

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

FOR THE OPERATIONS AND MANAGEMENT OF
GRAVEL MINING ACTIVITIES ON PORTION B OF
SWAKOPMUND TOWN AND TOWNLANDS NO. 41 IN
THE NONIDAS AREA, SWAKOPMUND

(UPDATED)



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AUGUST 2021

DOCUMENT INFORMATION

Project Name	Environmental Management Plan (EMP) for gravel mining on the remainder of portion B of the Swakopmund town and townlands No. 41 in the Nonidas Area.
Location	Swakopmund, Erongo region
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Report Type	Scoping Report and Environmental Management Plan
Assessment Period	December 2017
Updated	July – August 2021
Application Number.	APP-002852

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LIST OF ACRONYMS

DEAF	Directorate of Environmental Affairs and Forestry
EAP:	Environmental Assessment Policy
EAPAN:	Environmental Assessment Professionals Association of Namibia
ECC:	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA:	Environmental Impact Assessments
EMA:	Environmental Management Act
EMP:	Environmental Management Plan
ESR:	Environmental Scoping Report
FEL	Front End Loader
I&AP's:	Interested and Affected Parties
GN:	Government Notice
MEFT:	Ministry of Environment, Forestry and Tourism
NSA:	Namibia Statistic Agency
PPE:	Personal Protection Equipment
ToR:	Terms of Reference

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

Refuse Solutions cc has been issued with a temporary permit and an Environmental Clearance Certificate (ECC) for gravel mining on the remainder of Portion B of Swakopmund Town and Townlands No. 41. The site is located at about 11.5 km east of Swakopmund and about less than a kilometre north of the B2 national road in the Nonidas area.

The gravel mining site allocated to Refuse Solutions cc measures about 12.8764 hectares in total, of which 4.3 hectares has mined so far. The identified mining site is surrounded by portions of land also leased out for the same activity (gravel mining) to other operators.

This updated EMP was prepared in line with Section 8 (j) of the EIA Regulations (GN 30 of February 2012) for the renewal of the ECC to **Refuse Solutions cc**. The EMP contains aspects of the proposed management and mitigation measures to be taken to address the negative environmental impacts and enhancement measures for the positive environmental impacts identified during the initial EIA study. The EMP also addresses the compliance monitoring program of identified significant environmental impacts. The EMP will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) to achieve regulatory compliance and to request for the renewal of the ECC.

1.2 Objectives of the EMP

The EMP has the following objectives:

- To provide information on the potential negative impacts associated with the present and future gravel mining activities.
- Present mitigation measures for the identified negative impacts and enhancement measures for the positives impacts.
- To provide guidelines for the management and monitoring of the identified environmental issues.
- To provide guidelines to the responsible persons to follow appropriate contingency plans in the case of various possible impacts.

2. DESCRIPTION OF THE ACTIVITIES

2.1 Locality

The site is located at about 11.5 km east of Swakopmund on the remainder of Portion B of Swakopmund town and townlands No. 41, about 700 m north of Nonidas and the B2 road.



Figure 1: Locality for the gravel mining site for Refuse Solution

Elements	Description
Coordinates	A 37 062.29 69 762.44
	B 37'370.53 69 980.18
	C 37 494.08 69 620.49
	D 37 191.70 69 442.55

2.2 Site Extent

The site allocated to Refuse Solutions cc measures about 12.8764 of which 4.3 hectares has been mined out so far.

