

**OPERATIONAL PHASE: SAND MINING ACTIVITIES IN THE ONANIME
VILLAGE NEAR OSHAKATI, OSHANA REGION**



**ENVIRONMENTAL MANAGEMENT PLAN (EMP): ENVIRONMENTAL
CLEARANCE CERTIFICATE (ECC) RENEWAL REPORT**

APP-001516

STANTOLL PROPERTIES CC



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PROPONENT	STANTOLL PROPERTIES CC CONTACT PERSON: MR. B. ZAARUKA PHONE NO: +264 65 220 718 EMAIL ADDRESS: benzconst@iway.na
ENVIRONMENTAL CONSULTANT	MAFUTA ENVIRONMENTAL CONSULTANTS POSTAL BOX: 98049, Pelican Square, Windhoek-Namibia PHONE NO: +264 (0) 81 220 0816 EMAIL ADDRESS: admin@mafutaconsultants.com
MEFT PROJECT NO.	APP-001516
AUTHORS	FREDRIKA N. SHAGAMA MARTHA L. HANGULA
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ACRONYMS

Abbreviation	Meaning
DEAF	Department of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EA / EIA	Environmental Assessment / Environmental Impact Assessment
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
MEC	Mafuta Environmental Consultants
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
SHE	Safety, Health and Environment

DEFINITION OF TERMS

The '**Consultant**' – this refers to the team that is conducting the Environmental Clearance Certificate (ECC) renewal process and the preparation of the updated EMP report for the project. The Consultant is Mafuta Environmental Consultants CC (MEC)

The '**Proponent**' – this refers to the organization that is directly involved in the implementation of the project, i.e. Stantoll Properties CC.

The '**Environment**' – this refers to the ecology, economy, society, and politics.

EXECUTIVE SUMMARY

Stantoll Properties CC (hereinafter referred to as Stantoll Properties or the Proponent) intends to continue with their sand/gravel mining activities from a sand/gravel bank in the Onanime Village, Okatana Constituency of the Oshana Region. The project has been in operation since October 2015 whereby the sand/gravel has been extracted from a burrow pit with an approximate surface area of 7 hectares (ha). The Proponent is a 100% Namibian-owned mother company that houses several business activities of which the sand mining is one of them. The sand/gravel is extracted from a burrow pit in the afore-mentioned village as one of the crucial materials required in the construction industry. Therefore, the mining activities play this role in the surrounding communities. Not only for supply of construction materials but also for the generation of income to the employed workers (livelihoods) and improved local socio-economic development. The active surface mining site (burrow pit) is located about 7 km north of Oshakati town along the Oshakati-Omungwelume road (D3609) in northern Namibia.

Mining Activities forms part of the listed activities that that may not be undertaken without an Environmental Clearance Certificate (ECC). Stantoll Properties was issued with an ECC on 30 November 2016, but it has expired. To ensure that their project activities are compliant with the national environmental legislation that also include a project Proponent to be in possession of a valid environmental clearance, Stantoll Properties realized very late that their ECC has long expired. Stantoll Properties then approached Mafuta Environmental Consultants CC (MEC) to assist with the application for their ECC Renewal.

It is for this reason that this document has been compiled as a supplementary document to the ECC renewal application for the sand/gravel mining activities. The new ECC has been applied for and submitted to the Ministry of Mines and Energy (MME) as the Competent Authority for the project. The copy of the ECC renewal application also been uploaded on the EIA online system (Portal) of the Ministry of Environment, Forestry and Tourism (MEFT) and upon submission of an updated draft Environmental Management Plan (EMP) / Renewal Report, a new ECC for the project can be considered.

The Potential Adverse Impacts identified in 2016 and Re-Checked in 2020

The potential (key) negative impacts that were identified, assessed and for which the current management measures were recommended in 2016 (during the preceding environmental assessment done for the site which led to the issuance of the first and expired ECC in 2016) are as follows:

- Physical land/soil disturbances.
- Biodiversity (removal of vegetation and disturbance to local animals).
- Dust (compromising surrounding air quality).
- Health, safety, and security.
- Noise by project vehicles.
- Vehicular traffic safety.
- Visual (aesthetic) and archaeological impact.; and
- Social impact (potential grievances arising from project activities).

The management measures were made for these impacts in 2016 and updated as deemed necessary in June 2020 (when the ECC renewal site visit and assessment was conducted).

The implementation of the EMP and compliance during the validity period of the expired environmental clearance certificate (ECC) and after the ECC's expiry is provided in this document. The evaluated and updated compliance status has been carried out based on the 2016 project EMP compiled by Mafuta Environmental Consultants. The status presents the progress that has been made on site between 30 November 2016 and June 2020. This would be aimed at improving and ensuring environmental management and sustainability, respectively.

Conclusions and Recommendations

Mafuta Environmental Consultants carried out a site visit and observation with the aim of assessing the implementation of the EMP on the Onanime Sand Mining site for the purpose of the project's ECC renewal. The project is of small-scale level and activities are well limited within the site boundaries only. Certain potential adverse impacts anticipated during the initial EIA Study in 2016 have not been experienced on site yet or never, given the project magnitude (small). According to the observations on site in June 2020, it was found that although not all potential (negative) impacts that were anticipated in 2016 have come to pass, the Proponent has been fully compliant with most of the EMP requirements as recommended. Few parts of the EMP (management measures) have been partially implemented (partial compliance) and this is the case with observations with some biophysical and social environmental components on and around the site. The partial compliance has been also been recorded for monitoring because there is very little record of EMP compliance monitoring (audit) done for the site. However, this can be greatly improved on the way forward, with the assistance of MEC, project ECO and the Proponent's full commitment and co-operation.

With that said, MEC are confident that the potential negative impacts associated with the project activities on site can continue to be mitigated by effectively implementing the recommended management action measures and with more effort and commitment put on monitoring this implementation. It is therefore, recommended that the sand mining and associated activities on the project site be granted a new Environmental Clearance Certificate, provided that:

- All required permits, licenses and approvals for the operations are obtained as required (please refer to the Permitting and Licensing in **Table 2** of this document).
- All the respective management (mitigation) measures provided in the initial/original project EMP drafted in 2016 (also as presented under **Table 3 of this document**) are effectively implemented and monitored as stipulated to achieve full EMP implementation compliance.
- **Where required and emphasized, improvements should be made with full commitment and effectively put in place** (as per this updated Report's **Table 4** and **Table 5**).

- The Proponent and all their project workers comply with the legal requirements governing their project and its associated activities.
- All the necessary environmental and social (occupational health and safety) precautions provided are adhered to.
- **To avoid very late renewal of the ECC, the Proponent should consider appointing a long-term Environmental Consultant or ECO (even on contract) who can be responsible for Environmental (EMP) Compliance Monitoring and most importantly, reminding them about renewing the project ECC on time.**

1. INTRODUCTION AND BACKGROUND

Mining is the backbone of the Namibian economy constituting about 9.3% contribution to Gross Domestic Product (GDP). About 52.7% of export-earnings from mining were recorded in the Chamber of Mines' 2013 Annual Report. Other sectors contributing to the GDP include fisheries, agriculture, and tourism (Mweemba, 2014). Minerals extracted in Namibia range from diamonds, uranium, base metals (copper, lead, zinc, etc.), gold, dimension stones (marble), industrial minerals (**sand**, limestone, and graphite) and semi-precious stones/gemstones. Some listed minerals and stones are either mined at a small, medium, or large-scale level, depending on the ore material, specimen size sought after, available resources and geological extent, etc.

The sand and gravel are extracted from natural sand and gravel pits. Commonly in Namibia, sand and gravel mining is usually a surface type of mining; through open cast (quarry or pits) as the mined deposits are found or can be extracted on the ground surface or in some instances, very few meters just below the ground surface. The mining methods would be dependent on the magnitude of the operations and production. This would also determine the kind of required resources such as time, workforce, equipment, and knowledge, etc.

Like any other type of mining activity, sand and gravel mining usually comes with some positive impacts such as income generation, employment creation, contribution to local and regional socio-economic development as well as the country's revenue through taxes and royalties. However, mining activities are also associated with some negative (adverse) environmental issues that need to be avoided and if cannot be avoided, then minimized.

The current challenge worldwide, but with special focus on Namibia, is the management of sand and gravel mining in an environmentally acceptable manner. The challenges arise from developing appropriate implementation and environmental management strategies. According to Heath (2006), these strategies must be relevant, understandable, affordable, aimed at maintaining a balance between encouraging economic developments and preserving high standards of environmental management.

Given the constant need to develop the country, in both rural and urban areas, the extraction of sand and gravel, and other construction materials has been practiced in Namibia to meet

construction industry demands. This document focuses on the renewal of the environmental clearance for existing sand mining operations at a small-scale level near Oshakati, their impacts on the environment and appropriate management action measures thereof.

1.1. Project Background and Location

Stantoll Properties CC (hereinafter referred to as Stantoll Properties or the Proponent) intends to continue with their sand/gravel mining activities from a sand/gravel bank in the Onanime Village, Okatana Constituency of the Oshana Region. The project has been in operation since October 2015 whereby the sand/gravel has been extracted from a burrow pit with an approximate surface area of 7 hectares (ha). The locality map of the mining site is shown in **Figure 1**. The Proponent is a 100% Namibian-owned mother company that houses several business activities of which the sand mining is one of them. The sand/gravel is extracted from a burrow pit (quarry) in the afore-mentioned village as one of the crucial materials required in the construction industry. Therefore, the mining activities play this role in the surrounding communities. Not only for supply of construction materials but also for the generation of income to the employed workers (livelihoods) and improved local socio-economic development.

