EXECUTIVE SUMMARY

OF

ENVIRONMENTAL MANAGEMENT PLAN REPORT

OF

Khairwari stone Quarry Mining Project

Village: Khairwari, Tehsil: Simga, District: Baloda Bazar

State: Chhattisgarh

Area: 3.40 Ha, proposed Average Production Capacity: 76,875 TPA

APPLICANT

M/s Shri Balaji Stone Industries

Partner – Shri Nikunj Patel

Khairwari, Dist. - Baloda Bazar,

State – Chhattisgarh

Prepared By

M/s Amaltas Enviro Industrial Consultants LLP (AEC) Gurugram (Haryana).

(An ISO 9001:2008 Certified Co.)

Credentials: Accredited by QCI/NABET

1.0 INTRODUCTION

Environmental Impact Assessment (EIA) is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision making tool, which guides the decision makers in taking appropriate decisions for proposed projects. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are taken into account during the project designing.

The Environmental Impact Assessment Documentation has been prepared in terms of EIA notification of the MoEF dated 14-9-2006 and its subsequent amendments thereof and the EIA Guidance Manual for Mining of Minerals (Feb, 2010) of MoEF, Govt. of India, for seeking environmental clearance for mining in the existing area of Khairwari Stone Quarry Project measuring 3.40 hectares falling under category "B1" due to the order of Hon'ble NGT (PB), Ministry of Environment, Forest & Climate Change (MoEF &CC), Govt. of India vide Office Memorandum F.No.J-13012/12/2013-IA-II (I) dated 24.12.2013.

1.1 Location of the Project

The mining area is located at Khasra No. 394, 396P, 399, 404, 405, 407, Village - Khairwari, Tehsil -Simga District – Baloda Bazar, and State: Chhattisgarh.

Table No. 1.1 Latitude & Longitude of Lease Area

Boundary Pillars No.	Latitude	Longitude
A	21°37'32.19"N	81°57'29.61"E
B	21°37'32.26"N	81°57'32.03"E
C	21°37'30.84"N	81°57'32.11"E
D	21°37'31.07"N	81°57'37.52"E
E	21°37'28.57"N	81°57'37.32"E
F	21°37'28.36"N	81°57'36.98"E
G	21°37'27.16"N	81°57'36.88"E
H	21°37'27.50"N	81°57'32.24"E
I	21°37'25.44"N	81°57'31.71"E
J	21°37'25.82"N	81°57'28.45"E
K	21°37'29.25"N	81°57'27.99"E

Table No. 1.2 Salient Features of Project

<table>
<tr><th>S.no</th><th>Information</th><th>Details</th></tr>
<tr><td>1.</td><td>Project Name</td><td>Khairwari Stone Quarry project</td></tr>
<tr><td>2.</td><td>Name of the Lessees</td><td>Prop: M/s Shri Balaji Stone Industries, Partner Shri Nikunj Patel</td></tr>
<tr><td>3.</td><td>Name & Address of POA Holder</td><td>M/s Shri Balaji Stone Industries, Partner Shri Nikunj Patel, Address: District- Baloda Bazar, State: Chhattisgarh</td></tr>
<tr><td>4.</td><td>Proponent Contact No</td><td>8959555515</td></tr>
<tr><td>5.</td><td>Mining Lease Area</td><td>3.40 Ha</td></tr>
<tr><td>6.</td><td>Khasra No</td><td>394,396(P),399,404,405,407</td></tr>
<tr><td>7.</td><td>lease period</td><td>For 30 Years (2021-2051)</td></tr>
<tr><td>8.</td><td>Mining Plan period</td><td>5 Years</td></tr>
<tr><td>9.</td><td>Location of mine</td><td>
<table>
<tr><th>Pillar</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>A</td><td>21°37'32.19"N</td><td>81°57'29.61"E</td></tr>
<tr><td>B</td><td>21°37'32.26"N</td><td>81°57'32.03"E</td></tr>
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<tr><td>K</td><td>21°37'29.25"N</td><td>81°57'27.99"E</td></tr>
<tr><td>L</td><td>21°37'29.09"N</td><td>81°57'29.63"E</td></tr>
</table>
</td></tr>
<tr><td>10.</td><td>Village</td><td>Khairwari</td></tr>
<tr><td>11.</td><td>Tehsil</td><td>Simga</td></tr>
<tr><td>12.</td><td>District :</td><td>Baloda Bazar</td></tr>
<tr><td>13.</td><td>State :</td><td>Chhattisgarh</td></tr>
<tr><td>14.</td><td>River/Nalla/Nadi</td><td>None within 10 km radius buffer zone</td></tr>
<tr><td>15.</td><td>Minerals of mine</td><td>Limestone</td></tr>
<tr><td>16.</td><td>Proposed Production</td><td>76,875Tonnes/annum (Maximum)</td></tr>
<tr><td>17.</td><td>Bulk Density</td><td>2.5</td></tr>
</table>

