

**IMPLEMENTATION OF AND COMPLIANCE WITH THE ENVIRONMENTAL
MANAGEMENT PLAN FOR THE MINING OF SAND BY NAMIBIA
CONSTRUCTION (PTY) LTD ON FARM OSONA NO. 65, OTJOZONDJUPA
REGION, NAMIBIA**



22 February 2020

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ACRONYMS AND GLOSSARY

The following is a list of the abbreviations, acronyms, technical terms, and definitions used in this Report:

AIDS	Acquired Immunodeficiency Syndrome
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GN	Government Notice
GRN	Government of the Republic of Namibia
IEMA	Institute of Environmental Management and Assessment
FEL	Front End Loader
HIV	Human Immunodeficiency Virus
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources

NC	Namibia Construction (Pty) Ltd
NCE	Namibia Chamber of Environment
SA	South Africa
SLR	SLR Environmental Consulting (Namibia) (Pty) Limited
UK	United Kingdom
UNAM	University of Namibia

km	kilometre
km/h	kilometre per hour
l	litre
m	metre
m ²	square metre
m ³	cubic metre

1 Introduction

1.1 Background

Namibia Construction (Pty) Ltd (hereinafter referred to as Namibia Construction or NC) is a wholly-owned Namibian Company that was founded in 1949. At the time, the Company was called HH Schulz. In 1977, the name was changed (from HH Schulz) to Namibia Construction (Pty) Ltd.

Namibia Construction provides services in civil engineering, building construction, crushing, and the supply of ready mix concrete. The Company is qualified and experienced to perform the following activities: earth works; layer works; surfacing works; concrete works; building of bridges; drainage and culverts; and road signage and markings (see <http://www.namibia-construction.com/>).

For the period between 2011 and 2014, Namibia Construction mined sand from an area in the upper reaches of the Swakop River, on Farm Osona No. 65, located approximately 20 kilometres (km) south-west of Okahandja town and 6 km east of Gross Barmen (see Figure 1), Otjozondjupa Region, Namibia.

