



ZEST INVESTMENTS CC

Aggregate Quarrying

An Update Environmental Management Plan for the
Renewal of an Environmental Clearance Certificate for
the Operation of Ongoba Quarry, Omakange

Omusati Region

Application No. APP-001877



<p>PROJECT NAME</p>	<p>An Updated Environmental Management Plan for the Continuation of Quarrying of Aggregates at Ongoba, near Omakange Settlement, Omusati Region</p> <p>Renewal of an Environmental Clearance Certificate</p>
<p>REPORT STATUS</p>	<p>Final Report</p>
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EXECUTIVE SUMMARY

This updated EMP has been prepared to allow, the proponent, Zest Investment CC (ZI) to renew its Environmental Clearance Certificate (ECC). ZI is a local company involved in the quarrying, crushing and distribution of aggregates and has its operational base on the outskirts of Omakange settlement in Omusati region.

Apart from the main quarrying operation situated along C41, about 14 km from Omakange Settlement, ZI has operated a satellite quarry at Ongoba, a small village in the communal grazing area under the jurisdiction of the Uukwaludhi Traditional Authority. Ongoba is about 30 km from ZI's main operation and was granted an ECC on 5 August 2017 which has since expired.

Initially, ZI has started quarrying operations at Omakange, in 2012, in order to service its contract to supply G3 base course and bitumen surfacing stones required for the tarring of D3608 – the road between the towns of Outapi and Oshikango. D3608 was one of the vital roads budgeted for upgrading through the TIPEEG programme. Soon after the TIPEEG roads were completed, an unprecedented economic recession hit the local construction sector, which, resulted in massive job losses, estimated at 60 000 by the Construction Industry Federation of Namibia.

The impact of subdued activities in the construction sector, has been that ZI did not quarry a single ton of aggregate from its satellite quarry since the ECC was granted. However, the company is optimistic about the construction sector bouncing back in the short to medium terms and would therefore like to keep all permits and licenses to the quarry valid and in good standing.

Justification the Renewal for

The Ongoba based quarry has the best rock for the production of G3 base course materials, in terms of strength, durability and quality, achieved through minimal blending and therefore less production costs. It was established exclusively for the production of G3. The RFA has planned about three roads for tarring in the Kunene and Omusati regions. To supply such roads with G3 materials sourced from an existing quarry will be beneficial, both from the cost and environmental perspectives.

There are about fifteen local authorities in the northern regions which require massive infrastructure such as street roads, paving bricks, road curbs, water storage facilities, etc. Supplying road and building materials to these localities from Omakange will save end users a lot of money on transport because Omakange is closer than the traditional suppliers at Tsumeb.

Recommendation

The proponent did not perform any quarrying since it was awarded with an ECC in August 2017 due to lack of construction opportunities within its target market. There are however good prospects on the horizon that the sector will recover.

By its very nature, quarrying is a destructive undertaking to the environment, but if the proponent complies with recommendations suggested in the EMP, the impacts of the operation to the environment can be minimised to acceptable levels.

It is recommended that the ECC be renewed, to allow the proponent to resume quarrying once the construction sector recovers from its slump.

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ABBREVIATIONS AND ACRONYMS

BAT	Best Available Technology
CIF	Construction Industries Federation of Namibia
COVID-19	'CO' - Corona, 'VI'- Virus & 'D' - Disease of 2019
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GPS	Global Positioning System
GRN	Government of the Republic of Namibia
ha	hectare (1 ha = 10 000 m ²)
HPP	The Harambee Prosperity Plan
IAPs	Interested and Affected Parties
km/hr	kilometer per hour
KRC	Kunene Regional Council
m ²	square meters
MEFT	Ministry of Environment, Forestry and Tourism
MHSS	Ministry of Health and Social Services
MME	Ministry of Mines and Energy
NCCI	Namibia Chamber of Commerce and Industries
NHC	National Heritage Council
NO ₂	Nitrogen Dioxide
NSI	Namibia Standards Institute
ORC	Omusati Regional Council
PM	Particulate Matter
PPE	Personal Protective Equipment
RFA	Road Fund Administration
SHE	Safety, Health & Environment
SME	Small and Medium Enterprises
TIPEEG	Targeted Intervention Programme for Economic and Employment Growth
ZI	Zest Investments (the proponent)
List of Road Numbers	
B1	The name of the longest route in Namibia, starting from the southern border at Noordoewer (Karas Region) to the northern border at Oshikango (Ohangwena Region) via the towns of Windhoek, Okahandja, Otjiwarongo, Tsumeb and Ondangwa.
C41/(MR122)	The route number for the road starting from Oshakati to Opuwo via Okahao and Omakange Settlement.
C35	The route number for the road starting from the coastal of Henties Bay to Ruacana through Uis, Khorixas, Kamanjab and Omakange Settlement.
C43	The name of the gravel road from Opuwo to Okonguati via the settlements of Oruhona and Oukonga
D3608	The district road that starts from B1 at Omafo (Ohangwena Region) to Outapi (Omusati Region) via the settlements of Ongenga and Onandjaba.
D3616	The route number for the district road from the town of Tsandi to C46 via the settlements of Onesi and Epalela.
D3668	The route number for the district road which connects the border post of Wakashamane (Okalongo Constituency) to D3608.

DEFINITIONS

TERM	EXPANSION
Environmental Compliance Inspection	A verification process of obtaining and evaluating evidence to determine whether specified environmental activities, conditions, management systems and or information about these matters conform with the recommendations suggested in the EMP.
Cumulative Impacts	In the context of quarrying, cumulative impacts would mean the impacts of quarrying activities which in themselves may not significant but may become significant when added to the existing and potential impacts resulting from similar or diverse activities or underrating in the area.
Environmental Component/Aspect	An attribute or constituent of the environment (i.e., air quality; waste management; geology; soil; and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.
Environmental Impact	A positive or negative condition that occurs to an environmental component as a result of the activity of a project or facility. This impact can be directly or indirectly caused by the activity.
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.
Environmental Management Plan (EMP)	A working document which contains site-, project-, or facility-specific plan developed to ensure that environmental management practices to eliminate and control environmental impacts are followed during the developmental phases of that site, project and or facility and would normally consist of construction phase, operational phase and decommissioning phases.
Environmental Monitoring	The collection, evaluation and summarization of environmental data by continuous or periodic monitoring of certain qualitative and quantitate indicators characterizing the state of environmental components and their modification as a result of the impact of natural and anthropogenic factors.
General Waste	Waste that does not pose an immediate threat or hazard to health or the environment and includes: <ul style="list-style-type: none"> • domestic waste; • building rubble and demolition waste; • business waste; and • inert waste.
Hazardous Materials/Substances	This refers to any substance that contains an element of risk and could have a deleterious effect on the environment
Hazardous Waste	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have detrimental impact on health and the environment.
Infrastructure	The network of facilities and services that are needed for the efficient performance of economic activities, e.g. roads, electricity, water, railway lines, airports, harbours, sewerage systems, etc.
Interested and Affected Parties	All persons who may be affected by the project either directly or indirectly, or who have an interest or stake in the area to be affected by the project, including neighbouring landowners and Road Fund Administration.
Mitigation	Measures designed to avoid, reduce or remedy adverse impacts resulting from the implementation of a project.
Non-compliance	Issues that are in direct non-compliance with the requirements, commitments and/or management measures as approved in the EMP.
Overburden	In the context of this quarrying operation, overburden is all the natural materials that must be removed in order to gain access to the desired rock deposit, in this case the dolerite rock.
Recycle	A process where waste or waste water is reclaimed for further use, this process involves the separation of waste from a waste stream for further use and the processing of that separated materials as a product or raw material.
Re-use	To utilize articles from the waste or water again for a similar or different purpose without changing the form or properties of the articles.
Sensitive Area	A sensitive area or environment is described as an area or environment where a unique ecosystem, habitat for plant and animal life, wetlands or conservation activity exists or where there is high potential for ecotourism
Topsoil	This is defined as a horizon of the soil profile. Topsoil is the upper layer of soil from which plants obtain their nutrients for growth. It is often darker in colour, due to the organic fraction. Topsoil is deemed, for the purposes of this EMP, as the layer of soil from the surface to the specified depth required for excavation.
Vegetation Rehabilitation	This refers to the re-establishment of indigenous vegetation with a similar species composition to that which naturally occurs in the specific geographical environment.
Waste Management	Classifying, recycling, treatment and disposal of waste generated during construction, operation and decommissioning activities.