The active surface mining site (burrow pit) is located about 7 km north of Oshakati town along the Oshakati-Omungwelum road (D3609) in northern Namibia. The general site location between Omungwelum Settlement and Oshakati Town and zoomed-in (close-up) map of the sand mining site with other significant features (land uses) are shown in **Figure 1** and **Figure 2**, respectively. The coordinates of significant features on site are presented in Table 1.

Table 1: Approximate coordinates of the site boundaries and significant features

Site Feature	Latitude	Longitude
Active sand mining burrow pit (on site)	17°42'50.88"S	15°39'18.23"E
Existing Burrow Pit 1*	17°42'36.84"S	15°39'9.36"E
Existing Burrow Pit 2*	17°42'40.37"S	15°39'16.48"E
Existing Burrow Pit 3*	17°42'46.20"S	15°39'21.19"E

**burrow pits excavated and left by the contractors who constructed the Omungwelum-Oshakati road in the past (they do not belong to Stantoll Properties).*

1.2. Site Land Ownership

The piece of land on which mining is taking place was allocated to the Proponent in April 2014 through a land use agreement signed by Stantoll Properties CC and Onanime Village Headman on 11 April 2014 – **Appendix B**. The agreement grants the Proponent the right to carry out sand mining on the land for a 10-year period (7 March 2014 - 7 March 2024), although the actual work on the site only commenced in October 2015. Next to the Proponent’s big burrow pit, **are three small existing burrow pits (marked as “EBP” on the map under Figure 2) that were excavated by the contractors who constructed the Omungwelume-Oshakati road in the past.** Therefore, these pits do not belong to Stantoll Properties.

An engineering drawing of the project site is shown in **Figure 3**.

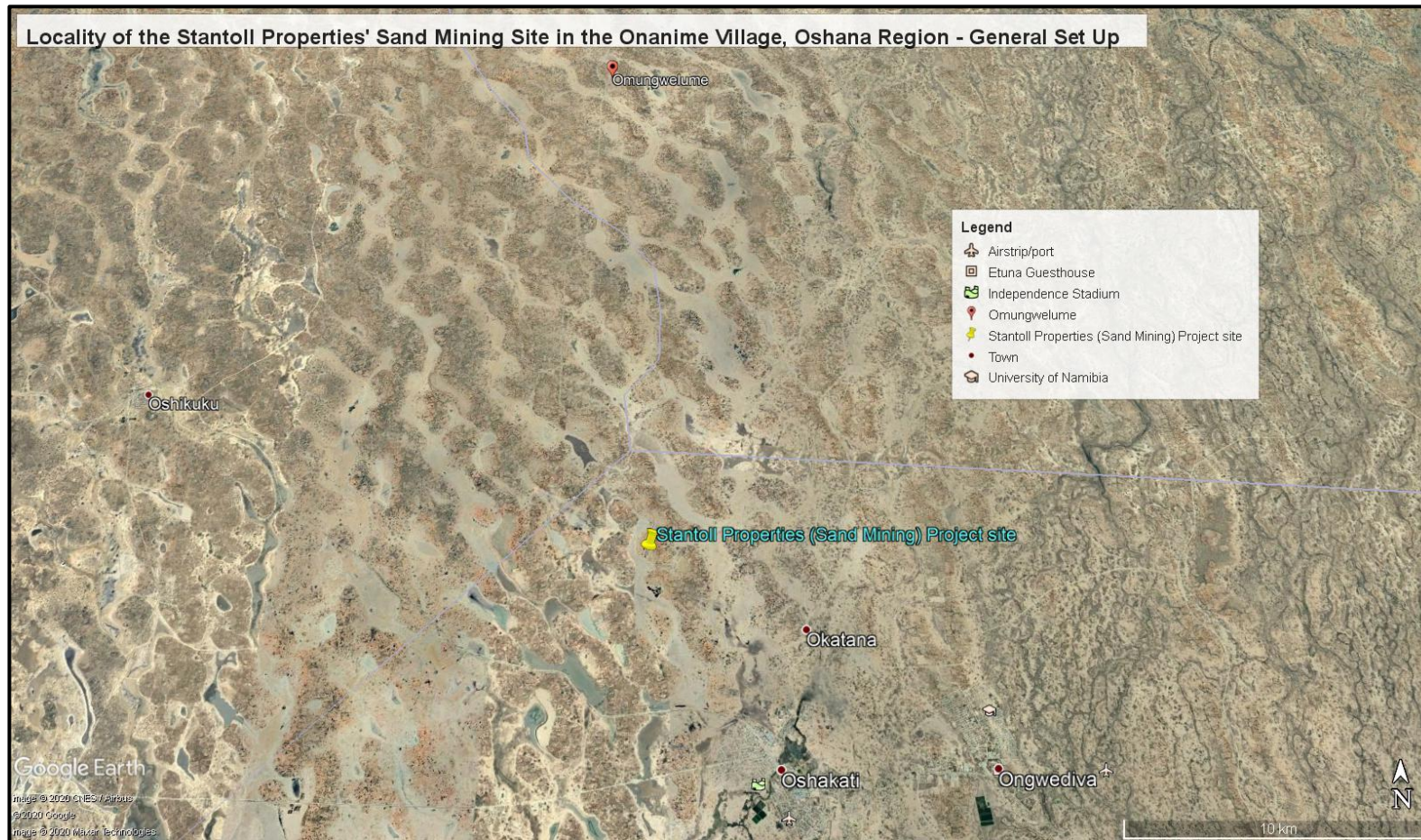


Figure 1: General locality (point) map of the sand mining activities between Oshakati and Omungwelume in the Oshana Region

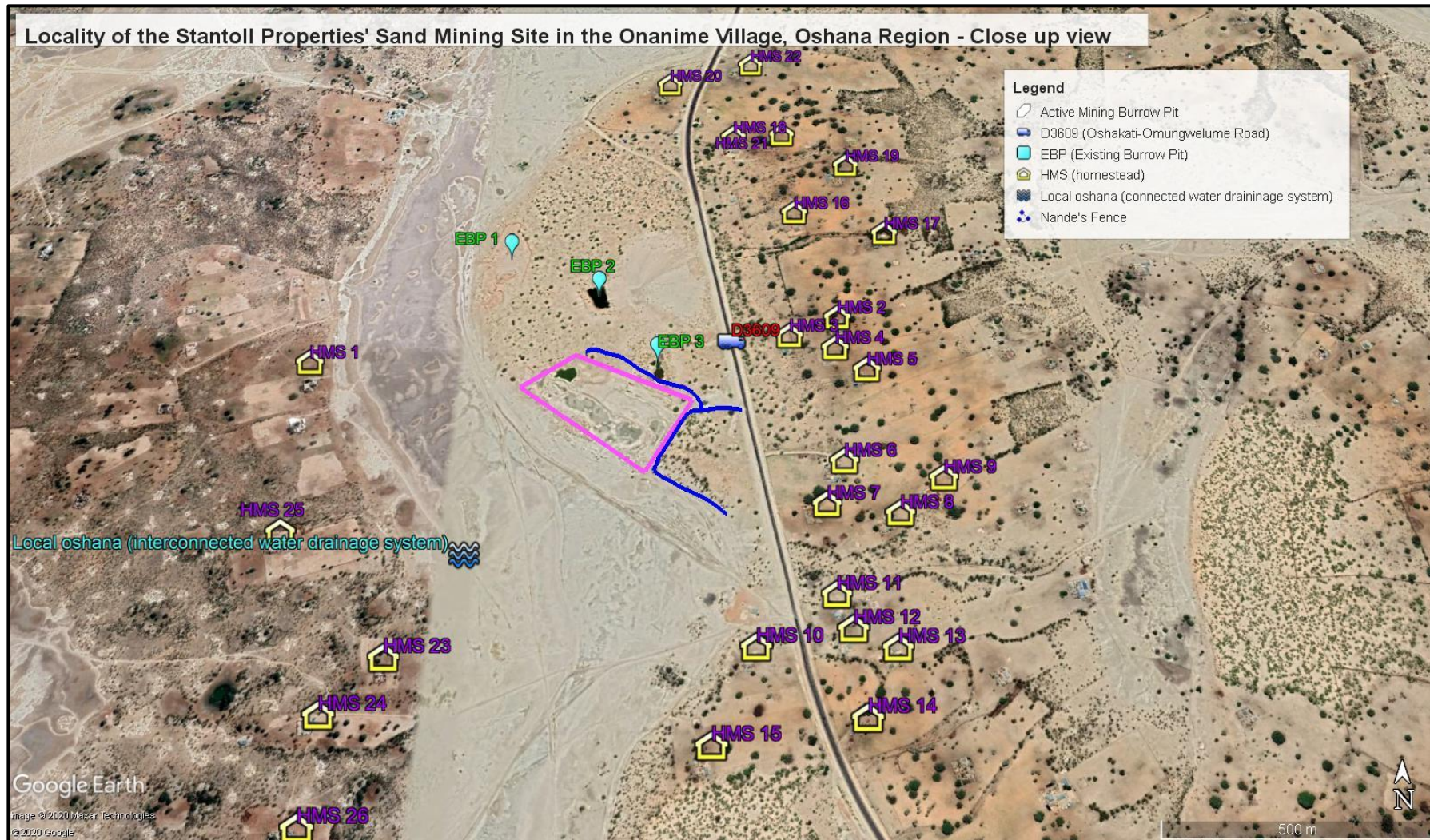


Figure 2: Close-Up locality map of the Stantoll Properties' Sand Mining Activities with the significant surrounding features

