



PROJECT DETAILS

APP-00 3911

Title	ENVIRONMENTAL MANAGEMENT PLAN FOR THE RENEWAL OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE CONTINUED MINING ACTIVITIES FOR DIMENSION STONES, ON MINING CLAIMS 72740, 72741 & 72742 AT FARM BERGHOEK 506, REHOBOTH DISTRICT, HARDAP REGION.		
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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
RRC	Rehoboth Rural Constituency
S	Section
TB	Tuberculosis

1 INTRODUCTION

GFG Slasto Supplies CC is a supplier of quality products made of natural stone which comes from the Naukluft Mountains in the south western part of Namibia. The natural stone products can be in their natural (slasto and building stone) or processed (slate tiles, riven walling slate tiles and rock face tiles) form.

The company was established in 2006 and has grown over the years to become one of the leading suppliers of slasto and building stone in Namibia. In 2014 the company received various prestigious awards in recognition of its growth and excellence, 2014 Gold Award for Overall Best SME - Made in Namibia Expo, 2014 Gold Award for Best Mining Products: SME Sector - Made in Namibia Expo and 2014 Silver Award for NMA Manufacturer of the Year 2014: SME Sector - Namibia Manufacturers, Gold Award for NMA Manufacturer of the Year 2015: SME Sector - Namibia Manufacturers Association. Silver Award for NMA Manufacturer of the Year 2016: SME Sector - Namibia Manufacturers Association. The proponent, GFG Slasto Supplies CC intends to mine dimension stone targeting slate from the mining claims; 72740, 72741 and 72742 situated at Farm Berghoek 506, Rehoboth district, Hardap Region, Namibia and therefore an Environmental Clearance Certificate (ECC) must be issued to undertake this listed activity in a sustainable manner.

The Government recognises the important contribution of the mining industry to the social and economic development of Namibia. The industry has been a significant part of the economy since the turn of the century. Namibia is fortunate to host a wide range of mineral deposits, a number of which are considered to be world class such as diamonds and uranium. In addition, the country is blessed with other mineral resources such as gold, base metals, industrial minerals, a wide variety of semi-precious stones and several types of dimension stones. The mineral resource potential of the country is indeed abundant and has yet to be fully tapped for the benefit of the nation. To achieve a sustained contribution of the mining sector to the economy, the Government has created a conducive and enabling legislative, fiscal and institutional environment to attract private sector driven exploration and in which mining companies can thrive. The Ministry of Mines and Energy has taken steps to revitalise and promote the mining industry through reviews of mining legislation and the formulation of a Minerals Policy that will further enhance Namibia as an attractive investment destination. (Draft Minerals Policy of Namibia, MME).

It is with this background that GFG Slasto Supplies, which is a proudly Namibian supplier of products made of natural stone which comes from the Naukluft Mountains in the south western part of Namibia. The natural stone products can be in the natural form (slasto and building stone) or processed form (slate tiles, riven walling slate tiles and rock face tiles). These mined dimension stone products can be applied and used for anything concerning building (construction); it will depend on the architects or designers ideas and plans. The stones add a lot of value to property and gives it a more home grown indigenous design rather than the euro centric approach (<http://www.gfgslasto.com> , accessed 22/05/2022).

Due to increased population growth in Namibia, construction of housing, business buildings etc. is constantly taking place. The raw materials needed for construction are often imported from neighbouring countries which is often expensive. In an effort to reduce costs and manufacture construction materials locally natural slate/dimension stone mining has gained momentum in Namibia over the past years. However uncontrolled natural resource mining has resulted in negative environmental effects in the respective areas. This has been largely attributed to the fact that people were under no obligation to rehabilitate the affected areas and thus left behind large open pits which pose a danger to both humans and animals.

GFG Slasto Supplies CC, hereinafter referred to as the proponent intends to carry out the following activity:

- **Environmental Assessment (EA) for the continuation of mining activities for dimension stones, on mining claims 72740, 72741 & 72742 at Farm Berghoek 506, Rehoboth district, Hardap Region, Namibia.**

The objective of updating the Environmental Management Plan (EMP) is thus needed in order to assess the socio-economic issues and audit the environmental impacts associated with the on-going operations and mining of dimension stones, on mining claims 72740, 72741 & 72742 at Farm Berghoek 506, Rehoboth District, Hardap Region and also to update the initially prescribed methods of mitigation & 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 entails the extraction of dimension (slate) stones for construction 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 dimension (slate) stones for construction purposes.
Activity 3.3 (Mining and Quarrying Activities)	Resource extraction, manipulation, conservation and related activities.	The proposed project entails the extraction of dimension (slate) stones for construction purposes.

An Environmental Management Plan (EMP) is one of the most important outputs of the EA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. The knowledge of baseline conditions comes through monitoring of environmental parameters; the bi-annual monitoring program will serve as an indicator for environmental conditions due to operation of the project. Monitoring is an important tool for the management, environmentalist and policy makers to make changes in pollution control equipment, environmental policy to reduce the environmental impacts of the mining operations. It is a decision making tool for the state of environment carried out through periodic monitoring. Regular monitoring program of the environmental parameters is essential to take into account the changes in the environmental quality over the period of time to comply environmental conditions necessary to save environment. The environmental consultant (HEEC) will carry out biannual environmental audits during the lifespan of these dimension stone mining claim sites. This EMP details the mitigation and monitoring actions to be implemented during the following phases of these developments:

- Slate stone 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 slate stone from the project site to be used for construction purposes;
- Tile Cutting Phase- the period during which the proponent processes the excavated natural slate stones, by cutting them into smaller dimensions so that they can be used as tiles by the customers.