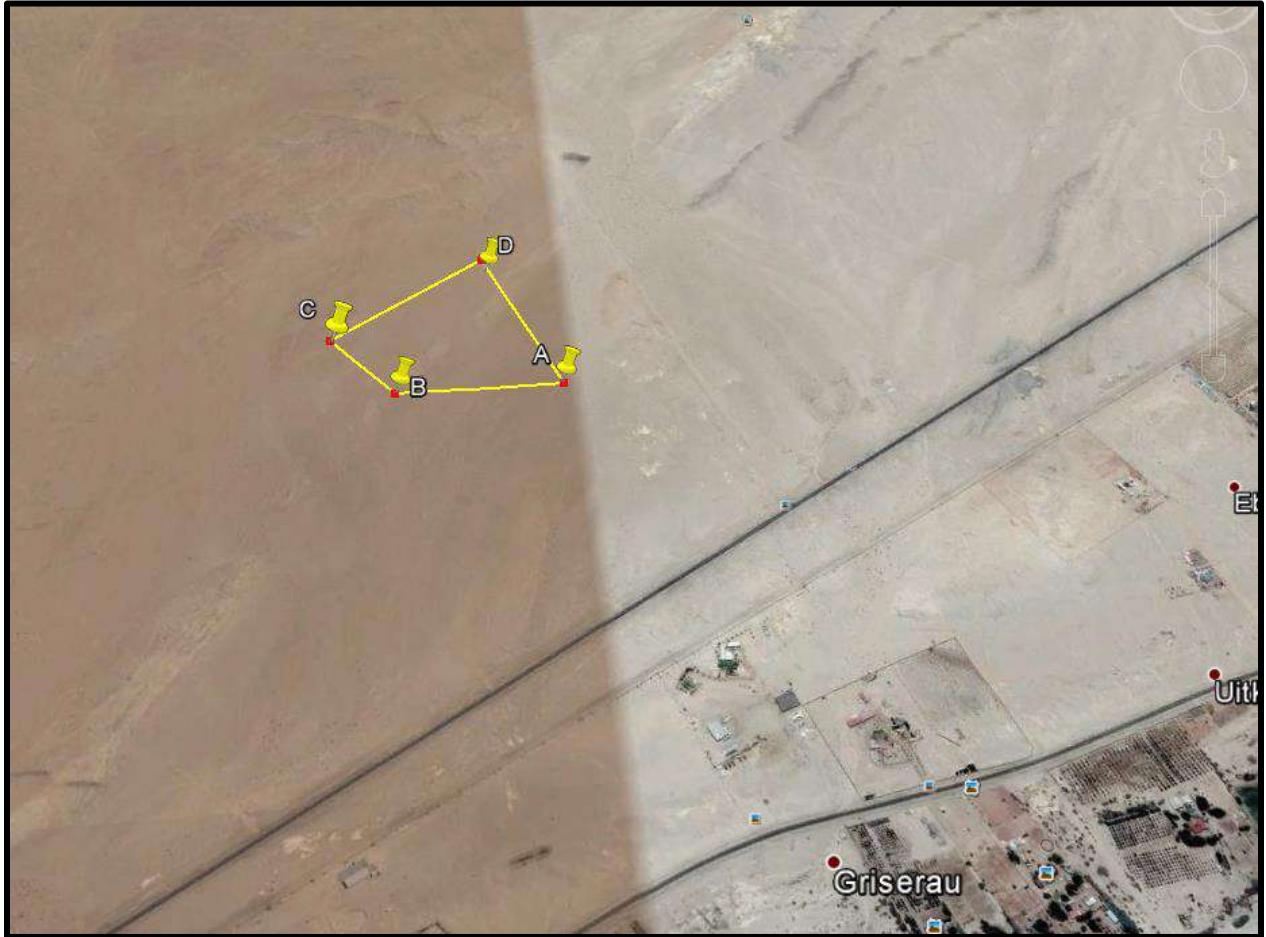


Figure 2: Site extent (Source: Google Earth, 2021)

2.3 Land use context

About 25.25 hectares of the Portion B of Swakopmund townlands No. 41 has been allocated for gravel mining purposes. There are three gravel mining operators who were given permission to conduct gravel mining in the area including Refuse Solutions cc (Refer to Figure 3 A below).