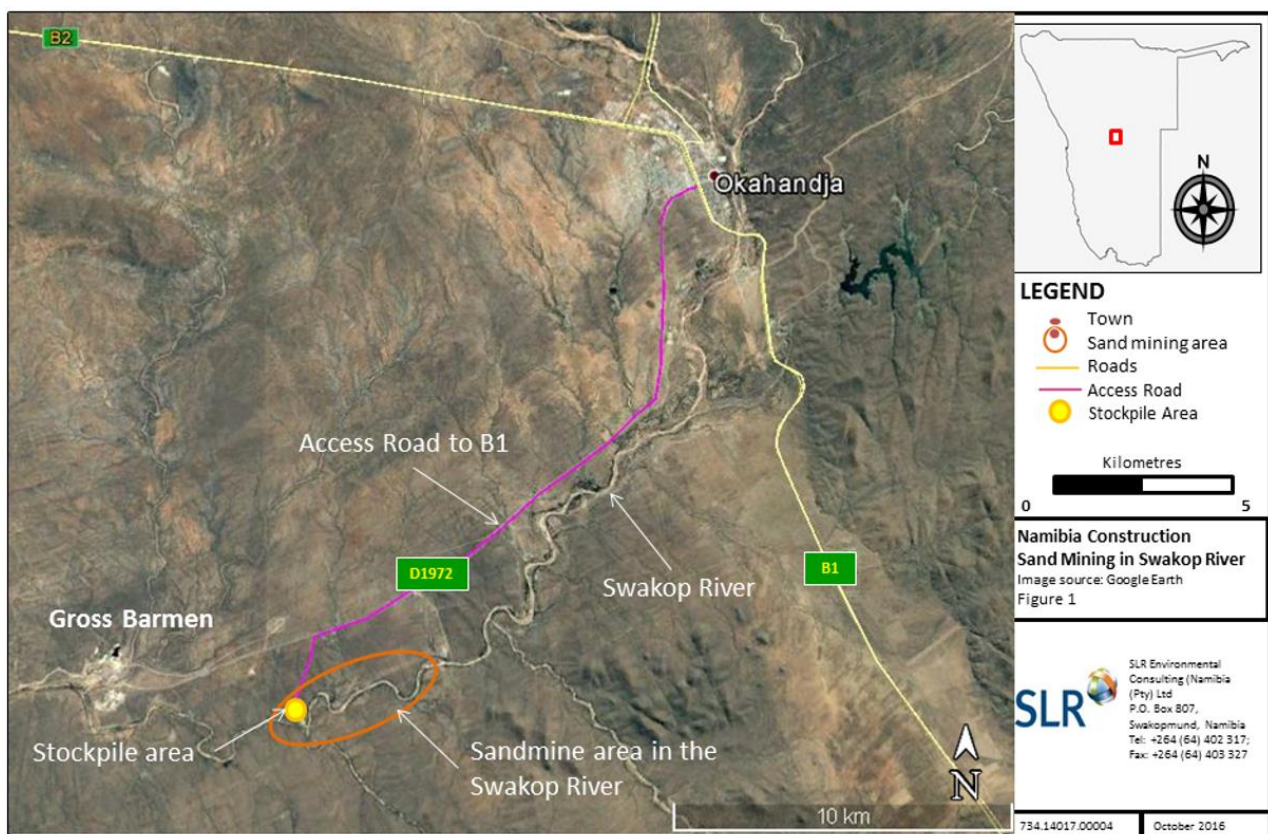


Figure 1: Map showing the regional setting of the sand mine (Source: SLR Environmental Consulting (Namibia) (Pty) Limited, 2016).

In 2015, the sand mining resumed after the river flow reinstated the river sand in the mined out areas. At the time, around 36,000 cubic metres (m³) of sand was mined and used in Windhoek City for construction purposes.

Namibia Construction then proposed to continue with the mining of an additional ~320,000 m³ of sand from this location and covering an area of about 180,000 square metres (m²) (Sanzila, 2016).

In line with the Commencement of the Environmental Management Act (EMA), 2007 (Act No. 7 of 2007) (06 February 2012; Government Notice (GN) No. 28), the Listed Activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (GN No. 29), and the Environmental Impact Assessment (EIA)

Regulations (GN No. 30) (Government of the Republic of Namibia (GRN), 2012), Namibia Construction applied to the Environmental Commissioner for an ECC in 2016.

An Environmental Scoping (Including Assessment) and Management Plan (EMP) Report for the Mining of Sand was prepared by SLR Environmental Consulting (Namibia) (Pty) Limited (SLR) and submitted to the Office of the Environmental Commissioner, Ministry of Environment and Tourism (MET), in December 2016. An ECC was received from the Office of the Environmental Commissioner on 27 June 2017 (see Annexure A).

During the past six years, NC mined approximately 100,000 m³ of sand from the Swakop River. Prior to the good rains and river flow in February 2020, NC cleared two more stockpile areas (one of which was an old calcrete borrow pit area), with prior permission from the Farm Owner (Farm Osona No. 65), Mr Johannes Kriel (see Figure 2). An access road to stockpile area (new) was constructed next to the fence by NC, also with permission from Mr Kriel. Access to stockpile area (old borrow pit) is also the access to the Farmhouse.