The rehabilitation of the quarries at the mining claim sites once activities have ceased is highly recommended so as to ensure that the subject area assumes economically viable alternative land uses and not pose a drowning threat/injury to the livestock and locals making use of this farmlands; when the event occurs then some recommendations have been outlined in **Table 5**.

2 ROLES AND RESPONSIBILITIES

The proponent (GFG Slasto Supplies CC) is ultimately responsible for the implementation of the EMP, from the slate stone mining phase to the tile cutting phase of the existing slate stone mining activities at the mining claims 70322; 70323 & 70324. The proponent will delegate this responsibility as the project progresses 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
- Contractor (GFG Slasto Supplies CC).

2.1 PROPONENT'S REPRESENTATIVE

GFG Slasto Supplies CC, the proponent, should assign the responsibility of managing all aspects of this development for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Proponent's Representative (PR). The proponent may decide to assign this role to one person for the full duration of these developments, or may assign a different PR to each of the development phases – i.e. one for the slate stone mining and tile cutting & one for the quarry rehabilitation phase. 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
Suspending/evicting individuals and/or equipment not complying with the EMP	<ul style="list-style-type: none"> • Slate stone mining • Tile cutting • Quarry rehabilitation
Issuing fines for contravening EMP provisions	<ul style="list-style-type: none"> • Slate stone mining • Tile cutting • Quarry rehabilitation

2.2 ENVIRONMENTAL CONTROL OFFICER

The PR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the on-going slate stone mining; tile cutting & quarry rehabilitation phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The PR/GFG Slasto Supplies CC may decide to assign this role to one person for all three activities, or may assign a different ECO for each activity. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

- Management and facilitation of communication between the Proponent, PR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting 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);
- Assisting the Contractor in finding solutions with respect to matters pertaining to 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 ON-GOING SLATE STONE MINING, TILE CUTTING & QUARRY REHABILITATION CONTRACTOR

A contractor, in this case being the proponent, conducts the on-going slate stone mining, tile cutting & quarry rehabilitation activities at Farm Berghoek 506 and is therefore automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. The on-going slate stone mining, tile cutting & quarry rehabilitation contractor will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. **Table 3** applies to contractors appointed during the slate stone mining phase and **Table 4** to those appointed during the tile cutting phase. In order to ensure effective environmental management the aforementioned chapters should be included in the applicable contracts for outsourced work relating to the intended activities.

The tables in the following chapter (**Chapter 3**) detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

2.4 Covid19 INFECTION PREVENTION AND CONTROL MEASURES

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus i.e. severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and its associated variants such as the South African that contains a mutation known as N501Y which is believed to make the virus more contagious than older variants. Another mutation, called E484K, could help the virus dodge a person's immune system and may affect how well coronavirus vaccines work (<https://www.dw.com/en/south-africa-variant-which-covid-19-vaccines-work/av-56500005>, accessed 12/02/2021). The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. These droplets are too heavy to hang in the air, and quickly fall on floors or surfaces. You can be infected by breathing in the virus if you are within close proximity of someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose or mouth.

Employers must implement a code of practice to manage and prevent the spread of COVID-19. This is to ensure that mine employees returning to work and any other persons at the mine site, are protected from transmission of the coronavirus at the workplace, whilst providing guidance to all stakeholders regarding their roles and responsibilities in the management of the virus. The regulations require mine operators to supply protective equipment, screen all people entering the mine, provide standby quarantine facilities before transferring infected persons to the state quarantine centres, identify those with pre-existing conditions and carry out routine disinfection.

They also have to keep mineworkers between one and two metres apart. Failure to enforce the rules would constitute a violation of the nationwide Covid19 regulations as stipulated by the Head of State and the relevant arms of government to curb the spread of the corona virus.

After arrival of employees at the mining site, employers should comply with the following:

- Infection prevention and control measures should be applied to all modes of transport for employees, screening areas and active work areas.

2.4.1 Education of workers should be given on:

Maintaining physical distancing. Ensure employees and staff keep a distance of at least 1-2 m when in contact with other people; where this is not possible, issue appropriate facemasks, as per the Guidance on PPE for COVID-19.

- Regular washing of hands with soap.
- Regular sanitising of hands with alcohol-based hand rub (ABHR) or other appropriate sanitisers.
- Avoid touching your face areas (mouth, eyes and nose).
- Avoid physical hand contact such as handshakes.
- Avoid using other people's personal belongings such as stationery, cell phones and sharing food etc.
- When coughing or sneezing do not use your hands, rather use a tissue/toilet paper or the inside of your elbow.
- Use disposable tissues rather than a handkerchief; immediately dispose of these tissues in a closed bin and wash or sanitise your hands thereafter.
- Avoid big crowds and travelling.
- Avoid touching objects before sanitising, like steering wheels on machinery, toilet seats, tables and chairs.
- Coach and teach family members.
- Wearing and handling of appropriate PPE.

- a) Posters on Infection Prevention to be visible at designated areas of the mining claim sites (See **Figure 1** for a typical Covid19 information poster).



Figure 1: Typical COVID-19 information poster to be placed at designated areas at the mining site.

- b) Sanitisers (as per World Health Organisation guidelines) should be made available at the entrance and exit points of all screening facilities, security entrances and all entrances and exits at the common areas at the mining camp, and at the starting points and end points of all places where close contact among workers is likely to occur, including in underground working places.
- c) Sanitisers (as per World Health Organisation guidelines) should be available in each consultation room and testing areas at the screening centre, and sanitisation should take place before and after every consultation.
- d) PPE is required for all staff, and PPE management programmes should be in place to ensure that PPE is worn correctly (including fit testing), replaced as necessary, stored correctly and disposed of safely.
- e) Employees not able to socially distance by 1 m should be provided with PPE as per the Guidance on PPE for COVID-19.
- f) Re-enforce compliance with the taking of chronic medication.