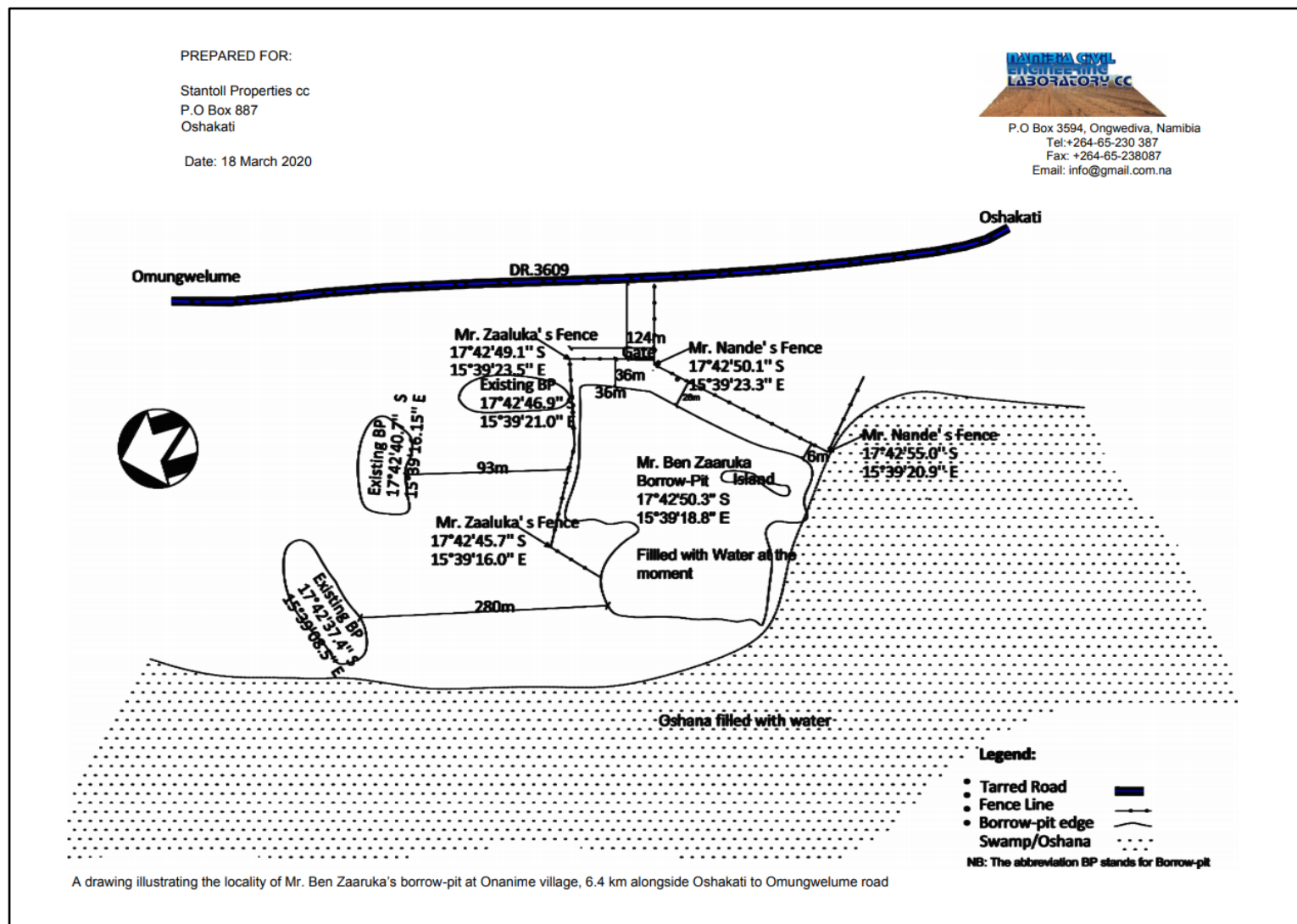


Figure 3: A drawing illustrating the Sand Mining Activities at Onanime Village (Namibia Civil Engineering Laboratory, 2020)

1.3. The Aim of the ECC Renewal

Sand and gravel are classified as an 'industrial mineral' along other minerals in the Minerals (Prospecting and Mining) Act 33 of 1992 under Part 3 of Schedule 1. Mining forms part of the listed activities that that may not be undertaken without an Environmental Clearance Certificate (ECC). The Proponent was issued with an ECC (issued 30 November 2016) and has now expired (**Appendix A**). Therefore, to ensure compliance with the legislations and continue with mining activities on their site, the Proponent needs to renew their ECC.

This document has been developed to satisfy the requirements of both MEFT (as an environmental regulatory authority/custodian) and Ministry of Mines and Energy (MME) (as the mining regulatory authority) for the issuance of the Stantoll Properties' san mining activities.

1.4. Project Phases Covered in the EMP

The following phases are addressed in this EMP:

- **Operational and maintenance phase:** the current phase during which the mining site activities are carried out and maintenance of the site, related infrastructure, equipment, and machinery is done by Stantoll Properties.
- **The decommissioning phase** is the time during which the targeted sand and gravel will eventually run out at on site, leading to the cessation of the mining activities. During the operational phase and before decommissioning, the Proponent will need to put site rehabilitation measures in place. These measures will need to be set and implemented to protect the biophysical and social environments and as per the consent land use conditions set by the local traditional authority in 2014.

1.5. Environmental Assessment Practitioner (EAP)

Under the Environmental Impact Assessment (EIA) Regulations (2012) of the Environmental Management Act (7 of 2007), under the following Sections the mining is a listed activity that may not be undertaken without an Environmental Clearance Certificate (ECC):

- ***"Regulation 3.1*** *The construction of facilities for any process or activities which requires a license, right or other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Acts), 1992.*

- **Regulation 3.2** *Other forms of mining or extraction of any natural resources whether regulated by law or not.*
- **Regulation 3.3** *Resources extraction, manipulation, conservation and related activities."*

To comply with the EMA and its 2012 EIA Regulations of a new ECC, Stantoll Properties' appointed Mafuta Environmental Consultants (MEC) (hereinafter referred to as the *Environmental Consultant*) to undertake the necessary ECC renewal process, apply for the new ECC and obtain it from the relevant authorities, i.e. the Ministry of Environment, Forestry and Tourism (MEFT) upon submission of an updated draft Environmental Management Plan (EMP) Report.

The required tasks include conducting a site visit and assess the current situation against the existing project EMP, compiling an updated Environmental Management Plan (EMP) Report and submitting the renewal application for their ECC application to the Competent Authority (MEFT)'s Department of Environmental Affairs (DEA) on their behalf. The description of the mining operations (project activities) on site is presented under Chapter 2.

2. DESCRIPTION OF PROJECT (MINING) ACTIVITIES

The description of the sand mining activities undertaken by Stantoll Properties is presented under the following sections of this chapter. The description of this chapter focuses on the current mining (operations) activities, project requirements in terms of inputs and resources, process, and outputs.

It is important to take note that this project description is based on the current and actual mining operations on site. Apart from fence upgrading and new site gate, there are no other major construction activities or upgrades anticipated. Therefore, the description and subsequent environmental management measures will only be based on the operational and maintenance and decommissioning phases.

2.1. Operational and Maintenance Phase

2.1.1. The Mining Process (Operations)

Stantoll Properties has been extracting sand/gravel from a huge sand/gravel bank (deposit) from October 2015 through surface mining method, i.e. no extraction from underground. The abstracted sand/gravel is hauled by an excavator (**Figure 4**), loaded onto trucks on site from where it is transported to areas where it is needed. No sand processing of any kind is conducted on site. The sand/gravel is mainly transported from Onanime to Oshakati town where it is used in different construction activities by different users/customers. The scope of site activities includes:

- Extraction of sand/gravel by the Proponent on a monthly average rate of 120m³ and transported to users.
- Sand/gravel extraction for the local community (people) for their personal/homestead use

The sand/gravel extraction or mining is anticipated to run until such time that the communal consent/agreement period elapses, i.e. 7 March 2024. Prior to the end of the agreement, the Proponent will need to commit to the preparation of site rehabilitation for the sake of the affected biophysical and social environment/land.



Figure 4: A set of the sand mining and loading machinery on site

Due to heavy rainfalls at the beginning of the year 2020 and at the time this document was compiled, the site area including the sand mining pit was still filled with rainwater in June 2020 (**Figure 5**).



Figure 5: Site burrow pits filled with rainwater in June 2020



Figure 6: Surrounding open water systems (*oshana*) filled with rainwater in June 2020

Working days: Proponent indicated that site works are carried out on working days only, on (unspecified) shifts per day and depending on customers' demand.

2.1.2. Anticipated site upgrades and Maintenance

There are no major construction activities are anticipated on site as mining operations have been ongoing for some time. The only planned upgrade is the site fence and a better new gate at the site entrance. Maintenance of the mining equipment and site areas are done by the Proponent.

The main project site's operational input, processes and outputs are presented below.

2.1.3. Project Inputs

The inputs required for the mining activities in terms of vehicles and equipment includes the following:

- Day to day small to medium sized vehicles and sand/gravel transporting trucks (from site to customers/consumers)

- Diesel-powered excavator and mined sand/gravel loader.

A. Staff/site worker accommodation:

No worker sleeps on site as site activities are only undertaken on working days between working hours, i.e. 08h00 – 17h00. Therefore, the project workers commute from their homes in Onanime, nearby villages and Oshakati to site daily. For this reason, onsite accommodation is not required.

B. Mining vehicles and loading equipment

All equipment and vehicles are stored and parked at designated areas on site, respectively.

