

EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

PROPOSED LIMESTONE MINING PROJECT OF

**Aditya Bhagat , Dwitendra Kumar Mishra, Smt. Kanti Gupta AND Rajendra Prasad
Gupta**

IN

Changori & Karra LIMESTONE MINING CLUSTER

VILLAGE, Changori & Karra: Tehsil-Lundra, District Surguja (Chhattisgarh).

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

Total Mining Lease Area: 4.608 Ha

**{{(1.374 ha. (Shri Aditya Bhagat) + 1.0 ha. (Shri Dwitendra Kumar Mishra + 1.0 Ha. (Smt. Kanti
Gupta)+1.234 Ha. (Shri RajendraPrasad Gupta))}}**

Total Area of Changori & Karra Limestone Mine Cluster – 28.875Ha

Total Production Capacity: 42,603.81 TPA

**{{(15,435 TPA (Shri Aditya Bhagat) +11,875 TPA (Shri Dwitendra Kumar Mishra + 10,217.25
TPA (Smt. Kanti Gupta)+ 5076.56 TPA (Shri RajendraPrasad Gupta))}}**

Total Project Cost: Rs. 70.30 Lakhs

Category-B1

In Favor of	Prepared By
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1 EXECUTIVE SUMMARY

1.1 Introduction and Background

The Proposed Limestone Mining Project of Shri Aditya Bhagat, Shri Dwitendra Kumar Mishra, Smt. Kanti Gupta and Shri Rajendra Prasad Gupta in Changori & Karra Limestone mining Cluster situated near village, Changori and Karra, Lundra Tehsil, District Surguja, State Chhattisgarh. The nearest village is Changori at 0.880 km in South direction from **Shri Aditya Bhagat**, 0.5 km in South direction from **Shri Rajendra Prasad Gupta** and Karra village at 0.31 km in NE direction from **Shri Dwitendra Kumar Mishra** and at 0.95 km in NE direction from **Smt. Kanti Gupta**.

The Proposed Limestone Mining Project of Shri Aditya Bhagat, Shri Dwitendra Kumar Mishra, Smt. Kanti Gupta and Shri Rajendra Prasad Gupta in Changori & Karra Limestone mining Cluster situated near village, Changori and Karra, Lundra Tehsil, District Surguja, State Chhattisgarh.

The details of necessary permit and Clearance are given below-

Mine Lease	S. No.	Permit and Clearance	Regulatory Authority	Letter No.	Issue Date
Shri Aditya Bhagat	1.	LOI	Assit. Mining Officer, office of Collector Surguja (Mining-Branch) Ambikapur	1098/Khanij/Kha.li./1/N.Kra.1/2020, Ambikapur	15/06/2021
	2.	Approval of Mining Plan	Dy. Director (Mineral-Admin.) Office of collector (Mining Branch) Raigarh,, (C.G.)	1519 (A)/ Kha.Li.2 /2021 / Raigarh	28/07/2021
	3.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG /MIN/67085/2021	30/08/2021
	4.	First Technical Presentation	In 390 th meeting of SEAC, Chhattisgarh	-	14/09/2021
	5.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 1424/ S.E.A.C.C.G./Mine/1784 Nawa Raipur Atal Nagar	28/09/2021
Shri Dwitendra Kumar	1.	LOI	Dy. Director (Mineral-Admin.) Office of collector, Surguja (Mining Branch) Ambikapur, (C.G.)	24/Khanij/Kha.Li.1/ Na.Kra.14/2020, Ambikapur	05/01/2021