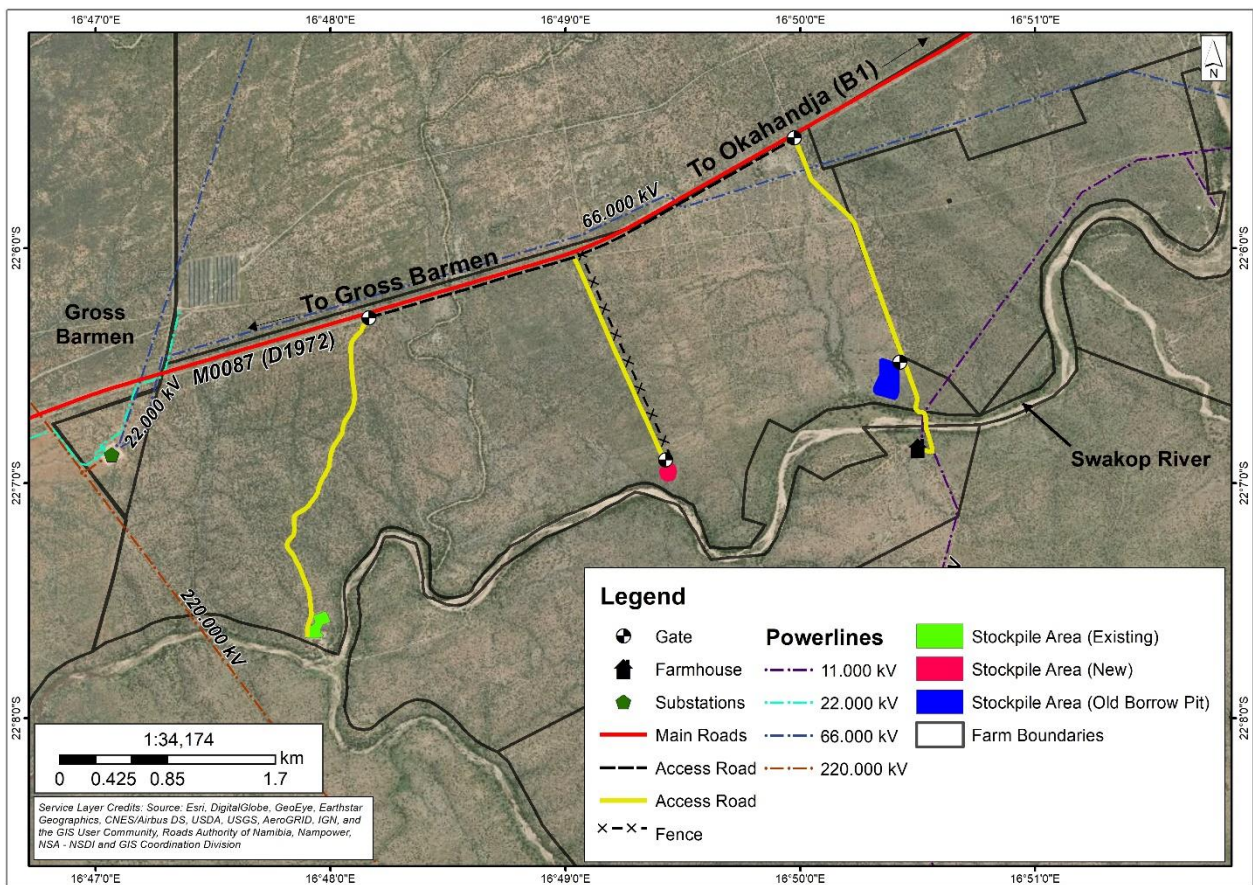


Figure 2: Map showing the location of Namibia Construction (Pty) Ltd's sand mining and related activities, Swakop River, Farm Osona No. 65 (Source: Miss Maïke Prickett, GIS-Specialist, March 2020).

Even though the river flow reinstated the river sand in the mined out areas, it is currently proposed to alternate the sand mining activities between the river sections south of the three stockpile areas (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd).

1.2 Terms of Reference

LM Environmental Consulting was appointed by Namibia Construction (Pty) Ltd in February 2020 to prepare a report, illustrating the implementation of and compliance with the EMP, in aid of the application for the renewal of the ECC for the mining of sand in the upper reaches of the Swakop River on Farm Osona No. 65, Otjozondjupa Region, Namibia.

1.3 Environmental Assessment Practitioner

The author of this Report is Dr Lima Maartens who has more than 27 years' experience in natural resource management (she gained her doctorate (Ph.D.) in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000, lecturing (University of Namibia (UNAM)), environmental science and management (De Beers Marine Namibia and the Canadian Forsys Metals Corp), and consulting). Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Environmental Management and Assessment (IEMA) in the United Kingdom (UK), an Associate Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society. LM Environmental Consulting was established by Dr Maartens in October 2009.

2 Environmental Management Plan: Implementation and Compliance

2.1 Introduction

As part of the EMP performance review, the following action was carried out:

- A site visit, together with Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, was undertaken to the area on 10 March 2020.

2.2 Compliance: Environmental Management Plan



In order to illustrate compliance with the EMP (see Table 1), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not (Currently) Applicable
	Changes made to existing EMP

The EMP (see Sanzila, 2016) is not a static document and the document should be updated as Namibia Construction's activities progresses.

Table 1: Compliance with the Environmental Mitigation Measures and Commitments (after Sanzila, 2016).