2.5 Screening and testing at the designated areas

Employers should comply with the following:

- a) Where there is company accommodation, initial pre-screening should be done at the residences, before getting to the work site. This is to isolate and quarantine any possible cases and suspects.
- b) At work, pre-screening of workers should be done before entering the facility (at the gate) either by nursing or security staff as per agreed-on protocol. This should include a temperature check.
- c) Employees with elevated temperatures should be referred directly to the isolation area for assessment by a Registered Nurse.
- d) Employees who do not have elevated temperatures should be referred to the site office for COVID-19 Risk Assessment and to complete a return to work medical (**Annexure B**).

2.6 Continuous Measures

Employers should comply with the following:

- a) Training of staff and employees.
- b) Continually re-enforcing of universal hygiene precautions.
- c) Enforce physical distancing in the workplace.
- d) Continue use of facemasks.
- e) Promotion of good hygiene practices.

The employer should allocate an appropriate person to monitor and document compliance with this EMP specifically for ensuring adherence to the Covid19 regulations as continually prescribed as the pandemic is monitored and as per WHO guidelines.

3 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP 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 management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these activities. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 2**);
- Slate stone mining & Tile cutting Actions (**Table 3**);
- Quarry rehabilitation Management Actions (**Table 4**); and
- Decommissioning phase management actions (**Table 5**).

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

3.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been updated based on the scoping-level Environmental Assessment (EA) conducted for the operation and management of the on-going slate stone mining & quarry rehabilitation activities as represented in Figure 2. HEEC will not be held responsible for the potential consequences that may result from any alterations to the agreed course of action in terms of the intended activities in the surrounding Namib Naukluft Mountain area.

It is assumed that labourers will be sourced mostly from the Rehoboth Rural Constituency area and that migrant labourers (if applicable) will be housed within established accommodation facilities on Farm Berghoek 506, whilst more modern housing facilities are being constructed.

3.2 APPLICABLE LEGISLATION

There are multiple 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 on-going slate stone mining & quarry rehabilitation 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 forefront of management of the on-going mining activities.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principles of Environmental Management	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 on-going slate stone mining, tile cutting & quarry rehabilitation activities 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 the on-going slate stone mining & quarry rehabilitation activities do not lead to the degradation of the natural beauty of the surrounding Namib Naukluft Mountain 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 on-going slate stone mining, tile cutting & 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.	On-going slate stone mining; tile cutting & 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 on-going slate stone mining, tile cutting & quarry rehabilitation activities, compliance with the law is essential.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform	On-going slate stone mining, tile cutting & quarry rehabilitation

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	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).	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 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	The on-going activities involve the mining of natural slate stones for construction purposes.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	specified in Part 2 of Schedule 1) if they are bona fide required for purposes of – (i) agriculture, building works, fencing or road making; (ii) the manufacture of bricks and tiles;	
Soil Conservation Act 6 of 1969 Ministry of Agriculture, Water and Forestry	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	Soils should not be polluted or left un-rehabilitated.

3.3 PROJECT LOCATION

The proponent intends to continue mining dimension stone as natural slates on mining claims at Farm Berghoek 506 located about 10 km from the C 14 road from Bullsport to Maltahohe, in the vast rocky areas of the Naukluft Mountains in the south western part of Namibia where the mining and processing (tile cutting) takes place. Refer to the locality map of Farm Berghoek 506 in Figure 2, Figure 3 & 4 for the locality map of the subject sites.



Figure 2: Locality map of Farm Berghoek 506, Rehoboth District in the Hardap Region

