230116000805

Updated Environmental Management Plan For Sand Mining and Aggregate Quarrying At Portion A of Farm Kranz No. 169 Gobabis, Omaheke Region

Sand Mining Sites

Aggregate Quarry

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DOCUMENT INFORMATION

DOCUMENT STATUS	**Final**
APPLICATION NO:	**230116000805**
PROJECT TITLE	Environmental Management Plan For Sand Mining and Aggregate Quarrying At Portion A of Farm Kranz No. 169
CLIENT	Mr. Albertus Nicolaas Smith
PROJECT CONSULTANT	Mr. Ipeinge Mundjulu
LOCATION	Gobabis, Omaheke Region
DATE	17 January 2023

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ABBREVIATION

EMA	Environmental Management Act
MEFT	Ministry of Environment Forestry and Tourism
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ECO	Environmental Compliance Officer
SM	Site Manager
ESMP	Environmental Social Management Plan
HIV	Human Immune Virus
AIDS	Acquired Immune Deficiency Syndrome
PPE	Personal Protective Equipments
GHG	Green House Gases

1. Introduction

1.1.Proponent

Mr. Albertus Nicolaas Smith owns portion A of farm Kranz No. 169 at areas of Gobabis in Omaheke Region (Appendix A). The farm has a size of 800 hectares. Mr. Smith intent to undertake sand mining and aggregate quarrying on areas where these activities has occurred. The total area for the sand mining is 5 hectares and the aggregate is about 4 hectares. In total, the combined areas are 0.01125% of the total farm areas.

1.2.Location

The sand mining and aggregate quarry sites are located on Mr. Smith's private farm near Gobabis town in Omaheke Region.

- Sand mining site 1 -22.43750S, 18.913610E
- Sand mining site 2. -22.433060S, 18.899170E
- Aggregate quarry -22.428060E, 18.876940E

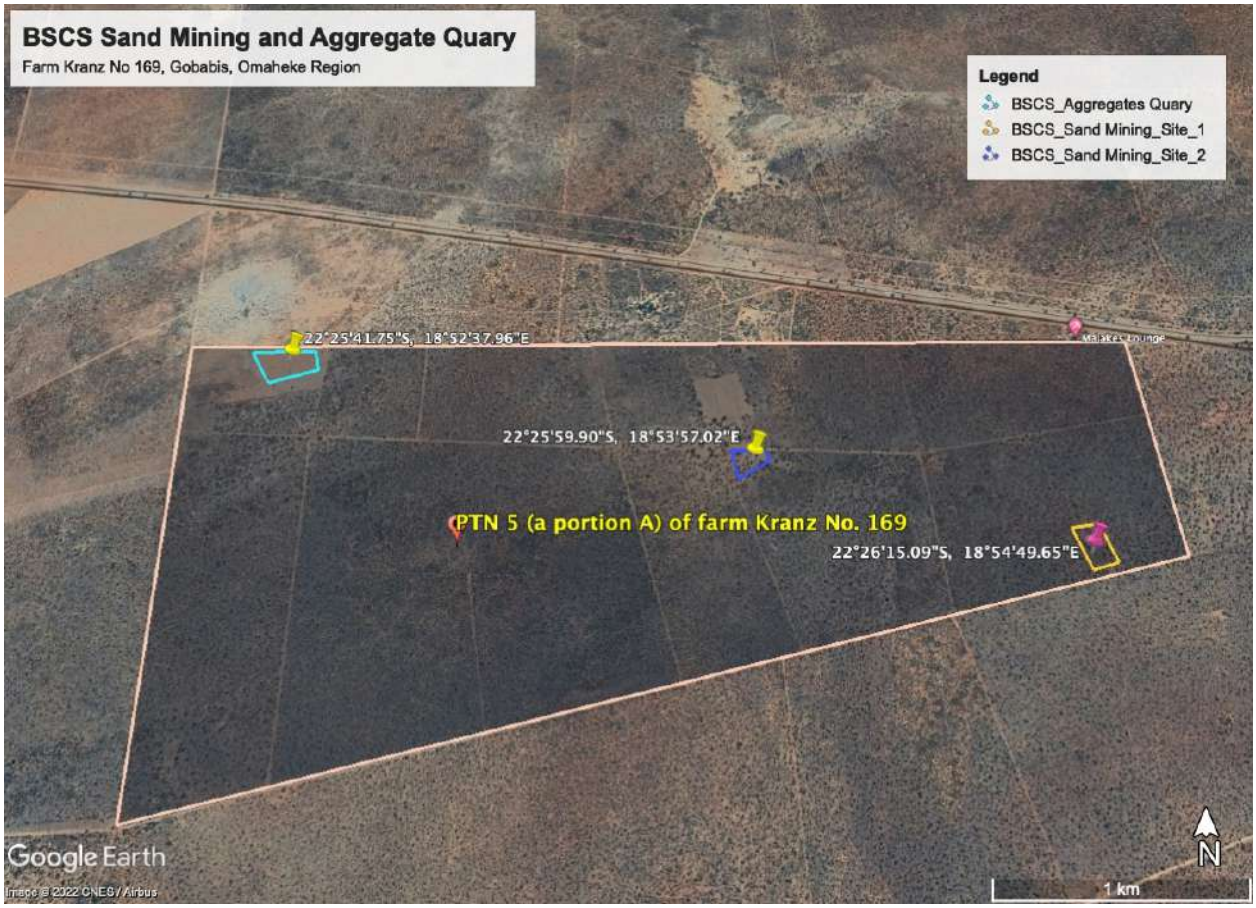

Figure 1. Sand mining and Aggregate Quarry sites.