2.1.4. Services Infrastructure and Project Resources

The services infrastructure and resource inputs required for site activities include the following:

- **Water** – The actual sand/gravel mining activities do not require nor use water. The water used on site is solely for human consumption (drinking purposes). This water is brought to site by individual workers in small containers as per their daily personal need.
- **Fuel** – diesel is minimally used on site for the sand extracting equipment as needed per day as a source of power supply for the mining equipment. No electricity is required for actual mining operations. The refuelling of other project vehicles is only done in Oshakati as needed.
- **Electricity** – No electricity is required on site.
- **Roads:** The site area is connected to the town of Oshakati town and Omungwelume settlement by the D3609 road. The mining site can be accessed by the local/access single track that turns off about 200 m from this road.
- **Personnel** – The mining operations employ six people, out of which four are from Onanime Village and two from Oshakati.
- **Sanitation** – Since the site workers are always on the road transporting the mined sand/gravel between Oshakati and site, there has been no need for a toilet on site. It is said that they would just use sanitation facilities in Oshakati or in some cases they use toilets at the nearby local shebeens. **However, for workers' convenience, while onsite, a portable toilet will need to be considered and installed on site.**
- **Workers health and safety:** Site workers (employees) are well provided with proper helmet, boots, masks and all the necessary personal protective equipment (PPE).

- **Health and safety:** The burrow pit safety and that of the public is well monitored as there is a fence and gate that is closed every day after work. There has never been a record of accident or neither fence vandalism. **A double fence wall with a new gate will be constructed around the site (pit) towards the end of the year.**
- **Burrow pit safety (to the locals and animals):** During rainy seasons, the pit is always filled with water flowing from the surrounding *oshana*. To ensure the community' safety (especially animals and children playing in the vicinity), the Proponent assigns one full-time employee from Onanime Village who works onsite during the day for security reasons as the pit potentially pose a risk to those young community members and animals.

2.1.5. Project Processes

The mining activities on site includes the following main processes:

- The mining activities on site involve the use of heavy equipment such as excavator and loader to mine the sand/gravel from the burrow pit and load it onto trucks, respectively.
- Once extracted and loaded into trucks, the sand/gravel is ready for the market and on customer's requests. When requested by the local community, the Proponent provides sand for personal use.
- **Working days:** site activities are carried out on working days only, on (unspecified) shifts per day and probably depending on customers' demand.
- **General site waste:** Waste generation at site is very minimal to none, as the employees do not spend a lot of time there to generate a significant amount of waste. There has not been a record nor observation of littering to date. **The small amount of waste generated from personal use is taken along to proper waste collection bins/sites to Oshakati by project workers who commute from there.**

2.1.6. Project Outputs

The main project outputs are as follows:

- **Annual production:** The average annual production of the mined sand/gravel is 1 440 m³ or 120m³ per month.
- **Operation waste material:** Since the overburden material is the sand/gravel extracted from the site, this leaves a big hole (burrow pit) on the ground surface. This pit will be upon

considering the necessary health and safety procedures turned into a community rainwater retention dam as part of the site rehabilitation plan.

- **Liquid waste** – No liquid waste such as hydrocarbons or wastewater has been produced on site.

2.2. Decommissioning Phase

Like with all kinds of mining activities, the sand and gravel material will eventually run out within the site boundaries earmarked for these activities leading to the cessation of extraction works. The construction industry will always be a necessity for development in every part of the world, and that includes Namibia. Therefore, the sand and gravel will always be in demand. Decommissioning may only be considered due to the decline in the targeted quality sand material extracted on site.

2.2.1. Rehabilitation Plans

During the operational phase and before decommissioning, the Proponent will need to put site rehabilitation measures in place. According to the land use agreement signed in 2014, the community had requested that the Proponent may extract the sand and then rehabilitate the site into a community water dam to retain water from the flood water that flows in the open drainage system (*oshana*) next to the site.

The different components of these project activities are subject to different legal requirements. The list of the applicable legal requirements, in terms of general legislation and permitting and licensing are presented under the following chapter.

3. ENVIRONMENTAL LEGAL REQUIREMENT (INCLUDING REQUIRED PERMITS AND LICENSES)

This chapter presents the detailed information on the legal obligations (legislations, policies, and guidelines) that governs certain project activities. The chapter also provide information on certain legislation where permitting and/or licensing that may be required from different applicable regulatory authorities - Please refer to **Table 2** below.

Table 2: List of applicable legislations and where required, permits or licenses for the Stantoll Properties sand/gravel mining activities

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
The Constitution of the Republic of Namibia (1990)	<p>The articles 91(c) and 95 (i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalising 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 operation of the Stantoll Properties mining site and associated activities can interfere with the ecosystem and overutilization of natural resources like water. Attention should be given to the state of water and other natural resources to avoid over exploitation.</p> <p>By developing and implementing the Environment Management Plan, The Proponent is ensuring sustainable development.</p> <p>Ecological sustainability should guide site operations.</p>

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 CERIFICATE (ECC) RENEWAL

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
Environmental Management Act No. 7 of 2007 EIA Regulations GN 57/2007 (GG 3812)	Requires that activities with significant environmental impact are subject to an environmental assessment process (Section 27).	The nature of certain site activities potentially causes environmental impacts to the surrounding environment. Mining operations can potentially cause significant environmental impacts with some impacts revisable and avoided. Therefore, proper implementation of the EMP should lead and advise the project throughout its life cycle implementation. <u>ECC Renewal: An ECC should be renewed every 3 years and on time, i.e. prior to the expiration of the valid ECC. The contact details at the Department of Environmental Affairs and Forestry (DEAF) are as follows:</u> Tel.: 061 284 2701 OR Environmental Assessment Unit Mr. Damian Nchindo, Tel: 061 284 2717, Email: damian.nchindo@met.gov.na
	Details requirements for public consultation within a given environmental assessment process (GN No 30 S21).	The project is already in its operational phase. However, if necessary and required, constant consultations and engagements with the interested and affected parties (stakeholders) should be continued. In case of grievances

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 CERIFICATE (ECC) RENEWAL

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
	<p>The details the requirements for what should be included in an Environmental Scoping Report (GN No 30 S8) and an EIA report (GN No 30 S15) were already incorporated in the initial reports submitted for the existing ECC.</p>	<p>raised by the neighbouring community to the Proponent, this should be recorded, addressed, and resolved amicably.</p>
<p>Minerals (Prospecting and Mining) Act (No. 33 of 1992)</p>	<p>Section 48 (3): In order to enable the Minister to consider any application referred to in section 47 the Minister may (b) require the person concerned by notice in writing to (i) carry out or cause to be carried out such environmental impact studies as may be specified in the notice.</p> <p>Section 54(2): details provisions pertaining to the decommissioning or abandonment of a mine</p>	<p>The Proponent should ensure compliance with the Act and its Regulations with regards to their mining operations. Furthermore, the Proponent needs to plan rehabilitation actions for future mine decommissioning.</p> <p>The Proponent should ensure that all the necessary permits/authorisations for small/ medium-scale mining are obtained from the Ministry of Mines & Energy (MME)'s Directorate of Mines.</p> <p>Contact: Mr. Erasmus Shivolo (Mining Commissioner)</p> <p>Tel: 061 284 8167, Email: Erasmus.Shivolo@mme.gov.na</p>

OPERATIONAL PHASE: SAND MINING ACTIVITIES IN THE ONANIME VILLAGE NEAR OSHAKATI, OSHANA REGION: ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE ENVIRONMENTAL CLEARANCE
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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in mineral license areas. These deal with among other matters; clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations with respect to their employees. No permit or license required
Communal Land Reform Act 5 of 2002	To provide for the allocation of rights in respect of communal land; to establish Communal Land Boards; to provide for the powers of Chiefs and Traditional Authorities and boards in relation to communal land; and to make provision for incidental matters	The burrow pit (mining site) is situated in a communal area, therefore future changes on working/mining sites within the site (that may at some point interfere with communal or even private lands activities), the Proponent should ensure proper consultations with the relevant authorities and landowners and that the that the project activities comply with the regulations provided in the Act. The conditions set in the Land Use Agreement (Leasehold) by the representing Traditional Authority must be adhered to. If further required, the relevant authorisation should be obtained.

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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PEMIT(S)
The Water Act 54 of 1956	The Act was formulated to consolidate and amend the laws relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects, of the use of sea water for certain purposes; for the control of certain activities on or in water in certain areas.	Projects of this type are usually associated with activities that may directly affect water conservation, management and use therefore, requires the implementation of water conservation techniques. The actual project activities do not use, except for human needs (consumption) which is imported to site by workers.
The Water Resources Management Act No. 11 of 2013	Equitable improvement of water and sanitation services should be achieved by the combined efforts of the government and the beneficiaries, based on community involvement and participation, the acceptance of a mutual responsibility and by outsourcing services where necessary and appropriate, under the control and supervision of government.	No water abstraction and use permit or license required.
Pollution Control and Waste Management Bill	The bill aims to “prevent and regulate the discharge of pollutants to the air, water and land” Of particular reference to the Project is: Section 21 “(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of	The Project should make it mandatory that all their site waste produced as a result of their activities, directly or indirectly is managed in a manner that do not cause environmental threat and risk both to the surroundings and the local communities.