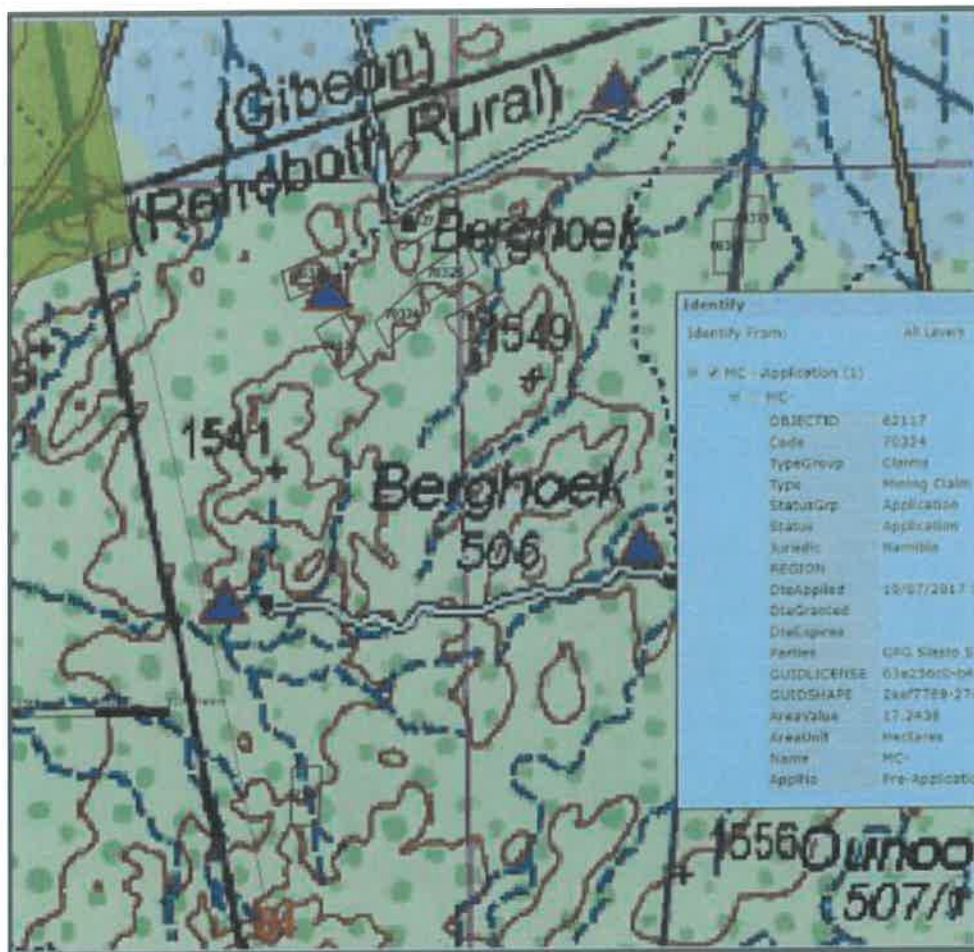


Figure 3: Locality map of showing the existing mining claims 72740 to 72742 (purple triangles) at Farm Berghoek 506.

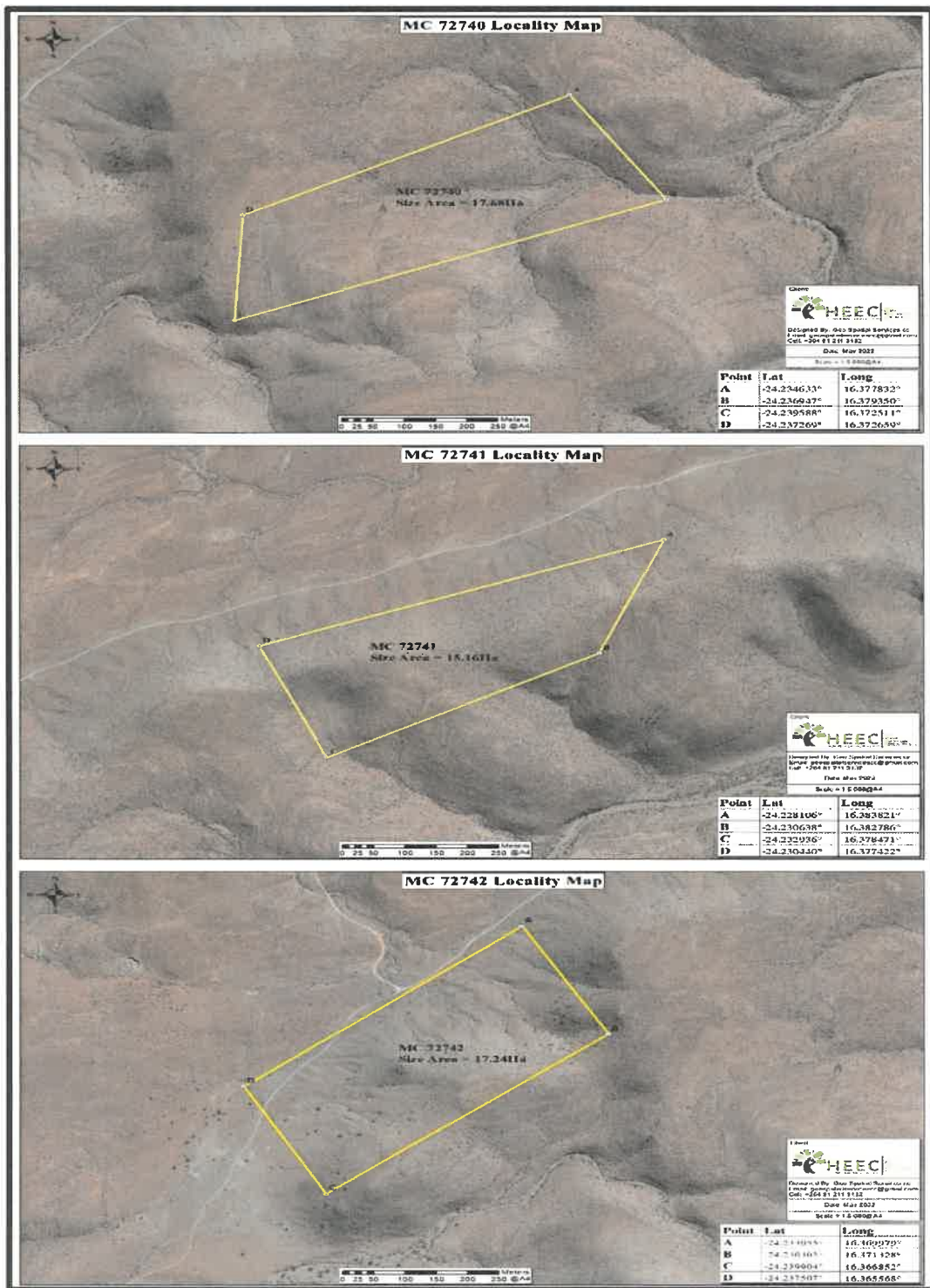


Figure 4: Locality map of showing the active mining claims 72740 to 72742 at Farm Berghoek 506 (HEEC, 2022).

3.4 SLATE STONE MINING PHASE

The PR should ensure that the management actions detailed in **Table 3** below should be adhered to during the on-going operation of the slate stone mining activities.