Mishra	2.	Approval of Mining Plan	Dy. Director (Mineral-Admin.) Office of collector, Surguja (Mining Branch) Ambikapur, (C.G.)	105/ Khanij/Khali.3/ Uthkhanan Yo./2020-21 Ambikapur	18/01/2021
	3.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG/ MIN/ 61828/2021	15/03/2021
	4.	First Technical presentation	In 368 th SEAC Meeting, Chattisgarh	-	05/05/2021
	5.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 543/ S.E.A.C.,C.G./Mine/160 7 Nawa Raipur Atal Nagar	11/06/2021
Smt. Kanti Gupta	1.	LOI	Assit. Mining Officer, office of Collector Surguja (Mining- Branch) Ambikapur	369/Khanij/Kha.Li. 1/Na.Kra-11/2020 Ambikapur	- 22/02/2021
	2.	Approval of Mining Plan	Dy. Director (Mineral-Admin.) Office of collector (Mining Branch) Raigarh,, (C.G.)	961/Kha. Li.-2/2021 Raigarh	31/05/2021
	3.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG /MIN /63784/2021	09/06/2021
	4.	First Technical presentation	In 379 th meeting,of SEAC Chattisgarh	-	19/06/2021
	5.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 795/ S.E. A.C.,C.G./Mine/ 1700 Nawa Raipur Atal Nagar	28/06/2021
Shri Rajendra Prasad Gupta	1	LOI	Dy. Director (Mineral-Admin.) Office of collector, Surguja (Mining Branch) Ambikapur, (C.G.)	1781 / Khanij / Kha.li.1 / Na.Kra.17/2020 Ambikapur	13/11/2020
	2	Approval of Mining Plan	Dy. Director (Mineral-Admin.) Office of collector, Surguja (Mining Branch) Ambikapur, (C.G.)	2010 /Khanij / Khali.3/ Uthkhanan. Yo. /2020 Ambikapur	23/12/2020

	3.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SEIA /CG / MIN/61876/2021	15/03/2021
	4.	First Technical presentation	In 368 th Meeting SEAC, Chattisgarh	-	05/05/2021
	5.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no.546/ S.E.A.C .CG/Mine /1610 Naya Raipur Atal Nagar	11/06/2021

It is proposed to excavate Total quantity of 42,603.81 TPA $\{(15,435 \text{ TPA (Shri Aditya Bhagat)} + 11,875 \text{ TPA (Shri Dwitendra Kumar Mishra)} + 10,217.25 \text{ TPA (Smt. Kanti Gupta)} + 5076.56 \text{ TPA (Shri Rajendra Prasad Gupta)}\}$ limestone by Opencast Semi-Mechanized method from applied mine leases in Changori & Karra Limestone mining Cluster. The Total mine lease area is **4.608 Ha** $\{(1.374 \text{ ha. (Shri Aditya Bhagat)} + 1.0 \text{ ha. (Shri Dwitendra Kumar Mishra)} + 1.0 \text{ Ha. (Smt. Kanti Gupta)} + 1.234 \text{ Ha. (Shri Rajendra Prasad Gupta)}\}$ and total Mineable reserves is **3,84,955 MT** $\{(1,09,762.50 \text{ MT (Shri Aditya Bhagat)} + 59,661.25 \text{ MT (Shri Dwitendra Kumar Mishra)} + 98,875 \text{ MT (Smt. Kanti Gupta)} + 1,16,656.25 \text{ MT. (Shri Rajendra Prasad Gupta)}\}$ for limestone.

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.	Particulars	Details
A.	Nature of the Project	Proposed Changori & Karra Limestone Mining Cluster Project of M/S Shri Aditya Bhagat, Shri Dwitendra Kumar Mishra, Smt. Kanti Gupta and Shri Rajendra Prasad Gupta.
B.	Size of the Project	
1.	Mine area	4.608 Ha {(1.374 ha. (Shri Aditya Bhagat) + 1.0 ha. (Shri Dwitendra Kumar Mishra + 1.0 Ha. (Smt. Kanti Gupta) + 1.234 Ha. (Shri Rajendra Prasad Gupta))}
2.	Production Capacity	42,603.81 TPA {(15,435 TPA (Shri Aditya Bhagat) +11,875 TPA (Shri Dwitendra Kumar Mishra + 10,217.25 TPA (Smt. Kanti Gupta)+5076.56 TPA (Shri Rajendra Prasad Gupta)}
C	Location Details	
1.	Village	Changori & Karra
2.	Tehsil	Lundra
3.	District	Surguja
4.	State	Chhattisgarh
5.	Topo sheet Numbers	64 M/8 Latitude- 23°14'33.29"N to 23°14'51.14" Longitude: 83°23'28.96"E to 83°24'19.60"E