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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
	<p>pollutants or waste into any water or watercourse.”</p> <p>Section 55 “(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment.”</p>	<p>No permit or license required.</p>
<p>Atmospheric Pollution Prevention Ordinance 11 of 1976</p>	<p>The law act to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. The law regulates and prohibit pollution from industries particularly smoke and dust from various activities.</p>	<p>Potential dust that may emanate from loading the sand, especially in dry months and vehicles travelling on unpaved access roads should be managed and suppressed so that it does not affect the surrounding air quality. Efforts to suppress dust should be adopted as recommended in the EMP and herein.</p> <p>No permit or license required.</p>

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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
National Solid Waste Management Strategy	The Strategy ensures that the future directions, regulations, funding, and action plans to improve solid waste management are properly co-ordinated and consistent with national policy, and to facilitate co-operation between stakeholders	<p>The operational activities can potentially generate solid waste (soil remains, human waste and hydrocarbons) that might need proper management by the Proponent to avoid pollution. Waste management plans should be generated and implemented during operations. Proper handling of site waste is required as advised in the EMP.</p> <p>No permit or license required.</p>
Soil Conservation Act 76 of 1969	The Act established to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources in the Republic of Namibia.	<p>The extraction of sand from site is a physical disturbance which may lead to soil erosion. Some materials such as hydrocarbons (fuels) from excavators may spill on the ground resulting in soil pollution. Therefore, mitigation measures proposed in the EMP to conserve and prevent or minimized erosion and pollution during operations should be implemented.</p> <p>No permit or license required.</p>

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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
<p>Road Traffic and Transport Act, No. 22 of 1999</p>	<p>The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.</p>	<p>Mitigation measures should be provided for if the roads and traffic impact cannot be avoided.</p> <p>The project activities involve road transportation or access onto existing roads, and for this the relevant permits (access road) is required. <u>The Proponent should seek guidance from the Roads Authority regarding road use associated with the project activities, on whether a road access road permit is required or not.</u></p> <p>Contact: Mr. Eugene de Paauw (Specialist Road Legislation, Advice & Compliance), Tel: 061 284 7027, Email: dePaauwe@ra.org.na</p>
<p>Labour Act 11 of 2007.</p>	<p>Empowers the minister responsible for labour to publish regulations pertaining to health and safety of labourers (S135). Details requirements regarding minimum wage and working conditions (S39-47).</p>	<p>The Proponent should ensure that the workers welfare; safety and health are protected and that they are from the local community especially unskilled labour.</p> <p>No permit or license required.</p>

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LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PERMIT(S)
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers to be involved in operation of the mine.	The Proponent and their work should ensure compliance with this Act and its regulations. No permit or license required.
Public Health Act 36 of 1919	Section 119 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.”	The safety of the site employees is crucial particularly women, who may not have the knowledge of handling dangerous, risk and strenuous jobs. No permit or license required.
Public and Environmental Health Act 1 of 2015.	To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	The Proponent should ensure that the public health as well as the environmental health is preserved and remain uncompromised. No permit or license required.
National Heritage Act 27 of 2004	Section 48(1) states that “A person may apply to the (Heritage) Council for a permit to carry out works or activities in relation to a protected place or protected object” Protects and conserves cultural heritage and cultural resources with special emphasis on places and sources of National heritage including graves, artefacts, and any objects older than 50 years.	If heritage resources (e.g. human remains, artefacts, etc.) are discovered at some point on and or around the site, these should be reported to the National Heritage Council of Namibia for relocation. Contact: Dr A. M. Nankela (Chief Archaeologist & Rock Art Specialist), Tel: 061 301 903, Email:

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY & REQUIRED PEMIT(S)
		archeology@nhc-nam.org

The baseline of the environmental components was presented in the project’ EIA prepared by MEC in 2016, therefore the reader is referred to the 2016 EIA Report for detailed information on the receiving environment (Environmental Baseline). Based on the project nature and the baseline information, potential impacts were identified first in 2016. The relevant environmental management measures were provided and recommended for implementation. It is crucial to ensure that the implementation responsibilities of these measures are clearly indicated in an EMP. Therefore, to ensure continued effective implementation of the old EMP and this updated document for environmental protection and management, the EMP implementation responsibilities need to be assigned to all vital parties that are involved in the project. This is to ensure that they are aware of what is required of them, individually and or as team throughout the project operational phase and after. These roles and responsibilities are presented under Chapter 4.

4. EMP ROLES AND RESPONSIBILITIES

The chapter is a presentation of the roles of different parties involved in the project cycle (from planning to operations and their respective responsibilities towards the implementation of the EMP.

This EMP informs all relevant parties listed below and other staff employed at the site as to their duties in the fulfilment of the legal requirements for the operation of the quarry. This is done with reference to the prevention and mitigation of anticipated potential negative environmental impacts. All parties should note that obligations imposed by the EMP are legally binding in terms of the Environmental Clearance granted by the relevant environmental permitting authority, to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national, and/or international.
- Verify environmental performance through information on impacts as they occur.
- Provide feedback for continual improvement in environmental performance
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
- Create management structures that addresses the concerns and complaints of interested and affected parties (I&APs) with regards to the development/project.
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity.

4.1. Proponent (Stantoll Properties)

Stantoll Properties is ultimately responsible for the implementation of this EMP during their operation & maintenance and decommissioning phases. The Proponent may also assign the implementation responsibility to a suitably qualified individual to act as their Representative, hereinafter referred to as the Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer. The Proponent's responsibilities include:

- Appoint and assign a suitable qualified and environmental law knowledgeable individual or firm to ensure the effective implementation of the EMP throughout the project lifecycle.

- Managing the implementation of this EMP and updating and maintaining it when necessary.
- Management and monitoring of individuals and/or equipment on-site in terms of compliance with this EMP.
- The implementation of and compliance with the environmental management measures proposed in this document.
- Ensuring compliance with relevant environmental and related authorisations and license conditions.
- Identifying and appointing of appropriately qualified specialists (were necessary) to undertake the programmes in a timeous manner and to acceptable standards.

Alternatively, the Proponent may delegate an Environmental Officer (ECO) or they may appoint an external ECO to ensure EMP compliance throughout the project life cycle.

4.1. Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer

The Proponent may assign the responsibility of overseeing the implementation of the whole EMP on the ground to a designated member of staff or external qualified and experienced person (or firm), referred to in this EMP as the Environmental Control Officer (ECO)/ Safety, Health and Environmental (SHE) Officer. The ECO/SHE Officer will have the following responsibilities:

- Make sure that the provisions of the EMP as well as the environmental authorization are complied with during the construction and operational phases. The ECO must be fully conversant with the Environmental Impact Assessment, Environmental Management Plan/Programme and environmental legislations, specifically the Environmental Management Act No. 7 of 2007 and its Regulations.
- Issue instructions to the Proponent where environmental considerations call for action to be taken.
- Submit regular written reports, ensuring that activities on site comply with all relevant environmental legislation, monitoring and verifying that adverse environmental impacts are kept to a minimum.
- Advise on the timely renewal of the Environmental Clearance Certificate (ECC) before the expiry date on the valid ECC, for as long as the project is in operation.

- Management and facilitation of communication between the Proponent and Interested and Affected Parties (I&APs), specifically the local community members when they raise concerns over the project activities.
- Conducting bi-annually site inspections for the operation and maintenance and decommissioning of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).
- Advising the Proponent on the removal of person(s) and/or equipment not complying with the provisions of this EMP.
- Making recommendations to the Proponent with respect to the issuing of fines for contraventions of the EMP.
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

4.2. Specialists

The Proponent may require the services of a specialist or specialists who may be required on an ad-hoc basis or in terms of environmental support services and independent compliance monitoring and auditing or maintenance. Therefore, the Proponent will need to contract or appoint suitable/relevant professionals, as and when required.

The above-listed environmental management parties on site will be required to implement the respective management (action plans) measures given under the next chapter.

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT ACTION PLANS

Under this chapter are the potential impacts that were identified at the time when the current environmental clearance was issued, the environmental management actions (measures) recommended and the implementation checklist (status of EMP implementation). It is under this chapter that the new EMP implementation roles and responsibilities, updated and additional environmental management measures going forward are also covered.

5.1. Previously Identified Adverse Environmental Impacts

The potential negative impacts were identified during the preceding environmental assessment done for the site which led to the issuance of the ECC in 2016. Mitigation measures or management action plans were also made for the covered impacts. The impacts that had been identified and managed on site are as follows:

- Physical land/soil disturbances.
- Biodiversity (removal of vegetation and disturbance to local animals).
- Dust (compromising surrounding air quality).
- Health and safety, including the possibility of people and animals.
- Noise by project vehicles.
- Vehicular traffic safety.
- Visual (aesthetic) and archaeological impact.; and
- Social impact (grievances arising from project activities).

5.2. Current Status: Implementation of previous Environmental Management and Social Management Measures

The implementation of the EMP and compliance during the validity period of the current environmental clearance certificate (ECC) is given in the table (**Table 3**) below. The evaluated and updated compliance status in **Table 3** has been done based on the 2016 EMP compiled by Mafuta Environmental Consultants (MEC). The status presents the progress that has been made on site between December 2016 and June 2020 to improve environmental management and ensure sustainability. The 2016 EMP have been updated with the 2020 observations done during the site visit in June 2020.