Table 3: Slate stone mining Phase Management Actions

Aspect	Management Actions
Environmental Incidents	<ul style="list-style-type: none"> • The ECO on site shall maintain a register of all environmental incidents occurring as a result of the activities associated with the project. Environmental incidents that 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. • Environmental incident reports shall 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. • 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 main D855 road. • Designate no-drive zones. • Implement traffic control measures where necessary by keeping a number plate register of all vehicles transporting slate at the site and restricting access to authorised contractors.
Quarries/Natural slate stone mining claim areas	<ul style="list-style-type: none"> • Natural slate stones should be sourced from quarries with a valid ECC. • The natural slate stone mining claims must be clearly demarcated by means of a perimeter stock-proof fence with a lockable gated entrance.

Aspect	Management Actions
	<ul style="list-style-type: none"> • Natural slate stone mining and resultant operations shall only take place within this demarcated area/claim. • A detailed photographic record of the demarcated mining claim 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 site. • There will be 'No unauthorised access' signs at the Farm Berghoek 506 gates until to restrict entry and/or harm to people not involved in the natural slate stone mining operations.
EMP training	<p>All workers at the site are to 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. • Discussion of the potential environmental impacts of the intended natural slate stone mining, tile cutting and quarry 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 the natural slate stones should incorporate existing trees¹. • The Contractor should compile a Tree 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, coordinates/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;

¹a "tree" is defined as an indigenous woody perennial plant with a trunk diameter ≥ 150 mm

Aspect	Management Actions
	<ul style="list-style-type: none"> ○ The Contractor should apply to the relevant authority (Ministry of Agriculture, Water & Forestry) for a permit to remove these trees. ○ 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 a commercial nursery such as the Forestry office in Rehoboth or the Namib Tree CC nursery in Windhoek. 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. ● Prevent contractors from collecting wood and veld food such as amphibians, migrating birds, etc. during the slate stone mining phase. ● Prevent contractors from fishing in the nearby ephemeral rivers or catching aquatic species.
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 PR 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. wetlands/rivers/drainage lines)
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.

Aspect	Management Actions
	<ul style="list-style-type: none"> Spilled cement and/or concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. 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.
Surface and Ground Water Impacts	<ul style="list-style-type: none"> It is recommended that slate stone mining takes place outside of the rainy season in order to limit erosion & 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 should be limited where possible to the existing access roads and tracks. 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.
Topsoil	<ul style="list-style-type: none"> When excavations are carried out, topsoil² should be stockpiled in a demarcated area and used in profiling and rehabilitating of the depleted, open quarries at the mining claims at Farm Berghoek 506. Stockpiled topsoil should be used to rehabilitate post-harvesting degraded areas and/or other nearby degraded areas within the Rehoboth Rural Constituency.
Soil Erosion	<ul style="list-style-type: none"> Clear the vegetation of the project area in phases during the slate stone 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 slate stone mining takes place outside of the rainy season in order to limit potential flooding and the run off of loose soil causing further erosion.

² Topsoil is defined here as the top 150mm of surface material, which accounts for the seedbank.

Aspect	Management Actions
	<ul style="list-style-type: none"> • Appropriate erosion control structures must be put in place where soil may be prone to erosion. • Checks must be carried out at regular intervals to identify areas within the mining claim 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 slate stone mining phase consultations should be held with the local community/property owner(s) regarding the post-slate stone mining use of remaining excavated areas (if applicable) and to identify priority areas. • Sand/rubble at the site should be levelled so it can be reclaimed for other purposes once the slate stone mining has ceased and rather than leaving the quarries open which will pose a threat to people and animals in the area. • In the event that no post-operation uses are requested, all excavated/degraded areas need to be rehabilitated as follows: <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.
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. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases.

Aspect	Management Actions
	<ul style="list-style-type: none"> • Provide free condoms in the workplace and to local community throughout project operation. • Facilitate access to Antiretroviral medication • Personnel should not overnight at the slate stone mining claim sites, but only the security personnel.
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. • 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. • Consideration should be given to possibly tar the road leading to the mining claims which could reduce dust emissions onsite.
Safety around work sites	<ul style="list-style-type: none"> • Excavations/quarries should be left open for the shortest time possible. • Excavate short lengths of trenches and box areas for services or foundations in a manner that will not leave the trench unattended for more than 24 hours. • Demarcate 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. • Quarries are to be fenced-off with stock-proof perimeter fencing. • 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. • Only slate stone mining personnel will be allowed within these work areas.

Aspect	Management Actions
	<ul style="list-style-type: none"> • 2 fire extinguishers should be available at fuel storage areas. • Comply with all waste related management actions stated above in this table.
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 every construction 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. 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.
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 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. • No workers should be allowed on the mining claims/quarries if under the influence of alcohol.
Dust	<ul style="list-style-type: none"> • A watering truck should be used on gravel roads with the most heavy 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.

Aspect	Management Actions
	<ul style="list-style-type: none"> • 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 contractor must make the decision to cease works until the wind has calmed down.
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> <p>➤ 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.</p>
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.). • Recruitment should not take place at the slate stone 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	<p>The Contractor or PR should draft a Communication Plan, which should outline as a minimum the following:</p> <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;

Aspect	Management Actions
	<ul style="list-style-type: none"> • 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 Contractor, I&APs and GFG Slasto Supplies CC management. • The Contractor shall at every bi-monthly site meeting report on the status of the implementation of all provisions of the EMP. • The Contractor should implement the EMP awareness training as stipulated above in this table. • The Contractor 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/borrow pits. • The Contractor 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 slate stone 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;

Aspect	Management Actions
	<ul style="list-style-type: none"> ○ Determine GPS position if possible; ○ Report findings to the site foreman; ○ 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 slate stone 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. <p>Should human remains be found, the following actions will be required:</p> <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 TILE CUTTING PHASE

The management actions included in **Table 4** below applies during the tile cutting phase of the project.

