EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

Dhansuli Limestone Mine of M/s Chhattisgarh Minerals
Near Village: Dhansuli
Tehsil: Arang, & District: Raipur (Chhattisgarh).

(Submitted for Public Consultation as per EIA Notification 2006 & its subsequent amendments till dated)

Mining Lease Area: 4.970 Ha,
Production Capacity: 2,38,000 TPA
Project Cost: Rs. 94.70 LAKH
Category-B1

In Favor of	Prepared By
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1 EXECUTIVE SUMMARY

1.1 Introduction and Background

The Dhansuli limestone mine of M/s Chhattisgarh Minerals is located at a distance 0.25 km. from District Headquarter Raipur and falling in Jurisdiction of Village – Dhansuli. The Chhatttisgarh State Capital and District headquarter Raipur is connect by good tar road

The mining plan of the Dhansuli Lime stone mine was approved by Collector Office (Mineral Branch), District- Raipur, Chhattisgarh vide letter no. Three-1/E-Nivida/2018/1081 (2) Dated :-28/08/2018. ***(Annexure -1)***

Mining Lease has been sanctioned in favor of Shri Tripatpal Singh Bhui by collector Office (Mineral Branch), District- Raipur, Chhattisgarh, Vide letter No.- Three-1/E-Nivida/2018/489 on dated 03.08.2018 for 30 years ***(LOI enclosed in Annexure –2)***

As per the gazette notification Section 8A(3) all the mining leases granted before the commencement of the Mines and Minerals (Development & Regulation)Amendments Act 2015 shall be deemed to have been granted for a period of 50 years. Hence the lease period of mining lease increased 30 years to 50 years. The modification in mining plan required as per the rule 17(3) of MCR 2016.Therefore the lessee submitting the modified mining plan for the onwards period of 2018-2019.Lease period of all the major minerals increased upto 50 years from the date of grant.

First technical presentation was made in 336th SEAC; Chhattisgarh meeting dated 3rd May 2021 and TOR was granted.

It is proposed to excavate approximately 2,38,000 TPA (ROM) limestones by Opencast Semi-Mechanized method. The lease area is 4.970 Ha and total mineable reserve is 23,87,211 Tonnes for limestone. The expected life of the mine will be 10 years.

The studies were undertaken by The Consultant namely, Aseries Envirotek India Pvt. Ltd. (AEIPL) Noida. AEIPL is a National Accreditation Board for Education and Training (NABET) Accredited Consultant Organization (ACO) and is qualified to prepare EIA reports for Project / Activity 1(a) (Mining of Minerals), a mandatory requirement for agencies submitting such studies to regulators for the purpose of seeking EC.

The EIA study report has been based upon the following :-

- Field data collection on different aspects of environment including air, soil, water, land, meteorology, noise, flora, fauna, agriculture and socio-economy in the study area of 10 km radius with mine as its center.

- Study of opencast mining methodology, water requirement, source of pollutants and pollution control strategy.
- Ecological Prospective and Green Belt Development.

The EIA study evaluates the impact on the present environmental scenario and check out the environmental management plan incorporating further step to mitigate the adverse impacts of air, noise, water, land pollution on environment.

1.2 Location and Communication

Table 1-1: Location and Communication from ML area

S. No.	Area	Name	Aerial Distance in Km and Direction from M.L area	
			Core Zone	Buffer Zone
1.	National Parks/ Wildlife Sanctuaries	-	Nil	Nil
2	Biosphere Reserves/ Tiger Reserves/ Elephant Reserves and any other reserves	-	Nil	Nil
3.	Forest (PF/RF/Unclassified)	-	Nil	Nil
4	Habitat for migratory birds	-	Nil	Nil
5	Corridor for animals of Schedule I and II of the wildlife (Protection Act 1972)	-	Nil	Nil
6	Archaeological Site (notified, Other)	-	Nil	Nil
7	Defense Installation	-	Nil	Nil

S. No.	Area	Name	Aerial Distance in Km and Direction from M.L area	
			Core Zone	Buffer Zone
8	Water Bodies within 10km radius	Nala- Kolhan Nala- Canal-Water Reservoir-	Nil	50 meter in East 4.10 km in SE 290 meter in North-west 3.50 km in South East.
9	Airport	Raipur Airport	Nil	17.0 km in North West direction
10	Railway Lines	Mandir Hausaud Railway Station	Nil	~7.0 km in North-West direction
11	National Highways/ State Highway	NH-8	Nil	6.0 in SE
12	Human Habitations	Dhansuli	Nil	0.25 in S