Both above site has been disturbed. On site 1, sand mining and charcoal processing occurred before Mr. Smith purchased the farm (Figure 2). On site 2, sand mining has also occurred (Figure 2) while on site for the aggregate quarry, a small scale quarrying has occurred. Ms. Smith will be using existing access roads.

Sand Mining Site 1

Sand Mining Site 2

Aggregate quarry site

Figure 2. Physical assessment of the sand mining and aggregate quarry

1.3.Consent from neighbours

The two neighbouring farm owners were consulted and requested to provide consent on proposed sand mining and quarrying activities. Both farmers consented to Mr. Smith to proceed with sand and quarrying activities (Appendix B).

2. Regulatory Requirements

In 2007, the Environmental Management Act 2007 (Act No. 7 of 2007) 'EMA' was enacted and came into force on 6th February 2012. Part VII, Section 27 of EMA has listed activities that may not be

undertaken without an Environmental Clearance Certificate (ECC). Sand Mining and Quarrying are amongst the listed activities under Section 27 of EMA and the annexure of EIA regulation that may not be undertaken without an Environmental Clearance Certificate (ECC) (Table 1).

Table 1. Listed activities in relation to the sand mining and aggregate quarrying

Activity	Listed Activity under EMA
• **Activity 3:** Mining and quarrying Activities	3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not

It is against the above background of this statutory requirement that Mr. Smith has appointed Red-Dune Consulting to develop an Environmental Management Plan for his sand mining and aggregate quarry operations.

3. Project needs and desirability

Building sand and aggregates are primary inputs for construction of many infrastructures such as, bricks houses, shopping malls, roads etc. The developments of infrastructures contributes immensely on economic growth and provide employment to thousands of people. It is therefore unavoidable that sand mining and quarrying of aggregates would take place.

Conversely, mining of these materials, if not properly done / managed, can cause severe land degradation and be fatal to human and animals (both wild and domestic). Namibia has her fair share of challenges of illegal sand mining and quarrying, where there has been reports of loss of human and animal life due falling and drowning in burrow pits and severe land degradation. Therefore, it is important for sand mining and quarrying for aggregates to be carried out in a proper managed way and within the confines of law to avoid environmental damage and human and animal fatalities.

4. Administrative, Policy and Regulatory framework

Table 2. Policy, legal and administrative framework policy

Legislation	Summary	Applicability to Assessment
The Namibian Constitution	The State shall actively promote and maintain the welfare of the people by adopting policies aimed at … The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future	Protection of the environment and biodiversity
Environmental Management Act No. 7 of 2007	This act aims to promote the sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters	The acts provides a list of activities that may not be undertake without an environmental clearance certificate to prevent environmental damages
Draft Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management	To protect the Environment from possible hydrocarbons and oil leaks from the machinery and vehicles

Legislation	Summary	Applicability to Assessment
Environmental Policy framework (1995)	This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment.	Consideration of all possible impacts and incorporate them in the development stages
The Occupational Safety and Health Act No. 11 of 2007	Promotes the Safety and Health of employees at the work place	Employees subjected to noise and dust
Public Health Act No. 36 of 1919	To Protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	Application of proper mitigation measure to noise and dust
Labour Act No. 11 of 2007	This Act outlines the labour laws which encompass protection and safety of employees at work.	This project will require labour during its operational stage and decommissioning stage.
Water Act No, 54 of 1956	All water resources belongs to the State. It prevents pollution and promotes the sustainable utilization of the resource	Prevention of discharging contaminated water at unauthorised places

Legislation	Summary	Applicability to Assessment
Soil Conservation Act No. 76 of 1969	To promotes the conservation of soil, prevention of soil erosion	Uncontrolled movement of heavy vehicles and truck at areas surrounding the site may cause land degradation
Water Resource Management Act No.11 of 2011	The Act stipulates the prevention of both Surface and Ground water sources.	Oil spillage coming from brick making machines and transporting vehicles need to minimised to avoid water contamination.
Public Health Act no. 36 of 1919	The Act gives provision for the protection for the health of all people.	The noise and dust level emanating from the project could affect the surrounding community.
National Heritage Act No.27 of 2004	The Act gives provision of the protection and conservation of places and objects with heritage significance.	There were no heritage features identified on site or within the close vicinity of the cite.
Local Authority Act No. 23 of 1992 Government Notice of No.116 of 1992.	This Act underlines the duties and functions of the	All stakeholders affected by the operations of the project have been informed of the developments including that of undertaking the EIA.

Legislation	Summary	Applicability to Assessment
Convention on Biological Diversity Rio De Janeiro (1992)	Namibia is a signatory to convention of preservation of rare and endemic species.	The area is a conservancy and of medium biodiversity importance.

5. Project Description

5.1. Area fencing

The sand mining area will be fenced off and shall be done in accordance with the conditions developed by MEFT aimed at regulating the activities of sand mining.

5.2. Digging, Excavation and Transportation.

Excavator will be used to dig and load the sand on tip trucks. In some instance, front loader maybe be used to load piled sand. The tipper trucks would be transporting sand to Mr. Smith Construction Site on the outskirt of Gobabis Town. A water truck would be used to spray water on haul roads for dust suppression.

