



ENVIRONMENTAL PROGRESS AND MONITORING REPORT FOR SAND MINING ACTIVITIES FROM AN EXISTING BURROW PIT AT OHAINANA VILLAGE, OHANGWENA REGION.



PERIOD: 27 MARCH 2019 TO 27 MARCH 2022

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1. Introduction

1.1 Introduction and Background

Grey Wall Properties was granted an Environmental Clearance Certificate (ECC) for the operation of sand mining activities at Ohainana village, Ohangwena region. The ECC was issued on 27 March 2019 and subsequently expired on 27 March 2022.

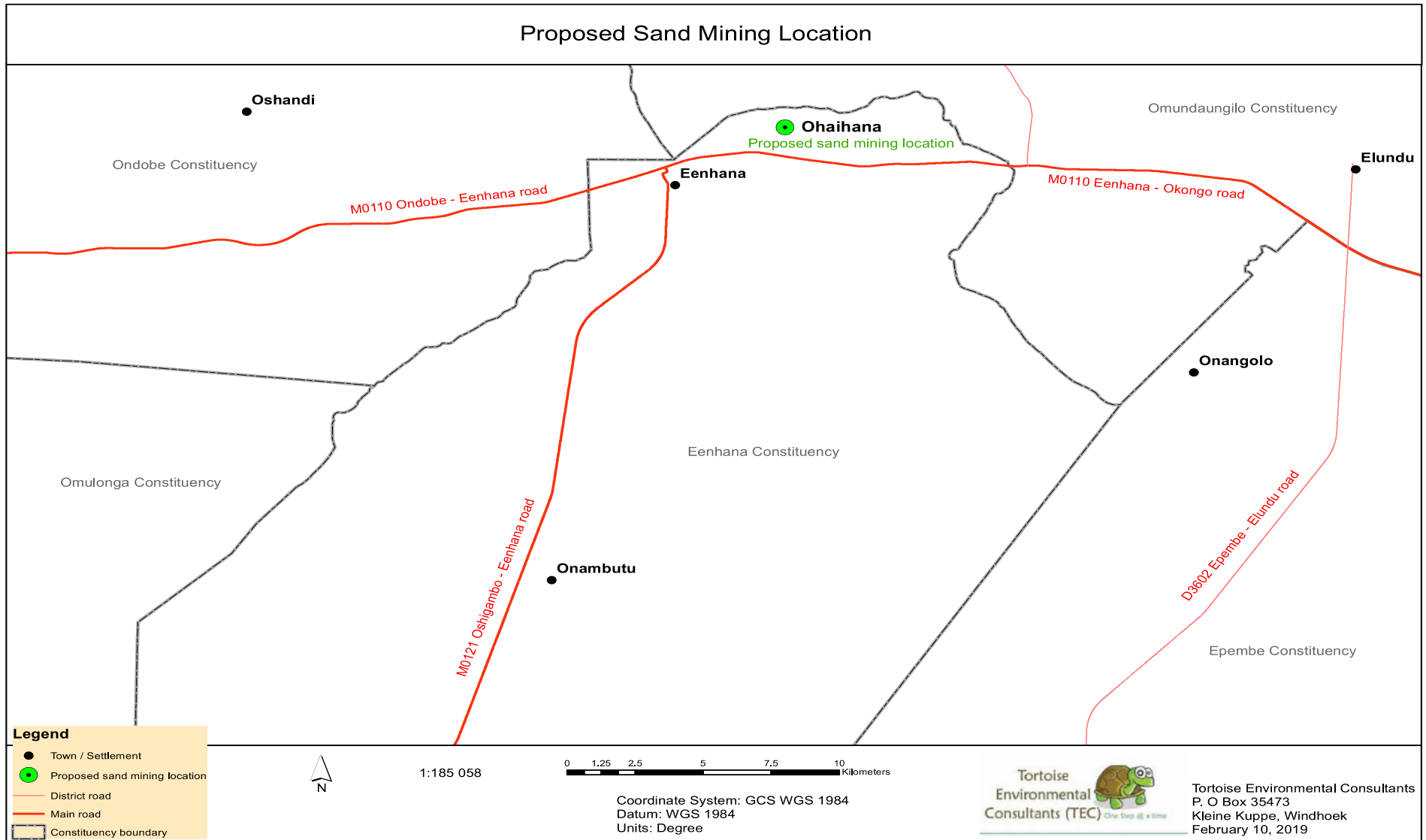
Tortoise Environmental Consultants have been contracted as an independent environmental consultant by Grey Wall Properties to apply for the renewal of the ECC with the Ministry of Environment, Tourism and Forestry (MEFT) under the Directorate of Environmental Affairs (DEA). The consultants will equally also serve as the Environmental Control Officers (ECO) for the operation of the sand mining activities for the period of three years commencing March 2022. The consultants will thus undertake the following key activities:

- Update the Environmental Management Plan (EMP)
- Prepare and submit renewal of ECC to MEFT
- Conduct monthly progress monitoring reports and compile biannual reports for the three years.
- Advise the proponent on matters related to the sand mining operations and ensure compliance as stipulated in the EMP.