1.0 HISTORICAL BACKGROUND

1.1 Introduction

This is an updated Environmental Management Plan (EMP) prepared in support of an application for the renewal of an Environmental Clearance Certificate (ECC). The ECC was granted on 5 August 2017 for quarrying activities and has since expired and is attached hereto as **Annex A**. Notice to renew the ECC was submitted to the Ministry of Environment, Forestry and Tourism (MEFT) on 16 September 2020 which allocated the renewal application the following number – APP-001877.

1.2 The Proponent

The proponent is Zest Investments CC (henceforth, ZI), an Omaruru based company, which, conducts business in the road construction sector, quarrying and supplying primary road building materials. There has been no changes to the members of the close corporation since the ECC was granted. The address, contact particulars of the company as well as the representative of the ZI are the still same and are given on the information page.

1.3 Historical Background

During the course of 2012, ZI was subcontracted to supply G3 base course materials and bitumen surfacing stones required for the upgrading to bitumen standards of the district road, D3609, which traverses through Ohangwena and Omusati, two densely populated regions of the country. D3609 is 98 km long, and is a vital road which connects the towns of Helao-Nafidi and Outapi and was budgeted for tarring under the special projects promoted by GRN, commonly known then as TIPEEG (Targeted Intervention Programme for Economic and Employment Growth).

ZI proceeded by acquiring an existing aggregate quarry at Omakange, formerly established by a South African company which upgraded another vital road, MR122, between Omakange and Okahao. The quarry acquired by ZI is located along C41, about 14 km southwest of Omakange settlement (**Figures 1 & 2**). This is where the company has its main operational activities and support infrastructure (workshop, administrative office and residential quarters for the staff and employees).

By 2014, ZI was quarrying and producing G3 base course and bitumen surfacing stones from three locations. The main quarrying operation along the C41 highway had consisted of two quarry pits, that are about 2 000 m apart. During the EIA scoping report conducted by Ekwaio Consulting in March 2017, the main quarrying operation was considered as one operation and referred to as Omakange Quarry 1 and 2. This operation was awarded its own ECC.

1.4 The Satellite Quarry

The third location where ZI conducted quarrying activities is about 30 km, northwest of Omakange Quarry 1 & 2 and accessed as indicated in **Figure 2**. This satellite operation was established by ZI for the exclusive production of G3 base course materials only. The dolomitic rock quarried at the main operation had too much free lime fines which made the production of G3 a cumbersome process hence more costly.

At the satellite quarry, the production of G3 was less cumbersome. The main rock source encountered at Ongoba was dolerite which is a much a better rock when compared to dolomite. The rock deposit was found just below the surface which eliminated the handling of overburden.

The quarry is confined to an area of about 2 ha (20 000 m²). This whole area has been cleared of vegetation (**Figure 5**). Within this cleared land, quarrying activities, i.e. the land area where excavations have been made is about 2 000 m². Here shallow trenches have been excavated exposing the dolerite rock which is quite shallow.

This satellite quarry was granted its own ECC (**Annex A**).

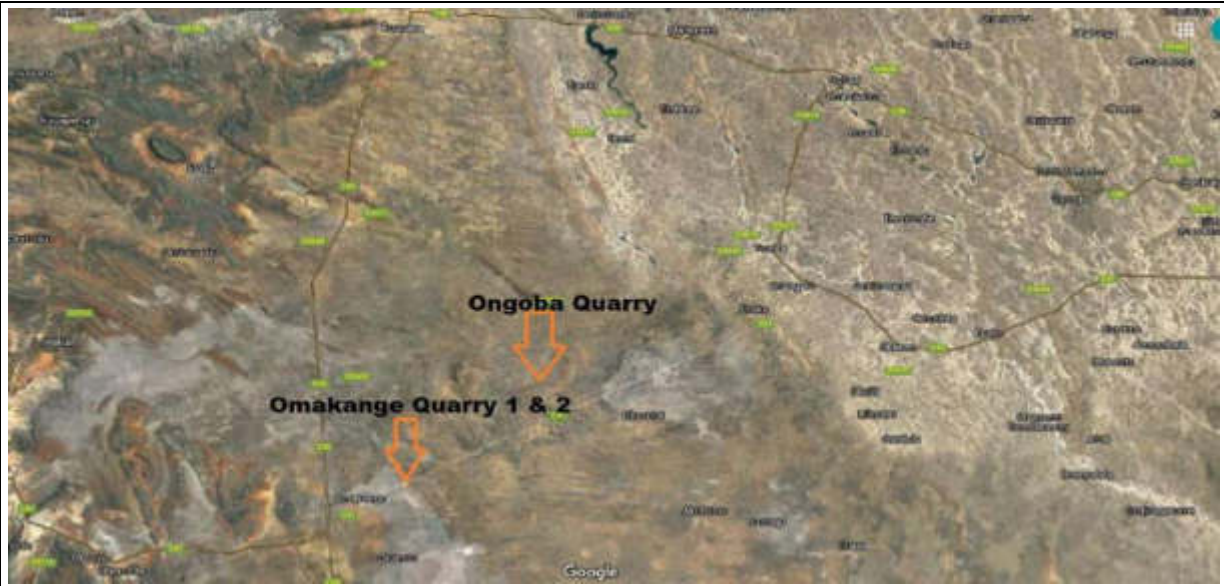


Figure 1: Ongoba Quarry in Relation to the Main Quarry



Figure 2: Distance Between the Satellite Quarry and Main Quarry



Figure 3: Quarry Layout and Access Road

1.5 Post Road Construction

After the supply of G3 base course and surfacing stones to D3609 was successfully completed towards the end 2015, ZI resolved to continue quarrying aggregates at Omakange in the hope of securing new construction opportunities in the northern regions. The decision to remain quarrying at Omakange was motivated by two factors:

