

**EXECUTIVE SUMMARY**  
**OF**  
**ENVIRONMENTAL MANAGEMENT PLAN REPORT**  
**OF**  
**AMAKONI LIMESTONE QUARRY MINING**

## 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 Amakoni Limestone Quarry Mining measuring 1.373 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. 208 (P), Village - Amakoni, Tehsil -Simga, District - Balodabazar, and State: Chhattisgarh.

**Table No. 1.1 Latitude & Longitude of Lease Area**

Boundary Pillars No.	Latitude	Longitude
1	21°38'49.71"N	81°59'40.50"E
2	21°38'48.84"N	81°55'45.34"E
3	21°38'48.08"N	81°55'45.99"E
4	21°38'46.13"N	81°55'45.72"E
5	21°38'47.40"N	81°55'39.23"E

**Table No. 1.2 Salient Features of Project**

<b>Project Name</b>	Amakoni Limestone Quarry Mining.
<b>Location of mine</b>	Village : Amakoni Tehsil: Simga District : Balodabazar State : Chhattisgarh

<b>Area</b>	1.373 Ha		
<b>Geo-Coordinates</b>	<b>Boundary Pillars No.</b>	<b>Latitude</b>	<b>Longitude</b>
	1	21°38'49.71"N	81°59'40.50"E
	2	21°38'48.84"N	81°55'45.34"E
	3	21°38'48.08"N	81°55'45.99"E
	4	21°38'46.13"N	81°55'45.72"E
	5	21°38'47.40"N	81°55'39.23"E
<b>Khasra No.</b>	208 (P)		
<b>Minerals of mine</b>	Limestone		
<b>Total Mineable reserves</b>	2,12,987.5T		
<b>Life of mine</b>	7.03 years		
<b>Max. Proposed production</b>	31,290 T/A		
<b>Method of mining</b>	Open cast Semi Mechanized		
<b>No of working days</b>	300 days		
<b>Water demand</b>	Total water requirement is about 2.56 KLD =0.36 KLD (Drinking & Domestic Uses) +1.2 (Plantation) KLD + 1.0 KLD (Dust suppression) from nearby ponds and Private Water Tanker.		
<b>Sources of water</b>	Water Tanker		
<b>Man power</b>	18		
<b>Nearest railway station</b>	Bhatpara - About 10.70 km in NNW direction .		
<b>Nearest airport</b>	Bilasa devi Kevat Airport - About 40 Km in NNE direction .		
<b>Seismic zone</b>	Zone II		

**Table 1.3: Environment Sensitivity**

S.NO.	Particulars	Details
1	Nearest Railway Station	Bhatpara - About 10.70 km in NNW direction.
2	Nearest Airport/Airstrip	Bilasa devi Kevat Airport - About 40 Km in NNE direction.
3	Nearest School	Government School Jaraud – About 1.40 km away from the project site in SSW direction..
4	Nearest Hospital	Government Hospital Suhela – About 4.26 km from the project site in SW direction..
5	Nearest Temple	Maa Santoshi Mandir- About 0.87 km from the project site in SE direction.
6	Built-up Area	Tekari Village - About 0.6 km in SE direction.
7	Nearest National/State Highway	SH-10 - About 7.99 km from the project site in NE direction.
8	Ecological Sensitive Areas (Wild Life Sanctuaries) within 10km radius.	NA.
9	Reserved / Protected Forest within 10km radius (Boundary to boundary distance)	Dhabadhi RF- About 9.4 km from the project site in East direction.

## 1.2 GREEN BET PLANT

During the proposal period about 1373 trees will be planted around the mining lease in first year after opening of mining operation.