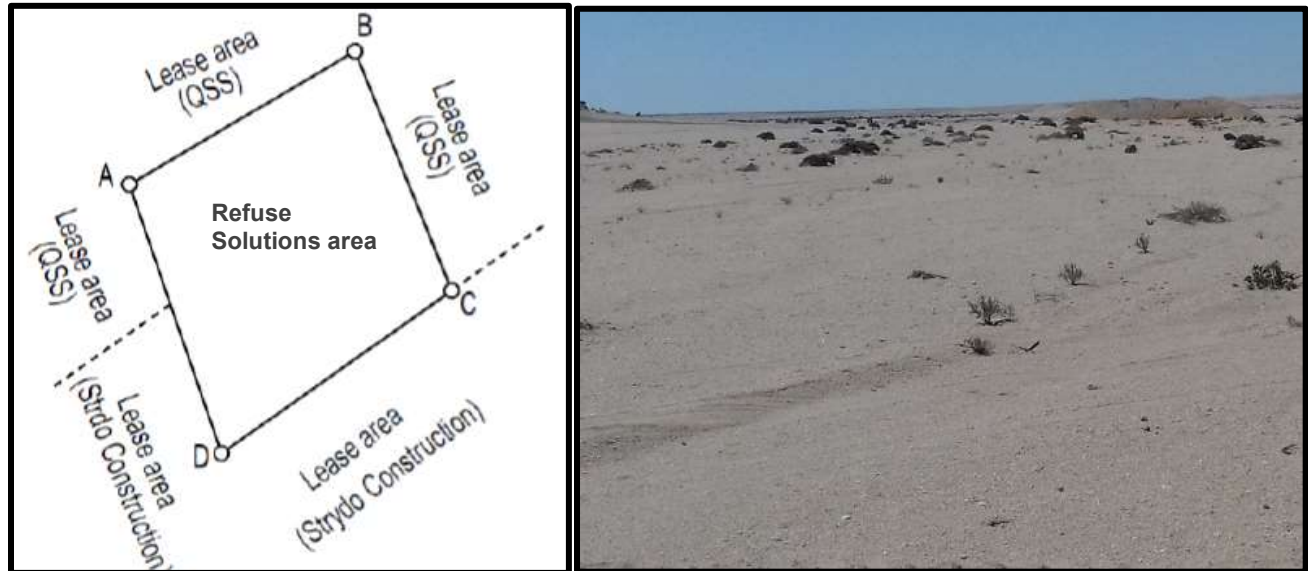


Figure 3: Overview of gravel mining activities

The gravel mining site falls within the Central-Western Plain landscape of Namibia which is characterised by Gysisols soils. Gysisols are gypsum-rich with the surface being covered with small stones and grit to larger rocks and boulders. If not properly done, gravel mining can be one of the obvious and direct causes of environmental degradation. The increase in demand for sand and gravel for construction purposes has put immense pressure on these resources.

2.4 Gravel Mining process

The process of gravel mining involves removal of gravel materials, mainly gypsum sand from the place of occurrence. The process can be summarized as follow.

- Excavation
- Stockpiling (the required quantity)
- Loading
- Transportation
- Offloading at the destination
- Site rehabilitation

The deposition of “gypsum” occurs in the top part of the soil surface. The ultimate depth of the open cast borrow pits will not exceed 1.5 m below the ground level and under no circumstances it will interfere with the ground water table.



Figure 4 Plant and Equipment used for gravel mining

The machinery used on site include

- Dumper/ Tipper Trucks - Capacity Range - 25m³, 20m³, 14m³, 10m³, 5m³
- Front End Loader - Front End Loader 3.4 m³

2.5 Manpower requirements

The gravel mining operations provide employment opportunities for about 12 employees. This includes manpower required for transportation, loading the vehicles through front end loader, and unloading of sand in dumpers/ trucks. Normal working hours is from Mondays to Saturdays from 07H00 to 17H00. No work will be done on Sundays. All employees are based in Swakopmund and are transported to the site every morning; thus, no infrastructures are established on site.

Table 1: manpower requirements

No.	Category	Mine Development Phase
1.	Administrative	0
2.	Supervisory	1– Foreman (Part time basis)
3.	Skilled	10 – Operators + Drivers
4.	Semi-skilled	0
5.	Unskilled	1 – Labour Hand
TOTAL		12

2.6 Use of gravel sand

The gypsum sand is required for a variety of purposes, including making concrete, backfill for houses footings, and maintenance of gravel roads and landscaping in Swakopmund town.



Figure 5: Use of gravel overview

3. LEGAL FRAMEWORK

3.1 Environmental Management Requirements

The Environmental Management Act (EMA) No. 7 of 2007 and the Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995) set the guiding policy/ legal framework for environmental management in Namibia. The proposed activity will trigger the following listed activities as per the Environmental Management Act Schedule.

EMA, Section 3: Mining and Quarrying Activities

Activity No 3.1 The construction of facilities for any process or activities which requires a license, right or other form of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining act), 1992.

Activity No. 3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not

Activity No. 3.3 Resource extraction, manipulation, conservation, and related activities.

Activity No. 3.5 The extraction of peat.