Firstly, the information released by the Roads Authority Administration (RFA), was that, there were three roads planned for upgrading to bitumen standards in Omusati and Kunene. These gravel roads are:

- D3616, Tsandi to Onesi (28 km)
- C43, Opuwo to Okangwati (140 km)
- D3616, Onesi to Epalela (12 km)

The second reason was that, there were numerous towns, villages and settlements proclaimed by central government (Opuwo, Okahao, Outapi, Onesi, Tsandi, Ruacana, Oshikuku, Oshakati, Ongwediva, Ondangwa, Helao Nafidi, Okongo, Epalela, Onandjaba, Ogongo, Etayi, Omungwelume, Ongenga, etc.) which could be profitably served from an aggregate quarry based at Omakange.

There was strong demand for aggregates in these towns required for the construction of housing, street roads, water storage facilities, institutional properties, commerce and industries.

1.6 Access to the Quarry and Existing Infrastructure

From the main quarry, the satellite quarry at Ongoba is approximately 30 km and reached by driving 25 km on C41 in the direction of litananga/Okahao, followed by driving another 5 km on the gravel road (**Figure 4**).

In terms of existing infrastructure, the gravel road is the only infrastructure available. There is no water or electricity at the quarry. The mobile plants used in operation have onboard electricity plants.

2.0 RENEWAL OF THE ECC

Ekwao Consulting who did the original EIA study, was retained by ZI to handle the renewal of its ECC. In spite of limited demand for construction materials, ZI would like to keep the quarry active and all necessary permits and licenses related to its quarrying operation valid and in good standing in anticipation of the construction industry bouncing back from its current slump.

2.1 Purpose for the ECC Renewal

Based on the information received from the Roads Authority Administration (RFA), there are advanced plans to upgrade at least three gravel roads to bitumen standards within the regions of Omusati and Kunene in the near future. These gravel roads are:

- D3616, Tsandi to Onesi (28 km)
- C43, Opuwo to Okangwati (140 km)
- D3616, Onesi to Epalela (12 km)

ZI would therefore like to keep all necessary permits related to its G3 base course material quarry, valid and in good standing with all legal requirements in the hope of the construction sector bouncing back from the current slump. Once funds for the roads mention above have been secured, huge volumes of base course and bitumen surfacing stones will be required. Sourcing such materials from an existing quarry is cost effective in the sense that establishment costs have been expended in laying out infrastructure (workshop, offices, site camp, access road, water supply, etc.). It is also beneficial from an environmental perspective, because there is no need to clear land and uproot trees.

2.2 Justification for the Renewal

Aggregate is the lifeblood of the construction and building sectors. An adequate supply of aggregates which is of good quality and meeting industry standards and specifications, is therefore critically required by the construction and building sectors in the northern regions where some fifteen (**Table 1**) local authorities have been established by GRN in order to stimulate economic activities. These fifteen local authorities have been referred to, in this report as the Project Target Market (PTM). To achieve the aspirations of the GRN, for Namibia to become an industrialized nation by 2030, investments in economic and social infrastructure have been made on a continuous basis, especially in the PTM.

Before the construction of MR122 / C41 from Omakange to Okahao, aggregates to end users in the PTM was sourced from two suppliers who are based at Tsumeb, travelling distances as shown in the **Table 1**. Sourcing aggregates from Tsumeb to end users in almost all PTM, will therefore be more expensive than sourcing such construction materials from Omakange. For each PTM, the office of the local authority in each town has been used as reference points.

By their nature, aggregates are low cost, high volume products. An end-user based at Outapi sourcing aggregate from Tsumeb would pay N\$9 000 more on transport (if the going rate of N\$35.00 per ton is applied) than when such aggregate is sourced from Omakange.

Table 1: Distance to Aggregate Consumption Locations

Key Aggregate Consumption Locations	Sourced from (km)		Distances Between the Sources (km)
	Omakange	Tsumeb	
Opuwo (Kunene administrative capital)	70	505	435 km longer
Ruacana	90	440	350 km longer
Outapi (Omusati administrative capital)	110	370	260 km longer
Okahao	80	350	270 km longer
Onesi	105	410	305 km longer
Tsandi	80	380	300 km longer
Oshikuku	145	315	170 km longer
Oshakati (Oshana administrative capital)	150	290	90 km longer
Ongwediva	160	280	80 km longer
Ondangwa	190	250	60 km longer
Oniipa	200	245	45 km longer
Omuthiya (Oshikoto administrative capital)	270	170	100 km shorter
Helao Nafidi/Oshikango	190	305	115 km longer
Eenhana (Ohangwena administrative capital)	240	290	50 km longer
Okongo (Tsumeb delivery is Mpungu)	340	310	40 km shorter

From the table above, consumers in the PTM will therefore make huge savings on transport cost when aggregate is sourced from an Omakange quarry than sourcing from Tsumeb based producers.

2.3 Value Addition to Aggregates

The supply of aggregates from Omakange has the potential to stimulate interest amongst the local entrepreneurs who are aspiring to establish value addition projects which make use of aggregates as raw materials. There is huge demand for cement based products such as bricks, pavers, road kerbs, lintels, concrete pipes, concrete roof tiles, etc. in the PTM. Aggregates are the basic ingredients in the production of such construction materials.

Local SMEs could establish such facilities targeting to supply end users in their own towns, i.e. Okahao, Tsandi, Outapi, etc. Over 90% of cement bricks that meet the specifications required for all government funded projects in the local authorities listed in **Table 1** are supplied by one big supplier who is based in Tsumeb but with a satellite brick operation at Ondangwa.

According to a study done by First Capital, the estimated average monthly combined brick consumption in towns of Outapi, Oshakati and Ongwediva is 1.2 million units. During the peak construction periods, the PTM was consuming about 10 000 tons of aggregates per month.

3.0 ENVIRONMENTAL COMPLIANCE INSPECTION

An inspection of the satellite quarry was carried out on 18 July 2021 by Ekwa Consulting.

3.1 Objective

The primary objective was to assess and to compare the current physical environmental conditions against the baseline information gathered during the EIA scoping study conducted in 2017. The inspection has also served as a means to assess the compliance level of the proponent to the mitigation measures suggested in the EMP which formed the basis for granting the ECC to the company for its satellite quarry at Ongoba. The last objective was to support the renewal application of the ECC.