Area covered by afforestation is 7.5 sqm during conceptual period which will be rehabilitated providing plantation. Details of proposed plantation are mentioned below:

### Progressive Afforestation during proposal period

पौधों की कुल संख्या - 1373				
अवस्था	प्रस्तावित वृक्षारोपण हेतु नियत स्थान	पौधों की प्रजातियां	पौधों की संख्या	टिप्पणी
प्रथम वर्ष	बैरियर जोन	नीम, खमेर, सिरस, चिरोल, करंज, बबूल, सीताफल, अशोक, सिस्सू एवं अन्य स्थानीय	350	<ul style="list-style-type: none"> <li>4 पौधों के बीच में एक सीताफल पौधे का रोपण किया जाएगा।</li> <li>पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी.</li> </ul>

		प्रजातियां		<p>और गड्डे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्डे में गोबर की खाद और शेष मिट्टी से भरा जाएगा।</p> <ul style="list-style-type: none"> <li>परिनाली के निर्माण के दौरान निकली हुई मिट्टी में सूबबूल, नीम, बबूल, प्रोसोपिस और अन्य स्थानीय प्रजातियों के बीज बुवाई की जाएगी।</li> <li>ट्रेंच 45 सेमी x 45 सेमी x 45 सेमी विकसित की जाएगी।</li> <li>तार की बाड़ की सुरक्षा के साथ।</li> </ul>
प्रथम वर्ष	गैर खनन क्षेत्र	खमेर, चिरोल, करंज, महुआ, सेजा, बीजा, सीताफल एवं अन्य स्थानीय प्रजातियां	200	<ul style="list-style-type: none"> <li>4पौधों के बीच में एक सीताफल पौधे का रोपण किया जाएगा।</li> <li>पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी. और गड्डे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्डे में गोबर की खाद और शेष मिट्टी से भरा जाएगा।</li> <li>सुरक्षा हेतु तार की बाड़ की जावेगी।</li> </ul>
	परिवहन मार्ग	खमेर, चिरोल, करंज, बीजा, सीताफल, जंगल जलेबी, कदम एवं अन्य स्थानीय प्रजातियां	150	<ul style="list-style-type: none"> <li>परिवहन मार्ग के दोनों ओर एक पंक्ति में 4-5 फीट ऊंचाई पौधों के वृक्षारोपण किए जाएंगे।</li> <li>पौधों से पौधों के बीच की दूरी 3 मी. एवं पंक्ति से पंक्ति की दूरी 2.5 मी. और गड्डे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्डे में गोबर की खाद और शेष मिट्टी से भरा जाएगा।</li> <li>पौधों की सुरक्षा हेतु प्रभावशाली 6 फीट ऊंचाई का ट्री गार्ड।</li> </ul>
प्रथम वर्ष	ग्रामवासियों में वितरण हेतु	नीम, आम, कटहल, बेर, आँवला, हर्षा, सीताफल, महुआ, कबीट, नींबू, बहेरा, बेल एवं अन्य स्थानीय प्रजातियां	250	<ul style="list-style-type: none"> <li>ग्रामवासी इन पेड़ों को अपने खेतों की मेड़ पर लगाएंगे।</li> </ul>

ग्राम पंचायत के सहयोग से ग्राम पंचायत के चिन्हित क्षेत्र में	नीम, आम, कटहल, बेर, आँवला, हरी, सीताफल, महुआ, कबीट, नींबू, अचार एवं अन्य स्थानीय प्रजातियां	150	<ul style="list-style-type: none"> <li>• गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा।</li> <li>• सुरक्षा हेतु तार की बाड़ की जावेगी।</li> </ul>
ग्राम पंचायत के प्राथमिक शाला, आंगनवाड़ी एवं ग्राम पंचायत परिसर में	कदम, नीम, खमेर, अशोक, सिस्सू एवं अन्य स्थानीय प्रजातियां	273	<ul style="list-style-type: none"> <li>• गड्ढे का आकार 0.70मी. x 0.70मी. x 0.70मी. एवं गड्ढे में गोबर की खाद और शेष मिट्टी से भरा जाएगा।</li> <li>• सुरक्षा हेतु परिसर में बाउंड्री वाल की व्यवस्था है।</li> </ul>

The following characteristics should be taken into consideration while selecting plant species for green belt development and tree plantation.

- They should be fast growing and tall trees.
- They should be perennial and evergreen.
- They should have thick canopy cover.
- Plantation should be done in appropriate alternate rows around the proposed site to prevent lateral pollution dispersion.
- The trees should maintain regional ecological balance and conform to soil and hydrological conditions. Indigenous species should be preferred.