Henceforth this report constitutes a progress and monitoring report and encompasses the biannual report for the period between 2019 and 2022 since the ECC was previously issued. The report provides a comprehensive summary of issues related to sand mining at Ohainana village and, includes recommendation by the environmental consultants to ensure that sand mining activities are conducted in line with provisions that are contained in the EMP and with due diligence.

1.2 Locality and site extend.

Ohaihana village is situated in the Ohangwena region, approximately 5 km northeast of Eenhana town. The village is accessible via the C45 highway road, connecting to a local tract road for a further 2 km into the Ohaihana village where the site is located. The exact proposed mining site is a 3-ha piece of land, positioned on a track of land between the two crop fields (Map 1.) However, of the proposed 3 ha area, only 1ha, which is a section further away from the two crop fields is recommended for the sand mining activity (Map 2).



Map: Location of Ohainana village



Map: Site Locality

1.3 Operation procedure

The sand mining process is undertaken in a simplified method that involves using a front loader/TLB to excavate the sand at a maximum depth of 1 meter, the excavated aggregate is loaded into tipper trucks by means of a front end and is transported straight to the site it is required. No further processing is required for the mined material, and only the required volume of sand is excavated at a time and dispatched to the required site.



Image 1: TLB used for sand mining.



Image 2: Tipper truck used for transportation covered with canvas for dust control.

1.4 Site rehabilitation

Burrow pits have been rehabilitated over the years and have been converted into water harvesting and storage pans that serve as an important source of water for people and livestock.



Image 3: Rehabilitated burrow pit holding water

2. Environmental monitoring and reporting

To ensure continuous improvement in environmental performance and reduce adversity of potential negative impacts the proponent does keep monitoring and reporting on certain environmental parameters. The monitoring is done continuously by the assigned responsible officials as highlighted in table 1.

Aspect	Objective	Action Required	Monitoring Indicator	Party responsible
Vehicle emissions	Reduce greenhouse gas (GHG) emissions from poorly maintained or malfunctioning equipment (vehicles / machinery	<ul style="list-style-type: none"> All vehicles and equipment shall be kept in good working condition and serviced regularly (in accordance with the servicing frequency of the specific machinery), in order to prevent leakage and emission of poisonous smoke etc. Switch off engines when vehicle is not operations 	Vehicle servicing records Reports of smoke emissions from machinery	Site Manager
Oil Spills	Manage oil spills and leak from heavy vehicles and Machinery	<ul style="list-style-type: none"> Provide drip trays to prevent potential oil leakage Re-fuelling of machinery (e.g excavator / front loader) must be done at appropriate site with impermeable concrete bunding There must be an immediate spill response kit on site and ff an oil spill occurs, collect the contaminated soil, store in drums and dispose at appropriate waste disposal site (e.g. ORTC disposal site) 	Observation of soil contamination	Site Manager
Soil Erosion	To mitigate soil erosion	<ul style="list-style-type: none"> Only use the existing access road to and from the site, do not form other tracks Implement continuous rehabilitation measures, by trimming and smoothing the slopes to be less than one third of the initial slope (1:3). 	Physical Observation	Site Manager

Aspect	Objective	Action Required	Monitoring Indicator	Party responsible
Solid Waste	To prevent littering, pollution, contamination of water and general environmental health hazards	<ul style="list-style-type: none"> • All waste produced on site should be contained and disposed as required by law. • There must be sufficient temporary ablution facility at the site for designated for males and female. 	Scattered waste, Littering and any other unsightly waste at the site (eyesore)	Site Manager

3. Environmental Performance

3.1 Infrastructure Development

No new infrastructure development to place between March 2019 to March 2022.

3.2 Human resources

Grey wall properties provide employment to about 15 people for the sand mining operations. These includes operators, drivers, labourers, Site foreman and administrator.

3.3 Health and safety

All staff are fully equipped with the necessary Personal Protective Equipment (PPE). No injuries or accidents were recorded since the operation commenced (2019-2022).

3.4 Air quality management

Air quality monitoring is done by means of observation and no complains were received in this regard.

3.5 Biodiversity Management

Minimal vegetation mainly in the form of small trees and shrubs were cleared as a result of the sand mining activity. Whilst areas with a high biodiversity abundance are being avoided as far as possible.

3.6 Waste management

The mining site is kept neat and tidy with the personal practicing good housekeeping. Solid waste onsite is generated relatively in small quantities, such waste is collected and disposed at the designated dumping site in Eenhana.