3.2 Findings

The following conclusions were drawn from the environmental compliance inspection:

- It was evident from physical observations that, no quarrying has taken place since the ECC was granted to ZI in August 2017. This was also confirmed by management. Photographs of the satellite quarry taken in March 2017 during the EIA scoping are presented. (**Figures: 4-7**).
- The current conditions of the quarry as of July 2021 is as depicted in photographs taken on 18 July 2021 (**Figures: 8-10**). Natural grass cover and vegetation have re-established fairly well after more than three years of non-activities. Stockpiles of G3 base course materials and another one of waste rock observed in March 2017 (**Figures: 6 & 7**) were still intact. Again, natural grass cover and vegetation have re-established well after several years of inactivity (**Figure : 8**). The excavated shallow pit was also covered with grass (**Figure: 5 and Figure : 9**).
- Judging from the current quarry conditions, it evident that pre-quarry conditions can be attained with a well-executed rehabilitation plan. This plan should involve backfilling of the trenches and profiling of stockpiles, thereby allowing natural vegetation to grow.



Figure 4: Access Road to the Satellite Quarry (5km from C41 – Road is also used by communal farmers in the area)



Figure 5: Shallow Excavated Trenches – photo taken March 2017. Note pooling of rainfall water in the trench



Figure 6: Waste rock Stockpile (March 2017)



Figure 7: Typical G3 Base Course Materials (Mar 2017)



Figure 8: G3 Stockpile (Jul 2021). Note natural grass and vegetation re-growth



Figure 9: An earth berm below the excavated area and stockpiles made to contain the rainfall runoff on the site



Figure 10: The shallow excavated area showing cut off edges that are susceptible to erosion – July 2021. Note how natural vegetation has re-established itself spontaneously

3.3 Environmental Compliance Report

Table 2: Environmental Compliance Checklist

Environmental Aspect	Compliance	Management Actions	Comments
STANDARD CONDITIONS			
No quarrying maybe conducted without a valid ECC.	Yes	None	None
The conditions of the EMP are binding on the proponent.		Management has noted the requirement.	None
All current and future employees must be acquainted with the provisions of the EMP.		Management has noted the requirement.	None
Any material changes to, or deviations from the project description must be approved by the EC. The impacts of such changes must be evaluated and assessed.		No changes or deviations were noted.	None
Where any of the applicant's contact details change including the name of the responsible person, the EC must be notified of such changes.		No change has taken place.	None
A copy of the EMP and the ECC must be kept at the site office. Both documents should be provided to any GRN official(s) upon request.		Management has noted the requirement.	None
Any contractor hired to work on the quarry must be provided with a copy of the EMP. The proponent must ensure that the EMP has understood.		Management has taken note of the requirement.	None
The ECC does not negate the proponent to comply with any other statutory requirements which may be applicable to the activity being undertaken.		Management has noted the requirement.	None
Unless indicated otherwise or withdrawn an ECC is normally valid for a period of three years.		Management has taken note of the remark.	None
PROJECT SPECIFIC CONDITIONS			
HEALTH AND SAFETY MANAGEMENT			
Develop an emergency response plan to deal with any safety incidents or accidents occurring during quarrying.	No activity performed	The recommendation has been noted.	None
Provide a first aid kits in the site office. Ensure that it is fully stocked and employees trained in the giving first aid in case on an accident.	No activity conducted	The recommendation has been noted.	None
Suitable PPE's should be provided to employees and use thereof enforced.	No activity conducted	Suitable PPE is supplied for free.	None
Place appropriate signs to caution against entering any restricted/danger areas without authority.	No activity conducted	The recommendation has been noted.	
HOUSEKEEPING AT THE SATALLITE QUARRY			
One portable toilet must be kept at the site whenever quarrying is being conducted.	No activity conducted	The recommendation has been noted.	None
During quarrying adequate clean water must be provided and kept in a suitable container at the site for cleaning and drinking purposes.	No activity conducted	The recommendation has been noted.	None
Only security personnel are allowed to overnight at the satellite quarry. No site camp may be established. All personnel must reside at the main quarry.	No activity conducted	The recommendation has been noted.	None
Maintain good housekeeping practices at the workplace. No consumption of alcohol, no guns and nor drugs should be permitted.	No activity conducted	Management has taken note.	None
LAND AND SOIL DISTURBANCES			
Avoid unnecessary land clearing. Any virgin land targeted for clearing should be preceded by carefully planning, demarcated and clearly marked off.	No activity conducted	Management has noted the recommendation.	None
Soil from the surface down to 300 mm must be treated as topsoil and stockpiled aside for future rehabilitation. Where topsoil is not used within two years, it should be levelled and contoured for natural vegetation to grow over. This will help to keep the soil biologically active.	No activity conducted	The recommendation has been noted by management.	None
Traffic movements within the quarry premises must be restricted to internal routes that are well planned and well maintained.	No activity conducted	Management has noted the recommendation.	None
EROSION CONTROL MEASURES			
Areas identified as being prone to erosion must be monitored and protected and those disturbed by quarrying repaired at least before the onset of the wet season.	No activity conducted	Management has taken note of the recommendation.	None
Areas temporarily disturbed during excavations that are not required for future quarrying should be identified, graded and rehabilitated to improve aesthetics and reduce erosion.	No activity conducted	Management has noted the recommendation.	None
PREVENTION OF SURFACE AND GROUNDWATER CONTAMINATION			
Any refueling of mobile plants must be done from a mobile diesel bowser using suitable spills kits.	No activity conducted	The recommendation has been noted.	None
In the case of accidental spillage, contaminated soil must be removed and disposed of at an approved off-site facility.	No activity conducted	Management has noted the recommendation.	None
No washing of machinery and equipment is allowed. All washing should be done at the main quarry.	No quarrying was done	The recommendation has been noted.	None