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
Social and third party safety issues	Keep within working hours from 07:00 until 16:00, and sometimes on a Saturday from 07:00 until 13:00. Limit the work on Saturdays as well as after 16:00 on weekdays as far as possible. No working on Sundays and public holidays.	Compliant and ongoing. Working hours are between 07h00 and 17h00 during the week; work on Saturdays is limited to a Front End Loader (FEL) operator loading sand on to semi-tippers for hauling to Windhoek (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	No mining within 500 m of private property.	Compliant and ongoing.
	Transportation of sand material should follow the D1972 Road to the B1 Road. No other routes should be used apart from the national roads.	Compliant and ongoing. The Farm Owner, Mr Johannes Kriel, gave permission for the material to be transported (to the D1972) using the access roads indicated in Figure 2 (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Poaching and plant theft will not be tolerated and staff found in possession will be prosecuted.	Compliant and ongoing. A security guard employed by the Farm Owner patrols the area. Namibia Construction (Pty) Ltd's (NC) foreman (Mr Koos Steenkamp) and security guard ensure that no poaching and/or plant theft take place (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	All staff operating on site will be provided with identification and proof that they are working for NC.	Compliant and ongoing.
	Smoking is permitted only in designated areas.	Compliant and ongoing. The following Company Policies are in place: Health and Safety; Environmental; HIV/AIDS; General Health and Safety; Alcohol and Drug Zero Tolerance; Fire Arm; Sexual Harassment; Smoking; Information Technology; Cell Phone; Life Threatening Disease; Personal Protective Equipment; and Quality.
	Have zero tolerance to alcohol in the workplace and on site.	
	Provide appropriate toilet facilities for the workers on the site and workers should be strictly enforced to use these facilities. These facilities (i.e. portable toilets) shall not discharge any effluent into the environment. Sewerage needs to be emptied on a regular basis (to prevent overflowing) and discharged at the Okahandja municipal sewerage facility.	Compliant and ongoing. There are currently two toilets (longdrops), one to the south of the existing stockpile area and one at the current entrance / access road (see Figure 3). Additional toilets will have to be provided at the two new stockpile areas.
	All NC vehicles to use only the dedicated access road to the sand mine. No NC vehicles shall use other farm roads for access to the sand mine.	Compliant and ongoing. The Farm Owner, Mr Johannes Kriel, gave permission for the material to be transported (to the D1972) using the access roads indicated in Figure 2 (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	NC shall liaise with the Roads Authority to ensure the access road turn-off from (and unto) the D1972 (i.e. 'D1972 junction with the access road') used by mine vehicles conform to all the necessary road safety requirements (i.e. roads signs, etc.).	NC liaised with Mr Niklaas Steenkamp from the Roads Authority (RA) in Okahandja and edge beams and road signage were put up at the junction (existing access) (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	<p>Ensure that no material is lost during transportation:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The drivers must check the tail gates of the load body after each load that they have tipped to ensure that the tail gate closes properly and no stones are lodged in between the gate and the body. This could otherwise result in sand seeping out whilst travelling. <input type="checkbox"/> Also, clean off the back of the load body, to make sure that no loose stones remain lying in these areas e.g.: end of the load body or on the chevron, that could fall off whilst travelling. 	Compliant and ongoing. The tail gates are checked; the loads are covered with shade netting (fines are issued if the loads are not covered). The trucks are also weighed at the weigh bridge at Brakwater (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
	<p>□ The loads must be covered with netting or tarpaulins in order to minimize dust and sand falling material blown off during transportation.</p> <p>NC will control the movement of all staff on site and prevent staff from leaving designated work areas.</p> <p>Warning signs will be erected and maintained at the site boundaries.</p>	<p>Compliant and ongoing. Sand mining takes place on a private farm; staff, maximum 10 at any time, stays in Okahandja (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>It is advised that this item be omitted from the Environmental Management Plan (EMP) for security reasons.</p>
<div style="display: flex; justify-content: space-around;">   </div> <p>Figure 3: Pictures showing the toilets: a) just south of the existing stockpile area; and b) the entrance to the site / existing stockpile area (Source: L. Maartens, 10 March 2020).</p>		
Tourism	<p>Ensure the existing access into the river from the plot road is safely maintained. The eastern boundaries of the sand mining operations within the proposed area shall only be to the area presented in the schematic illustration in Figure E2.</p>	Compliant and ongoing.
Waste management	<p>No litter or waste accumulation will be permitted on site.</p> <p>No burning or burying of waste material will be allowed on site.</p> <p>Suitable receptacles for waste disposal will be provided at appropriate locations on site. These receptacles will be clearly marked for different waste types.</p> <p>Employees (NC staff) will be shown the importance of correct waste disposal as well as waste minimisation and recycling through training.</p>	<p>Compliant and ongoing.</p> <p>Compliant and ongoing.</p> <p>Compliant (see Figure 4a) and ongoing.</p> <p>Additional rubbish bins will have to be provided at the two new stockpile areas.</p> <p>Note that waste is limited (maximum of 10 staff that work in the area and stay in Okahandja). The waste, mainly household, is collected and disposed of at the waste disposal site outside Okahandja.</p>