3.2 Environmental Management Requirements

There are several international, national legislations which provide a broad range of principles that should be used as guiding tools for the gravel mining activities operations and management.

Table 2: Applicable national legislations

LEGISLATION	PROVISION	PROJECT IMPLICATION
<p>Constitution of the Republic of Namibia (1990)</p>	<p>The articles 91 and 95 commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include:</p> <ul style="list-style-type: none"> - Guarding against overutilization of biological natural resources, - Limiting over-exploitation of non-renewable resources, - Ensuring ecosystem functionality, - Maintain biological diversity. 	<p>The proponent shall be advocating for sound environmental management as set out in the Constitution.</p>
<p>Environmental Management Act No. 07 of 2007</p>	<p>The purpose of this Act is to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; to provide for a process of assessment and control of projects which may have significant effects on the environment; and to provide for incidental matters. The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process for the interested and affected parties to voice and register their opinions</p>	<p>Mining and Quarrying activities is subjected to an EIA hence this study.</p>

	and concern about the proposed project.	
Local Authorities Act No. 23 of 1992	<ul style="list-style-type: none"> • This Act and all relevant municipal by-laws are applicable since the mining activities within the Municipality of Swakopmund Townlands is approved and regulated by the Municipality of Swakopmund. • This Act provides for the determination of local authority councils, the establishment of such councils and defines the powers, duties, and functions of these councils. Some of the powers, duties and functions of local authority councils are to: <i>‘to establish, carry on and maintain sand, clay, stone or gravel quarries and works for the manufacture of bricks and tiles, and to dispose of sand, clay, stones, gravel, bricks and tiles exploited or manufactured from such quarries.</i> 	The Municipality of Swakopmund is the responsible Local Authority of the area in which the proposed development will be located.
Water Resources Management Act 2004	This Act provides provision for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. In addition, the Act clearly gives provision that pertain with license or permit that required abstracting and using water as well as for discharge of effluent.	The protection of ground and surface water resources should be a priority. Obligation not to pollute surface water bodies.

<p>Nature Conservation Ordinance (No. 4 of 1975)</p>	<ul style="list-style-type: none"> • This Bill provides for and promote the maintenance of ecosystems, essential ecological processes and Namibia biodiversity and to promote the mutually beneficial co-existence of humans with wildlife as well as to give effect to Namibia's international obligations to legal instruments such as the Convention on Biological Diversity. • The Bill recognizes that biodiversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems must be maintained. 	<p>These provisions will be used as a guideline for conservation of biodiversity if need be.</p>
<p>Soil Conservation Act No. 76 of 1969</p>	<p>This Act makes provision for the prevention and combating of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources.</p>	<p>The activities must be conducted within the framework of this act.</p>
<p>Prospecting and Mining Act (33 of), 1992</p>	<p>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.</p>	<p>The materials to be mined is not considered as a "mineral" as per Part I: (1) c of the Prospecting and Mining Act and therefore excluded for the requirement of this Act.</p>
<p>National Heritage Act (27 of 2004)</p>	<p>The Act provides provisions for the protection and conservation of places and objects of national heritage significance, and to register to places and objects under that framework. The project will ensure that should any archaeological objects defined in the Act found in the course of mining operations, it will be</p>	<p>Any material of archeological, cultural or heritage importance should be reported to the National Heritage Council as per the requirements of this Act.</p>

	communicated to the custodian ministry immediately.	
Pollution Control and Waste Management Bill	<ul style="list-style-type: none"> • This Bill aims to promote among others sustainable development; to prevent and regulate the discharge of pollutants to the air, water and land; to furthermore regulate noise, dust and odour pollution; to make provision for the establishment of an appropriate framework for integrated pollution prevention and control; to establish a system of waste planning and management and to enable Namibia to comply with its international law obligations. 	All activities shall be conducted in an environmental sustainably manner.
Atmospheric Pollution Prevention Ordinance No. 11 of 1976	<ul style="list-style-type: none"> • Provides for pollution prevention of the atmosphere and controls noxious or offensive gas and smoke as well as gases emitted by normal or construction vehicles. • The Ordinance is clear in requiring that any person carrying out an industrial process which is liable to cause a nuisance to persons residing in the vicinity or to cause dust pollution to the atmosphere, shall take the prescribed steps or, where no steps have been prescribed, to adopt the best practicable means for preventing such dust from becoming dispersed and causing a nuisance. 	Dust generating activities should be scaled down during strong windy conditions from the north.
Labour Act (No 11 of 2007)	Chapter 4 of the Act deals with health, safety and welfare in detail. Article 39. (1) stipulates	Contractors, Sub-contractor shall be guided by this Act when recruiting or handling employment