5.3. Size and mining depth

The total area for the sand mining is 5 hectares and the aggregate is about 4 hectares. In total, the combined areas are 0.01125% of the total farm areas. According to the Groundwater in Namibia report, "an explanation to the Hydrogeological Map" the Hochfeld-Dordabis-Gobabis groundwater is found in think 10m-15m alluvium aquifer at the depth of 60m to 150m deep. In addition, according to NAMWATER Environmental Management Plan of Gobabis Water Supply Scheme, the shallow boreholes at Black Nossob Boreholes is found at 20m -50m with a pumping rate that vary between 5m^3/h and 11 m^3/h. While the Northeast Boreholes les are between 99 m deep and 150 m deep which yields between 3 m^3/h and 18 m^3/h. The Aggregate quarrying and sand mining activities have been done at depth of less than 10m, hence underground water will not be disturbed.

5.4. After use

After reaching the lifespan, the quarry, due to its solid bedrock would be turned into a water harvesting reservoir, which is crucial for farming especially during times of worsening of

climate change. The sand mining sites will be sloped using the existing top soil to ensure adequate rehabilitation.

6. Description of the Affected Environment

6.1.Climate

Gobabis area has moderate temperatures and average rainfalls. The average day temperatures lie at 33° C during summer and during winter, 3° C and it is known to drop below zero. Average annual rainfall ranges between 350 – 400mm with most of the rainfall received from January to May (Mendelsohn *et al* 2009).

6.2. Geology and soil

According to Christelis et al., 2011, the geology of Gobabis is complex geology and structure. It is made up of the oldest rocks of the Damara Sequence which consists mostly of Khomas rocks with Kuiseb Formation quartz-biotite schists, interbedded marble, amphibolite (Matchless Suite) and amphibolite schists. On the east, the area is dominated by rocks belonging to the Nosib Group, with outcrops of Nama Group sedimentary rocks filling synclines. Most of the areas is made up of sands of Kalahari sediments with underling bedrocks. Which makes it a good area for sand and aggregate mining.

6.3. Topography and Hydrology

The area is generally flat with undulating terrain, surface water is more pronounced in river streams, the porous sediment of the Kalahari allows rainfall water to sink quickly into the alluvial and fractured aquifers.

6.4. Biodiversity

6.4.1. Flora

The central mountainous of Namibian is classified as the semi-arid highland savanna. The flora in Gobabis area falls under the Biome of Acacia Tree Shrub, which is made up of large grasslands with Acacia trees ((Mendelsohn et al 2009). There are scattered trees of the protected Acacia Erioloba (Vachellia erioloba) especially in areas with deep sand and like

many parts of Namibia, the area is affected by bush encroachment species of Acacia Mellifera, A. hereroensis, A. hebeclada, A. reficiens, Euclea undulata, and various species of glass (Joubert et al., 2008).

6.4.2. Fauna

Generally, the farm consists of domestic animals, sheep & and cattle. During site assessment, wild animals such as giraffe were observed at neighbouring farms. However, literatures indicates that wild animals including oryx, black wildebeest, waterbucks, kudus, hartebeests, warthogs, springboks, Jackals, eland and baboons exist in the area. There is a quarry in the surrounding farm, hence animals are accustomed to human activities.

7. The EMP

7.1.Purpose Of The Emp

This Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programs, mitigation measures, and management control strategies to minimize potential environmental impacts to insignificant level. It further stipulates the roles and responsibility of persons involved in the project.

7.2.Compliance To The Emp

This EMP is a legally binding document as given under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). The project proponent and its contractors must therefore adhere to the framework of this document.

8. Roles & Responsibilities

8.1.Environmental Compliance Officer (ECO)

This is an individual that represent the governing authority (MEFT). Depending on his/her work schedule, the ECO shall visit the site at any time for environmental inspection and monitoring

8.2.The Proponent

Mr. Smith, hereinafter as the "proponent" shall assume overall responsibility to ensure full implementation of the EMP.
Further the proponent must ensure to;

- Appoint a site Manager
- Ensuring that all workers are inducted on safety
- Safer working environment
- Provide workers with Personal Protective Clothing

- Monitor the employees works with regard to safety
- Ensure employees understand the guidelines of the Environmental Management Plan (EMP)
- Ensure the environment is protected and
- Maintain healthy relationship with the neighbours

8.3.Site Manager (SM)

The Site Manager will be responsible for the monitoring of daily operations and ensure adequate adherence to the EMP. The Site Manager should ensure that a copy of the EMP is available at project premises at all times. Further, an induction should be conducted with all employees and be made understand the provision of this EMP.

8.4.Employees

- Adhere to the EMP
- Ensure to wear personal protective clothing at all time when working
- Report worn out PPE and request for replacement
- Adhere to the Company rules and policies

8.5.Disciplinary Action

The EMP is a legally binding document. Non-compliance to the EMP may result in punitive measure to be taken against the proponent such as;

- Legal action, fines, and/or
- Suspension of work (Through issuance of compliance order as per the EMA),
- Financial penalties

9. The Environmental Social Management Plan (ESMP) table

The EMP is developed to address critical activities involved in industrial digging / mining of underground resource. The commonality of mining in general is that, it involves land clearing, removal of top soil, digging, excavation and pilling of mined materials, loading and transportation of materials.