Environmental Issue	Management and Mitigation Measures	Compliance / Comments
		

Figure 4: Pictures showing: a) rubbish bin next to the storage container at the existing stockpile area; and b) a small, dedicated area was set aside for the making of a fire for the warming of food / water (Source: L. Maartens, 10 March 2020).

Waste management (cont.)	<p>Waste will be removed from site and disposed of at a suitable licensed waste disposal facility.</p> <p>Hazardous (i.e. hydrocarbon contaminated soil) shall be disposed of at the Windhoek Hazardous waste facility.</p> <p>Written evidence of safe disposal of waste will be kept.</p>	<p>It is uncertain as to whether the waste disposal site outside Okahandja is licensed?</p> <p>Hydrocarbon contaminated soil is removed and stored at a dedicated area, until it can be removed and disposed of at the waste disposal site outside Okahandja (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>It is advised that hazardous waste be disposed of at the licensed, hazardous waste disposal site outside Windhoek.</p> <p>It is advised that records of the amount of hazardous waste to be disposed of at the licensed, hazardous waste disposal site outside Windhoek be kept.</p>
Groundwater and surface water	<p><u>Managing groundwater resources:</u></p> <p>A buffer zone of sand of at least 1 m above the water table. This implies mining of maximum 3 m vertically down from original river (i.e. natural ground level) at the current water level. Water levels should be constantly monitored to assure an adequate buffer zone is present.</p> <p>After a flood event the water level will have to be reassessed and the vertical extent of the sand pit may need to be decreased.</p> <p>If water levels drop significantly in downgradient boreholes due to sand mining activities (natural water decline and abstraction by farmers are to be excluded as reason through regular water level and abstraction monitoring) such that it affects pumping capacity of farmer then the Client should</p>	<p>Compliant and ongoing. Mining usually takes place up to 1.5 metres (m), maximum 2 m (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>Compliant and ongoing. Note that there are natural dykes in the river at various angles to the river centre line (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>N/A (to date). NamWater has monitoring boreholes in the Swakop River (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p>

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
	provide the farmers with adequate water, potentially by drilling new production borehole(s) or supply from the NamWater pipeline or other sources.	
	Quarterly monitoring upstream and downstream of the sand mine area is recommended.	N/A (to date). Note that there are natural dykes in the river at various angles to the river centre line (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Leave a beach at each bank of the river.	Compliant and ongoing.
	Mining of maximum 3 m below the original river bed surface.	Compliant and ongoing. Mining ususally takes place up to 1.5 m, maximum 2 m (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Drilling of monitoring borehole in the mining area to determine thickness of the alluvium and saturated thickness in order to assess the relative impact on groundwater storage capacity.	Trial holes were dug to a maximum depth of 2 m on 24 January 2020; no groundwater was encountered. Following the flooding of the river during February and begin-March 2020, the water table is currently situated just below the surface (and will decline in time unless the river flows again during the current rainy season). NC has not previously exposed any groundwater (only at the intersection of the Swakop River and the river coming from Windhoek where a sump was excavated to draw water for dust control and for drinking water for the cattle), not even where the water is trapped between the dykes crossing the riverbed (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Rehabilitation of worked areas should be undertaken, with trimming / shaping / levelling of depleted areas with sand from nearby, to reduce the contrast between excavated and natural river areas, and reduce likely ponding areas for floodwaters and to enhance the natural backfilling of the mine pits with sand during flood events, which are likely every year.	N/A (to date); the mined out area was reinstated with sand following the flooding of the Swakop River in February / begin-March 2020.
	Additional monitoring upstream and downstream of the sand mine area is recommended.	N/A (to date). Note that there are natural dykes in the river at various angles to the river centre line (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	SMA NC will liaise with MAWF to obtain the necessary authorisation.	N/A (to date). A representative from NC followed up with Mr Franciskus Witbooi, Deputy Director Law Administration, Ministry of Agriculture, Water and Forestry (MAWF) in person on 19 February 2020 and was informed that the MAWF has not been issuing separate Permits for Sand Mining for the last few years (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
Groundwater and surface water	<u>Managing groundwater quality:</u>	
	Dedicated storage and refuelling stations for heavy vehicles with ground protection to prevent spillages seeping into the soil and the ground water. Refuelling station should be outside the river area.	N/A. There are no bulk storage facilities on site. Fuel is brought in daily in two, 210 litre (l) drums (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Tanks and generators placed in bunded and roofed containments.	N/A.
	Toilet facilities for workers on site should be standard and workers should be strictly enforced to use these facilities.	Compliant and ongoing. There are currently two toilets (longdrops), one to the south of the existing stockpile area and one at the current