	<p>that every employer or person in charge of a premises where employees are employed, must without charge to the employees;</p> <p>a) provide for a working environment that; i) is safe, ii) is without risk to health of employees and, iii) has adequate arrangements and facilities for the welfare of employees. Further provisions deal with the use of equipment and machinery that are safe and pose no health risk to employees, the use of protective gear and equipment, awareness, and training about safety on the job, etc.</p>	<p>related issues.</p>
<p>Noise Control Regulations (Labour Act)</p>	<p>It is essential to ensure that before any development project is approved and undertaken, an assessment or evaluation of expected noise level is done.</p>	<p>Noise generation during construction/development/rehabilitation should be minimized to the satisfactory of neighboring residents and the Municipality of Swakopmund.</p>
<p>Public and Environmental Health Act, Act No 1 of 2015</p>	<p>Provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters. Part 9 prescribes procedures for Integrated Waste Management, while Part 10 calls for the prevention of creating Health Nuisances.</p>	<p>The Municipality of Swakopmund and the contractor should ensure compliance with the provisions of these legal instrument.</p>

4. ROLES AND RESPONSIBILITIES

It is the core responsibility of the Operator to ensure the successful implementation of this EMP and any conditions to be imposed by the Ministry of Environment, Forestry and Tourism (MEFT). However, the implementation of this EMP also requires the involvement of various role players, each with specific responsibilities to ensure that the project is operated in an environmentally sensible manner.

4.1 Role Players and Responsibilities

4.1.1 Proponent: Refuse Solutions cc

The Manager on behalf of the Proponent shall have the following responsibilities

- a) Implement the final EMP after approval by DEAF and ensure the project comply with the EMP and conditions therein.
- b) Responsible for the appointment of other personnel responsible for the implementation of this EMP and responsibilities should be shared among several officials as per their respective job descriptions.
- c) Provide Environmental training and awareness on the contents of the EMP to all contractors, sub-contractors and employees involved in the gravel mining operations. Environmental awareness training should take place in the language understood by the employees.
- d) Ensure the review/update of this EMP as required and renewal of the ECC.
- e) Enforce all environmental regulations, EMP compliance, and conduct regular inspections as well as review project environmental and incident reports.

4.1.2 Environmental Control Officer (ECO)

The proponent shall appoint an Environmental Control Officer (ECO) who shall act on behalf of the as an on-site implementing agent and has the responsibility to ensure that activities are executed in compliance with the relevant legislations.

The ECO can be a designated employee of the Proponent who is knowledgeable in the field of environmental management or an external staff/environmental consultant.

The ECO will have the following responsibilities:

- a) Conduct site visits to check compliance of all operations with the EMP. Any environmental transgressions shall be recorded and the agreed upon disciplinary measures should be taken.
- b) Ensure communication of EMP requirements to contractors.
- c) Facilitate environmental induction of all project staff and coordinate such training that would be required for the effective implementation of the EMP.
- d) Maintain environmental incidents and stakeholder complaints register.
- e) Investigate incidents and recommend corrective and preventative actions.
- f) Report significant incidents internally and externally as required by law.
- g) Assess and inspect rehabilitation areas and provide guidance regarding rehabilitation measures if any.

4.1.3 Environmental Assessment Practitioner

The Environmental Assessment Practitioner (EAP) shall be an independent consultant appointed by the Proponent. The responsibility of the EAP are as follows:

- a) Conduct renewals of the ECC application,
- b) Conduct inspections of the rehabilitation area and give guidance regarding rehabilitation measures.

4.1.4 Authorities

Since the mining site is within the Swakopmund Townland, the Swakopmund Municipality shall conduct a compliance monitoring in line with its conditions stipulated in the permit (Annexure B). On the other hand, the competent authority (MEFT –DEAF) is responsible for reviewing and the approval of this EMP document. DEAF is also responsible for conducting environmental compliance monitoring should any instances of non-compliance be found, this must be brought to the attention of the EHP, along with recommended measures for rectifying the non-compliance.

