

EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

PATHRAKUNDI LIMESTONE MINING PROJECT

Khasra no. .314/2, 315/2, Near Village Pathrakundi,

Tehsil Tilda, District -Raipur (Chhattisgarh)

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

Mining Lease Area: 7.044 Ha.,

Production Capacity: 94500 TPA

Project Cost: Rs. 32.70 LAKH

Category-B1

In Favor of	Prepared By
SHRI Avadhesh Jain Arihant Bhawan Satti Bazar, Near Bजारंग Akhada Raipur, Chhattisgarh, Pin' 492001	OVERSEAS MIN-TECH CONSULTANTS ISO 9001:2015 Certified & NABET Accredited 501, Apex Tower, Tonk Road, Jaipur - 302015 Telefax: +91-141-2744509, Mobil: +91-9460221084 E-mail- arun.omtc@gmail.com , Website: www.overseasmintech.com

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1 EXECUTIVE SUMMARY

1.1 Introduction and Background

The Pathrakundi Limestone Project of Avadhesh Jain is situated in village Pathrakundi, Tahsil: Tilda, District – Raipur (Chhattisgarh) over an area of 7.044 ha in Khasra No.314/2, 315/2.

Mining Lease was granted in favour of applicant Avadhesh Jain, resident of Raipur, Distt. - Raipur for the period of 20 years i.e. 02/05/2008 to 1/05/2028 (Mining Lease deedenclosed in Annexure – I). Now the lease period extended upto 50 Years. Lease Documents has been enclosed as Annexure-1.

The mining plan of Pathrakundi Limestone Mine was approved by IBM vide letter no RAP/LST/MPLN- 976/ NGP on dated 06/12/2007 under rule 22 of MCR 1960.

The modification in mining plan required as per the rule 17 (3) of MCR 2017. The modified mining plan already approved by IBM Raipur Regional office by their letter no. Bilash/chup/MP-976/Naag/2015/37-Raipur/351 Dated 30/08/2016 for the period of 2013-14 to 2017-18. Now Review of Mining plan in approved on dated 2/04/2018 Vide letter No. is Raipur/chup/MP-1143/2017 under rule 17 (2) of MCR 2016 and progressive Mine Closure Plan under rule 23 of MCDR 2017 for the onward period of 2018-19 to 2012-23.

Original the lease was granted for period of 02/05/2008 to 01/05/2028 but 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 for the period of 02.05.2008 to 01.05.2058. Copy of letter from State Govt. for lease period enhancement has been enclosed as Annexure-2.

The working permission granted on dated 07/02/2011 and the mining operation was started first time on 01/12/2012. The mining plan was valid for the period of 5 years i.e. 2008-09 to 2012-13. The 1st scheme was not prepared as the lessee thought that the mining plan period start from date of mine opening.

The application was submitted to the SEIAA Proposal No SIA/CJ/MIN/63990/2017 on dated 15.04.2017, Project proponent has provided the Additional information sought on dated 24.04.2017.

EIA Notification dated 14th September 2006 & its subsequent amendments states; projects shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests and Climate Change for matters falling under Category ‘A’ in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category ‘B’ in the said Schedule.

As per EIA notification 14.08.2018 in the Schedule, for item 1(a), 1(c), and the Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation and in view of MoEF&CC vide letter No. L-11011/175/2018-IA-II (M) Dated 12.12.2018 directed that all the mining lease from 5 to 25 ha falling under Category B2 at par with Category B1 by SEAC/SEIAA as well as for cluster situation where ever it is not provided.

As the proposed Limestone mining project of Shri Avadhesh Jain is over an area of 7.044 Ha, which is individually greater than 5.0 ha., hence project will be categorized as "B1", and thus requiring prior environmental clearance from the State Environmental Impact Assessment Authority (SEIAA)/State Expert Appraisal Committee (SEAC) Rajasthan.

It is proposed to excavate approximately 94500 TPA Limestone by Opencast Semi Mechanized method. The lease area is 7.044Ha. and total mineable reserve is 38,35,411 Tonne for limestone. The expected life of the mine will be 40.58years (Approx. 41 years).Authenticate production detail has been given in ToR letter.

1.2 Location and Communication

Table 1-1: Location and Communication from ML area

S.No.	Particulars	Details		
A.	Nature of the Project	Pathrakundi Limestone Mine		
B.	Size of the Project			
1.	Mine area	7.044 ha		
2.	Production Capacity	94500TPA		
C	Location Details			
1.	Village	Pathrakundi		
2.	Tehsil	Tilda		
3.	District	Raipur		
4.	State	Chhattisgarh		
5.	Toposheet Numbers	64 G/15		
		Pillar No.	Latitude (N)	Longitude (E)
		Pillar no1	21026' 17.16"	81055' 47.83"
		Pillar no-2	21026' 19.90"	81055' 52.61"
		Pillar no-3	21026' 23.42"	81055' 54.38"
		Pillar no-4	21026' 27.41"	81055' 57.27"
		Pillar no-5	21026' 27.22"	81055' 53.28"
		Pillar no-6	21026' 33.16"	81055' 53.32"
		Pillar no-7	21026' 33.29"	81055' 51.12"
		Pillar no-8	21026' 29.73"	81055' 50.75"
		Pillar no-9	21026' 29.37"	81055' 48.86"
		Pillar no-10	21026' 26.14"	81055' 49.01"
		Pillar no-11	21026' 26.04"	81055' 45.92"
		Pillar no-12	21026' 21.15"	81055' 47.54"

1.3 Project Chronology till Date

1. Patharakundi Limestone Mining Project (shri Avadhesh Jain) 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 6th December 2018
2. A presentation to the SEAC, Chhattisgarh, to finalize the ToR for the EIA study before SEAC was held on 06.06.2018.