<table>
<tr><td>18.</td><td>Method of mining</td><td>Open Cast Semi-mechanized Method</td></tr>
<tr><td>19.</td><td>Drilling or Blasting</td><td>Jack hammer Drilling used for blasting by licensed vendors (if required)</td></tr>
<tr><td>20.</td><td>No of working days</td><td>300 days</td></tr>
<tr><td>21.</td><td>Water demand</td><td><table><tr><th>Activity</th><th>Water requirement (KLD)</th></tr><tr><td>Dust suppression</td><td>1.00</td></tr><tr><td>Domestic</td><td>1.305</td></tr><tr><td>Plantation</td><td>7.2</td></tr><tr><td>Total</td><td>9.505</td></tr></table></td></tr>
<tr><td>22.</td><td>Man Power</td><td>29</td></tr>
<tr><td>23.</td><td>Nearest Railway Station</td><td>Hathbandh Railway station, towards W direction (11.5km)</td></tr>
<tr><td>24.</td><td>Nearest SH & NH</td><td>Bhatapara road 1.2 km away in East direction</td></tr>
<tr><td>25.</td><td>Nearest Airport</td><td>Bilasa Devi Kevat Airport, Bilaspur towards North direction (approx. 43.91 Km*)</td></tr>
<tr><td>26.</td><td>Nearest schools, places of worship & hospitals etc.</td><td>Grace English Medium School, Suhela approx. 1.21km in SE direction
Govt. primary School, Ranijaroud Suhela approx. 1.78km in SE direction
Govt. Hospital Suhela is approx. 1.53 km in SE direction.
Durga Temple is about 2.63 km in WSW direction.</td></tr>
</table>

1.2 GREEN BET PLANT

Progressive Afforestation: During the proposal period about 150 trees in first year will be planted, on mine site and Total 1010 trees will be used in other activities like Distribution in village, Panchayat, school, plantation across route etc in first year of mining operation.

Area covered by afforestation is 0.3081 ha during conceptual period which will be rehabilitated

providing plantation. Details of proposed plantation are mentioned below:

Progressive Afforestation during first year of operation

पौधों की कुल संख्या - 3400				
अवस्था	**प्रस्तावित वृक्षारोपण हेतु नियत स्थान**	**पौथो की प्रजातियां**	**पौधों की संख्या**	**टिप्पणी**
प्रथम वर्ष	बैरियर जोन	नीम, खमेर, सिरस, चिरोल, करंज, बबूल, सीताफल, अशोक, सिस्सू एवं अन्य स्थानीय प्रजातियां	150	• 4 पौधों के बीच में एक सीताफल पौधे का रोपण किया जाएगा। • पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी. और गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा। • परिनाली के निर्माण के दौरान निकली हुई मिट्टी में सूबबूल, नीम, बबूल, प्रोसोपिस और अन्य स्थानीय प्रजातियों के बीज बुवाई की जाएगी। • ट्रेंच 45 सेमी x 45 सेमी x 45 सेमी विकसित की जाएगी। • तार की बाड़ की सुरक्षा के साथ।
प्रथम वर्ष	गैर खनन क्षेत्र	खमेर, चिरोल, करंज, महुआ, सेजा, बीजा, सीताफल एवं अन्य स्थानीय प्रजातियां	950	• 4पौधों के बीच में एक सीताफल पौधे का रोपण किया जाएगा। • पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी. और गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा। • सुरक्षा हेतु तार की बाड़ की जावेगी।

	परिवहन मार्ग	खमेर, चिरोल, करंज, बीजा, सीताफल, जंगल जलेबी, कदम एवं अन्य स्थानीय प्रजातियां	700	• परिवहन मार्ग के दोनों ओर एक पंक्ति में4 -5 फीट ऊंचाई पौधों के वृक्षारोपण किए जाएंगे। • पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी. और गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा। • पौधों की सुरक्षा हेतु प्रभावशाली 6 फीट ऊंचाई का ट्री गार्ड।
प्रथम वर्ष	ग्रामवासियो में वितरण हेतु) ग्राम पंचायत परसवाड़ा)	नीम, आम, कटहल, बेर, आँवला, हर्रा, सीताफल, महुआ, कबीट, नींबू, बहेरा, बेल एवं अन्य स्थानीय प्रजातियां	700	• ग्रामवासी इन पेड़ों को अपने खेतों की मेड़ पर लगाएंगे।
	ग्राम पंचायत के सहयोग से ग्राम पंचायत खैरवारी के चिन्हित क्षेत्र में	नीम, आम, कटहल, बेर, आँवला, हर्रा, सीताफल, महुआ, कबीट, नींबू, अचार एवं अन्य स्थानीय प्रजातियां	500	• गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा। • सुरक्षा हेतु तार की बाड़ की जावेगी।
	ग्राम पंचायत खैरवारी के प्राथमिक शाला, आंगनवाड़ी एवं ग्राम पंचायत परिसर में	कदम, नीम, खमेर, अशोक, सिस्सू. एवं अन्य स्थानीय प्रजातियां	400	• गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा। • सुरक्षा हेतु परिसर में बाउंड्री वाल की व्यवस्था है।

