EXECUTIVE SUMMARY

OF

ENVIRONMENTAL MANAGEMENT PLAN REPORT

OF

MUDHIPAR LIMESTONE QUARRY

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 14-9-2006and 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 Mudhipar Limestone Quarry measuring 1.079 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. L 11011/175/2018-IA-II (M) dated 12-12-2018 & SEIAA C.G Office Memorandum F.No. 1886/SEIAA/2018 dated 27-12-2018.

1.1 Location of the Project

The mining area is located at Khasra No.- 264 part, 265 part, 272 part, 261/1 part, 267, 270/1, 270/2, 271/1, 266/1, 266/2, 273/1, 273/2, 273/3, and 273/4, Village: Mudhipar, Tehsil & District: Balodabazar, State: Chhattisgarh.

Table No. 1.1 Latitude & Longitude of Lease Area

Boundary Pillars No.	Latitude	Longitude
1	21°39'45.78"N	82°05'18.54"E
2	21°39'45.85"N	82°05'17.33"E
3	21°39'44.87"N	82°05'17.35"E
4	21°39'44.99" N	82°05'14.78"E
5	21°39'47.49"N	82°05'14.63"E
6	21°39'48.72"N	82°05'16.48"E
7	21°39'47.82"N	82°05'18.87"E

Table No. 1.2 SalientFeaturesofProject

<table>
<tr><td>Project Name</td><td colspan="3">Mudhipar Limestone Quarry</td></tr>
<tr><td>Location of mine</td><td colspan="3">Village: Mudhipar
Tehsil & District : Balodabazar
State : Chhattisgarh</td></tr>
<tr><td>Area</td><td colspan="3">1.079 ha</td></tr>
<tr><td>Coordinates of Boundary Pillars</td><td colspan="3"><table>
<tr><th>Boundary Pillars No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1</td><td>21°39’45.78”N</td><td>82°05’18.54”E</td></tr>
<tr><td>2</td><td>21°39’45.85”N</td><td>82°05’17.33”E</td></tr>
<tr><td>3</td><td>21°39’44.87”N</td><td>82°05’17.35”E</td></tr>
<tr><td>4</td><td>21°39’44.99” N</td><td>82°05’14.78”E</td></tr>
<tr><td>5</td><td>21°39’47.49”N</td><td>82°05’14.63”E</td></tr>
<tr><td>6</td><td>21°39’48.72”N</td><td>82°05’16.48”E</td></tr>
<tr><td>7</td><td>21°39’47.82”N</td><td>82°05’18.87”E</td></tr>
</table></td></tr>
<tr><td>Khasra No.</td><td colspan="3">264 part, 265 part, 272 part, 261/1 part, 267, 270/1, 270/2, 271/1, 266/1, 266/2, 273/1, 273/2, 273/3, 273/4,</td></tr>
<tr><td>Minerals of mine</td><td colspan="3">Limestone</td></tr>
<tr><td>Total Mineable reserves</td><td colspan="3">287087.82 Ton</td></tr>
<tr><td>Life of mine</td><td colspan="3">6.12 year or Say 7 Year</td></tr>
<tr><td>Average Proposed production</td><td colspan="3"><u>Proposed Production</u> :
Maximum Production Capacity: 46867.47 Ton/Year</td></tr>
<tr><td>Method of mining</td><td colspan="3">Open Cast Semi Mechanized</td></tr>
<tr><td>No of working days</td><td colspan="3">240 days</td></tr>
<tr><td>Water demand</td><td colspan="3">Total water requirement is about 5.00 KLD = 0.9 KLD (Drinking & Domestic Uses) + 3.1 KLD (Plantation) + 1 KLD (Dust Suppression).</td></tr>
<tr><td>Sources of water</td><td colspan="3">Water Tanker</td></tr>
<tr><td>Man power</td><td colspan="3">18</td></tr>
<tr><td>Nearest railway station</td><td colspan="3">Bhatapara Railway Station is about 16.28 km in NNW direction</td></tr>
<tr><td>Nearest airport</td><td colspan="3">Bilasa Devi Kevat Airport- About 33.18 Km in NE direction.</td></tr>
<tr><td>Seismic zone</td><td colspan="3">Zone III.</td></tr>
</table>

Table 1.3: Environment Sensitivity

S.NO.	Particulars	Details
1	Nearest Railway Station	Bhatapara Railway Station is about 16.28 km in NNW direction.
2	Nearest Airport/Airstrip	Bilasa Devi Kevat Airport- About 33.18 Km in NE direction.
3	Nearest School	Primary School Karmandi- About 2.89 km from the project site in SSW direction.
4	Nearest Hospital	Primary Health Center Maldi - About 3.96 km from the project site in W direction.
5	Nearest Temple	Shiva Mandir - About 1.29 Km from the project site in W direction. Hanuman Mandir- About 1.13 km from the project site in W direction.
6	Built-up Area	Mudhipar - About 1.04 km in West direction
7	Nearest National/State Highway	SH-10 - About 2.19 km in North direction. NH-130 B – About 8.80 km in east direction.
8	Ecological Sensitive Areas (Wild Life Sanctuaries) within 10km radius.	. --
9	Reserved / Protected Forest within 10km radius (Boundary to boundary distance)	Khelwari Jungle- About 4.19 Km in S direction.
		Bargi Left Canal – About 0.32 km in N direction.
		Kukurdi River – About 1.65 Km in S direction.
		Shivnath River – About 9.02 Km in E direction.
		Chhuiha Dam - About 5.08 km in NNE direction.

Green Belt

Plantation will be done in the 7.5 m barrier zone along the periphery of the mining lease area.