3.7 Archaeology and Heritage management

No material of archaeological or heritage importance has been unearthed during the report period.

4. Rehabilitation plan

Socio-economic development is very important for our livelihood and provides services, income and employment opportunities, and hence activities such as sand mining are vital and necessary for development. However, such developmental activities should be conducted in a thoughtful and forward-looking manner. In other words, developmental activities, such as sand mining should consider the future land use after such activity has come to an end. Therefore, to ensure that the land remains valuable for other land uses in the future, rehabilitation should be part and parcel of such developmental activity right from the beginning and throughout the project lifespan.

The aim of the rehabilitation plan is to ensure soil conservation, prevent soil erosion, reduce safety risk (safety for both animals and people, particularly children) and to ensure that the borrow pit does not become an eye shore.

4.1 What is Rehabilitation?

Rehabilitation is the process of repairing and taking all necessary actions to limit the damage caused by the developmental activity, to minimise potential danger, to make the land suitable for other uses or simply to beautify the affected area (so that it does not become an eyesore). Rehabilitation can also be referred to as the measures taken to repair damaged environments (example refilling of borrow pits with the overburden, re-vegetating, removal of unwanted infrastructure / cleaning up, etc).

4.2 Designing a Rehabilitation Plan

A rehabilitation plan refers to a set of steps or measures to be taken in-order to ensure that negative impacts associated with the development at hand are mitigated. This however requires prior planning and integration of rehabilitation activities throughout the project lifespan. Meaning, rehabilitation measures should be taken right from the beginning of the project.

The environmental characteristics of an area where a project is located plays a vital role in designing a rehabilitation plan.

4.3 Rehabilitation Approach

The borrow pit is situated in an area that is characteristic of wind occurrences. Wind often carries along and blows sand around (from place to another).

The ecological sensitivity of the area and the potential capacity as a touristic area requires that the sand mining activities be undertaken in a responsible and environmental friendly manner. Balancing the demands of progressive development with that of nature is not always clear cut. The importance of minimal disturbance to the general area surrounding the borrow pit is therefore highly recommended in order to safeguard the environment.

Although the site seems barren and devoid of living organisms, the special characteristics of desert life supports a diverse animal life of which most are nocturnal (active during the night). Mining and all associated activities should therefore be restricted to the borrow pit and recommended sand mining area.

4.4 Recommended Measures

At present, the existing borrow pit covers an area of approximately 3 with an average depth of 2 meters. The recommended sand mining area is approximately 2 ha.

As part of the mitigation, it is relatively easier to rehabilitate a shallower borrow pit, as opposed to a deeper one. In other words, rehabilitation of the borrow pit becomes more difficult with increasing depth. It is therefore recommended that the depth of the borrow pit should not exceed 3 meters, to aid natural rehabilitation through sand deposits by the wind, which occurs regularly in the Ohainana and surrounding areas.

In other words, it is recommended that the continuation of the sand mining activities should rather extend over a larger area, as opposed to digging deeper and hence gradual expansion of borrow pit from the current 2 ha to 3 ha is recommended. With that approach, the excavated area has potential to recover and fill-up with wind-blown sand over time.

5. Conclusion and Recommendations

The EMP has identified and recommended measures to be adopted by the by the Grey Wall Properties to manage the sand mining activities in accordance with the recommended measures and rehabilitation plan.

Currently, the borrow pit is one of the key sources of construction material to meet the developmental requirements of the town. Grey Wall Properties would like to conform to the Environmental Management Act of 2007 and EIA regulations of 2012 and hereby commits itself to abide to the recommended mitigation and rehabilitation measures as prescribed in the Environmental Management Plan (EMP).

Grey Wall Properties intent to continue with the sand mining activities within the recommended mitigation and rehabilitation parameters. The continuation of sand mining activities is **vital as it is the one of the only sources of sand to meet the development requirements of the town in particular and the region in general.**

It is recommended that an Environmental Control Officer (ECO) and the town engineer, monitors the preparation, operational and rehabilitation of the burrow pit so as to ensure that the mitigation and rehabilitation measures prescribed in this report are adhered to.

The aim of the EMP is to ensure legal compliance to prevent environmental fatal flaws. Non-compliance against the EMP is punishable and specific responsibilities has been assigned to role player's in-order to ensure that the EMP is implemented. The key role-players identified should:

- Read the EMP (particularly the Project Manager) and ensure that they are fully conversant with provisions of the EMP,
- If need be, Ask for clarity from the Environmental Assessment Practitioner (EAP), Environmental Compliance Officer (ECO) or relevant authority,
- Ensure implementation of the recommended mitigation measures, and
- Communicate defaults / challenges to the ECO as soon as possible.

The ECO should monitor (conduct periodic and unannounced EMP audits) in-order to ensure compliance against the recommended mitigation measures.