Table 3: Environmental and Social Management Compliance from 2016 to 2020 (updated after Mafuta Environmental Consultants, 2016)

**C - Compliant, PC - Partially Compliant, NC - Non-Compliant*

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
EMP and training Implementation	Lack of EMP awareness	<p>-Develop an effective strategy to accurately carry out the mitigation actions relevant to the sand/gravel mining activities in this environment.</p> <p>-Establish an applicable internal disciplinary system for noncompliance.</p> <p>-Awareness creation regarding the provisions of the EMP as well as the importance of safeguarding environmental resources.</p> <p>-All sand/gravel mining personnel are to undergo environmental induction (training) for both sand/gravel mining stages, which should include as a minimum the following:</p> <ul style="list-style-type: none"> ✓ Detailed review of the current EMP to familiarize personnel with requirements ✓ Explanation of the importance of complying with the EMP ✓ Discussion of the potential environmental impacts of the sand/gravel mining activities ✓ Employees' roles and responsibilities, including emergency preparedness ✓ Explanation of the mitigation measures that must be implemented when work groups carry out their respective activities ✓ Explanation of the specific mitigation measures within this EMP especially unfamiliar provisions. 	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<p><u>MONITORING REQUIREMENTS:</u></p> <p>-Managing Director to request attendance registers be completed by all personnel attending induction training sessions</p>		
Stakeholder Communication	Community grievances and liaison	<p>-Communicate planned activities with stakeholders through established community communication channels.</p> <p>-Provide a platform for stakeholders to raise grievances and receive feedback and hence minimise negative conflict.</p> <p>-The Proponent should draft a Communication Plan, which should outline as a minimum the following:</p> <ul style="list-style-type: none"> ✓ How stakeholders, who require on-going communication for the duration of the sand/gravel mining period, will be identified and recorded and who will manage and update these records (i.e. use the stakeholders list for this study as a basis) ✓ How these stakeholders will be consulted on an on-going basis ✓ Make provision for grievance mechanisms – i.e. how concerns can/ will be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event feedback is deemed unsatisfactory. 	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
	Access agreements	<p>-An access agreement/ broad based community consent needs to be agreements made with affected community.</p> <p>-Broad based community consent and/or access agreements should be in a format which is culturally acceptable for the area:</p> <p>-The affected community must be given an opportunity to negotiate the terms of the agreement</p> <p>-The following needs to be included in the agreement:</p> <ul style="list-style-type: none"> ✓ Operating hours ✓ A commitment from the prospector to rehabilitate damages done and remove if any waste from site ✓ A commitment that this EMP will be adhered to ✓ As appendices: A copy of the EMP and a short explanation of the Environmental Assessment that was conducted. 	C	June 2021
	Safety and security	<p>-Affected community (neighbours) should be given a list containing names and photographs of the sand/gravel mining team for identification purposes</p> <p>-Each member of the team needs to wear an identification tag (with a photo on) always when on site as well as a team uniform.</p> <p>-Bright, reflective jackets need to be worn by each person on sites.</p> <p>-All sand/gravel mining vehicles must be marked for easy identification.</p>	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
	General	-Information regarding activities and related timing to be communicated through community communication channels -Implementation of a communication strategy and establishment of a community complaints mechanism -All personnel to wear identification badges. <u>MONITORING REQUIREMENTS:</u> -Ensure that the necessary contracts are signed and in place. -Keep constant updated records of all concerns and issues logged during the sand/gravel mining operations. -Monitor the speed and effectiveness of remedial actions taken upon concerns and issues raised by the public during sand/gravel mining and remedy all timeously.	C PC	June 2021
Health and Safety	General	-Adhere to all legal requirements pertaining to health and safety. -Compile health and safety plan -Safeguard health and safety of staff and the public -Dust protection masks should be provided to workers when working in dusty environments. -No person should be allowed to smoke on or close to operational areas where active mining is being conducted -No workers should be allowed to drink alcohol or be under the influence of recreational drugs when operating machines	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<ul style="list-style-type: none"> -No workers should be allowed on site if under the influence of alcohol or recreational drugs. -Proper safety gear to be supplied to all personnel according to each one’s level of risk exposure as per legal requirements. -Provide at least 2 litres of fresh potable water during hot summer months) to each personnel member per day during work hours to prevent dehydration and promote productivity. -Frequent, short breaks in between work hours should be implemented. 		
	Road Safety	<ul style="list-style-type: none"> -Off-road driving should not be allowed unless roads have been approved by the affected landowner/occupant/ person or entity responsible for the road -All vehicles that transport sand/gravel and materials to and from the site must be roadworthy -Drivers that transport sand/gravel and materials should have a valid driver’s license and should adhere to all traffic rules as they pass near homesteads. -Loads upon vehicles should be properly secured to avoid items falling off the vehicle. -Drivers should not exceed a speed limit of 20 km/hour when transporting sand/gravel as they pass near houses. -<u>Site specific mitigation</u>: The dusty road used for sand/gravel transportation to be maintained by grading of the road. 	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
Noise	Nuisance	<p>-Working hours should be restricted to between dawn and dusk where sand/gravel mining involving the use of heavy equipment, power tools, and the movement of heavy vehicles is within 500 m from sensitive receptors (such as homesteads). If this is not possible, the affected community need to be consulted well in advance to agree on a mutually acceptable solution</p> <p>-Ear plugs should be provided to workers operating noisy machines or in noisy areas.</p> <p><u>Specific mitigation measures:</u></p> <p>-Sand/gravel mining activities may only be conducted on specific days with the permission of the relevant affected community/houses.</p> <p>-The movement of vehicles are restricted to working hours or times agreed upon between the team and affected community.</p> <p>-There is need to use noise suppression equipment of engines.</p> <p><u>MONITORING REQUIREMENTS:</u></p> <p>-When complaints are received from local community regarding noise nuisance, the source of noise should be identified, and remedial action measures implemented.</p> <p>-Communication with those that complained should be continued to determine whether the problem has been resolved or if not, what needs to be done to resolve it.</p>	<p>C</p> <p>C</p> <p>PC</p>	<p>June 2021</p>

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
Environmental Conservation	Ecosystem and biodiversity	<ul style="list-style-type: none"> -Minimise sand/gravel mining activity footprint and safeguard biodiversity in ecologically sensitive areas -No sand/gravel mining activities should be conducted in any areas outside current demarcated place. -Restrict all activities to defined areas to minimise ecosystem disturbance. -Mining should be conducted systematically from one side along the length of the demarcated area. -Mining and or any earth moving to be conducted in a systematic manner. 	C	June 2021
	Vegetation (flora)	<ul style="list-style-type: none"> -Vegetation nearby the area needs to be protected, the Proponent should not cut these trees without permission or approval. -No trees occurring in this environment may be damaged or removed for any purpose without the required permit -Minimum dust disturbance to the leaves should be done to avoid affecting the vegetation near the site by suppressing dust. -Do not remove trees which have been identified by a vegetation specialist for the purposes of track / road creation -Buffer zones of at least 100m must be established around mahangu field. -In the event that this is not possible, the community need to be consulted well in advance to agree on mutually acceptable solution (which may include compensation). 	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
	Animals / livestock (fauna)	<ul style="list-style-type: none"> -Movements of staff are restricted to the operational sites and work of fauna areas only. -Keep the pit area fenced off and the access gate always closed to restrict accessibility by livestock and wildlife. 		
Archaeology and heritage	Social and cultural heritage	<ul style="list-style-type: none"> -Ensure due consideration is given to matters regarding the cultural and general wellbeing of the affected community and matters incidental thereto. -Should a heritage or archaeological site or object, including human remains be uncovered or discovered during sand/gravel mining, a “chance find” procedure should be applied. <p><u>MONITORING REQUIREMENTS:</u></p> <ul style="list-style-type: none"> -Make sure no archaeological site is disturbed whilst excavation and recovery take place. -Make sure everything of importance, as identified by an appropriate specialist, is removed from site, and declared safe by an archaeologist before sand/gravel mining activities continue/resume. 	C	June 2021
Physical land (soil) disturbance	Soil disturbance	<ul style="list-style-type: none"> -Avoid and where not possible minimise all soil degradation associated with sand/gravel mining. -Whenever sand/gravel is dumped next to the pit area – for later transportation, no additional soil from the holding area should be removed. -Access tracks and roads should not be wider than the normal width to accommodate sand/gravel mining machines and trucks. 	C	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<p>-No tracks / roads must be created unless unavoidable.</p> <p>-No sand/gravel should be mined when the pit reaches a depth of 20m deep.</p> <p>-No mining should be allowed in proximity of the houses: a buffer zone of 50 m should be maintained.</p> <p>-The Proponent should compile a Pit Management and Rehabilitation Plan that should address as a minimum the mitigation measures included below:</p> <p>a. Mining and transportation of sand/gravel: All sand/gravel mining vehicles (trucks) and equipment on site, should use well established routes:</p> <ul style="list-style-type: none"> ✓ Restrict transportation activities to confined route ✓ All personnel and vehicles used for transportation and/or mining purposes should remain within these demarcated route and areas i.e. vehicles should not be allowed to drive randomly across community areas but should remain within demarcated and approved routes. The purpose of this is to, <u>limit unnecessary compaction of topsoil</u> and <u>prevent disturbance of vegetation outside of mining area.</u> <p>i. Any spoil generated in the mining process should only be stockpiled in approved areas and must be shaped and trimmed.</p>	C	

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<ul style="list-style-type: none"> ii. Herbaceous vegetation, overlying grass and other fine organic matter shall not be removed from the stripped soil. Stripped topsoil shall not be buried or in any other way be rendered unsuitable for further use by mixing it with the spoil or subject to compaction by machinery. iii. Vegetation removal will be highly restricted since the Proponent intends to not to extent the pit beyond the demarcated area. <p>b. <u>Surrounding Land Management:</u></p> <ul style="list-style-type: none"> i. The sand/gravel mining site should always be kept tidy. All domestic and general waste produced daily should be contained. ii. No waste may be buried or burned. iii. Demarcate, protect, and avoid abstracting or extent the pit near archaeological sites. If removal is inevitable, apply at Heritage Council via an archaeologist. iv. Ensure that the existing fence surrounds the pit is maintained and the gate is always kept closed to minimise access of the pit by animals and children. v. No surrounding vegetation should be removed, no disturbance of the near grazing lands should be done. vi. All mining activities should be confined to the demarcated area to avoid land degradation of the surrounding areas. 	C	