1.3 Project Chronology till Date

- The online file for the project proposal 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 for the mine lease detailed below:

Mine lease	S. No.	Permit and Clearance	Regulatory Authority	Letter No.	Issue Date
Shri Aditya Bhagat	1.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG / MIN /67085/2021	30/08/2021
	2.	First Technical presentation	In 390 th meeting of SEAC, Chhattisgarh	-	14/09/2021

	3.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 1424/ S.E.A.C.C.G./Mine/1784 Nawa Raipur Atal Nagar	28/09/2021
Shri Dwitendra Kumar Mishra	1.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG/ MIN/ 61828/2021	15/03/2021
	2.	First Technical presentation	In 368 th SEAC Meeting, Chattisgarh	-	05/05/2021
	3.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 543/ S. E. A.C.,C.G./Mine/1607 Nawa Raipur Atal Nagar	11/06/2021
Smt. Kanti Gupta	1.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SIA /CG /MIN /63784/2021	09/06/2021
	2.	First Technical presentation	In 379 th meeting, of SEAC Chattisgarh	-	19/06/2021
	3.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 795/ S.E. A.C.,C.G./Mine/ 1700 Nawa Raipur Atal Nagar	28/06/2021
Shri Rajendra Prasad Gupta	1.	Online proposal for ToR	SEIAA, Chattisgarh	Proposal no. SEIA /CG / MIN /61876 / 2021	15/03/2021
	2.	First Technical presentation	In 368 th Meeting SEAC, Chattisgarh	-	05/05/2021
	3.	ToR letter	Issued by SEAC, Chattisgarh	Vide letter no. 546/ S.E. A.C .CG/Mine /1610 Naya Raipur Atal Nagar	11/06/2021

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 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 0-1: water Requirement for the mining

S.No.	Requirements		Quantity and Nos.		
1.	Water Requirement	Domestic Propose	Drinking	0.165 KLD	0.83 KLD
			Sanitation	0.665 KLD	
		Dust Suppression		10000 m ² area per 0.5 L	10.0 KLD
		Greenbelt Development		3400 plants per 2.5 LPD	8.50 KLD
Total					19.33 KLD
2.	Man-Power Requirement		33		

1.4.3 Topography and Drainage

The topography of the all Lease area is Flat land. The stone is buried under the soil in the granted area. For the Lease area of-

1. **Shri Aditya Bhagat**- The general slope is towards North. Maximum Altitude of the applied area is 622 m AMSL at Southern part while lowest side is 620 m AMSL at Northern part of granted area.
2. **Shri Dwitendra Kumar Mishra**-The general slope is towards West. Maximum Altitude of the applied area is 613 m AMSL at Eastern part while lowest side is 612 m AMSL at Western part of granted area.
3. **Smt. Kanti Gupta**-The general slope is towards north. Maximum Altitude of the applied area is 623 m AMSL at southern part while lowest side is 620 m AMSL at northern part of granted area.
4. **Rajendra Gupta**- The general slope is towards south-west. Maximum Altitude of the applied area is 623 m AMSL at north-eastern part while lowest side is 620 m AMSL at south-western part of granted area.

Therefore, all granted area has surveyed in contour interval of 1 meter. Lease area is covered with scanty vegetation. The climate of the area is sub-tropical with hot summer.

At present there is no water source, which is passing through the lease area and its surrounding. Details of surface drainage pattern for all the cluster leases are detailed below:

Shri Aditya Bhagat	Gagar River 0.7 km in West, Village pond is 0.52 km in South and seasonal nala is 0.35 km in North
Shri Dwitendra Kumar Mishra	Gagar river is 1.5 km in West, Village pond is 0.44 km in SE and Seasonal Nala is 0.015 km in South.

Smt. Kanti Gupta	Gagar river is 1.90 km in West, Village pond is 0.95 km in E and Seasonal Nala is 0.15 km in North.
Shri Rajendra Prasad Gupta	Gagar river is 0.72 km in NW, Village pond is 0.43 km in SW and Seasonal Nala is 0.75 km in North.