Environmental / Social Impact	Objective	Proposes Mitigation Measures	Monitoring Indicator	Party responsible
Conversant with the EMP	To ensure that all staff / employees are familiar with the requirements of the EMP	1. All employees must attended a comprehensive induction course of health and safety 2. The EMP must be well explained to employees. 3. Staff operating specialised equipment and heavy vehicle must be properly trained and informed of the potential risks associated with their tasks	Induction Minutes and Attendance Register, Signed by each and every staff member Training certificate for machine operators	Management or Site Manager
	Disciplinary	1. Company must adopt a disciplinary system to discipline staff for non-compliance with the EMP, such as driving heavy vehicle indiscriminately outside demarcated areas.	Disciplinary meetings and actions	Management or Site Manager

Environmental / Social Impact	Objective	Proposes Mitigation Measures	Monitoring Indicator	Party responsible
	Availability of the EMP on site for ease of reference	1. Ensure that a copy of the EMP is kept on site and accessible	Physical view of the EMP	Management or Site Manager
Site Demarcation	All project activities, movement of vehicles must coordinated and be within the site	1. Securely fence off the area to control movement of vehicles as well as to restrict animal access	Visible Fence	Management or Site Manager
Communication	To ensure effective communication throughout	1. Develop a communication strategy 2. Correspondences must be in writing 3. The contact numbers for the Site Manager must be available and displayed onsite in case of emergencies.	Communication Strategy Letters, e-mail, Notices, Minutes	Management or Site Manager

Environmental / Social Impact	**Objective**	**Proposes Mitigation Measures**	**Monitoring Indicator**	**Party responsible**
Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Employment opportunities for Locals	Promote benefits to the local community	1. Recruit locals for unskilled labour 2. Keep good working relation in accordance with the law	Employee structure and proportion of local employment	Management or Site Manager

Environmental / Social Impact	Objective	Proposes Mitigation Measures	Monitoring Indicator	Party responsible
HIV / AIDS	Provide HIV / AIDS awareness to employees	1. Provide HIV / AIDS awareness at induction 2. Avail Condoms at site	Availability of condoms at construction site	Management or Site Manager
Alcohol and Drug use	Prevent alcohol and drug use at the site	1. Ban and warn the employees against the use of alcohol and drug at work 2. Provide awareness on the dangers and health impacts of alcohol and drug use 3. All employees must be screened with the breathalyser to avoid intoxicated personnel on site	Drunk / Misbehaving employees Breathalyser report Monitor presence of alcohol at the construction site	Management or Site Manager

Environmental / Social Impact	Objective	Proposes Mitigation Measures	Monitoring Indicator	Party responsible
Security	Orientation of workers about security for equipment and themselves	1. Orientate all staff about the security of equipment and themselves & provide contact numbers for Police and other emergency services e.g. Ambulance	Proof of security orientation and emergency contact numbers	Management or Site Manager

Environmental Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party responsible
Health and Safety	Ensure safety of workers	1. Develop a Health and safety Plan 2. Occupational health and safety measures must be implemented in accordance to the Health and Safety Regulations Government Notice 156/1997 (GG 1617) and other relevant laws and legislation 3. Train employees on personal safety and how to handle equipment and machinery 4. Provide protective eye glasses, dust masks and ear muffs to all employees operating in a dusty or noisy environment 5. Provide sufficient fire extinguishers and train staff on how to use them and	Health and Safety included and reflected in the Induction Minutes Adequate protective gear for all staff	Management or Site Manager

Environmental Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party responsible
		their applications thereof and must be well inspected at all time 6. Provide an adequate first aid kid to well-trained employees 7. No employees must be exposed to noise levels above the 85dB (A) limit over a period of 8 hours. 8. Should the noise level be higher than 85dB (A), the employer must implement a hearing conservation program such noise monitoring, and a four hour shift 9. Supply safe drinking water 10. Provide an ablution facility on site	Availability of fire extinguishers and evidence training (e.g. minutes, training pictures etc. Availability of the first aid kit onsite Mobile Toilet on site	
Community Health and Safety		1. Avoid operation during strong windy times	Records of community complaints	Management or Site Manager

Environmental Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party responsible
Dust		2. Trucks transporting sand must be covered during transportation 3. Use dust suppression measures such as water spraying to mitigate dust impacts. 4. Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m3 for respiratory dust and 15mg/m3 for total dust. 5. Avoid working during extreme windy times 6. Avoid unnecessary movement of vehicles on site 7. Keep records of complaints to monitor community dissatisfaction	Accident records	

Environmental Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party responsible
Safety		8. Operation must be limited to day hours only, from 05H00-18H00 9. Adequate safety signs must be put at designated places.		