### **1.3 BASE LINE DATA**

This section contains the description of baseline studies of the 10 Km radius of the area surrounding “Amakoni Limestone Quarry Mining”. 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 PM<sub>10</sub> recorded within the study area was in the range of 63.45 µg/m<sup>3</sup> to 86.22 µg/m<sup>3</sup>. PM<sub>2.5</sub> recorded within the study area was in the range of 35.61 µg/m<sup>3</sup> to 56.61 µg/m<sup>3</sup>. The minimum and maximum level of SO<sub>2</sub> recorded within the study area was in the range of 8.45 µg/m<sup>3</sup> to 16.18 µg/m<sup>3</sup>. The minimum and maximum level of NO<sub>2</sub> recorded within the study area was in the range of 20.12 µg/m<sup>3</sup> to 30.64 µg/m<sup>3</sup>.

#### **1.5 NOISE ENVIRONMENT**

The result of Noise Quality at Night time Leq (Ln) varies from 40.4 to 46.4 dB (A) and the hourly daytime Leq (Ld) varies from 55.8 to 59.5 dB (A) within the study area. Low noise level is due to absence of any major industry in the area.

#### **1.6 WATER ENVIRONMENT**

The water quality in the impact zone was assessed through physico- chemical and bacteriological analysis of ground and surface water samples. The results have been compared with the drinking water quality standards specified in IS: 10500. It was observed that all the physico chemical parameters and heavy metals from surface and ground water samples are below stipulated drinking water standards.

All the ground water samples analyzed can be considered fit for drinking purpose in the absence of alternate sources.

Comparing the values of pH, DO, BOD and total coliforms with 'Use based classification of surface waters' published by Central Pollution Control Board; it can be seen that all the analyzed surface waters can be compared with class "B" and can be used as "Outdoor bathing (Organized)".

#### **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 neutral (7.11 to 7.59). 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 645-775 $\mu$ mhos/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.

### **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 2.56 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:

**Table No. 1.3**

#### **WATER CONSUMPTION (KLD)**

<b>Activity</b>	<b>Water requirement (KLD)</b>
Dust suppression	<b>1.0</b>
Domestic	<b>0.36</b>
Plantation	<b>1.2</b>
<b>Total</b>	<b>2.56</b>

### **1.10 WASTE DUMP DISPOSAL**

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. Amakoni Limestone Quarry Mining 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 Amakoni Limestone Quarry Mining 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.

<b>ANNUAL EMP COST</b>			
<b>S NO.</b>	<b>Particulars</b>	<b>Budget Provisions (Rs)</b>	
		<b>Capital</b>	<b>Recurring</b>
1(a)	Overhead water sprinkling facility with solar pump for outgoing and incoming transportation vehicles for haul and transportation.	30,000	5,000
1(b)	Cost of Water own (4000 liter capacity) 1 tanker x 200 Rs./per day X 300 days	Nil	60,000
2	Four Settling Tank [ 2.5m (W) x 10m (L) 2m (D) ] Garland drain [ 497m (L) x 2m (W) x 1.5 m(D) ]	70,000	20,000
3	Prepare & Maintenance of approach road (Max. Road length 300 m , Width 6.0m) 290m @ 100Rs./Meter	29,000	5,000
4	Monitoring twice a year (Air , Water & Noise twice a year)	Nil	40,000
5	Plantation (1373plants will be planted & Distribution during the five year) = 900Per year x 150/sapling	135000	90,000
6	Grazing Land	40,000	10,000
7	Wire Fence 497 m x200	1,48,600	45,000
<b>Labour Welfare</b>			
8	Drinking Water Facility & Temporary rest shelter (25 x	70,000	20,000

	15 feet)		
9	Separate toilets for Male & Female No. of 2	20,000	5,000
10	Occupational health Survey 18 labour @ 500 Rs. = 18500Rs./twice per year x 2	Nil	37000
11	PPES to Work(Helmet shoes, gloves, goggle etc) , 18 labor @1200 Rs.	21,600	5000
12	First Aid Kits , Number of kits 5	40,000	10,000
13	Fire Safety (1 nos.) , @ 30,000	1,11,600	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
	<b>Total EMP Cost</b>	<b>7,32,300</b>	<b>4,03,000</b>

### 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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