Environmental Aspect	Compliance	Management Actions	Comments
Only minor breakdowns maybe attended to at the quarry. Repairs and servicing of machinery and equipment must be done at the main quarry.	No quarrying was done	The recommendation has been noted.	None
WASTE HANDLING AND MANAGEMENT			
One waste bin must be placed at the quarry for solid waste. The waste bin must be transported to the main quarry weekly and a clean bin brought to the satellite quarry.	No activity conducted	The recommendation has been noted.	None
No hazardous waste should be kept at the satellite quarry. Any hazardous waste encountered (oil filter, redundant battery, oil leak, etc.) at the satellite quarry must be contained, placed in a suitable container and taken to the workshop at the main quarry on the same day for safe disposal.	No activity conducted	Management has taken note of the recommendation.	None
All domestic and general waste produced at the satellite should be cleaned and placed in the waste bin.	No activity conducted	The recommendation has been noted.	None
Keep the quarry premises tidy and litter- free at all times. Plastics and papers must be picked up and placed in waste bins.	No activity conducted	Management has taken note.	None
Clean and pick up liters and windblown papers around the quarry premises on a regular basis.	No activity conducted	The recommendation has been noted.	None
No waste must be buried or burned on site. All waste type must be taken to the main quarry for safe disposal.	No activity conducted	The recommendation has been noted.	None
NOISE MANAGEMENT			
Limit work to day light hours only and between the hours of 07h00 to 17h00. No work may be performed on Sunday and public holidays.	No activity conducted	Management has noted this recommendation.	None
Machineries and equipment should be properly maintained and regularly serviced (defective silencers should be replaced, etc.)	No activity conducted	Management has noted the recommendation.	None
Machines must be switched off when not in use and unnecessary hooting, idling & revving should be avoided.	No activity conducted	The recommendation has been noted.	None
Any noise related complaints received from stakeholders/community should be recorded, immediately investigated and corrective action taken.	No activity conducted	The recommendation has been noted.	None
DUST AND AIR QUALITY IMPACTS			
The access road and all quarry internal routes should be well maintained and where feasible covered with crushed stones to reduce dust generation.	No activity conducted	The recommendation has been taken noted.	None
Minimise NO ₂ emissions by servicing the earthmoving truck fleet regularly and by limited idling times.	No activity conducted	The recommendation has been noted.	None
Speed limits within the working areas should be set and adhered to by all truck operators at all times.	No activity conducted	The recommendation has been noted.	None
Any dust related complainant from any stakeholder should be recorded, investigated and corrective action taken.	No activity conducted	The recommendation has been noted.	None
BLASTING AND ASSOCIATED VIBRATIONS			
Blasting and handling of explosives must be handled within the parameters of the law and performed by a person in possession of a valid open surface blasting certificate.	No activity conducted	No drilling and blasting have been performed at the satellite quarry since ZI was granted an ECC. According to Management, drilling and blasting is contracted to a third party who is licensed and permitted to transport, store and handle explosives. No explosives are stored on site. Management has taken note of all recommendations.	None
Explosives and related devices may only be transported in a fit-for-purpose vehicle approved and licensed for such purpose.	No activity conducted		
Explosives may only be stored in an approved tamper-proof storage magazine, constructed as prescribed by the Explosive Act.	No activity conducted		
Blasting must only be conducted between Monday and Friday and between the hours of 09h00 and 16h00.	No activity conducted		
Adequate notice of at least 48 hours should be given to all stakeholders.	No activity conducted		
The scale of blast must be designed in such a way that air and ground vibrations resulting from such blasts are not destructive but within acceptable parameters.	No activity conducted		
The blasted area must be inspected by a qualified blaster, any misfired holes treated and made safe before quarrying activities are resumed. A	No activity conducted		
All explosive remnants must be collected from the blasted site and disposed of in a prescribed manner.			
FUEL STORAGE AND HANDLING			
No amount of fuel is allowed to be stored at the satellite quarry. All fuel must be kept at the main quarry.	No activity conducted	The recommendation has been taken note of by management.	None
The personnel handling fuel should be properly trained and well acquainted with fuel regulations and the provisions of the EMP.	No activity conducted	The recommendation has been taken note of by management.	None
Mobile plants working at the satellite quarry must be refueled from a suitable, licensed and roadworthy mobile fuel bowser. Refueling should be done on a hard impermeable surface or over drip pans to ensure that any spilled fuel is captured and cleaned up.	No activity conducted	The recommendation has been taken note of by management.	None
The mobile bowser used must for refueling must display symbolic signage clearly depicting "No Smoking" "Danger" & "No Naked Lights".	No activity conducted	The recommendation has been noted	None
FIRE PREVENTION AND MANAGEMENT			
Fire extinguisher that are in good working order must be made available at all times for their usage in the event accidental fires.	No activity conducted	Management has noted the recommendation	None

Environmental Aspect	Compliance	Management Actions	Comments
Workers must be adequately trained in the handling of firefighting equipment.	No activity conducted	The recommendation has been noted.	None
Open fire must be made at designated places only, i.e. site camp. No open fire must be made in the vicinity of fuel storage place.	No activity conducted	The recommendation has been noted.	None
Smoking must be prohibited in the vicinity of flammable substances.	No activity conducted	The recommendation has been noted.	None
TRAFFIC IMPACT ON PUBLIC ROADS			
Install road signs along the C41 highway where the access road intersects C41 to warn motorists of trucks coming from or going to the quarry. Install a stop sign where the access road intersects C41 allowing trucks approaching the highway from the quarry to stop.	No activity carried out	Liaise with Roads Authority.	None
All vehicles used on public roads must be licensed, roadworthy and operated by licensed drivers with valid public driver's permits.	No activity performed	The recommendation has been taken note of.	None
Spillage on public roads (C41) could endanger the safety of motorists using such roads. Ensure that trucks are not loaded beyond the recommended capacity and height of tailboards.	No activity performed	The recommendation has been taken note of by management.	None
Any complainant received from stakeholders regarding traffic violations, must be recorded, promptly investigated and corrective action taken.	No activity performed	The recommendation has been taken note of.	None
IMPACTS ON THE ECOSYSTEM			
Allow vegetation to grow on topsoil stockpiles that are not immediately used for rehabilitation. Measures should be put in place to limit any impacts from storm water such as soil erosion.	No activity performed	Management is committed to implementation	None
Big trees and any trees in which birds are nesting should be preserved and not uprooted.	No activity performed	Management is aware of the recommendation.	None
Operate machinery on dedicated internal routes only. Such routes should be well maintained. No off-road driving is permitted and drivers found driving off-road should be reprimanded.	No activity carried out	The recommendation has been taken noted.	None
Illegal harvesting of trees for fire wood or for any other purposes is prohibited. Open fire is allowed at designated places only.	No activity conducted	The recommendation has been taken noted	None
Illegal hunting, killing and or theft of wildlife or livestock grazing around the quarry premises are criminal offences punishable by law and are not allowed.	No activity conducted	The recommendation has been taken noted.	None
VISUAL INTRUSIONS			
No permanent structures are to be erected at the satellite quarry. All services to the operation must be provided from the main quarry.	No activity carried out	Management has noted the recommendation.	None
Any topsoil stockpiled for future rehabilitation should be levelled and vegetated to reduce the risk of soil erosion and decrease visual disturbance.	No activity carried out	The recommendation has been noted.	None
Keep heights of both topsoil and product stockpiles as low as possible to reduce visual impacts.	No activity carried out	The recommendation has been noted.	None
Use effective dust suppression methods including spraying with water to avoid dust escaping into the atmosphere becoming a visual nuisance.	No activity carried out	Management has noted the recommendation.	None
Any lighting used for security purpose should direct lights inwards to the quarry and not outwards.	No activity carried out	Management has taken note.	None
ARCHAEOLOGICAL AND CULTURAL HERITAGE			
Safeguard any findings of archaeological/cultural nature until disposal directives are provided by NHC.	No activity performed	Inform employees of any potential cultural items and what to do when such is unearthed.	None
MONITORING			
The EC reserves the right to carry out monitoring of quarrying activities in order to ensure compliance with the conditions set out in the EMP.		Management has noted the recommendation.	None
It is incumbent upon the promoter to maintain effective management aimed at limiting all possible environmental impacts throughout the quarry lifespan.		Management has noted the recommendation.	
SITE CLOSURE AND DECOMMISSIONING			
Notice of decommissioning should be made well in advance to the relevant stakeholders including MEFT.	Not applicable	Management has noted the recommendation.	
The decommissioning of any individual activity within the overall listed quarrying activity must take place within the ambit of the EMP.	Not applicable	Management has taken note.	
Abandoning the site without carrying out the necessary rehabilitation activities as outlined in the EMP is an infringement of the provisions of the EMP and could result in penalties being imposed on the promoter.	No activity performed	Management has noted the recommendation.	
All possible mitigation measures as outlined in the EMP for decommissioning should be implemented.	No activity performed	Management has taken note.	