Table 4: Tile Cutting Management actions

Environmental Feature	Management Actions
EMP training	All contractors appointed for the transportation of the slate stones to the tile cutting site on Farm Berghoek 506 as well as those employed to cut, handle and pack the tiles must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.
Monitoring	The ECO should monitor the implementation of this EMP:

Environmental Feature	Management Actions
	<ul style="list-style-type: none"> • The ECO should regularly inspect the conditions around the tile cutting site before work starts; and • The ECO should inspect the tile cutting site at the end of the manufacturing period.
Water and waste management	<ul style="list-style-type: none"> • Ensure that the infrastructure at the tile cutting site is connected to the local drainage and wastewater reticulation. • Regular preventative maintenance should be carried out on the infrastructure to ensure that risks of overflows 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 Contractor 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. bags of cement) must be suitably stored and protected, so that they do not become damaged and unusable. • The Contractor shall be responsible for the regular disposal (at suitable and licensed municipal waste disposal facilities) of all waste generated as a result of the tile cutting. • Contaminated runoff from the various operational activities should be prevented from entering any surface water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Disposal of waste from the properties should be properly managed. • No waste may be burned on site.

Environmental Feature	Management Actions
	<ul style="list-style-type: none"> • 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' housing design in order to reduce water demand.

3.6 DECOMMISSIONING PHASE

Mine closures can be planned for and should form part of an integrated land use strategy that involves the community. The decommissioning of the slate stone mining at the mining claim sites is envisaged in the future. Planned closure, in consultation with the community, provides the opportunity to develop alternative land uses through rehabilitation, and to use the remaining infrastructure for other economic purposes such as small stock farming. 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 on-going slate stone mining, tile cutting & quarry rehabilitation activities (Table 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 laid out in Table 4 above.

4 ANNEXURE A- WATER QUALITY GUIDELINES

THE WATER ACT, 1956 (ACT 54 OF 1956) AND ITS REQUIREMENTS IN TERMS OF WATER SUPPLIES FOR DRINKING WATER AND FOR WASTE WATER TREATMENT AND DISCHARGE INTO THE ENVIRONMENT

1. INTRODUCTION

The provisions of the Water Act are intended, amongst other things, to promote the maximum beneficial use of the country's water supplies and to safeguard water supplies from avoidable pollution.

The drinking water guidelines are not standards as no publication in the Government Gazette of Namibia exists to that effect. However the Cabinet of the Transitional Government for National Unity adopted the existing South African Guidelines (461/85) and the guidelines took effect from 1 April 1988 under the signature of the then Secretary for Water Affairs.

The sections of the Water Act that relate to the discharge of industrial effluents are: -
Section 21(1) which states that

- The purification of waste water shall form an integral part of water usage and
- that purified effluents shall comply with the General Standard Quality restrictions as laid out in Government Gazette R553 of 5 April 1962 and
- Section 21(2) which further stipulate that this purified effluent be returned as close as possible to the point of abstraction of the original water.

Where a local authority has undertaken the duty of disposing of all effluents from an industrial process the provisions of Section 21(1) and 21(2) apply to the local authority and not the producer of the effluents. If there is difficulty in complying with these provisions then the applicant may apply for an exemption from the conditions in terms of Section 21(5) and 22(2) of the Water Act. The Permanent Secretary after consultation with the Minister may grant the issuance of a Waste Water Discharge Permit under Sections 21(5) and 22(2) subject to such conditions as he may deem fit to impose.

After independence, the Government of the Republic of Namibia decided that for the interim the existing guidelines will continue to be valid and to remain in use until a proper study has been conducted and new standards have been formulated (Article 140 of Act 1 of 1990).

2. GUIDELINES FOR THE EVALUATION OF DRINKING-WATER QUALITY FOR HUMAN CONSUMPTION WITH REGARD TO CHEMICAL, PHYSICAL AND BACTERIOLOGICAL QUALITY

Water supplied for human consumption must comply with the officially approved guidelines for drinking-water quality. For practical reasons the approved guidelines have been divided into three basic groups of determinants, namely:

- Determinants with aesthetic / physical implications: TABLE 1.
- Inorganic determinants: TABLE 2.
- Bacteriological determinants: TABLE 3.

2.1 CLASSIFICATION OF WATER QUALITY

The concentration of and limits for the aesthetic, physical and inorganic determinants define the group into which water will be classified. See TABLES 1 and 2 for these limits. The water quality has been grouped into 4 quality classes:

- 2.1 Group A: Water with an excellent quality
- 2.2 Group B: Water with acceptable quality
- 2.3 Group C: Water with low health risk

Group D: Water with a high health risk, or water unsuitable for human consumption.

Water should ideally be of excellent quality (Group A) or acceptable quality (Group B), however in practice many of the determinants may fall outside the limits for these groups.

If water is classified as having a low health risk (Group C), attention should be given to this problem, although the situation is often not critical as yet.

If water is classified as having a higher health risk (Group D), urgent and immediate attention should be given to this matter.

Since the limits are defined on the basis of average lifelong consumption, short-term exposure to determinants exceeding their limits is not necessarily critical, but in the case of toxic substances, such as cyanide, remedial measures should immediately be taken.

The overall quality group, into which water is classified, is determined by the determinant that complies the least with the guidelines for the quality of drinking water.