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Vehicle emissions	Reduce greenhouse gas (GHG) emissions from worn out equipment / vehicles / machinery	1. All vehicles and equipment must be kept in good working condition and serviced frequently to prevent leakage and emission of poisonous smoke etc. 2. Switch off engines when vehicle is not operations	Vehicle servicing records Reports of smoke emissions from machinery	Management or Site Manager
Oil Leakages	Manage hydrocarbons, oils and lubricants leakages from construction vehicles and machinery to prevent pollution	1. Servicing of vehicles must be at designated site 2. Soils contaminated with grease, oils and hydrocarbons must be collected and disposed of at approved site; (e.g. Gobabis disposal site) 3. Vehicle must be well serviced to prevent oil leakages 4. All stationary vehicles and machinery must have drip trays	Physical verification and routine monitoring	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		under to collect oils and lubricant leakages 5. If fuelling is to be done on site, it must be done at designated place with a proper structure that would prevent spillage to the ground 6. If an oil leak occur, collect the contaminated soil, store in appropriate container and dispose of at appropriate waste disposal site		
Solid Waste	To manage solid waste To prevent littering, pollution, contamination of water and general environmental health hazards	1. Domestic Waste (Litter – cans, plastics, tissue, plastics etc.) must be disposed of at an appropriate site. 2. No onsite burying, dumping or burning of waste material shall be permitted.	Scattered waste, Littering and any other unsightly waste at the site (eyesore)	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Water	To avoid possible water contamination	1. Contaminated soils must be removed immediately and stored at a bunded designated area and only be disposed of at the approved dumpsite. 2. No washing of vehicles and machinery on site 3. Vehicle must be well serviced to prevent oil leakages 4. All stationary vehicles and machinery must have drip trays under to collect oils and lubricant leakages 5. If fuelling is to be done on site, it must be done at designated place with a proper structure that would prevent spillage to the ground	Visual inspection	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Land Degradation **Soil Erosion**	To prevent soil degradation and erosion	1. Movement of heavy vehicles must be coordinated and restricted to be within the site and on access roads 2. Continuous rehabilitation of the burrow pit must be conducted by proper profiling and smoothing of the slopes to be less than 1 to 3 to improve slope safety by allowing easy access of animals into the pit (after use) and to allow smooth runoff of storm water hence preventing soil erosion.	Visual Monitoring	Management or Site Manager

Environmental / Social Impact	Objective	Proposed Mitigation Measure	Monitoring Indicator	Party responsible
Biodiversity **Flora** **Fauna**	To protect trees	1. Vehicles movement must be confined within the mining premises and on access roads only 2. Tree and bushes that are nesting places for the birds must not be cut down. (This would not be necessary as the area is does not have nesting places) 3. The area must be fenced off adequately to prevent animals from accessing the pit during operation 4. Bigger tree that are on Site must not be cut down 5. Do not plant alien trees	Inspection report	Management or Site Manager

Aspect	Objective	Action Required	Monitoring Indicator	Party responsible
Heritage Resources / artefacts	To preserve archaeological and heritage materials	1. Workers must be go through an induction course of the possible archaeological find possible in the area 2. Establish a "Chance Find Procedure" where if any archaeological finding (Heritage, human remains or artefacts) during site activities is encountered; a. The activity must be stopped immediately and the operation manager of that activity be informed b. The manager must oversee the cordoning off the area with a danger tape and take	Sighting report/s of heritage resources / artefacts	Management or Site Manager

Aspect	Objective	Action Required	Monitoring Indicator	Party responsible
		appropriate records and picture c. The manager must immediately report the findings to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461). 3. No artefacts must be removed or be interfered with prior to authorisation from the Namibian National Heritage Council (NNHC)		

10. Closure And Rehabilitation Plan

Once the mine areas is depleted of sand and aggregate resources, the result is an open pit. The pit is usually a health and safety hazard to the environment, hence a need for a closure plan. A closure plan is a detailed document that forms part of the Environmental Management Plan. This plan is a guiding framework for the provisions of rehabilitation and for long term management and monitoring and maintenance of the pit. The closure plan for this project was formulated through the consideration of closure objectives and the implementation of proposed mitigation measure for identified risks. As explained in the earlier, it is recommended that the rehabilitation process must be progressive, which considers rehabilitation at depleted site as it is suitable due to following reasons;

- Reduces health and safety risk
- Reduces risk of soil erosion
- Improves top soil conservation
- Reduces an eye shore of pit

Therefore the closure plan for this operation must include the following;

1. Staff awareness of the closure plan
    - Staff must be well inducted of the closure plan during operation and implement progressive rehabilitation
2. Fencing of the area
    - During operation the mine site must be fenced off to prevent health and safety risk

3. Site Clean up

    - All foreign material brought during the operation must be removed. There must not be burying of waste material in the pit. All contaminated soils must be removed and disposed of to appropriate site

4. Trimming and Shaping of the pit

    - The final rehabilitation must ensure that the borrow pit does not have sharp angles of corners that may exacerbated formation of gullies and consequently soil erosion.

    - The pit contours must be even and slopes smoothened and not steeper than 1:3. This would allow for smooth natural filling up of the pit.

    - Provision must be made, such as cut-off drain for the permanent drainage to ensure smooth run-off. The cut off drain would be appropriate for this pit, where a deliberate drainage structure would be designed to collect storm water flow into the pit. This should be constructed on the side of the catchment area

5. Waste material / Overburden

    - It is not expected for the operation to produce huge amount of excess overburden. However, those that are produced must be used during contouring or placed back into the pit.

6. Compaction of disturbed surrounding

    - The surrounding disturbed area from the movement of heavy vehicle must be compacted to prevent run off and wind erosion. The compacted soil must be shallowly ripped to allow regrowth of vegetation.

7. Access roads

    - As described above, all access road that were made for this operation and are no longer necessary, must be rehabilitated. The surface of these roads must be ripped to enable regrowth of vegetation.

8. Safety

- The above mentioned rehabilitation may not be adequate to eliminate safety risks. Hence after the removal of the fence, it is recommended that an earth bunds of at least 1m high on the periphery of the borrow pit must be constructed. This would also aid in preventing soil erosion.