4.0 THE UPDATED EMP

The EMP has been updated to include the following environmental parameters:

- Monitoring Performances,
- Inspection Parameters and Schedules,
- Inspection Checklist, and
- Environmental Code of Conduct

4.1 Monitoring Performances

In Table 3, a simplified environmental monitoring performance schedule has been proposed and added to the EMP and is intended to assist ZI management in early detection of environmental impacts and to take appropriate remedial action in a timely manner.

Table 3: Monitoring of Quarrying Activities

Environmental Aspects & Mitigation Measures	Compliance	Follow Up Action	By Whom	Date Completed
1. Land and Soil Disturbances				
Has any new virgin land been cleared of vegetation for quarrying?				
Is there any deviation from the provisions in the EMP on land disturbances?				
Has the area to be cleared properly planned, surveyed and clearly demarcated?				
Have the access routes to the new area been planned and clearly demarcated?				
2. Solid Waste Disposal (household waste, office, etc.)				
Are there any deviations from the provisions contained in the EMP on solid waste handling and disposal at the satellite quarry?				
Has the waste bin taken to the main quarry weekly, and a cleaned bin brought back?				
Are there any litters around the quarry premises, windblown papers, plastics, empty bottles, etc.				
Has any follow up training been given to the employees on waste handling and management?				
Are the measures as recommended in the EMP adequate to deal with the solid waste generated at the satellite quarry?				
3. Sewage Waste Management				
Has the portable chemical toilet used at the quarrying operation regularly inspected and kept in a hygiene functional state?				
4. Oil Spillage and Used Oil				
Are there any deviations from the provisions in the EMP on oil spills and on how to handle used oil?				
Has refueling been done from a suitable, licensed and roadworthy diesel bowser?				
Has any oil spill occurred during the quarrying period? If, yes, how was that handled?				
Have the employees been trained on the procedure how to contain any spills that may occur?				
5. Dust Impacts on Air Quality				
Are there any deviations from the provisions in the EMP on dust mitigation measures?				
Has any complaint been received from any stakeholders with respect to dust generated by the operation?				
Are internal routes regularly maintained and spread with gravel in order to combat dust?				
Is the speed limit on internal routes being complied with?				
Are employees working in areas where dust levels are higher provided with suitable PPEs or dust masks?				
6. Noise and Blasting Vibrations				
Are there any deviations from the provisions of the EMP on noise and vibrations?				
Are working hours being complied with?				
Is adequate warning given to stakeholders prior to carrying out any blasting activity at the quarry?				
Are machinery, trucks and LDV regularly serviced and redundant exhausts replaced to ensure minimal noise generation?				

Environmental Aspects & Mitigation Measures	Compliance	Follow Up Action	By Whom	Date Completed
Has any complaint been received on noise or vibrations from blasting received from any stakeholders?				
7. Landscapes and Visual Intrusions				
Are there any deviations from the provisions of the EMP with respect to landscape and visual impact mitigation measures?				
Are topsoil stockpiles kept at low heights and vegetated in order to prevent soil erosion and to decrease visual disturbances?				
Are effective dust suppression measures being implemented so as to avoid dust escaping into the atmosphere becoming a visual nuisance?				
8. Surface Water, Drainage and Underground Water				
Are there any deviations from the provisions of the EMP with respect to surface water, drainage and underground water?				
Are surface water catchment drainages and quarry pits regularly cleaned of accumulated sediments?				
Are areas which suffered soil erosion during the wet season, inspected and corrective measures taken to prevent further erosions?				
9. Traffic Impact on National Roads				
Are there any deviations from the provisions of the EMP on traffic impacts on national roads?				
Have traffic signs been installed where the quarry access road intersects the C41 highway to warn motorists of trucks entering and turning to the quarry?				
Has a stop sign been erected at the intersection of the access road and C41 to warn trucks to stop before turning on to C41?				
Are trucks loaded to the required payloads and not overloaded?				
Has any complainant been received from any stakeholders regarding any traffic violations?				
10. Biodiversity (Fauna and Flora)				
Are there any deviations from the provisions of the EMP on biodiversity?				
Is land clearing kept to the minimum possible area where dolerite rock occurs and is preceded by careful planning of access routes as well as areas where to site stockpiles for topsoil and products?				
Are big trees and trees where any bird are nestling avoided during land clearing?				
Are employees trained to preserve all forms of life during land clearing and quarrying activities, i.e. reptiles such as snakes should not be skilled unless where it poses a danger to humans.				
Are employees cautioned against illegal hunting of wildlife loaming around in the area?				
Are employees cautioned against harvesting of trees for any purposes without the necessary permission?				
Has any complaint been received with respect to illegal killing of wildlife or harvesting of trees?				
11. Aspects Related to Archaeological and Cultural Interests				
Are there any deviations to the provisions of the EMP with respect to archaeological and cultural matters?				
Have employees received training on issues related to archaeological and cultural interests?				
Are employees informed on what to do in the event an item of cultural or archaeological interest being unearthed during the quarrying operations?				

4.2 Inspection Parameters and Schedules

The inspection parameters and schedule listed in **Table 4** below, is provided to be used as a guideline in the implementation of the EMP and for the maintenance of housekeeping rules.