1.3 BASE LINE DATA

This section contains the description of baseline studies of the 10 Km radius of the area surrounding "Khairwari Stone Quarry Project". The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to propose mining for:-

(a) Land

(b) Water

(c) Air

(d) Biological

(e) Noise

(f) Socio-economic

1.4 AMBIENT AIR QUALITY

The results of AAQ are given in Annexure, the results when compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB) for "Residential, Rural and Industrial Areas" show that the average values of ambient air quality parameters are well within the stipulated limit.

The minimum and maximum level of PM10 recorded within the study area was in the range of 66.13 µg/m^3 to 89.78 µg/m^3. PM2.5 recorded within the study area was in the range of 38.91 µg/m3 to 57.58 µg/m3. The minimum and maximum level of SO_2 recorded within the study area was in the range of 5.18 µg/m^3 to 11.58 µg/m^3. The minimum and maximum level of NO_2 recorded within the study area was in the range of 11.32 µg/m3 to 21.93 µg/m^3.

1.5 NOISE ENVIRONMENT

The values of noise observed in some of the areas are primarily owing to vehicular traffic and other anthropogenic activities. Assessment of hourly night time Leq (Ln) varies from 39.2 to 42.8 dB (A) and the hourly daytime Leq (Ld) varies from 49.4 to 53.7 dB (A) within the study area.

1.6 WATER ENVIRONMENT

- The pH limit fixed for drinking water samples as per IS-10500 Standards is 6.5 to 8.5 beyond this range the water will affect the mucus membrane or water supply system. During the study period, the pH was varying for ground waters from 7.44 to 7.76 and the surface waters are 7.55 to 7.69. The pH values for all the samples collected in the study area during study period were found to be within the limits.
- The desirable limit for total dissolved solids as per IS-10500 Standards is 500 mg/l where as the permissible limits in absence of alternate source is 2000mg/l, beyond this palatability decreases and may cause gastro intestinal irritation. In ground water samples collected from the study area, the total dissolved solids are varying from 532 mg/l to 690 mg/l. the TDS of the samples were above the desirable limit but within the permissible limit of 2000 mg/l.

- The desirable limit for chlorides is 250 as per IS-10500 Standards where as permissible limit of the same is 1000 mg/l beyond this limit taste, corrosion and palatability are affected. The chloride level in the surface water samples collected in the study area were ranging from 23 mg/l to a maximum of 33mg/l, in ground water samples 99 mg/l to 144 mg/l. the chloride samples are within the desirable limits.
- The desirable limit as per IS-10500 Standards for hardness is 300 mg/l where as the permissible limit for the same is 600 mg/l beyond this limit encrustation in water supply structure and adverse effects on domestic use will be observed. In the ground water samples collected from the study area, the hardness is varying from 313 mg/l to 350 mg/l.
- Fluoride is the other important parameter, which has the desirable limit of 1mg/l and permissible limit of 1.5 mg/l. however the optimum content of fluoride in the drinking water is 0.6 to 1.5 mg/l. if the fluoride content is less than 0.6 mg/l it causes dental carries, above 1.5 mg/l causes fluorosis. In the ground water samples of study area the fluoride value were in the range of 0.4 mg/l to 0.7 mg/l. In surface water 0.5 mg/l to 0.6 mg/l.

Overall all the samples collected from the study area were found to be fit for consumption, Most of ground water samples are well within the permissible limits as per IS-10500. Most of the heavy metals in all samples are below detectable limits.

Based on the results it is evident that most of the parameters of the river samples comply with 'Category C' standards of CPCB indicating their suitability as Drinking water source after conventional treatment and disinfection.

1.7 SOIL ANALYSIS REPORT

Physical characteristics of soil were characterized through specific parameters viz bulk density, porosity, water holding capacity, pH, electrical conductivity and texture. Soil pH plays an important role in the availability of nutrients. Soil microbial activity as well as solubility of metal ions is also dependent on ph. In the study area, variations in the pH of the soil were found to be slightly alkaline (7.37 to 7.81). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 352 - 390µmhos/cm.