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<p>vii. Stockpile material must be kept and later reused in the rehabilitation process of the pit.</p> <p>viii. Where possible a top layer must be stripped and stockpiled in an approved manner (normally to the higher side of a disturbed area).</p> <p>ix. No waste may remain on site after the completion of operations.</p> <p>MONITORING REQUIREMENTS:</p> <p>-Monitor whether the provisions set out in this EMP concerning physical land disturbance remediation is being applied as per instructions.</p> <p>-All non-compliances should be recorded and discussed at weekly site meetings and timeous remedial actions taken.</p> <p>-All guilty parties that are in contravention of the provisions set out for managing waste should be given a penalty and according to the severity of the impact appropriate steps taken.</p> <p>-Monitor operational areas and all access tracks and roads. Record all negligent plant destruction sightings and apply the penalty system to all guilty parties.</p>	PC	
Post-Mining Land Use	Site Rehabilitation	-Remove all waste, machinery, and equipment and any other remains from the site.	PC (ongoing)	June 2021

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<p>-Slope reduction of the steep pit sides, spreading of stockpile topsoil back in these graded sides, plant vegetation to allow re-vegetation on the sides to stabilise the soils, fill the pit, do not use pit for garbage and hazardous collection site.</p> <p>-Make sure that the has a site inspection to check rehabilitation efforts.</p>		
	Financial Provision	<p>-Allocate appropriate budgetary allowances to develop proper sand/gravel mining planning and environmental rehabilitation actions through the compulsory development of plans and strategies to mitigate negative environmental and social impacts.</p> <p>-Financial provision for the compilation of a Pit Rehabilitation Plan should be included as a cost item within tenders concerning sand/gravel mining operations.</p> <p>-Financial provision for the facilitation of an induction programme for senior and casual sand/gravel mining personnel as well as sub-contractors and associated personnel should be included as a cost item within tenders concerning all sand/gravel mining activities.</p> <p>-Financial provision for the compilation of a Vegetation Management Plan should be included as a cost item within sand/gravel mining tender documents.</p> <p>-Financial provision for the drafting of a Communication Plan should be included as a cost item within sand/gravel mining tender documents.</p> <p><u>MONITORING REQUIREMENTS:</u></p>		

Environmental Feature	Impact	Management measures recommended in 2016	*Compliance Status	Next EMP compliance Update
		<p>-Constant monitoring and record keeping of progress must be made until all rehabilitation is done, approved, and signed off by the Environmental Coordinator at the decommissioning of sand/gravel mining in an area.</p> <p>-A Site/Pit Rehabilitation Plan was compiled in 2016 and attached to the EIA Report as Appendix B.</p>		

5.3. Updated Environmental and Social Management Actions (Measures)

The aim of the management actions in this EMP is to avoid potential operational negative impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The management action measures for the two phases; operational & maintenance and decommissioning are clearly set out with the responsible implementation parties assigned to these and where necessary, timeframe is also indicated. **This is done to ensure that the EMP implementation responsibilities are clearly given, and each implementation party involved in the project is aware of their respective responsibilities from the beginning of their tasks on the project and remain accountable.**

It should be noted that the mitigation measures or management action plans presented in **Table 4** are a re-presentation of measures provided in the 2016 EMP and where necessary, new or updated measures deemed were added for effective implementation from June 2020 onwards. The aim is to enforce full compliance of the site activities to the governing legislations and ensure environmental sustainability by avoiding or minimizing the negative impacts while maximizing the positive impacts of the project.

Table 4 and **Table 5** contain the management action measures recommended to improve environmental management on site during the operational and maintenance phase and for the decommissioning (closure) phase, respectively.

Table 4: Operation and Maintenance Phase Management Measures (2020 Additional Management Measures, where necessary)

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
EMP training and Implementation	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> • EMP trainings should be provided to all new workers on site and to old workers (as a refresher) <u>every 6 months</u>. • All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work • The implementation of this EMP should be monitored. • The site should be inspected, and a compliance audit done throughout the operations on an annual basis. • An EMP non-compliance penalty system should be implemented on site. • <u>The Proponent should consider appointing of a long-term contractual Environmental Consultant or ECO to be responsible for renewing the project ECC on time.</u> 	Proponent: ECO	Ongoing

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
Social	Socio-economy: Local employment	<ul style="list-style-type: none"> • Priority for casual work and any other work that can be done by people from the surrounding areas should continue be given to them. • Employment of women, marginalised people, and people with disability from the area should be encouraged for the type of work that they can do. • Equal opportunities should be provided for both men and women. 	Proponent	As and when required
	Community grievances and engagement	<ul style="list-style-type: none"> • A Community Liaison Officer or Public Relation Officer/Specialist should be appointed even on a contractual basis. • The Public Relation Officer will be available when required) and also be part of the Environmental Monitoring / audit team and serve as the mediator between the Proponent and local public (community) in events of complaints, concerns or grievances related to the project activities. 	Proponent Public Relations Officer	Ongoing As and when required

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> The Public Relation Specialist must be able to take note of the public complaints, help the Proponent and the public find amicable solutions to issues/grievances. 		
Soils	Physical disturbance	<ul style="list-style-type: none"> Appropriate storm water routing and attenuation must be implemented to avoid onsite erosion and downstream sedimentation during rainy seasons. Re-vegetation of disturbed surfaces should be done to prevent erosion of site soils. 	Proponent	Ongoing
	Pollution	<ul style="list-style-type: none"> Drip trays should be made available for project vehicles, especially heavy trucks to contain possible fuel leaks and spills while parked on site. In an event that any of the hydrocarbon substances spill on the soil, the contaminated soil should be cleaned up immediately and dispose of in a designated hazardous waste bin and transported to the nearest approved landfill site. The contaminated and removed soil should be replaced with clean soil. 	Proponent: ECO	

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
Water	Pollution	<ul style="list-style-type: none"> • Potential polluted site soils by accidental fuel leaks must be cleaned up immediately to avoid hydrocarbons deposition into nearby open water systems (bodies) or infiltration of polluted water into groundwater systems during the rainy seasons. • Site workers are not allowed to use the nearby open water bodies/systems for bathing, washing of clothing, project vehicles for equipment or any project related activity. • Avoid the discharge of any type of waste into the general environment or private properties or into the surface water bodies or ground (and eventual infiltration into groundwater). 	Proponent: ECO	As required
Biodiversity (Flora and Fauna)	Vegetation disturbance or removal	<ul style="list-style-type: none"> • Should the Proponent need to remove protected tree species such as camelthorn trees on and/or around the site, a relevant permit should be applied for and obtained from the nearest Directorate of Forestry office. 	Proponent: ECO	Pre-removal of such trees

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> • Even if certain vegetation is found within actual site footprint, this does not mean that it should be removed. Therefore, care should be taken when conducting site activities without destroying the vegetation, unnecessarily and preserve biodiversity on the site. 		
	Fauna (local domestic and wild animals)	<ul style="list-style-type: none"> • Workers should refrain from disturbing or intentionally killing animals found on or around the project site. • Environmental awareness on the importance of biodiversity preservation should be provided to the site workers. 	Proponent: ECO	Ongoing
Roads	Vehicular traffic safety	<ul style="list-style-type: none"> • The site should be equipped with road/traffic signs at the designated areas and this include truck offloading and loading zones. These signs should be maintained. • Vehicle drivers should adhere to the road safety rules. • The Proponent should ensure that the site access road is well upgraded and in a good condition to cater for vehicles travelling to and from site. 	Proponent	Once off during this phase

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> • Vehicle drivers should only make use of designated site access roads provided. • Vehicles drivers should not be allowed to operate vehicles while under the influence of alcohol. • No heavy trucks or project related vehicles should be parked outside the project site boundary. • Truck movements to and from site should be during weekdays and between the hours of 08h00 and 17h00 only. 		
Air Quality	Dust generation	<ul style="list-style-type: none"> • Operations to be kept on current schedule (working days only) to keep the vehicle-related dust level minimal in the area, especially when it is windy. • In extremely windy days, a reasonable amount of water should be used to suppress the dust that may be emanating from certain site areas such as the loading, extraction sites and gravel access road on windy days. 	Proponent: ECO	As and when required

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> Heavy project vehicles and machines should not be left idling when not in use, such that they emit air polluting gases. 		
Health and safety	Health and safety of the workers	<ul style="list-style-type: none"> As part of their induction, the workers should be provided with awareness training on occupational safety and health. Workers should be trained on how to use site equipment as well as the risks of mishandling equipment and materials. When working on site, employees should be properly equipped with appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, safety glasses, etc. depending on the type of work conducted done. At the Proponent's cost and as their responsibility, site workers should be sent for annual medical check-up to monitor their health in relation to site exposure. 	Proponent: ECO	Ongoing

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> • No employee should be allowed to drink alcohol prior to and during working hours as this may lead to mishandling of equipment which results into injuries and other health and safety risks. • The Proponent should ensure that site is equipped with "danger" or "cautionary" signs for any potential danger or risk area identified on and around the site. • The site should be equipped with a minimum of one fire extinguisher, in case of fire occurrence. 		
	Health and safety of the locals (children and animals)	<ul style="list-style-type: none"> • All necessary safety and security measures should be put in place around the site. This includes maintenance of the site fence and or structures around the site as well as machinery and equipment. 	Proponent	
Waste	Environmental Pollution (General waste)	<ul style="list-style-type: none"> • Site workers should be sensitized to dispose of waste in a responsible manner and not to litter. • No waste may be buried or burned or left scattered on site on site or anywhere else throughout the project lifecycle. 		