1.3 Project Chronology till Date

1. The Dhansuli Limestone mine of M/s Chhattisgarh Minerals submitted relevant documents, namely Form-1 (as per the EIA Notification 2006, as amended till date) along with a Pre-feasibility Report, Approved Mining plan and proposed Terms of References (ToR) for carrying out environmental studies to the State Environment Impact Assessment Authority Chhattisgarh, on 12.02.2021
2. A presentation to the SEAC, Chhattisgarh, to finalize the ToR for the EIA study was held on 3.05.2021.
3. ToR letter has been issued by SEAC, Chhattisgarh in favor of, M/s Chhattisgarh Minerals, Near Village Dhansuli , Tehsil Arang, District Raipur (Chhattisgarh) vide 36th SEAC; Chhattisgarh meeting dated 3rd May 2021.

1.4 Project Description

1.4.1 Study Area at a Glance

The study area is taken in accordance with the provisions of sector specific EIA guidance manual for Mining of Minerals manual, published by Ministry of Environment and Forests, during 2010. The study area for the Soapstone Mining Project was as follows:

- The proposed project area (M. L. area) is considered as 'Core Zone'.
- 10 km radius from the boundary limits of the M.L. area is considered as 'Buffer Zone'.

1.4.2 Utilities

Table 1-2: Requirement for the mining

S.No.	Requirements			Quantity and Nos.	
1.	Water Requirement	Domestic Propose	Drinking	0.08 KLD	0.48 KLD
			Sanitation	0.40KLD	
		Dust Suppression		920 m^2 area per 1.0 L	0. 92 KLD
		Greenbelt Development		1059 plants per 5.0LPD	5.295 KLD
	Total				**6.695 KLD**
2.	Man-Power Requirement			16	

1.4.3 Topography and Drainage

Topographically the height of the area is around 285.50 meters from the above MSL and the height elevation of this lease area is 285.50 meters above MSL. The lowest MSL is 255.5 meters above MSL. The mining area is a non forest private land having no soil cover due to earlier mining operation almost soil cover removed. The mining lease area is gently sloping towards north and north-east of the lease area.

The general slope of the area is also towards north and north-west direction and drainage is controlled by a small gullies formed due to running rain water along the slope. These gullies area joining the main river of the area named Kharun River at a distance of 17.8 km. In south-west direction. The other main rivers of the area are Shivnath river 35 km. away in north-west and Mahanadi river 30 km. in east. A very small nala is 50 mts. In East . The Kolhan nala (2.5 km.) and Chokra nala (1 km.) are the main two nalas of the area ultimately join Shivnath river.

1.4.4 Regional Geology

CHHATTISGARH SUPERGROUP	Series	Formation	Litho Units
	Raipur Series	Raipur	Purple Limestone Greenish gray Limestone
		Khairagarh	Sub- Arose
		Gundardehi	Calcareous Shale
	Chandrapur Series	Charmuria	Grey limestone Sandstone
		Chandrapur	Sandstone , Sub-Arose Quartzite

1.4.5 Mineable Reserve & Life of Mine

Table 1-3: Geological Reserve

Reserve	Quantity in TPA	Grade
Total geological Reserve	37,27,500	CaO 36.15% SiO_2 20.40% MgO 01.51%
Locked reserve under mining limit, Benches and Proposed crusher etc	13,16,175	
Balance of limestone reserve after deduction	24,11,325	
Mineable reserve (after deduction of 1 %standard mining loses)	23,87,211	CaO 36.15% SiO_2 20.40% MgO 01.51%

	Mineable reserve/ Average annual production
Life of mine	23,87,211/2,38,000 =10.3 years or say 10 years

1.4.6 Mining Method

As the limestone is found below 0.5 meter thick soil cover. The limestone deposit at Dhansuli village are horizontal thickly bedded, medium hard, massive strata occurring below general ground level up-to 30 meter depth i.e. 255.5m.RL. and more and will be saleable as building material in various construction work and road construction etc.

The water table of the area is below 30 meters from the general ground level as seen in this area. General ground level is at 285 and water table 30 meters below , at 255 m.RL. The last depth of proposed mining operation is 255m.RL. So the quarrying operation will be not clash with ground water table at any cost. So the quarrying operation proposed between 286 to 255.5m.RL.