4.2 Awareness and Training

It is important to ensure that all contractors, sub-contractors, and their employees have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimization of environmental harm. This can be achieved through a tailor-made training.

Environmental training should typically include the following aspects:

- Basic understanding of the key environmental features of the site and the surrounding environment.
- The significant environmental impacts, actual or potential, because of their activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities as well as importance in achieving conformance with the environmental policy and procedures.
- The potential consequences of deviating from specified operating procedures.
- The mitigation of negative impacts.
- The importance of not littering.
- The need to use water sparingly.
- Waste management strategies.
- Awareness on the importance of archaeological and historical sites that are found in the surrounding and the need to conserve them.
- Awareness on the fauna and flora of special concern.
- The need for environmental rehabilitation and proper decommissioning during and after mining operations.

5. PROPOSED MITIGATION MEASURES DURING OPERATIONAL PHASE

This section presents various mitigation measures which should be implemented to prevent, avoid, and lessened negative environmental and public health risks that are associated with the gravel mining operations.

Table 3: Proposed mitigation measures during the operational phase

Nature of Environmental Impact/ Aspect/Risk	Mitigation Measures	Responsibility
<ul style="list-style-type: none"> Visual impacts <p>Visual impacts of excavated surface and gravel stockpiles</p>	<ul style="list-style-type: none"> Have a mining plan, so that only a certain area is mined, then rehabilitated before moving to the next one Rehabilitate the area once mining has ceased. Only stockpile material required for immediate use Keep the area clean and tidy Do not erect any structure onsite without prior approval from Municipality 	Site Foreman/Manager
<ul style="list-style-type: none"> Noise and Vibration <p>The mobilization of heavy earth moving equipment onsite will generate noise and vibration which could be a nuisance to nearby residents. However, the noise level alongside the B2 road has been at negligible level, provided industry standards are maintained.</p>	<ul style="list-style-type: none"> Excavation/transport of sand/gravel and/or other activities relating to sand mining shall only be allowed between 07:00 to 19:00 from Monday to Saturday. No vehicle transporting of sand/gravel shall be permitted on public roads outside the operating hours. 	Site Foreman/Manager
<ul style="list-style-type: none"> Air Quality (Dust) <p>Dust may be generated as a result of excavation and loading of gravel sand. The impact could be felt along the B2 road and nearby residential areas of Nonidas and Swakop River.</p> <p>The amount of dust generated largely dependent on the ambient weather conditions.</p>	<ul style="list-style-type: none"> It is recommended that regular dust suppression be included during mining process. If dust becomes an issue, dust generating activities should be limited. All employees onsite should be issued with dust masks when deemed necessary. 	Site Foreman

<ul style="list-style-type: none"> • Impact to other land users <p>Mining on unallocated area may result conflicts between mining operators, and other land users.</p>	<ul style="list-style-type: none"> • Only mine on the approved allocated site • Permit holder shall identify the coordinates with recognisable markers, shall maintain the beacons in position and shall remove the beacons on closure of the pit. • A visible sign board must be place at the area where the removal of sand is taking place. 	<p>Site Foreman</p>
<ul style="list-style-type: none"> • Solid Waste Pollution <p>Uncollected liter can cause pollution</p>	<ul style="list-style-type: none"> • Provide refuse bins/bags onsite • Appoint a responsible staff for waste/litter collection • All general waste should be collected and disposed of at the Municipal and fill site 	<p>Site Foreman</p>
<ul style="list-style-type: none"> • Loss of biodiversity <p>Biodiversity loss as result of striping the topsoil and vegetation which houses insects and small mammals.</p>	<ul style="list-style-type: none"> • Limit the excavations and access roads to within the boundaries of the project site if possible. • Vegetation and topsoil clearance must be carried out piecemeal. • Extension of the excavation area should be done in stages so that old areas are rehabilitated concurrently. • Topsoil removed for vegetation clearance must be stripped and stockpiled alongside the excavated areas. • Excavation depth must stop at a depth of 1.5 m above the ground water table as stipulated in the permit conditions (Appendix A). • The slope of the rehabilitated areas should be shallow so as to reduce the speed of water thereby reduces soil erosion. • Topsoil is replaced on the surface of the leveled area that is no longer to be excavated. • Choice of access routes should consider minimum disturbance to vegetation. 	<p>Site Foreman</p>
<ul style="list-style-type: none"> • Traffic Impacts <p>Movement and presence of vehicles (bulldozers, front-end loaders, trucks) on and from the B2 road presents risks of accidents due to collisions.</p>	<ul style="list-style-type: none"> • Coordinate movement of vehicles • Use the track road along the B2 road and only use the B2 road once the track road has ended • Maintain the vehicles • Obey traffic rules • No overloading • Ensure licenses (vehicles and operators) and permits (for vehicles) remain valid) 	<p>Site Foreman/Operators</p>