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
	<p>entrance / access road used (see Figure 3). Additional toilets will have to be provided at the two new stockpile areas.</p> <p>Additional monitoring of groundwater quality up-gradient and down-gradient and downstream of the sand mining area is recommended.</p> <p>Emergency situations: - Diesel spillage. An emergency plan should be compiled and kept on site for implementation. Hydrocarbon spill kits stored on site and staff trained in spill kit operations.</p>	<p>N/A.</p> <p>N/A. There are no bulk storage facilities on site. Fuel is brought in daily in two, 210 l drums (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>It is advised that absorbent pads and/or spill kits be made available, that personnel are trained in their use, and that any spills are immediately reported and cleaned up.</p>
Groundwater and surface water	<p>Managing surface water runoff:</p> <p>A sump must be constructed at the centre of the downstream excavation wall, to enable pumping of impounded water after flood events, with the water being discharged into the undisturbed riverbed downstream of the sand excavation, to allow the runoff to continue downstream towards Swakoppoort Dam.</p> <p>A suitable generator and pump should be stored on site (out of the river channel) during the rainy season to allow pumping to commence soon after the end of the flood event.</p> <p>Maintenance of sump at start of each rainy season.</p> <p>Emergency situations: - Floodwaters will cause flooding to excavations.</p>	<p>N/A. Note that there are natural dykes in the river at various angles to the river centre line (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p>
Groundwater and surface water	<p>Managing surface water pollution:</p> <p>Refuelling and overnight parking of equipment, and toilet facilities located out of river channel.</p> <p>Drip pans under parked vehicles.</p> <p>Fuel tanks and generators in bunded and roofed containments.</p> <p>Hydrocarbon spill kits stored on site and staff trained in spill kit operations.</p> <p>Collection and analysis of flood water samples for pollutants (baseline).</p>	<p>Compliant and ongoing.</p> <p>Oil filters, etc. (from the serviced equipment) are collected and transported to NC's workshop in Windhoek (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p> <p>N/A.</p> <p>It is advised that absorbent pads and/or spill kits be made available, that personnel are trained in their use, and that any spills are immediately reported and cleaned up.</p> <p>N/A. Samples were taken at the start of the sand mining activities, but only to determine if the material would be suitable to make concrete from (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).</p>
Groundwater and surface water	<p>Impact of Surface Water Flood on Sand Mining Equipment and Staff</p> <p>Implement a communication system to alert workers in the Swakop River of arrival of flood waters.</p> <p>All work to cease when notification of flood, equipment to be removed from excavation, work to only resume when communications indicate flood has passed.</p>	<p>Compliant and ongoing.</p> <p>NamWater informs the Farm Owner prior to the opening of Von Bach Dam's sluices, who then in turn informs NC staff.</p>