The proposed quarry operation will be mechanised open cast mining operation. The height and width of benches area proposed to be kept 5/ 10 meters in production bench in two span. There is only 0.50 meter thick soil cover/OB found over the limestone formation so there will be 0.5 meter high overburden bench will be developed. Six production bench of 5 meters height proposed for the period of quarrying plan. Face slope will be less than 450 with the horizontal. Mining operation will be done on single day shift basis. Timing of shift will be 8 hrs. from 8 am to 1 pm and 2 pm to 5 pm. Lunch

time is provided between 1 to 2 pm. Weekly one day is declared as the holiday as per the local market day of the area .

The proposed mining operation will be start from the western part of the lease area . The maximum working pit depth will be 30.5 meters and the 0.5 meters one soil bench and 6 production bench of 5 meters height proposed for the lease period in two span of 2.5 mts. All the Benches will be advanced from west to east direction. Produced limestone will be transported by hired trucks. 5 meters wide Haul road will be develop in quarry lease area

Table 1-4: Extent of Opencast Mechanized

List of Machinery	Make	Capacity	Quantity
Excavator 210	Tata- Hitachi	210 HP	2
Compressor	Elgi	450 CFM	2
Drilling Machine	Atlas Copco	65 mm	2
Jack hammer	Atlas Copco	34 mm	2
Dumper	Tata	10Tonnes	4
Tractor with trolley	Mahindra	45 HP	2
Water Pump	Kirloskar	10 HP	2

1.5 Meteorology Long Term Meteorology (Secondary Data)

Information presented in subsequent paragraphs is from the Indian Meteorological Department (IMD), Long Term Climatological Tables, 1971-2000, Raipur. These tables give useful information about a region's weather, since it was collected over a period of 30 years.

1.5.1 Temperature

The month from March to May are considered as hottest with increase in temperatures. May is generally the hottest month with a mean daily maximum temperature of about 38.0°C and mean daily minimum of about 24.1°C. The highest temperature recorded at Raipur is 46.1°C on 22th May 1912. From November, both day and night temperatures start decreasing rapidly. December is generally the coldest month with the mean daily maximum temperature at about 27.8°C and mean daily minimum at about 11.1°C. Minimum temperature sometimes drops down to subzero temperatures and the lowest temperature recorded 2.8°C on 8th January 1946.

1.5.2 Wind

Long- term wind direction data is presented, and indicates that the predominant wind during the study period (March, April, May)-2019 is South-West at daytime and wind direction is observed to be from West to North-West directions at evening.

1.5.3 Rainfall

As per IMD station at Raipur the rainfall in region was observed to be 1445.5 mm in a year, bulk of rainfall was received in monsoon months from June to September. Maximum cloud cover was observed in the months of June to September.

1.5.4 Relative Humidity

Most humid conditions were found in the monsoons, followed by post-monsoons, winter and summer in that order. Mornings were more humid than evenings and humidity ranged from a high of 88-82% in monsoon mornings to a low of 53-34% in summer evening.

1.5.5 Site Specific Meteorology

Environmental monitoring was carried out for summer Season covering the months of (March, April, May & June) 2021. Meteorological data is collected for wind speed, wind direction, temperature, rainfall and cloud cover.

Mean average temperature recorded during study period was 31.32°C with mean maximum temperature of 46.6°C and mean minimum of 19.2°C. The data obtained during the study period was compiled to obtain average data

1.6 Existing Environment Scenario

1.6.1 Land Use

Land Use of Mine Lease Area

S. No.	Particulates	Present Land – Use (area in hectare
1.	Area Under Pit	0.000
2.	Area Under Waste Dump	0.000
3.	Area for mining roads	0.000
4	Infrastructure	0.000
5.	Stock Yard/Crusher	0.000
6.	Magazine	0.000
7.	undisturbed area	4.970
	Total	**4.970**

Land Use of the Study Area

The land use land cover map of the study area has been prepared using recent Landsat satellite image, area and distance calculations have been carried out using GIS software after geo-referencing and interpretation. Total Land covers an area of 30994.20 ha. Out of which 2285.26(7.37%) is built up land 11447.00 (36.93 %) is crop land 11447.00 (36.93%) fallow land 3503.56, 687.23(2.22 %) waste land 4373.38 (14.11) Water bodies /River.