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> All domestic and general waste produced daily should be contained on site until such that time it will be transported to designated waste site in Oshakati. A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. No waste should be improperly disposed of on site or in the surroundings, i.e. unapproved waste sites. 		
	Human Health (sanitation)	<ul style="list-style-type: none"> Although most of the workers do not spend a lot of time on site, a portable toilet should still be established on site for convenience. The toilet should be appropriately maintained and emptied according to their manufacturer's operational standards recommendations. 	Proponent	Throughout the phase
Noise	Nuisance	<ul style="list-style-type: none"> Operating hours should strictly restrict remain between 08h00 and 17h00 on weekdays to avoid noise generated by equipment and the movement of vehicles before or after working hours. 	Proponent	Ongoing

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe when? /
		<ul style="list-style-type: none"> When operating the excavating machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure. 		
Aesthetics	Visual	<ul style="list-style-type: none"> Not applicable and feasible now, since operations are underway 	Proponent	Once off (to be considered for closure)
Archaeological	Impact on unknown cultural or heritage sites/objects	<ul style="list-style-type: none"> Identification of any archaeological significant objects on the site should not be disturbed but are to be reported to the project ECO who will then inform/notify the National Heritage Council offices for further instructions and actions. Workers should be educated to not destroy or throw away but report (to the ECO) of any unknown object found/discovered on site during excavation or upon encountering such archaeological objects or sites on the site areas. 	Proponent: ECO	As required, upon encounter

Table 5: Decommissioning Phase Management Action Plans

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe (When?)
Employment	Loss of employment	<ul style="list-style-type: none"> The Proponent should inform the employees on time, of its intentions to cease works and the expected date of such closure to allow them time to look for new jobs. 	Proponent	Pre-decommissioning
Rehabilitation	Financial resources/provision	<ul style="list-style-type: none"> Financial means and technical resources aimed for site rehabilitation should be prepared/put aside and updated on an annual basis, given the fact that the site is reaching the end of its life in 4 years' time (2024). 	Proponent	Ongoing during operations and prior to closure
	Environmental degradation due to poor or no proper site rehabilitation	<ul style="list-style-type: none"> The competent regulatory authority (Ministry of Mines and Energy should be consulted as often and as needed to seek advice on site rehabilitation process). This includes trainings on post-mining rehabilitation. 	Proponent	Pre-decommissioning Ongoing site monitoring from complete closure

Environmental Feature	Impact	Management Actions	Responsible person(s) / Implementation responsibility	Timeframe (When?)
		<ul style="list-style-type: none"> • The uneconomical topsoil material (waste soil) at site should be taken care of so that it can be used for rehabilitation purposes when it starts. • All equipment, infrastructure/structures and other items used during operations should be safely removed from site after mining operations. 		

6. ENVIRONMENTAL MONITORING ACTIVITY

To ensure compliance with the legal requirements, minimize potential adverse impacts and improve environmental sustainability, monitoring activities recommended under respective environmental and social components under **Table 3** should be effectively conducted and reported on. The following activities forms part of this crucial exercise:

6.1. Monitoring of Selected Environmental Components

- **Environmental (during the validity period of the ECC):** EMP implementation and compliance monitoring should be undertaken throughout the project cycle on a bi-annual basis. The bi-annual (every six months) monitoring should be done throughout the project operations. Environmental reports for each monitoring exercise will need to be compiled and submitted to the Department of Environmental Affairs and Forestry (DEAF) for archiving. This practice will make the ECC renewal easier when it is about to expire in future. Therefore, the Proponent should effectively monitor and submit the reports to the DEAF.
- **Environmental (Checklist):** To make impact monitoring and EMP compliance easy, the Proponent should keep an Impact-Indicator Checklist that can be used by the ECO and updated every 6 months. The Environmental Checklist Template is attached under **Appendix C**.

6.2. Environmental awareness

Stantoll Properties should ensure that its employees and any third party who carries out all or part of their obligations are adequately trained about the EMP implementation, and environmental legal requirements and obligations. The trainings may be conducted by the ECO, where necessary.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management, and labour. Environmental awareness training programmes shall contain the following information:

- The names, positions, and responsibilities of personnel to be trained.
- The framework for appropriate training plans.
- The summarized content of each training course.
- A schedule for the presentation of the training courses.

- The ECO shall ensure that records of all training interventions are kept in accordance with record keeping and documentation control requirements as set out in the EMP. The training records shall verify each of the targeted personnel's training experience.

7. CONCLUSIONS AND RECOMMENDATIONS

Mafuta Environmental Consultants carried out a site visit and observation with the aim of assessing the implementation of the EMP on the Onanime Sand Mining site for the purpose of the project's ECC renewal. The project is of small-scale level and activities are well limited within the site boundaries only. Certain potential adverse impacts anticipated during the initial EIA Study in 2016 have not been experienced on site yet or never, given the project magnitude (small). According to the observations on site in June 2020, it was found that although not all potential (negative) impacts that were anticipated in 2016 have come to pass, the Proponent has been fully compliant with most of the EMP requirements as recommended. Few parts of the EMP (management measures) have been partially implemented (partial compliance) and this is the case with observations with some biophysical and social environmental components on and around the site. The partial compliance has been also been recorded for monitoring because there is very little record of EMP compliance monitoring (audit) done for the site. However, this can be greatly improved on the way forward, with the assistance of MEC, project ECO and the Proponent's full commitment and co-operation.

With that said, MEC are confident that the potential negative impacts associated with the project activities on site can continue to be mitigated by effectively implementing the recommended management action measures and with more effort and commitment put on monitoring this implementation. It is therefore, recommended that the sand mining and associated activities on the project site be granted a new Environmental Clearance Certificate, provided that:

- All required permits, licenses and approvals for the operations are obtained as required (please refer to the Permitting and Licensing in **Table 2** of this document).
- All the respective management (mitigation) measures provided in the initial/original project EMP drafted in 2016 (also as presented under **Table 3 of this document**) are effectively implemented and monitored as stipulated to achieve full EMP implementation compliance.

- **Where required and emphasized, improvements should be made with full commitment and effectively put in place** (as per this updated Report's **Table 4** and **Table 5**).
- The Proponent and all their project workers comply with the legal requirements governing their project and its associated activities.
- All the necessary environmental and social (occupational health and safety) precautions provided are adhered to.
- **To avoid very late renewal of the ECC, the Proponent should consider appointing a long-term Environmental Consultant or ECO (even on contract) who can be responsible for Environmental (EMP) Compliance Monitoring and most importantly, reminding them about renewing the project ECC on time.**

8. REFERENCE LIST

Heath, R. G. M. (2006). *Small-Scale Mines, Their Cumulative Environmental Impacts and Developing Countries Best Practice Guidelines for Water Management*. Auckland Park: Pulles Howard & de Lange.

Mafuta Environmental Consultants. (2016). *Environmental Impact Assessment for the Sand/Gravel Mining Project in Onanime Village, Oshana Region*. Ongwediva: Unpublished.

Mweemba, M. S. (2014). *Small-Scale Mining in Namibia: Theme: "Earth Sciences and Climate Change: Challenges to Development in Africa": 7th conference of the African Association of Women in Geosciences...* Windhoek.

APPENDIX A: EXPIRED ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC)

**APPENDIX B: LAND USE CONSENT ISSUED BY THE LOCAL TRADITIONAL AUTHORITY
REPRESENTATIVE (HEADMAN) IN APRIL 2014**

**APPENDIX C: ENVIRONMENTAL AUDIT (CHECKLIST) FOR STANTOLL PROPERTIES' SAND MINING ACTIVITIES NEAR OSHAKATI
IN THE OSHANA REGION**

Report No.	Monitoring Date:	Next Monitoring Date:	
Issue	Observation	Remedial Action	Compliance
Operations - Training			
1. Have all employees undergone EMP training and record of such trainings kept?			
Operations – Waste Management			
2. Is there a portable toilet for workers on site?			
3. Is waste disposed of in designated containers on site and transported to nearby approved landfill site in Oshakati?			
4. All maintenance of vehicle and equipment continue to take place in an Oshakati only?			
5. All site equipment/machinery and vehicles are well maintained (no leaks)?			
6. All site machinery and vehicles have drip trays, which are checked and emptied daily?			
7. Workforce aware of procedures in the event of spills/leaks from project vehicles?			
Operations – Traffic			
8. No trucks parked in the local road reserve?			
9. All drivers have appropriate and valid licenses?			
Operations – Fuel Depot and Fire Safety			
10. Has Stantoll Properties compiled a fire safety plan as described in the EMP?			
11. Has the workforce undergone basic fire safety training? Are the workforce aware of procedures in the event of a fire?			

Issue	Observation	Remedial Action	Compliance
12. Safety signage provided on site areas, where necessary ("danger" or "risk" areas)?			
13. Fire extinguishing equipment available on-site for vehicles and equipment and compliant with the applicable SANS?			
Operations – General Health, Safety and Security			
14. Sufficient stock of personal protective equipment (earmuffs, dust masks, safety boots, gloves, hard hats etc.)?			
15. Are unsafe work areas/surfaces marked as such?			
16. Have the site fence been upgraded and the gate improved to a better one and locked?			
Operations – Air Quality			
17. Are dust suppressant measures (use of water) utilised around active work areas and road?			
Social – Community Relations			
18. Is there an ad-hoc basis project Public Relation Officer?			
19. Is the community afforded and informed of the communication channel to air their grievances, in case of such?			
20. Is there a Public Grievances Record Book/Database and updated with new complaints and or grievances?			
Operations – Rehabilitation and Aesthetics			
21. Has a rehabilitation plan been compiled in accordance with the EMP?			
22. Has the Proponent made provision of Rehabilitation Finances and explored ways to fulfil their Rehabilitation agreement with the community?			