<ul style="list-style-type: none"> • Contamination of soil and environment <p>Machinery and vehicles maintenance poses risk of pollution of soil and environment</p>	<ul style="list-style-type: none"> • No vehicle, plant or equipment maybe serviced within the mining site, except in emergencies • No schedule maintenance of vehicles is to take place on site. • Vehicle with oil leaks must not be used • Contain oil leaks with drip trays. • Contaminated soil must be cleaned up and disposed of at the landfill site. 	Site Foreman
<ul style="list-style-type: none"> • Health and Safety <p>Risk to health and safety of employees</p>	<ul style="list-style-type: none"> • Ensure that all operators and maintenance crews on site-are familiar with the company`s emergency response procedure. • Conduct through safety training to personnel on the use the protective wears and the correct handling of material and the safe use of all equipment. • First aid treatment and emergency medical assistance must be available. • A register for all the training offered and of all the incidents must be kept. 	Site Foreman/Manager
<ul style="list-style-type: none"> • Employment opportunities <p>Positive impact of short- and long-term employment for locals</p>	<ul style="list-style-type: none"> • Local labour (both male and female) should be employed as a priority 	Manager
<ul style="list-style-type: none"> • Decommissioning and Site Rehabilitation <p>Gravel/sand mining does fall under the Minerals Act, but it does not require a license to be issued by the Ministry of Mines and Energy. Section 54 of this Act does provide guidelines for best practice.</p> <p>Risks associated with abandoning a mine without rehabilitating according to an approved plan are relevant.</p> <p>The proponent`s failure to meet the obligations as stipulated in the municipal permit conditions with regards to rehabilitation could incur penalties.</p>	<ul style="list-style-type: none"> • Point 11 of the permit states that: “should sand/gravel mining stop before the expiry of the permit, the mined area must be rehabilitated to it’s or near the original condition and to the satisfaction of the Swakopmund Municipality. Notice of termination of activities must be given to in advance to the Swakopmund Municipality. This shall include inter alia, that all slopes shall be reduced to minimum 1:5, and floor of the pit is reduced to a single approximately flat area to the approval of Swakopmund Municipality” • Point 22 of the municipal permit states that the “Swakopmund Municipality shall oblige the permit holder to restore, at their expense the state of affairs that existed before a permit was issued, if doing so is so reasonable and practical under the circumstances or, enter the to an agreement with the permit holder or any other person for maintenances of excavation works”. 	Manager

6. COMPLIANCE MONITORING

To ensure continual improvement in environmental performance and reduce adversity of potential negative impacts, it is advisable to keep monitoring the identified environmental receptors. The compliance monitoring is the ultimate responsibility of the gravel mining operator. Monitoring activities should be done at different intervals as indicated in the table below and should be done throughout the mining life span.

Table 4: Compliance Monitoring Procedures

Issue to be monitored	Monitoring objectives	What needs to be monitored	Frequency and Monitoring	Responsibility
Pollution	-Avoid littering, pollution etc.	-litter, spillage, and leakages	Daily	Site Foreman
Soil	-Ensure soil conservation and prevent erosion	-Soil exposure, pollution, contamination, and soil erosion by windy conditions and water	Monthly	Site Foreman
Vegetation	-Reduce vegetation clearance	-vegetation to be avoided	Monthly	Site Foreman
Air quality	-Ensure air quality	-Dust emission	Daily	Site Foreman
Noise level	-Ensure noise level is at the required standard (85dB)	-Ambient noise level at mining site	Daily	Site Foreman
Implementation of the EMP	-Ensure compliance to this EMP and adherence to the regulative measures	-Adherence to the EMP and legal requirements	Monthly	Manager

7. MITIGATION MEASURES AT THE DECOMMISSIONING

The main concern of gravel mining activities is great environmental disturbance of the mined area. The destruction of the natural vegetation and creation of open trenches leaves the area prone to soil erosion. This may result in further degradation of the environment if left unrehabilitated. Thus, it is important for the proponent to rehabilitate the disturbed area to its natural or nearly its natural state.