1.6.2 Soil Quality

The soils of study area are predominantly Sandy loam in texture. The pH of the soil is ranges from 7.23 to 7.82. The soil being of friable consistency, the bulk density of the soil is in the range of 1.65 to 1.71 g/cm^3 whereas the porosity and water holding capacity are in the range of 31.29 to 34.67 % and 30.34 to 33.12 % respectively.

1.6.3 Ambient Air Quality

The analysis report shows that since this mine is not operating and traffic on the National Highway is also less, population in the village is not more. The baseline ambient air quality was found to be within the permissible limits of NAAQS.

1.6.4 Noise

Ambient noise samples were collected from 8 locations in the study area; samples were collected from residential as well as industrial area (Mine site).

Day time Noise Levels (Leq day)

- The day time (Leq day) noise levels observed in the range of 48.8 to 45.7 dB (A) in residential area.

Night time Noise Levels (Leq night)

- The night time (Leq night) Noise levels observed in the range of 39.6 to 37.23 dB (A) which is within the prescribed limit of 45 dB (A) in residential area.

Industrial Area Noise Levels (Leq)

- The noise levels at the mine site were found to be 61.2 dB (A) during day time and 57.4 dB (A) during night time.

1.6.5 Water Environment

Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2,GW3, GW4, GW5, GW6 and GW7 ranged from 7.55 to 7.26 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 336.0 mg/l to 276.0 mg/ l which is within the permissible limit of 2000 mg/l. Total Hardness of Ground water samples in the study area was found to be 226-184 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 135.0-103.0 mg/l.

Fluoride content varies from 0.62 mg/l – 0.29 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect to total dissolved solid, chloride (62.0 mg/l to 50.0 mg/l), sulphate (64.0 mg/l to 40.0mg/l) and hardness.

Surface Water Quality

Surface water samples were collected and analyzed, pH value was found to be 7.12 and 7.41 mg/l in SW1 and SW2 which indicate that surface water is alkaline in nature; TDS was found to be 201 to 210 mg/l. Dissolve oxygen were found about 7.2 and 6.6 mg/l. It is seen that the physicochemical analysis of other parameters like chloride, calcium, magnesium, nitrate and fluoride were found within the desirable limit. The overall surface water quality of the available sources within the study area was found to be good physico-chemically with respect to all the parameters. There is no organic load-observed in the sources monitored indicating no pollution load in the source.

Biological Environment

Ecological study is essential to understand the impact of industrialization and urbanization on existing flora and fauna of the study area.

There is no wildlife sanctuary, National park, Biosphere reserve, Wildlife corridors, Tiger/ Elephant reserve within 10 km radius of the mining lease.

1.6.6 Cropping Pattern

The main base of the economy of Bastar district, agriculture and forest produce is collection. Agriculture is mainly produced in paddy, maize crops and wheat, jowar, kodo kutki, gram, tur, urad, sesame, Ram sesame, mustard. Besides agriculture, animal husbandry, poultry farming, fisheries also play a supporting role.

1.6.7 Socio Economic Status

The study area includes 59 villages within the 10 km. radius with a total population 67391. as per census 2011.In the study area about 26197 of the total population is literates. As per census 2011, about 18107of the total are main workers, 14794 are marginal workers.

1.6.8 Impact on Air Environment

- Water sprinkling will be done twice during the day in summer season and once during the day in winter season for settling of dust particles.
- Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust.
- Transportation of mineral will be done on Kaccha road which will generate dust and rest of the distance will be on National Highway will not cause air pollution.
- Drilling machines will have bag filters attached to them also to prevent the dust to get air borne.

1.6.9 Impact of Traffic Density:

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Existing traffic on these

roads was compared with the carrying capacity of these roads as per IRC guidelines and it was found that the roads are capable of handling the additional traffic/load.

Project site to NH	Vol. of vehicle in PCU/day	Capacity of Roads in PCU/day	LOS
Raipur-Nardah Road	309	4500	0.068 Excellent

1.6.10 Impact on Noise Environment

The expected noise levels in the working environment are compared with standards prescribed by occupational safety and health administration (OSHA-USA) & CPCB-NEW DELHI, the noise levels are expected to be in the acceptable range.

1.6.11 Impact on Water Environment

Impact on Surface Water Quantity

Surface water will not be utilized and impact on surface water quantity is not anticipated due to the proposed activity.