AFFORESTATION

Progressive Afforestation: During the proposal period about 165 trees on first year will be planted around the mining lease.

Area covered by afforestation is 0.295 ha and for conceptual period. Details of proposed plantation are mentioned below:

Table 1.4 Total Green Belt Plan

पौधों की कुल संख्या - 1079				
अवस्था	**प्रस्तावित वृक्षारोपण हेतु नियत स्थान**	**पौथो की प्रजातियां**	**पौधों की संख्या**	**टिप्पणी**
प्रथम वर्ष	बैरियर जोन	सिस्सू नीम, खमेर, सिरस, चिरोल, करंज, बबूल, एवं अन्य स्थानीय प्रजातियां	165	• 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	सेजा, बीजा, खमेर, चिरोल, करंज, महुआ एवं अन्य स्थानीय प्रजातियां	185	• 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	चिरोल, करंज, बीजा, खमेर, जंगल जलेबी, कदम एवं अन्य स्थानीय प्रजातियां	200	• परिवहन मार्ग के दोनों ओर एक पंक्ति में 4-5 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 मुढ़ीपार)	हर्रा, महुआ, कबीट, नीम, आम, कटहल, बेर, आँवला,, नींबू, बहेरा, बेल एवं अन्य स्थानीय प्रजातियां	295	• ग्रामवासी इन पेड़ों को अपने खेतों की मेड़ पर लगाएंगे।
	ग्राम पंचायत के सहयोग से ग्राम पंचायत मुढ़ीपार के चिन्हित क्षेत्र में	नीम, आम, कटहल, बेर, आँवला, हर्रा, महुआ, कबीट, नींबू, अचार एवं अन्य स्थानीय प्रजातियां	100	• 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 मुढ़ीपार के प्राथमिक शाला, आंगनवाड़ी एवं ग्राम पंचायत परिसर में	कदम, नीम, खमेर, सिस्सू, एवं अन्य स्थानीय प्रजातियां	134	• 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।

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.

1.2 BASE LINE DATA

This section contains the description of baseline studies of the 10 Km radius of the area surrounding "Mudhipar Limestone Quarry". 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

1.3 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 49.28 µg/m3 to 81.33 µg/m3 with the 98th percentile ranging between 58.16 µg/m3 to 80.66 µg/m3. The minimum and maximum level of PM2.5 recorded within the study area was in the range of 17.89 µg/m3 to 40.14 µg/m3 with the 98th percentile ranging between 20.09 µg/m3 to 39.61 µg/m3. The minimum and maximum level of SO2 recorded within the study area was in the range of 7.53 µg/m3 to 16.83 µg/m3 with the 98th percentile ranging between 8.94 µg/m3 to 16.33 µg/m3.The minimum and maximum level of NO2 recorded within the study are was in the range of 8.11 µg/m3 to 21.68 µg/m3 with the 98th percentile ranging between 9.71 µg/m3 to 20.60 µg/m3.

1.4 NOISE ENVIRONMENT

The result of Noise Quality at night time Leq (Ln) varies from 35.2 to 58.7 dB (A) and the hourly daytime Leq (Ld) varies from 47.8 to 66.2 dB (A) within the study area. Low noise level is due to absence of any major industry in the area.

1.5 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)".

1.6 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 (7.38 to 7.74). 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 420 to 502 µmhos/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.

1.7 BIOLOGICAL ENVIRONMENT

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

1.8 WATER REQUIREMENT

The total water consumption in the Mine is about 5.0 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	0.90
Plantation	3.10
Total	**5.00**

1.9 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.

1.10 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. Mudhipar limestone Quarry providing employment to local population and it will be give preference to the local people whenever there is requirement of man power.

1.11 OCCUPATIONAL HAZARDS AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health Mudhipar Limestone Quarry 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.

1.12 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.	70,000	20,000
1(b)	Cost of Water own(4000 liter capacity) 2 tanker x 200 Rs./per day X 240 days	Nil	96,000
2	Two Settling Tank [2.5m (W) x 10m (L) 2m (D)] Garland drain [420m (L) x 2m (W) x 1.5 m(D)]	50,000	10,000
3	Prepare & Maintenance of approach road (Max. Road length 130 m , Width 6.0m) 130m @ 400Rs./Meter	52,000	10,000
4	Monitoring twice a year (Air , Water & Noise twice a year)	Nil	40,000
5	Plantation (1079 plants will be planted & Distribution	53,950	10,000

	during the first year of production) = 1079 x 50/sapling		
6	Wire Fence 420 m x200	84,000	10,000
Labour Welfare			
7	Drinking Water Facility & Temporary rest shelter (10 x 15 feet)	10,000	4,000
8	Separate toilets for Male & Female No. of 2	5,000	3,000
9	Occupational health Survey 18 Labour @ 500 Rs. = 9000 Rs./twice per year @500 x 2 x 18	Nil	18,000
10	PPES to Work(Helmet shoes, gloves, goggle etc.) , 18 labor @1000 Rs.	18,000	4,000
11	First Aid Kits , Number of kits 5	5,000	5,000
12	Fire Safety (1 nos.) , @ 10,000	10,000	2,000
Solid Waste Management			
a.	Bins 2 Nos.	2000	5,000
b.	Pit and Composed	5000	
c.	Transport of Dry Waste	5000	
13	Vehicle Maintenance + PUC Certification	Nil	5,000
14	Signage and Caution Board	5,000	1,000
	Total EMP Cost	**3,74,950**	**2,43,000**

1.15 CONCLUSION

All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet statutory requirements. Thus implementing this project will not have any appreciable negative impacts.

****