The soils with low bulk density have favorable physical condition where as those with high bulk density exhibit poor physical conditions for agriculture crops. The soils with low bulk density have

favorable physical condition where as those with high bulk density exhibit poor physical conditions for agriculture crops.

1.8 BIOLOGICAL ENVIRONMENT

The lease area as well as buffer zone area reveals no endangered and endemic species of flora and fauna in the area.

1.9 WATER REQUIREMENT

The total water consumption in the Mine is about 9.505 KLD. The water is used in the following purposes.

For dust suppression & mining allied activity

For drinking & domestic consumption

For greenbelt development.

This water will be met from old bore well, hand pump and mine sump located in ML area.

The following table shows the water balance of the mine activity:

WATER CONSUMPTION (KLD)

Activity	Water requirement (KLD)
Dust suppression	**1.00**
Domestic	**1.305**
Plantation	**7.2**
Total	**9.505**

1.10 WASTE DUMP DISPOSAL

There is Murum (overburden) overlain the deposit. Dumping of waste rock is not required.

1.10.1 LAND FOR DISPOSAL OF WASTE WITH JUSTIFICATION:

Not required as the available soil will be used to develop area for plantation; weathered waste/rejects will also be used in repair and maintenance of roads.

1.11 SOCIO-ECONOMICS

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc exist within the lease area or in the vicinity. The mining operation will not disturb/ relocate any village or need resettlement. Thus no adverse impact is anticipated.

The impact of mining activity in the area is positive on the socio-economic environment of the region. Khairwari Stone Quarry Project is providing employment to local population and it will be give preference to the local people whenever there is requirement of man power.

1.12 OCCUPATIONAL HAZARDS AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in Khairwari Stone Quarry Project are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.

To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced:

- Provision of rest shelters for mine workers with amenities like drinking water etc.
- All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc.
- Training of employees for use of safety appliances and first aid in vocational training center.
- Regular maintenance and testing of all equipment as per manufacturers' guidelines.
- Periodical Medical Examination (PME) of all workers by a medical Officer
- First Aid facility is provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

1.13 ENVIRONMENTAL MANAGEMENT PLAN

The mining activities involve, excavation, loading, haulage and transportation of mineral. These activities lead to generation of air borne dust, which can cause air pollution in and around the mining lease area, if appropriate control measures are not taken. Similarly mining causes Land Degradation, Noise and Water Pollution etc. in the area.

In order to minimize impacts of mining on different environmental parameters and to keep air and water quality within prescribed limits of CPCB, a rapid Environmental Management Plan (EMP) is prepared to strictly follow it. This helps in resolving all environmental and ecological issues due to

mining in the area. The environmental management plan includes all measures and safety precautions necessary for safe mining along with rehabilitation measures for mined out areas.

ANNUAL EMP COST			
S NO.	**Particulars**	**Budget Provisions (Rs)**	
		Capital	**Recurring**
1(a)	Overhead water sprinkling facility with solar pump for outgoing and incoming transportation vehicles for haul and transportation.	1,30,000	15,000
1(b)	Cost of Water own (4000 liter capacity) 2 tanker x 200 Rs./per day X 300 days	Nil	1,20,000
2	Four Settling Tank [2.5m (W) x 10m (L) 2m (D)] Garland drain [940m (L) x 2m (W) x 1.5 m(D)]	50,000	10,000
3	Prepare & Maintenance of approach road (Max. Road length 1000 m , Width 3.0m) 1000m @ 300Rs./Meter	3,00,000	15,000
4	Monitoring twice a year (Air , Water & Noise twice a year)	Nil	40,000
5	Plantation (3,400 plants will be planted & Distribution during the first year) = 3400 plants x 150/sapling	5,10,000	40,000
6	Grazing Land	40,000	10,000
7	Wire Fence 940 m x200	1,88,000	45,000
Labour Welfare			
8	Drinking Water Facility & Temporary rest shelter (29 x 15 feet)	30,000	10,000
9	Separate toilets for Male & Female No. of 2	50,000	10,000
10	Occupational health Survey 29 labour @ 500 Rs. = 12,500Rs./twice per year x 2	Nil	29,000
11	PPES to Work(Helmet shoes, gloves, goggle etc) , 29 labor @1200 Rs.	34,800	5000
12	First Aid Kits , Number of kits 5	40,000	10,000
13	Fire Safety (1 nos.) , @ 30,000	30,000	20,000

Solid Waste Management			
a.	Bins 2 Nos.	1500	5,000
b.	Pit and Composed	5000	
c.	Transport of Dry Waste	5000	
14	Vehicle Maintenance + PUC Certification	Nil	25,000
15	Signage and Caution Board	5,000	1,000
	Total EMP Cost	**14,19,300**	**4,10,000**

1.15 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigates technique, as well as to control the pollutants released from the premises of the Proposed Mine.

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