7.1 Recommended Rehabilitation Actions

According to the Environmental Management Act 7 of 2007 proponent must take the responsibility to reclaim and rehabilitate the disturbed land at the end of the mining operations. The site closure in terms of gravel mining operations will occur whenever the ECC renewal is denied, cancelled, lapsed or the site has been abandoned and/or the holder does not wish to renew the right. The objective of rehabilitation with respect to the area where gravel mining has taken place is to leave the area levelled and even, and in a natural state containing no foreign debris or other materials.

Rehabilitation is defined as the process of taking all the necessary actions to repair the damaged environment in-order to make the land suitable for other uses or to simply beautify the affected area. In this case, the rehabilitation will entail clean-up, treatment, or restoration of contaminated areas (e.g., contaminated soils by oil or fuel spills, concrete spills, etc.) and refilling of excavated pits with the overburden.

Once the decommissioning of the mining activities become apparent, the Manager and the Environmental Officer of the Swakopmund Municipality shall conduct a combined site inspection and ensure that the operator do the following.

- Rehabilitate the disturbed areas and refill of excavations, including temporary access roads that are no longer required.
- Removal of all waste produced to be disposed of in an appropriate manner.
- Clean-up all spills and leave the area safe and tidy.
- Clean up all soil polluted and disposal to an appropriate waste dump site.
- Remove all windblown litter in the area and surrounding
- Removal of all markings and site demarcations

8. CONCLUSION AND RECOMMENDATION

8.1 Conclusion

This EMP should be used as an on-site reference document for the on-going gravel mining activities and a copy of this EMP shall be always kept onsite. It is a legally binding document, thus, any deviation or transgression from this EMP is punishable by law as per the Environmental Management Act 07 of 2007. Parties responsible for transgressing may be held responsible for any rehabilitation that may need to be undertaken.

If all mitigation measures are implemented as outlined in the EMP, it is anticipated that the consequences and/or probability of the predicted negative impacts will be managed/reduced. Monitoring of certain environmental parameters must be conducted on regular bases as outlined in this EMP by means of the environmental checklist on Annexure A. In addition, the Proponent must provide environmental biannual reports and submit to the MEFT throughout the life span of the activities. Should the gravel mining activities ceased for whatever reason, the Proponent should follow the decommissioning and rehabilitation procedures as outlined in this EMP.

It is therefore recommended that the Environmental Commissioner approves the renewal of the Environmental Clearance Certificate **for gravel mining on the remainder of portion B of the Swakopmund town and townlands No. 41 in the Nonidas Area to Refuse Solutions cc.**

9. ANNEXURES

- 9.1 Annexure A: Environmental monitoring checklist**
- 9.2 Annexure B: Permits from Swakopmund Municipality**
- 9.3 Annexure B: Environmental report for 2018-2021**

ANNEXURE A: ENVIRONMENTAL CHECKLIST

PART 1: ADMINISTRATIVE INFORMATION

Project Title:		Date:
Project location:	Reporting period	Individual Preparing Checklist:
Region:		Department:
Scheme Superintended:		Phone No.:

PART 2: ENVIRONMENTAL ASPECTS

ENVIRONMENTAL ASPECT/IMPACT	ENVIRONMENTAL COMPLIANCE (AS PER EMP REQUIREMENT?)		Remarks (specify location, good practice observed, causes of non-conformity and proposed action)
	YES	NO	
Waste management			

PART 3: RECOMMENDATION

FOR EACH ITEM CHECKED IN PART 2, DESCRIBE THE CORRESPONDING CONTROLS TO BE IMPLEMENTED TO REDUCE POTENTIAL ENVIRONMENTAL IMPACTS (e.g., spill prevention, erosion controls, air emission controls including dust suppression, selection of materials, etc.). Provide details of the activities and impacts for each box and the proposed mitigations. Include attachments where appropriate. Use the same number system for your input.

ECO: Signature: _____ Date: _____

Scheme Superintended: Signature: _____ Date: _____