3. The SEIAA prescribed ToR file No. 339/SEAC,CG/Mine/Raipur/580 Atal nagar, Dated on 06/12/2018
4. OMTC carried out monitoring studies during the Summer season (March, April and May) 2019 and presented the findings in draft EIA report.

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 Limestone 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	0.260KLD	1.04 KLD
			Sanitation	0.780KLD	
		Dust Suppression		2790.77 m ² area per 1.0 L	2.79 KLD
		Greenbelt Development		1453 plants per 1.0 LPD	1.45 KLD
Total					5.28 KLD
2.	Man-Power Requirement			26	

1.4.3 Topography and Drainage

The topography of the area is rough and rugged. The shivnath river is the main river of the area and forms the main drainage system. It flows in N-W direction at a distance of 35 kms near Simga. A small nala flowing at a distance of 200 meters in South East direction. Seasonal nalas and streamlets are commencing from higher parts of the area and join these perennial rivers. The drainage pattern is dendritic to sub-dendritic.

1.4.4 Regional Geology

The first comprehensive account of geology of the area was given by Shri Dutta in 1993. He proposed the name Chhattisgarh Super group and divided into two series name Raipur and Chandrapur. Regionally the area has following succession of rocks. The regional and local geological succession of the lease area is as follows:

Regional Geological Succession of the lease Area

Recent-Alluvial Soil/Laterite

Chhattisgarh	Series	Formation	Litho Unts
Super-Group	Raipur Series	Raipur	Purple Limestone
		Khairagarh	Sub-Arose
		Gundardehi	Calcareous Shale
	Pleistocene	Milliolitic Limestone	White to yellow, Pink earthy marine limestone, composed of foraminifer around which colitic grain has been formed
	Chandrapur Series	Charmuria	Grey Limestone Sandstone
		Chandrapur	Sandstone Arose Quartzite

1.4.5 Mineable Reserve & Life of Mine

Table 1-3: Mineable Reserves

A. Total Mineral Reserve	UNFC Code	Quantity in TPA	Grade
Proved Mineral Reserve 111	111	13,99,153	
Probable mineral Reserve 121 and 122	122		Cao 42.15% SiO ₂ 14.54% MgO 02.80%
B. Total Remaining Resources			
Feasibility mineral Resource	211		
Prefeasibility mineral Resource	221 & 222	35,17,267	Cao 42.15% SiO ₂ 14.54% MgO 02.80%
Measured mineral resource	331		
Indicated mineral resource	332		
Inferred minerals resources	333		
Reconnaissance mineral resource	334		
Total Reserve +Resources		49,16,420	Cao 42.15% SiO ₂ 14.54% MgO 02.80%

Life of mine	Mineable reserve/ Average annual production
	13,99,153 /94,500 =15 years

1.4.6 Mining Method

- The proposed method will be opencast Semi-Mechanized Mining, Excavator and dumper combination will be used for production of limestone. No blasting proposed mostly rock breaker will be used.
- At present 1 production benches of 1 m. already developed in working pit with suitable haul road.
- Drilling and blasting is not Proposed.
- All the benches will be connected by mule track, so that mule can reach to the working faces the slope of the benches will be kept 55° but for exploitation of mineral benches

Table 1-4: Extent of Opencast Mechanized

Type of Excavator	Bucket capacity	Rated production/hr.
a) Tata Hitachi with rock breaker attachment	2.1 M ³	158.00
Dumper	Capacity & Make	Rated production/hr.
a) Tata Hywa	20 T/Tata	49.30

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 42.1°C and mean daily minimum of about 27.7°C. The highest temperature recorded at Raipur is 44.7°C on 30th May 1988. From November, both day and night temperatures start decreasing rapidly. December is generally the coldest month with the mean daily maximum temperature at about 27.9°C and mean daily minimum at about 12.6°C. Minimum temperature sometimes drops down to subzero temperatures and the lowest temperature recorded 3.9°C on 29th December 1902.

1.5.2 Wind

Long- term wind direction data is presented in *Error! Reference source not found.*, and indicates that the predominant wind during the study period (March, April and May)-2019 is West at daytime and second dominant is NE..

1.5.3 Rainfall

As per IMD station at Raipur the rainfall in region was observed to be 1429.3 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 80-84% in monsoon mornings to a low of 57-61% in winter evenings.

1.5.5 Site Specific Meteorology

Environmental monitoring was carried out for Summer Season covering the months of (March April & May) 2019. Meteorological data is collected for wind speed, wind direction, temperature, rainfall and cloud cover.