Table 4: Inspection Parameters and Schedules

Inspection Parameters	Frequency	Responsibility
Compliance with the provisions of the EMP	At all times during quarrying	ZI Management
Earthmoving Plants, Tipper Trucks & LDVs: <ul style="list-style-type: none"> • Pre-start checks • General conditions & cleanliness • No overloading • No spills from loaded trucks 	Daily, at the beginning of each shift Daily, at the beginning of each shift Daily, during loading operations Daily, during the loading of trucks	Each Machine Operator

Inspection Parameters	Frequency	Responsibility
Littering on site: <ul style="list-style-type: none"> Site office Parking section Quarry pit access route Stockpiles Along perimeter fence and berms 	Daily Daily Daily Once weekly Once monthly	Quarry Supervisor or as delegated
General Conditions <ul style="list-style-type: none"> Quarry boundaries Topsoil stockpiles Product stockpiles Internal access routes Wearing of PPE 	Biweekly Weekly Weekly Weekly Daily	Quarry Supervisor or as delegated
Dust Control Measures <ul style="list-style-type: none"> Topsoil excavation Drilling & Blasting Loading & Hauling Quarry internal routes Topsoil stockpiles 	When quarrying When drill Daily, when loading Weekly Once, monthly	Quarry Supervisor
Erosion Control (Wet season) <ul style="list-style-type: none"> Quarry slopes Topsoil stockpiles Product stockpiles Internal access routes 	Before, during & after rainy period	Quarry Supervisor or as delegated
Hazardous waste and or spills <ul style="list-style-type: none"> oil, fuel & lubricants, etc. explosive waste detonator waste 	When reported	Quarry Supervisor
Waste Disposal <ul style="list-style-type: none"> Household & site office waste Hazardous waste 	Weekly Daily	Quarry Supervisor
Noise nuisance (idling, revving, hooting, etc.)	Daily, when quarrying	Quarry Supervisor
Good housekeeping practices	Daily, when quarrying	Quarry Supervisor or delegated
Effective vegetation cover on mined out areas	Post rehabilitation	Quarry Supervisor or as delegated
Internal Environmental Reporting	Quarterly	Quarry Management
Overall Operational Environmental Audit	Annually	Quarry Management
Note: The overall responsibility for ensuring that cleaning and the proposed inspections are carried out is vested with the Quarry Manager who may delegate such functions to junior staff members as deemed appropriate.		

4.3 Environmental Inspection Checklist

The environmental inspection checklist in **Table 5**, is provided as a guideline to help improve and cultivate a culture of safeguarding the environment and should be improved upon by ZI Management.

Table 5: Environmental Inspection Checklist

Item	Yes	No	N/A
Date of Inspection: _____			
Checked by: _____			
Copy of the EMP available and readily accessible			
Name of the Quarry Manager is clearly displayed			
Name of the Workshop Foreman			
The Following Information must be displayed on a Notice Board at the site office:			
• Contact number of Regional Health Safety Officer is displayed.			
• Contact number of the Local Police Charge Office is displayed.			
• Contact number of nearest Ambulance.			
• Contact number of the Local Primary Health Clinic is displayed.			
• Contact number of nearest regional Fire Brigade.			
Training of Employees			

Item	Yes	No	N/A
<ul style="list-style-type: none"> Is suitable training provided to each newly person assigned to a job? Are all employees offered training on the provisions of the EMP? Is adequate instructions on the use of PPEs provided? Has training on the use of emergency equipment provided? Has training offered provided a thorough review on hazardous associated with the job? 			
<ul style="list-style-type: none"> Ha the training stressed the importance to comply with the EMP? Has follow up training been provided? 			
Response Plan to Incidents and Accidents			
<ul style="list-style-type: none"> Has a plan been drawn up to deal with any incident or accident which may arise? Has the plan been communicated to the employees? Are all employees aware and know of what to do in case of a serious incident or accident occurring? 			
Fire Emergency Procedures			
<ul style="list-style-type: none"> Is there a clear fire response plan for the quarry site? Do the workers know the plan and what to do in the event of a fire outbreak? How regularly are fire drills held? Are there enough fire extinguishers available to do the job? Are the locations of the extinguishers clearly marked and accessible? Are all extinguishers fully charged and in working orders? 			
Housekeeping			
<ul style="list-style-type: none"> Are the working areas clean and orderly? Are there enough waste bins provided to all working sections? Are the permanent walkways clearly marked and kept clean? Are quarry internal routes spill free, adequately signaged and covered with crushed stones? Is the portable chemical toilet well ventilated, kept clean and sanitary? Is the waste bins regularly emptied? Are all facilities at the satellite quarry in a good state of repair? 			
Medical and First Aid			
<ul style="list-style-type: none"> Is the first aid kit kept well stocked? Do all employees know where to get first aid? Are there employees well trained to provide first aid? 			
Personal Protective Equipment (PPE)			
<ul style="list-style-type: none"> Is required PPE provided, correctly used and properly maintained? Is the PPE provided of good quality and meeting industry standards? Are warning signs clearly displayed where the wearing of PPE is mandatory? 			
Land Clearing for new Quarrying Activities			
<ul style="list-style-type: none"> Is land to be cleared of vegetation preceded by detailed planning and physical observations? Has the size of the land surveyed and the extent of rock occurrence accurately ascertained? Is the number of big trees on that land ascertained? Are there no birds nestling on such trees? Are internal routes to such land pre-planned and clearly demarcated? Are the areas where to site stockpiles for topsoil and products planned and clearly demarcated? 			
Quarry Internal Routes			
<ul style="list-style-type: none"> Are internal routes properly demarcated, spill free and well maintained? Are truck movements in and out of the quarry restricted to one internal route? Have adequate signs been provided with respect to speed limit, etc. 			
Rehabilitation of Worked Out Areas			
<ul style="list-style-type: none"> Are worked out areas progressively rehabilitated in tandem with quarrying? Is vegetation growth establishing on topsoil stockpiles and on the slopes of the quarry? 			

Item	Yes	No	N/A
<ul style="list-style-type: none"> Have areas prone to storm water erosion identified and measures put in place to limit such impacts? 			
Waste Management			
<ul style="list-style-type: none"> Is the quarry site kept free of litters, clean and neat? 			
<ul style="list-style-type: none"> Is the waste bin emptied transported to the main quarry on a weekly basis and a clean bin brought to the site? 			
<ul style="list-style-type: none"> Is hazardous waste correctly handled and transported daily to the main quarry for safe keeping and disposal? 			
<ul style="list-style-type: none"> Have employees been trained on the different types of waste and handling thereof? 			
Traffic Management			
<ul style="list-style-type: none"> Are trucks operated on public roads licensed and roadworthy and operated by licensed drivers? 			
<ul style="list-style-type: none"> Are speed limit on public roads respected by the operators? 			
<ul style="list-style-type: none"> Is the level of impairment or intoxication of the drivers tested each day at the beginning of the shift? 			
<ul style="list-style-type: none"> How often are plants and trucks serviced to avoid breakdowns and associated oil leaks and or oil spills? 			
<ul style="list-style-type: none"> Is refueling of mobile plants working in the quarry performed by means of a suitable diesel bowser? 			
Drilling and Blasting			
<ul style="list-style-type: none"> Is blasting conducted by a qualified blaster who is in possession of a valid open pit license? 			
<ul style="list-style-type: none"> Is adequate warning given to stakeholders prior to blasting? 			
<ul style="list-style-type: none"> Are explosives handled, transported and stored in conformity with the provisions of the Explosive Act? 			
<ul style="list-style-type: none"> Is the size of the blast designed in such a way that air and vibrations resulting from such a blast is not excessive to cause destruction? 			
<ul style="list-style-type: none"> Are records of each blast kept at the quarry office? 			
<ul style="list-style-type: none"> Is post-blast inspection carried out by a qualified blaster and any misfired holes made safe before people and machinery are allowed to work in the blasted area? 			