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
	Regular communication with early flood warning network (NamWater, farmers, Windhoek Municipality) during rainy season.	
Air quality	Use a water cart to spray water on the access road to the mine (as well as on the roads inside the mine area on the most eastern part) to suppress dust.	Compliant and ongoing (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Consider and investigate any complaints regarding dust from third parties, and where required implement further dust mitigation.	N/A (to date).
	Vehicles will travel maximum 50 km/h on the access road to the mine.	Compliant and ongoing. Vehicles travel at a speed of no more than 40 kilometres per hour (km/h) on the roads (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Vehicles and equipment will be maintained in good working order.	Compliant and ongoing (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
Biodiversity	The footprint of the sand mining area will be minimised as far as is practically possible.	Compliant and ongoing.
	Ensure that all waste generated during activities is removed from the site and disposed of appropriately.	Compliant and ongoing (household waste). It is advised that hazardous waste be disposed of at the licensed, hazardous waste disposal site outside Windhoek.
	Prevent cutting down protected tree species or trees with a stem diameter over 10 cm as far as practically possible. Also prevent mining too close to the protected trees that could expose their roots and let the trees fall over.	Compliant and ongoing. The stockpile area (old borrow pit) was already devoid of any trees. Swarthaak/blackthorn and sickle bush mainly were cleared in the (new) stockpile area (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Leave a beach at each bank to provide protection to the bankside vegetation.	Compliant and ongoing.
	Tree removal permits will be obtained for the removal of all protected tree species (as is required by the Forestry Act).	N/A (to date).
	Permits will be obtained for cutting, removing or destroying of any tree, bush or shrub growing within 100m of the river (as required by the Forestry Act).	
	NC will implement a zero tolerance policy with regards to the killing or collecting of any biodiversity. This applies to people directly employed by NC as well as any contractors working on their behalf.	Compliant and ongoing.
	No open fires will be permitted on site.	A small, dedicated area was set aside for the making of a fire for the warming of food / water (see Figure 4b).
	Employees and contractors will be shown the value of biodiversity and the need to conserve the species and systems that occur on the farm through appropriate training to all staff working at the sand mine.	Ongoing (as part of e.g. the toolbox talks) (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
Speed limits will be enforced on the access road to prevent road kills.	Compliant and ongoing. Vehicles travel at a speed of no more than 40 km/h on the roads (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).	

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
	Ensure guidelines and rules are regularly communicated to workers and visitors and this is enforced with appropriate signage.	Ongoing (as part of e.g. the toolbox talks) (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Any animals that are accidentally killed by sand mining activities (i.e. road kills) need to be immediately reported to the the owner of Farm Osona 65.	N/A (to date).
Noise	If it is not an occupation safety hazard, deactivate the reverser sirens of machinery.	This safety feature cannot be deactivated.
	Vehicles will travel maximum 50 km/h on the access road to the mine.	Compliant and ongoing. Vehicles travel at a speed of no more than 40 km/h on the roads (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Restrict sand mining activities to daylight hours. No work shall be conducted on Sundays or public holidays.	Compliant and ongoing (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Document and investigate all registered complaints and make efforts to address the area of concern where possible.	N/A (to date).
	Only use the approved access road to the sand mine off the D1972 road.	Compliant and ongoing. The Farm Owner, Mr Johannes Kriel, gave permission for the material to be transported (to the D1972) using the access roads indicated in Figure 2 (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Mining equipment/machinery would be operated in a proper manner with respect to minimising noise emissions for example, no unnecessary engine revving.	Compliant and ongoing (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
	Equipment & machinery would be subject to regular maintenance.	Compliant and ongoing (Mr Wilfried Schmidt, Contract Manager, Civil Division, Namibia Construction (Pty) Ltd, pers. comm.).
Land use	The existing power line (and related servitude), cutting through the sand mine site needs to be taken into consideration when mining moves close to this area. No work to be undertaken within the servitude of the powerline and remain at allowable and safe working distances from the powerline infrastructure / servitude – NC to confirm these (i.e. safe working distance) with NamPower.	N/A (see Figure 2).
Closure and Rehabilitation		
Groundwater	Rehabilitation of the mining area should be conducted once the resource has been depleted to avoid negative effects on the aquifer. Rehabilitation should include backfilling (where possible) and trimming/ shaping / levelling of the mining area to avoid ponding of surface water in the abandoned mine pits as observed in other old sand mining areas, as well as to reduce the risk to wildlife migrating within the river corridor.	N/A (to date); the mined out area was reinstated with sand following the flooding of the Swakop River in February / begin-March 2020.
Third party and animals safety issues	The final pit / excavation will be rehabilitated in a manner that they will be made safe (and visually more acceptable) to ensure that there is no risk to the safety of people and animals (i.e. avoid leaving steep/unstable slopes).	
Visual		
Contamination of soils	Refer to management measures relating to contamination of water (Table 9-1; see Sanzila, 2016)	
Air quality deterioration	Vehicle speeds will be limited to 50 km/h on access routes to limit dust.	