1.6 Existing Environment Scenario

1.6.1 Land Use

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. Forest land covers an area of 704.47 ha. out of 32648.90 ha. which is 16.82 % of the total area, water bodies cover an area of 2836.99 ha. which is 3.91 % of the total land, Crop land cover about 23019.29 ha. which is 48.91 % of the total land.

1.6.2 Soil Quality

The soil sample were collected from 6 locations, the soils of study area are predominantly Sandy Clay loam. The pH of the soil is ranges from 7.64 to 7.82. The soil being of friable consistency, the bulk density of the soil is in the range of 1.65 to 1.72 g/cm³ whereas the porosity and water holding capacity are in the range of 34.35 to 36.82 % and 30.24 to 32.64 % respectively. It was observed that the Values of bulk density, porosity and water holding capacity varied according to the soil texture. Density of soils was found to be in definite range as per the texture, porosity and water holding capacity was found in marginal range rather poor water holding capacity as per the texture.

1.6.3 Ambient Air Quality

The major contribution to the air pollution is dust and other pollutant present in the air are SO₂ and NO₂. To assess the pre mining condition ambient air monitoring was carried out.

The regional PM₁₀ level at the proposed mining site ranges from 66.72 to 60.2 ug/m³, PM_{2.5} ranges from 32.16 to 26.56 ug/m³, SO₂ ranges from 11.82 ug/m³ to 8.66ug/m³ and NO_x ranges from 15.62 to 10.86 ug/m³. 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 5 locations in the study area; samples were collected from residential as well as industrial area (Mine site).

- **Residential area:** The day time (Leq day) noise levels observed in the range of 58.7 to 46.8 dB (A) in residential area. The night time (Leq night) Noise levels observed in the range of 49.8 to 42.6 dB (A) which is within the prescribed limit of 45 dB (A) in residential area.
- **Industrial Area:** The noise levels at the mine site were found to be 64.2 dB (A) during day time and 59.8 dB (A) during night time.

1.6.5 Water Environment

Groundwater Resources

The Ground Water Resources and Irrigation Potential of the district were estimated during 2011 in collaboration with the Government of Raipur using the methodology suggested by “Ground Water Estimation Committee (GEC-97)”.

Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3, GW4, GW5 and GW6 ranged from 7.42 to 7.86 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 306.0 mg/l to 382.0 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 218.0 -266.0 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 112.0-182.0 mg/l.

Fluoride content varies from 0.34 mg/l – 0.86 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect chloride (58.0 mg/l to 116.0 mg/l), sulphate (36.0 mg/l to 82.0 mg/l) and hardness.

Fluoride content varies from 0.16 mg/l – 0.32 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 solids (204 mg/l to 242 mg/l), chloride (36.0 mg/l to 56.0 mg/l), sulphate (16 mg/l to 42.6mg/l) and hardness.

Surface Water Quality

Surface water samples were collected, analyzed and compared with Indian standard for drinking water 10500:2012, pH value was found to be 7.26 which indicate that surface water is alkaline in nature, TDS was found to be 234.0 mg/l. Dissolve oxygen were found about 7.4 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

Crop	Name	Season
Rabi	Massar, Gram, Mustard Seeds, Potatoes, Onions	September-April
Kharif	Maize, Paddy, Mash, Rice	June – September

1.6.7 Socio Economic Status

The study area includes 54villages within the 10 km. radius with a total population 84785 forming 17617 household as per census 2011.In the study area about 52944 of the total population is literates. As per census 2011, about 6437 of the total are main workers, 1153are marginal workers.

1.6.8 Anticipated Environmental Impact and Mitigation Measure

1.6.9 Topography

The mining lease area is gently sloping towards south and SW of the lease area. highest contour of this lease area is301 m above MSL. The lowest contour is 291 m above MSL. The mining area is a non-forest govt waste land having no soil cover due to earlier mining operation.

1.6.10 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.

1.6.11 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.

1.6.12 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.

1.6.13 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 casts 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

Groundwater will be used for mining activities, only 1.04 KLD water will be used during mining operation; and only fresh water will require for drinking propose which will be sourced from nearby river.

Impact on Groundwater Quality

Since water table is very deep & mining will be carried out much above the water table & therefore there will be no impact on ground water. The impact of mining on groundwater is not anticipated as the mining will be done till 2m only & not going to encounter the groundwater table.

Mitigation Measures of Groundwater

The mining pit will be below the general surface level of the surrounding area which will be 271 m RL.

The water level in post monsoon season will be 30 m below the surface depending upon the relief of the area and in dry season it goes to 35m below the surface.

1.6.14 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.

1.6.15 Impact on Top Soil

During mining activity limestone is exposed on the surface itself hence no mineral reject & top soil will be generated during this scheme period (five years). This will in turn result in minor changes of topsoil structure.

Mitigation Measures for Top Soil

However, the project design will take into account the preservation of the top soil and its subsequent use during the restoration of the site.

1.6.16 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, 1 in 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. 0.78 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. 2.46Lakhs/- 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.