11. Conclusion And Recommendations

11.1. Conclusions

The scope of this project was guided by site visit information, and comprehensive literature review to determine possible environmental impacts and the possible mitigation measure to the impacts concerning this project. Red-Dune believes that, analysis based on the collected information sufficiently addresses the environment and socio-economic aspects of the project. Further the project is expected to positively contribute to the socio-economic development for Gobabis local economy as well as at National level through contribution to the GDP.

While analysis of the no project alternative showed that, the adverse impacts will be negative especially on the socio-economic aspects. Threats to biodiversity, and other physical environment showed negligible threat with the go ahead project" given that the proposed mitigation measure to possible social and environmental threats are adequately implemented. The Environmental Management Plan must be the logical framework for the project to mitigate environmental risks.

11.2. Recommendations

Red-Dune recommends to the approving authority the issuance of the Environmental Clearance Certificate for the Sand and Aggregate Mining.

12. References

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Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2009. Atlas of Namibia. 3rd ed. Cape Town: Sunbird Publishers.

Ministry of Agriculture Water and Forestry 2000 ., Strategic Water Resources Assessment: Theme Report

N.P du Plessis,. 2020NAMWATER Gobabis Water Supply Scheme Environmental Management Plan

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13. Appendix

Appendix A Deed of Sale

THE SAID APPEARER declared that his Principal had truly and legally sold on the **18TH AUGUST 2021**;

AND THE SAID APPEARER, in his capacity as aforesaid, did by these presents, cede and transfer in full and free property, to and on behalf of

ALBERTUS NICOLAAS SMITH
Identity Number 760302 1050 5
Married out of community of property

His Heirs, Executors, Administrators or Assigns.

CERTAIN	PORTION 5 (A PORTION OF PORTION A) OF THE FARM KRANZ NO 169 Registration Division "L" OMAHEKE Region
MEASURING	800.0218 (Eight Hundred Point Zero Two One Eight) Hectares

FIRST TRANSFERRED by Deed of Transfer no T.343/1968 with Diagram S.G. no A.442/67 relating thereto and held by Deed of Transfer no T.1602/2017

SUBJECT to the following condition in terms of Section 10(4) of Ordinance no 30 of 1960 as created in the said Deed of Transfer no T.343/1968 namely:

The property shall not be used for business purposes, except where such property fence to another proclaimed road and that no direct entrance to and exit from Main Road 6, Section I, shall be permitted.

COMMISSIONER OF OATHS
EX OFFICIO - BANK WINDHOEK LTD

Carla Lewis — (Full Names)
(Signature)

ASSISTANT MANAGER: GOBABIS BRANCH

80 Church Street
Gobabis
Namibia

PO Box 58
Gobabis
Namibia

Date: 2022-08-19

Appendix B Consent from Mr. Danie Opperman and Mr. Schalk van der Merwe

Reg No. cc2018/09606

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P O Box 27623
WINDHOEK
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Environmental Management | Socioeconomic Valuations | Fisheries and Marine Resources Management | Wildlife Management

01 August 2022

Danie Opperman
Xain Quaz
081 218 9800

Dear Mr. Opperman

SUBJECT: REQUEST FOR CONSENT LETTER FOR MR. ALBERTUS NICOLAAS SMITH TO UNDERTAKE SAND MINING AND QUARRYING AT FARM KRANZ NO. 169, GOBABIS, OMAHEKE REGION

Mr. Albertus Nicolaas Smith owns farm KRANZ NO. 169. Mr. Smith has interest in construction and supply of construction materials. His primary supply is sand and aggregates as well filling sand (gravel).

Mr. Smith intends to mine sand at his farm on two sites measuring a combined size of about 3-4 hectares (figure below). Furthermore, on the same farm, he intends to continue quarrying for aggregates on an area of about 4 hectares.

Both the above site has been disturbed. On site 1, sand mining and charcoal processing occurred before the company purchased the farm. On site 2, sand mining has also occurred (Figure 2) while on site for the aggregate, small scale quarrying has occurred. Ms. Smith will use existing access roads.

Mr. Smith appointed Red-Dune Consulting, to develop an Environmental Management Plan for their operation which will be submitted to the Ministry of Environmental Forestry and Tourism (MEFT) in support for the application of the Environmental Clearance Certificate (ECC).

You as the owner of the neighbouring farm, this letter seeks your consent for Mr. Smith to proceed with the sand mining and aggregate quarrying activities.

Please fill in the Consent Form below and return to reddunes18@mail.com at your earlies convenience.

Looking forward to your favourable reply.