4.4 Environmental Code of Conduct

To improve its overall environmental compliance measures as stipulated in the EMP, it is proposed to recommend a set of Environmental Code of Conduct which ZI Management should strive to implement once its quarrying activities are resumed.

The code of conduct should apply to all current and future employees of ZI, clients visiting the quarrying premises, contractors hired to perform certain functions at the quarry such as the drilling and blasting crew and any visitors entering the quarry facility.

In terms of this Environmental Code of Conduct, the Quarry Manager is authorized to issue warning and to discipline any person who transgresses environmental rules and regulations.

Table 6: Environmental Code of Conduct

ENVIRONMENTAL CODE OF CONDUCT
<p>Health and Safety Guidelines</p> <p><u>Covid-19 Protocols:</u></p> <ul style="list-style-type: none"> Respect the regulations provided for the Covid-19 pandemic Wear a suitable face mask Sanitize Avoid gathering such as wedding, bars, funerals, etc. Seek treatment when feeling unwell Get vaccinated <p><u>Water:</u></p> <ul style="list-style-type: none"> Do not drink water collected in the quarry pit or water used to spray internal routes. Only drink water supplied by the company or purified water. <p><u>HIV/AIDS Virus:</u></p> <ul style="list-style-type: none"> Take the necessary precautions to avoid contracting the HIV/AIDS virus. Take responsibility for your own health!

ENVIRONMENTAL CODE OF CONDUCT

Restricted Areas:

- Areas marked as restricted or demarcated as dangerous, i.e. a blasting area should not be entered unless permitted by an authorized person.
- Do not enter any area that is out of bound or fenced in by climbing over the fence without the permission of the Quarry Manager.
- Do not enter an area marked 'PPE required' unless wearing suitable PPE.
- Any stranger or unauthorized person found wandering around in the quarry premises must be reported to the Quarry Manager

Housekeeping Rules:

- The use of drugs on duty or at the camp site is strictly forbidden.
- Coming to work while intoxicated is strictly forbidden.
- Limited use of alcohol at the camp site may be allowed.
- Possession of a firearm at work or at the camp site is strictly forbidden.

Faunal and Floral Management Guidelines

Faunal Guidelines:

- No feeding, teasing or playing with, hunting, killing or setting devices to trap wild animals (including birds, reptiles and mammals) and livestock is allowed.
- No dogs are allowed.
- No food items should be left around to attract animals, birds and or insects. Leftover food items must be placed in a waste bin with a lid such that animals do not gain access.
- Feeding wildlife (e.g. baboons) should be discouraged as it leads to conflict situations between wildlife and humans.
- When clearing land for quarrying purposes, any sensitive habitats where animals are breeding should be avoided.

Floral Guidelines:

- No cutting or harvesting of any plants and or trees for whatever purposes is allowed. Dead trees within the quarry premises maybe collected for firewood for own use and not for sale.
- Trees in which birds are nestling must be avoided and not uprooted. Any bird nestling must not be disturbed.
- Internal routes should not be sited over sensitive habitats for plants.

Guidance with respect to disposal of solid and liquid waste

- Train employees to appreciate the difference of types of waste: general waste and hazardous waste
- Train employees on how to identify the waste bins, drums or bags for the different types of waste.
- Train employees not dispose hazardous waste in the bins or skips intended for general waste.
- Educate employees to appreciate the importance of not littering or throwing away waste anywhere on the quarry, not to throw waste in the field or along the road. s
- Under no circumstances should waste be buried on site
- Waste in bins should be disposed of at regular intervals and the bins cleaned and the surrounds kept clean and tidy.

Guidelines with respect to Quarry access and Vehicle uses

- No vehicle must be driven unless it is roadworthy and has a valid Licence. Any driver refusing to operate vehicles that are not roadworthy and without valid licenses should not be reprimanded.
- No third party truck should be loaded with aggregate unless it has a valid Licence and a MDC logbook.
- No driver must operate a vehicle/truck when intoxicated.
- Vehicles should be operated on demarcated internal routes and off-road driving is prohibited.
- Vehicles operated on public roads must not be overloaded and drivers must adhere to the speed limit.
- Unnecessary engine idling, revving and hooting must be avoided.

Guidelines with respect Hazardous Waste

- Hazardous substances such as oil, fuel, solvents, chemicals, etc. should not be discharged into natural water streams or buried in the soil.
- Any accidental spills of hazardous substances must be immediately contained and corrective action taken. All hazardous spills must be reported to the Quarry Manager.
- Under no circumstances may hazardous substance waste be allowed to soak into the soil.
- Any leaks or spillage of hazardous substances, unhygienic conditions at the ablution facilities must be immediately reported and corrective measures taken.

Guidelines with Respect to Environmental Related Complainants

- Any complaint reported by any stakeholder with respect to working conditions, noise, dust, violations of road regulations by truck operators, pollution or any other harmful or dangerous condition must recorded, investigated and corrective action taken.
- Where warranted, feedback should be provided to the complainant.

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The quarrying operation at Ongoba was established by ZI towards during the course of 2014 for the purpose of supplying G3 base course materials required for national roads that were being constructed under the TIPEEG program in the regions of Ohangwena and Omusati at that time.

In August 2017, ZI was granted an ECC for its satellite quarry, however, the construction sector went into a massive economic recession, which resulted in job losses estimated by CIF at 60 000 between 2016 and 2018. During this time no quarrying activities were conducted from the satellite quarry.

With about 50% of the Namibian population resident in the northern regions, the aggregate quarry has a vital and beneficial role to play in both the rural and urban economic setups in such regions. Key locations that would require aggregates are Opuwo, Outapi, Oshakati/Ongwediva, Ondangwa and Helao Nafidi. Therefore, ZI would like to keep its permits and all documentation for the quarry in good standing in anticipation of the construction sector bouncing back from its slump.

5.2 Recommendation

Quarrying is a destructive activity, but if the recommendations as proposed in the EMP are followed and complied with, the environmental impacts resulting from the operational activities can be minimised and reduced to levels that are sustainable.

It is recommended that the ECC be renewed.

Annex A: Copy of Environmental Clearance Certificate



REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

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05 August 2017

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director
Zest Investment cc
P O Box 11583
Windhoek
Namibia

Dear Sir /Madam

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE OPERATION OF ONGOBA QUARRY, OMAKANGE, OMUSATI REGION.

The Environmental Scoping Report and Environmental Management Plan submitted are sufficient as these 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. From this perspective, I issue this clearance with the following conditions: (a) relevant permitting authority involved must be properly consulted and written consent obtained from them; (b) any key biodiversity habitats must be protected.

On the basis of the above, this letter serves as an environmental clearance for the project to proceed. 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 this project's activities. Instead, full accountability rests with Zest Investment Ce and its consultants.

This environmental clearance is valid for a period of 3 (three) years, 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