field person (site foreman or EC Officer) must record the following information:
 - Position of the historic material
 - Depth of find in hole;
 - Digital image of the hole showing the vertical section (side); and
 - Digital images of the historic material (s).

2.7. Chance Find Procedures: Shipwrecks

Due to the subsurface nature of archaeological material, the possibility of the occurrence of such finds cannot be excluded. Shipwrecks are found along the Namibian coastline or sunken to the body of Namibian water. This body of water may be in a restricted mining area, heritage or environmental sites. Shipwrecks can be discovered deliberately or accidental. Therefore, if during mining or infrastructure developments projects, fishing or deep-sea exploration any possible shipwreck finds is made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find/s.

2.7.1 Response of personnel

The following responses and actions should be undertaken by personnel in the event of shipwreck finds:

Responsibilities:

1. Operator
2. Foreman
3. Superintendent
4. Marine Archaeologist

Procedures:

Exercise due caution if shipwreck remains are found
 Secure site/area and advise management immediately
 Determine safe working boundary and request inspection
 Contact the contracted archaeologist.
 Inspect, identify, advise management, inform the NHC and NMN in order to recover the remains.

Actions by operator:

Action by person (operator) identifying a shipwreck:

- f) If operating machinery or equipment: stop work
- g) Identify the site with flag tape
- h) Determine GPS position, if possible
- i) Take Photographs of the shipwreck and materials, if possible
- j) Report findings to foreman

Action by Site Foreman:

- d) Report findings, site location and actions taken to superintendent
- e) Cease any works in the immediate vicinity
- f) The responsible field person (site foreman) must record the following information:

- Position (of the shipwreck);
- Depth of find;
- Digital image of the shipwreck and its content, if possible.

Action by Site Superintendent:

- d) Visit site and determine whether work can proceed without damage to findings
- e) Determine and mark exclusion boundary
- f) Site location and details to be added to Archaeological Heritage Geographical Information System for the project.

Action by a marine archaeologist

- c) Inspect the site and confirm in addition to S & F report
- d) Advise National Heritage Council (NHC) and request written heritage permission either to remove findings from work area or as directed.

2.7.2. Further response by a marine archaeologist in the event shipwreck is discovered:

- a) Actions as above;
- b) Field inspection by archaeologist to confirm the shipwreck and its content
The archaeologist will assess the information and liaise with the developer of the project in consultation with the environmental consultant, Police and NHC in which a field assessment will be commissioned. Such field assessment will most likely to have the following outcomes:
 - If human remains or highly significant heritage resources are found, the appropriate authorities, in these cases (the National Heritage Council of Namibia, the National Museum of Namibia, National Forensic Laboratory, or as directed) are to be contacted.
 - The find are in an archaeological or historical contexts, the site must be evaluated by a qualified archaeologist to decide if a rescue excavation is feasible, or an avoidance of the site is optional.

It will be probably be feasible to avoid the find (and its site) and continue to the excavation farther along, or proceed to the next excavation, so that the work schedule is minimally disrupted. In consultation with the developer/owner of the project and the environmental consultant, the following options should be considered by the archaeologist when deciding on how to proceed:

Option 1: Avoidance

Avoidance of the highly significant site through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from heritage resource practitioners.

Option 2: Rescue Excavation

Rescue excavation refers to the “no option” situation where avoidance is not feasible due to magnitude of the finds, financial and time constraints. The process can inevitably delay construction and rescue excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It will involve the following:

- Obtaining a heritage permit to remove the archaeological remains;
- It could involve the removal of remains from the immediate site to a suitable place for temporary “stockpiling”.
- Removal of remains to National Museum or National Forensic Laboratory, as directed or;
- If human reburial is the appropriate measure, the authority is to be contacted. A human

burial specialist must evaluate the find.

In principle, the strategy during the mitigation is to “rescue” the material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the condition of the remains. The methods of collection would depend on the preservation or fragility of the materials.

3. CONCLUSION

The CFP's presented in this document serve as international best practice policy for the accidental discovery of heritage resources. Based on the definitions provided within this document and the proposed lines of communication, the National Heritage Council of Namibia hoped that the Namibian public is well equipped with appropriate response guidelines to follow where heritage resources are discovered in Namibia.

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