Impact on Surface Water Quality

The proposed opencast mining operation may cause water pollution. The sources of pollution generally are:

- Wash off from dumps
- Soil Erosion

Mitigation Measures

In open cast mining pits as well as on dumps, it is necessary that the rainwater falling outside the edge limit of the working areas will not be allowed to enter into the pit and working areas. Therefore it is proposed to develop garlands drains around the mining pits and dumps to arrest the surface runoff water and divert it to lower synclines without any contact with the mining operations.

In the lease for proper drainage of water, a set of garland drainages will be made in the mining lease area and the water will be accumulated at the lower most gradient by constructing siltation tanks which will act as water storage in the area as well as collection of silts. Silts will be regularly cleared regularly.

Impact on Groundwater Quantity

The impact of mining on groundwater is not anticipated as the mining pit will be below the general ground level of the surrounding area. The bench height will be 5 meters and faces slope 45 ° angles. The ultimate pit depth is 255.5 m.RL... During the period of modified

mining plan the same opencast mining will continue in systematic manner as earlier 6 benches of 5 meters height proposed between 286 to 255.5 m.RL The water table is available within 25 meters from the surface level in rainy season and during summer the water table goes below 25 meters The ultimate working depth will be maintained up to 255.5 m RL hence will not touch the general water table.

Ground water pollution can takes place only if the mining rejects contain chemical substances. The chemicals get leached by the precipitation water and percolate to the groundwater table thus polluting it the water is potable in the sell lad bore well. There is no beneficiation process envisaged for the beneficiation of Limestone, hence the chances of contamination of water due to organic discharge or other effluent does not arise. Only hand sizing and sorting preferred for processing work.

1.6.12 Impact on Flora and Fauna

As the mining activities will be confined to core zone only, no adverse impact is foreseen on the flora & fauna in the core zone. To prevent the entry of wildlife animals from entering the lease area proper fencing will be done all around the lease area.

1.6.13 Impact on Top Soil

During mining activity Limestone is Top Soil not going to generate during the ensuring 5 year of mining operation, if small quantity will generate from pocket .it will be used for afforestation purpose only.

1.6.14 Impact on Socio Economic Status

Socio-economic survey was conducted in five villages within the study area located in all directions with reference to the project site.

The respondents were asked for their awareness/opinion about the project and their opinion about the impacts of the project, which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, transportation facility and economic status.

1.7 Environment Monitoring Program

The monitoring of pollutant in mine will be carried out for air, water, soil and noise. It takes care of all monitoring needs of the mine. Additionally ambient air and work zone monitoring in mine will be conducted in every season near mining operation, loading and transportation (haul road) areas by Government approved private agency. The analysis results of air monitoring will be properly recorded and submitted to the statutory authorities from time to time. Noise measurement of mine equipment will be done once in a year, ambient air monitoring will be done once in one season at three locations (1 in upwind, 1in downwind, 1 in lease area. Ambient noise monitoring will be carried out at 3 locations, 1 within the lease area, and 2 locations of nearest habitation to the lease. Water quality monitoring will be done once in season at two locations& soil quality monitoring will be done

once in a year at 2 locations within the study area. A total of Rs. 0.90 lakhs/- every year will be spent on monitoring of environmental parameters.

1.8 Additional Studies

1.8.1 Risk Assessment and Disaster Management Plan

The following natural /industrial problems may be encountered during the mining operation are:

- Inundation-filling of the mine pit due to excessive rains.
- Slope failures at the mine faces or stacks.

Water table will not be encountered during proposed working. No high risk accidents like landslides, subsidence flood etc. have been apprehended. But possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions will be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, Rule of MMR- 1961 and the Rules of MCDR-1988.

1.9 Environment Management Plan

The environment management plan is prepared with a view to facilitate effective environmental management of the project. Apart from having an Environmental Management Plan, environment management cell consisting of mines manager, safety officer and environmental officer is constituted. A total of Rs. 5.70 Lakhs/- would be spent on environment management activities every year.

1.10 Project Benefits

The surrounding inhabitants around the mine lease area are mainly agricultural oriented. Opportunities for jobs activities will be created and mining will serve as a source of permanent livelihood. The mine will create employment directly or indirectly. Additional, certain works like transportation will be outsourced on contract. So, overall effect of mining is expected to be positive.