Environmental Issue	Management and Mitigation Measures	Compliance / Comments
Soil erosion	Impacted footprints areas around the pits/excavations to be ripped and raked to encourage re-vegetation.	
Waste management and infrastructure	Remove all infrastructure and equipment from site.	
	Decommission ablution facilities. Ensure that all waste generated during activities is removed from the site and disposed of appropriately.	

2.3 Compliance: Monitoring

In order to illustrate Namibia Construction's compliance with the proposed "monitoring" (see Sanzila, 2016), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not Applicable
	Changes made to existing EMP

Type	Parameter	Frequency & Reporting	Compliance / Comments
Groundwater	Monitoring Rehabilitation: Measurement of rest water level	Quarterly / An annual report should be compiled summarising the results of the monitoring and sampling activities and submitted to the MET.	It is advised that this item be omitted from the EMP; Namibia Construction (Pty) Ltd (NC) is not abstracting groundwater (as many other users in the area are) (NC is mining sand). Also, the rest water level will vary over time (depending on e.g. the amount of recharge and abstraction).
	Monitoring Rehabilitation: Collection and analysis of groundwater samples from selected downstream farm boreholes, drilled into the Swakop River alluvium by a water laboratory for major ions, total metals, hydrocarbons and bacteria such as <i>E. coli</i>	Annually / An annual report should be compiled summarising the results of the monitoring and sampling activities and submitted to the MET.	It is advised that this item be omitted from the EMP; results from the analysis of groundwater samples from the area where sand is mined, will not be representative of the groundwater quality in the area (as there are various tributaries to / that drain into the Swakop River).

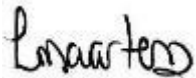
3 Conclusions and Recommendations

In the past five years, the “housekeeping” of Namibia Construction (Pty) Ltd’s sites (e.g. *Platz am Meer* and *Krumhuk*) has been found to be of an exceptionally high standard, and this site/operation is no exception.

The following recommendations are made:

1. That all hazardous waste, including hydrocarbon contaminated soil, be removed and stored at a dedicated area and then be disposed of at the licensed, hazardous waste disposal site outside Windhoek (vs the waste site outside Okahandja); and
2. That absorbent pads and/or spill kits be made available, that personnel are trained in their use, and that any spills are immediately reported and cleaned up.

It is advised that Namibia Construction (Pty) Ltd and their employees and contractors should implement and observe the Environmental Management Plan on an ongoing basis. Environmental performance should be regularly monitored (so that the lessons learnt can be incorporated into the improvement of the Environmental Management Plan over time) and corrective measures taken as or when required.



Dr Lima Maartens
LM Environmental Consulting

4 References

- Government of the Republic of Namibia (GRN). 2012. Ministry of Environment and Tourism. Government Notice No. 28. *Commencement of the Environmental Management Act, 2007*. Government Notice No. 29. *List of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007*. Government Notice No. 30. *Environmental Impact Assessment Regulations: Environmental Management Act, 2007*. Government Gazette of the Republic of Namibia. No. 4878. 6 February 2012.
- Sanzila, M. (SLR Environmental Consulting (Namibia) Proprietary Limited). 2016. *Scoping (Including Assessment) Report and EMP for Sand Mining project- 20km South West of Okahandja*. 96 pp. (plus 8 Appendices)

5 Annexure A



REPUBLIC OF NAMIBIA

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15 June 2017

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

Mr Hans Peter Schulz
Director
Namibia Construction (Pty) Ltd
P. O. Box 5092
Windhoek, 9000

Dear Mr Schulz

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR NAMIBIA CONSTRUCTION'S SAND MINING IN THE SWAKOP RIVER NEAR OKAHANDJA, OTJOZONDJUPA REGION

The Environmental Scoping Report and Environmental Management Plan submitted are sufficient as it made provisions of the environmental management concerning the project's activities. From this perspective regular environmental monitoring and evaluations on environmental performance should be conducted. Targets for improvements should be established and monitored throughout this process.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. The Environmental Clearance Certificate is issued with the conditions in Appendix A printed overleaf.

On the basis of the above, this letter serves as an environmental clearance for Namibia Construction's sand mining in the Swakop River near Okahandja. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with Namibia Construction (Pty) Ltd and its consultants.

This environmental clearance is valid for a period of 3 (three) years, effective from the date of issue unless withdrawn by this office.

Yours sincerely,



Teofilus Nghitila
ENVIRONMENTAL COMMISSIONER



"Stop the poaching of our rhinos"

All official correspondence must be addressed to the Permanent Secretary