TABLE 1: DETERMINANTS WITH AESTHETIC / PHYSICAL IMPLICATIONS

DETERMINANTS	UNITS*	LIMITS FOR GROUPS			
		A	B	C	D**
Colour	mg/l Pt***	20			
Conductivity	mS/m !at 25 °C	150	300	400	400
Total hardness	mg/l CaCO ₃	300	650	1300	1300
Turbidity	N.T.U****	1	5	10	10
Chloride	mg/l Cl	250	600	1200	1200
Chlorine (free)	mg/l Cl	0,1- 5,0	0,1 – 5,0	0,1 – 5,0	5,0
Fluoride	mg/l F	1,5	2,0	3,0	3,0
Sulphate	mg/l SO ₄	200	600	1200	1200
Copper	µg/l Cu	500	1000	2000	2000
Nitrate	mg/l N	10	20	40	40
Hydrogen Sulphide	µg/l H ₂ S	100	300	600	600
Iron	µg/l Fe	100	1000	2000	2000
Manganese	µg/l Mn	50	1000	2000	2000
Zink	mg/l Zn	1	5	10	10
pH****	pH-unit	6,0 – 9,0	5,5 – 9,5	4,0 – 11,0	4,0 – 11,0

- * In this and all following tables "l" (lower case L in ARIAL) is used to denote dm³ or litre
 2.3 All values greater than the figure indicated.
 2.2 Pt = Platinum Units
 3.0 Nephelometric Turbidity Units
 **** The pH limits of each group exclude the limits of the previous group

TABLE 2: INORGANIC DETERMINANTS

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Aluminium	µg/l Al	150	500	1000	1000
Ammonia	mg/l N	1	2	4	4
Antimonia	µg/l Sb	50	100	200	200
Arsenic	µg/l As	100	300	600	600
Barium	µg/l Ba	500	1000	2000	2000
Beryllium	µg/l Be	2	5	10	10
Bismuth	µg/l Bi	250	500	1000	1000
Boron	µg/l B	500	2000	4000	4000
Bromine	µg/l Br	1000	3000	6000	6000
Cadmium	µg/l Cd	10	20	40	40
Calcium	mg/l Ca	150	200	400	400
Calcium	mg/l CaCO ₃	375	500	1000	1000
Cerium	µg/l Ce	1000	2000	4000	4000
Chromium	µg/l Cr	100	200	400	400
Cobalt	µg/l Co	250	500	1000	1000
Cyanide (free)	µg/l CN	200	300	600	600
Gold	µg/l Au	2	5	10	10
Iodine	µg/l I	500	1000	2000	2000
Lead	µg/l Pb	50	100	200	200
Lithium	µg/l Li	2500	5000	10000	10000
Magnesium	mg/l Mg	70	100	200	200
Magnesium	mg/l CaCO ₃	290	420	840	840
Mercury	µg/l Hg	5	10	20	20
Molybdenum	µg/l Mo	50	100	200	200
Nickel	µg/l Ni	250	500	1000	1000
Phosphate	mg/l P	1	See note below	See note below	See note below
Potassium	mg/l K	200	400	800	800
Selenium	µg/l Se	20	50	100	100
Silver	µg/l Ag	20	50	100	100
Sodium	mg/l Na	100	400	800	800
Tellurium	µg/l Te	2	5	10	10
Thallium	µg/l Tl	5	10	20	20
Tin	µg/l Sn	100	200	400	400
Titanium	µg/l Ti	100	500	1000	1000
Tungsten	µg/l W	100	500	1000	1000
Uranium	µg/l U	1000	4000	8000	8000
Vanadium	µg/l V	250	500	1000	1000

All values greater than the figure indicated.

Note FOR Table 2 on phosphate: Phosphates are not toxic and essential for all life-forms. Natural water will, however, seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. The general guideline for a concentration level to be aimed at is 1 mg/l as P. But in many cases this may be difficult to achieve technically. For this reason the Department will allow a phosphate concentration level of up to 5 mg/l as P in water intended for human consumption. Please refer also to the "Note on Phosphate" under Section 3: General Standards for Waste/Effluent.

2.2 BACTERIOLOGICAL DETERMINANTS

The bacteriological quality of drinking water is also divided into four groups, namely:

- Group A: Water which is bacteriological very safe;
- Group B: Water which is bacteriological still suitable for human consumption;
- Group C: Water which is bacteriological risk for human consumption, which requires immediate action for rectification;
- Group D: Water, which is bacteriological unsuitable for human consumption.

TABLE 3: BACTERIOLOGICAL DETERMINANTS

DETERMINANTS	LIMITS FOR GROUPS			
	A**	B**	C	D*
Standard plate counts per 1 ml	100	1000	10000	10000
Total coliform counts per 100 ml	0	10	100	100
Faecal coliform counts per 100 ml	0	5	50	50
E. coli counts per 100 ml	0	0	10	10

□ All values greater than the figure indicated.

** In 95% of the samples.

NB If the guidelines in group A are exceeded, a follow-up sample should be analysed as soon as possible.

2.3 FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

The recommended frequency for bacteriological analysis of drinking water is given in Table 4.

TABLE 4: FREQUENCY FOR BACTERIOLOGICAL ANALYSIS

POPULATION SERVED	MINIMUM FREQUENCY OF SAMPLING
More than 100 000	Twice a week
50 000 – 100 000	Once a week
10 000 – 50 000	Once a month
Minimum analysis	Once every three months

3 GENERAL STANDARDS FOR WASTE / EFFLUENT WATER DISCHARGE INTO THE ENVIRONMENT

All applications in terms of Section 21(5) and 22(2), for compliance with the requirements of Section 21(1) and 21(2) of the Water Act (Act 54 of 1956) that purified water shall comply with the General Standard as laid out in Government Gazette Regulation R553 of 5 April 1962.