Yours Sincerely

Ipeinge Mundjulu
LEAD CONSULTANT

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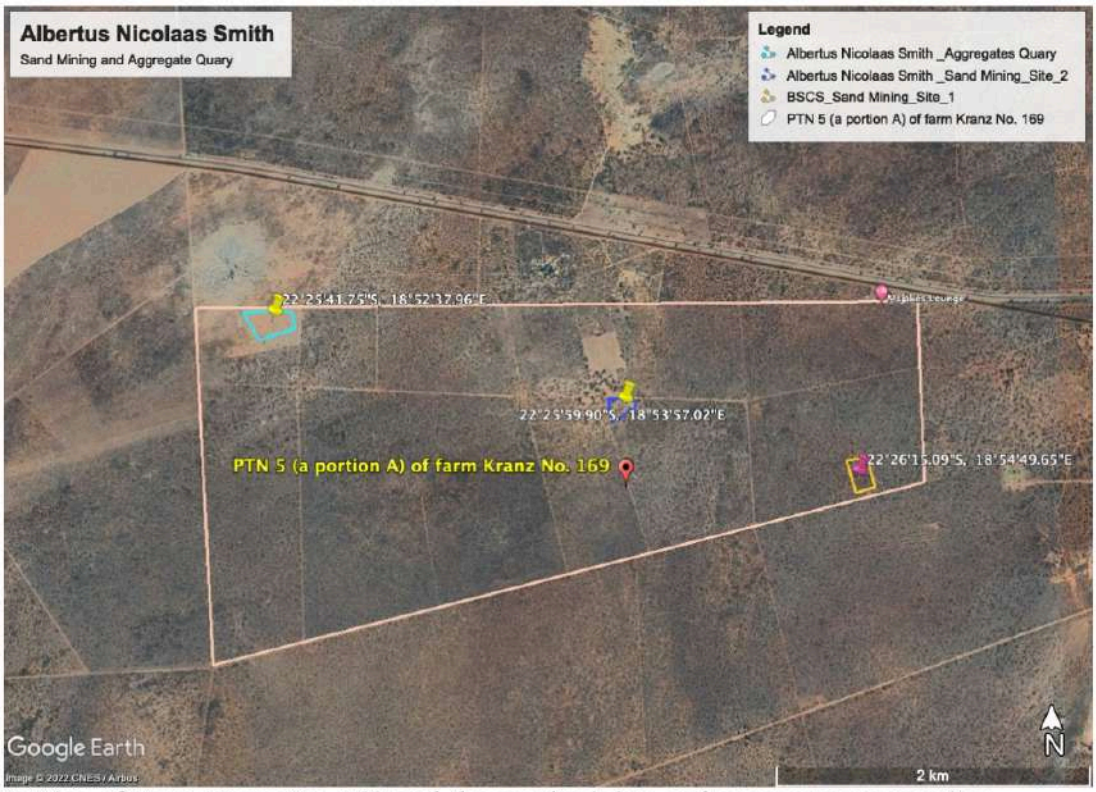

Portion of Farm Kranz No. 169 and the sand mining and aggregate quarry sites

Sand Mining Site 1

Sand Mining Site 2

2

Aggregate quarry site

CONSENT FORM:

Representation

I.....(Name and Surname) Representative of .....(Name of Institution/Entity/Individual) in capacity of ..... (Owner/Executive Director/ Company Representative / Other (please mention) hereby legally represent..... (Name of Institution/Entity, Individual).

Approval of Consent Application (Delete the one that is NOT appropriate)

I Dania Oppenaar ..... (Name and Surname) hereby **GRANT** consent to Mr. Albertus Nicolaas Smith to proceed with the proposed activities of Sand Mining and Aggregate Quarrying.

I ..... (Name and Surname) hereby **OBJECT** to grant consent to Mr. Albertus Nicolaas Smith to proceed with the proposed activities of Sand Mining and Aggregate Quarrying (with this option, please provide the reasons below)

Reasons for objection

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Signed at Gqhabis On day 10 of 08 year 2022

Name and Surname: Dane Oppermann

Telephone: 0812189800 / 062 - 562688

Email: daneoppies@gmail.com

Company Seal:

Reg No. cc2018/09606

Mobile: (+264 81) 147 7889
Email: reddunes18@gmail.com
Red-Dune Consulting CC
P O Box 27623
WINDHOEK
9000

Environmental Management | Socioeconomic Valuations | Fisheries and Marine Resources Management | Wildlife Management

01 August 2022

Schalk van der Merwe
081 262 4748

Dear Mr. van der Merwe

SUBJECT: REQUEST FOR CONSENT LETTER FOR MR. ALBERTUS NICOLAAS SMITH TO UNDERTAKE SAND MINING AND QUARRYING AT FARM KRANZ NO. 169, GOBABIS, OMAHEKE REGION

Mr. Albertus Nicolaas Smith owns farm KRANZ NO. 169. Mr. Smith has interest in construction and supply of construction materials. His primary supply is sand and aggregates as well filling sand (gravel).

Mr. Smith intends to mine sand at his farm on two sites measuring a combined size of about 3-4 hectares (figure below). Furthermore, on the same farm, he intends to continue quarrying for aggregates on an area of about 4 hectares.

Both the above site has been disturbed. On site 1, sand mining and charcoal processing occurred before the company purchased the farm. On site 2, sand mining has also occurred (Figure 2) while on site for the aggregate, small scale quarrying has occurred. Ms. Smith will use existing access roads.

Mr. Smith appointed Red-Dune Consulting, to develop an Environmental Management Plan for their operation which will be submitted to the Ministry of Environmental Forestry and Tourism (MEFT) in support for the application of the Environmental Clearance Certificate (ECC).

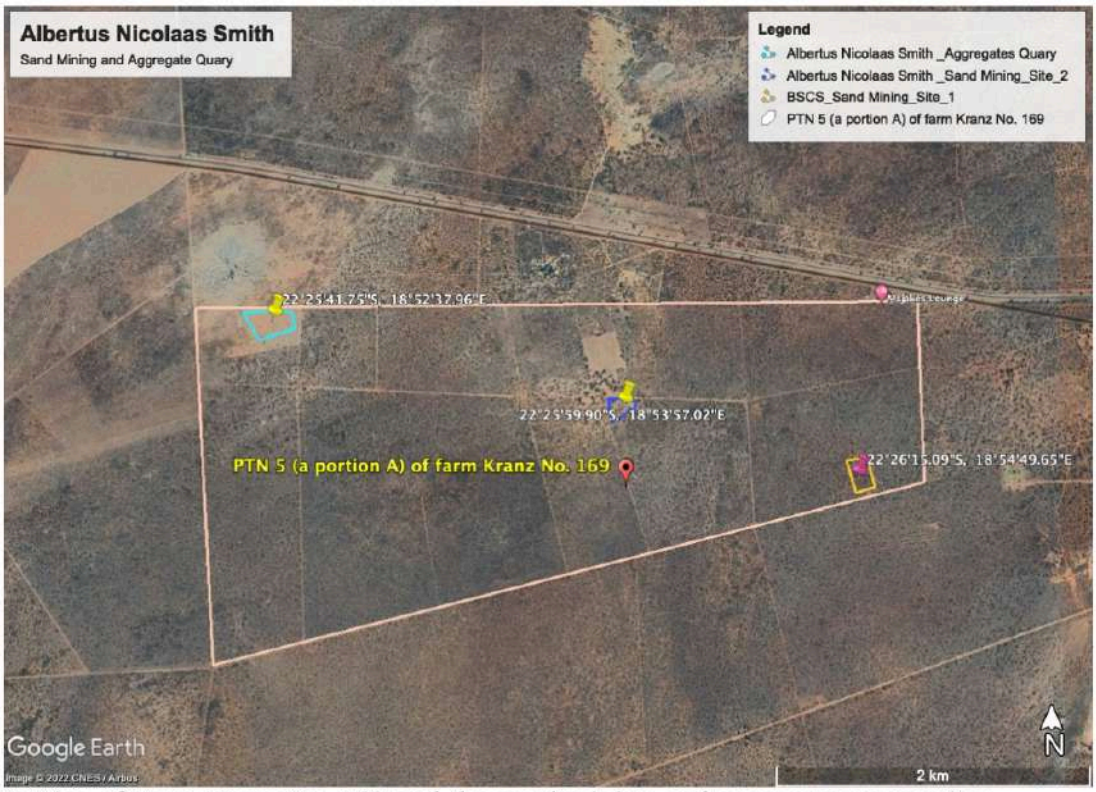
You as the owner of the neighbouring farm, this letter seeks your consent for Mr. Smith to proceed with the sand mining and aggregate quarrying activities.

Please fill in the Consent Form below and return to reddunes18@mail.com at your earliest convenience.

Looking forward to your favourable reply.

Yours Sincerely

Ipeinge Mundjulu
LEAD CONSULTANT



Portion of Farm Kranz No. 169 and the sand mining and aggregate quarry sites

Sand Mining Site 1

Sand Mining Site 2

2

Aggregate quarry site

CONSENT FORM:

Representation

I SCHALK VAN WYK (Name and Surname) Representative of MARK 309 (Name of Institution/Entity/Individual) in capacity of OWNER (Owner/Executive Director/ Company Representative / Other (please mention) hereby legally represent MARK 309 (Name of Institution/Entity, Individual).

Approval of Consent Application (Delete the one that is NOT appropriate)

I SCHALK VAN WYK (Name and Surname) hereby **GRANT** consent to Mr. Albertus Nicolaas Smith to proceed with the proposed activities of Sand Mining and Aggregate Quarrying.

3

I .... (Name and Surname) hereby **OBJECT** to grant consent to Mr. Albertus Nicolaas Smith to proceed with the proposed activities of Sand Mining and Aggregate Quarrying (with this option, please provide the reasons below)

Reasons for objection

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Signed at GORANTS On day 2 of 8 year 2022

Name and Surname: SCHALK VD MERWE

Telephone: 0812624748

Email: ssvervoernam@gmail.com

Company Seal:

4

Appendix C Sand Mining Conditions

1.	In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner (s) for carrying out the mining operation.
2.	Valid permit from the Relevant Competemt Authority to be obtained for riverbed sand mining, vegetation clearing of protected plant species and boreholes drilling prior to commencement of the project.
3.	All conditions provided by the Relevant Competemt Authority with regards to riverbed sanding mining must be complied with.
4.	The Holder shall erect a signboard not smaller than 70 cm in height and 100cm in width, at the major entrance/s to each of its Sand Mining Site /Area, specifying the duration of the EC validity and the name of the EC holder, and a contact name and number for enquiries.
5.	Mining shall be done in layers of 1 m depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers; All possible precausion as identified in the Environmental Management Plan shall be complied with to prevent and mitigate potential impacts.
6.	No exposure of groundwater should take place fin respect of Sand mining activities undertaken within a riverbed.
7.	Depending upon the location, thickness of sand, deposition, agricultural land/river bed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
8.	The EC holder shall keep a correct account of quantity of sand mined out, dispatched from the site, mode of transport, registration number of vehicle, person in-charge of vehicle and site plan. This should be produced before inspectors at any time.
9.	Restricted working hours: Sand mining operation has to be carried out between 7 am to 5 pm.
10.	Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
11.	Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining be planted preferably of indigenous species;
12.	No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in areas where subsidence of rocks is likely to occur due to steep angle of slope.
13.	No extraction of stone / boulder / sand in landslide prone areas.
14.	Dumping of waste shall be done in earmarked places as approved in the plan;
15.	Sand mining sites should not be located within 100 meters from the edge of National Highway and railway line, 60 meters from water resavoir, 25 meter from the edge of other roads except on special exemption from relevant authority.
16.	Junction at take-off point approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by lease holder at his own cost.