TABLE 5 GENERAL STANDARDS FOR ARTICLE 21 PERMITS (EFFLUENTS)

DETERMINANTS	MAXIMUM ALLOWABLE LEVELS
Arsenic	0,5 mg/l as As
Biological Oxygen Demand (BOD)	no value given
Boron	1,0 mg/l as B
Chemical Oxygen Demand (COD)	75 mg / l as O
Chlorine, residual	0,1 mg/l as Cl ₂
Chromium, hexavalent	50 Ng/l as Cr(VI)
Chromium, total	500 Ng/l as Cr
Copper	1,0 mg/l as Cu
Cyanide	500 Ng/l as CN
Oxygen, Dissolved (DO)	at least 75% saturation**
Detergents, Surfactants, Tensides	0,5 mg/l as MBAS – See also Note 2
Fats, Oil & Grease (FOG)	2,5 mg/l (!gravimetric method)
Fluoride	1,0 mg/l as F
Free & Saline Ammonia	10 mg/l as N
Lead	1,0 mg/l as Pb
Oxygen, Absorbed (OA)	10 mg / l as O*
pH	5,5 – 9,5
Phenolic Compounds	100 Ng/l as phenol
Phosphate	1,0 mg/l as P - See also Note 1
Sodium	not more than 90 mg/l Na more than influent
Sulphide	1,0 mg/l as S
Temperature	35°C
Total Dissolved Solids (TDS)	not more than 500 mg / l more than influent
Total Suspended Solids (TSS)	25 mg/l
Typical faecal Coli.	no typical coli should be counted per 100 ml
Zinc	5,0 mg/l as Zn

* Also known as Permanganate Value (or PV).

** In Windhoek the saturation level is at approx. 9 mg/l O₂.

Note (1) on phosphate: Phosphates are not toxic and essential for all life forms. Natural water will seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. There is no general guideline for phosphate contained in the Regulation 553. But generally it is assumed that eutrophication or algal bloom in dams is promoted by nutrient concentrations as low as 0,01 mg/l as P; generally a phosphate concentration limit for dams of 0,1 mg/l is recommended. All water that is consumed and subsequently discharged, will eventually end up in rivers, dams or

groundwater – that is why for potable water, a concentration level of 1 mg/l as P is aimed at.

But, again, in many cases of waste and effluent treatment, this may be difficult to achieve technically, or the required waste and effluent treatment infrastructure is not available; as the required infrastructure is sophisticated and expensive. The current situation calls for a compromise and for this reason, this Department will judge each application individually on its merits and allow, in certain cases, a phosphate concentration level of up to 15 mg/l as P in any effluent or waste stream to be discharged into the environment. This regulation is subject to be reviewed every two years, calculated from the date of approval of this document.

Note (2) on detergents, surfactants and ten sides: The MBAS (or methylene blue active substances) – test does not encompass all surface active compounds currently, commercially available. The limit given is therefore only a guideline. Many of the cleaning agents are toxic to biological life-forms in rivers and dams. It should be taken into consideration that some commercial products interfere with the effective removal of oil, fat and grease by grease and fat traps, by breaking up such long-chain molecules into shorter ones. These cleaning agents thus effectively allow such components to pass through the traps and land into sections of a treatment plant further down the line and interfere with the process there.

Many cleaning agents contain very powerful disinfectants, and/or biocides. Such substances may interact with biological treatment processes. They may reduce the effectiveness of such treatment or 'kill' it completely, if they land in septic tanks, biofilters or even activate-sludge plants. Their activity may be attenuated by dilution.

4. AUTHORIZATION

Herewith, the Guidelines for the Evaluation of Drinking Water for Human Consumption with regard to Chemical, Physical and Bacteriological Quality, as well as the General Standards for Article 21* Permits, amended for detergents, surfactants, ten sides, as well as phosphates, are confirmed and remain in force until further notice.

Issued under my hand with the authority vested in my office, within the Ministry for Agriculture, Water and Rural Development,

PERMANENT SECRETARY
Dr V Shivute

WINDHOEK,

DATE STAMP

5 ANNEXURE B: COVID-19 RISK ASSESSMENT FORM (AS AMENDED PERIODICALLY BASED ON DEVELOPING MEDICAL INFORMATION)

Return to Work Medical Screening

Surname:		First Name:		Company Number	
Date Of Birth:		Occupation:		Department:	
Date		Date		Length Of Service:	
Employed:		Discharged:			
1.					
Vital Data					
Blood Pressure				mmHg	
2. Pulse				Bpm	
Temperature				°C	
HGT (for known diabetics)				mmol/L	
3.		Have you ever had a serious occupational accident or an		Yes	
				No	

	occupational disease?									
	Describe									
	Chronic Disease						Yes		No	
	Hypertension									
	Diabetes									
	Epilepsy									
4.	Asthma									
	TB									
	Psycho-social problems **									
	If yes and symptomatic, or any vital signs out of normal limits, refer to the medical centre									
	** If yes, refer to the medical centre for referral for EAP									
	Do you take any medication (List Below)						Yes		No	
5.										

		Yes	No
Symptom Check			
Fever			
Cough			
6. Sore Throat			
Shortness of breath			
Any contact with person diagnosed with COVID—19			
If any symptoms are present refer the employee to the isolation area			
Status (Tick appropriate box)			
7. Fit to work			
Refer to medical centre			
Refer to isolation area			

I hereby declare that all the information furnished above is, to the best of my knowledge, true and correct and that no information has been omitted or withheld.

Signature of employee: _____

Assessed by: _____

- 6 ANNEXURE C: PREVIOUSLY ISSUED ENVIRONMENTAL CLEARANCE CERTIFICATE ON THE SAME MINING CLAIMS AREA UNDER DIFFERENT MINING CLAIM NUMBERS; PREVIOUSLY 70322, 70323 & 70324 NOW 72740, 72741 & 72742.**