1.4.4 Local Geology

The applied area forms a part of the Chhota-Nagpur Gneissic Complex of Archaean to Proterozoic age comprises of Unclassified Limestone. The sequence of various formations is as follows:-

Archaean to Proterozoic	Chhota Nagpur Gneissic Complex	Unclassified limestone
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1.4.5 Mineable Reserves & Life of Mine

Table 0-3: Geological Reserves

Reserves	Shri Aditya Bhagat (MT)	Shri Dwitendra Kumar Mishra (MT)	Smt. Kanti Gupta (MT)	Shri Rajendra Prasad Gupta (MT)	Total (MT)
1) GEOLOGICAL RESERVES	1,71,750.00	1,37,500.00	2,75,000.00	1,69,675.00	7,53,925.00
Less					
i) Reserves Blocked under statutory mine boundary	50,812.50	38,940.00	97,487.50	44,206.25	2,31,445.75
ii) Reserves Blocked under benches & slope maintenance	11,175.00	6,517.50	57,352.50	8,812.50	83,857.50
iii) Reserves block under safty zone from nalla/Crusher/other blockage	--	32,381.25	21,285.00	--	53,666.25
2) MINEABLE RESERVES (1-i-ii-iii)	1,09,762.50	59,661.25	98,875.00	1,16,656.25	3,84,955.50
iv) Mine loss 5%	2,195.25	2,983.08	4,943.75	5,832.83	15,954.91
3) RECOVERABLE RESERVES	1,07,567.25	56,678.18	93,931.25	1,10,823.43	3,69,000.11
4) TOP SOIL TO BE GENERATE	2,418.75 m ³	2,406.50 m ³	2840.50 m ³	4,562.50 m ³	12,228.25
5) Overburden on Mineable Reserves	7,256.25 m ³	--	2840.50 m ³	--	10,096.75

1.5 Life of Mine

Table: Life of Mine

		Shri Aditya Bhagat	Shri Dwitendra Kumar Mishra	Smt. Kanti Gupta	Shri Rajendra Prasad Gupta
A)	Estimated Recoverable Reserves	43026.90 cum or 107567.25 tons	22671.28 Cum. or 56678.19 tons	37572.50 cum. or 93931.25 tons	44329.38 cum. or 110823.44 tons
B)	Average rate of production per year during Five year plan	5997.6 cum . or 14994 tons	4534.26 cum. or 11335.64 tons	3982.78 cum. or 9956.95 tons	1999.75. or 4999.38 tons
C)	Expected rate of production after five year plan	2607.78 cum . or 6519.45 tons	Not Applicable	3531.72 cum. or 8829.3 tons	2011.63 cum or 5029.06 tons
D)	Sanctioned Granted period	30 year from the date of lease agreement	30 year from the date of lease agree	30 year from the date of lease Agreement	30 year from the date of lease Agreement
E)	Plan period	10 years	5 years	10 years	10 years
F)	Thus anticipated period for excavation of Reserves	About 10 years. (Up to 6 m of mine depth from surface level)	About 5 years. (Up to 6 m of mine depth from surface level)	About 10 years. (Up to 12 m of mine depth from surface level)	About 22.1 years. (Up to 6 m of mine depth from surface level)

1.5.1 Mining Method

The mode of working will be open-cast semi mechanized method of mining with low capacity blast. Small scale drilling and blasting will be carried out for exploration of stone. Heavy hammer and hardened chisels will yield the sufficient quantity of stone. Further the stone will be sized and dressed according to the consumer's specifications, demand of market and stacked on the mine surface. Loading of sized stone chip will be done semi mechanized with the help of local labours.

The gradient of the ramp with benches will be maintained to 1:15 i.e. 15 meter long ramp for every 1 meter of depth. Width of ramp will be 3 - 4 meter.

Shri Aditya Bhagat- Width of benches will be maintained similar to height of benches. The quarry will be developed in 1 benches of 3m height x 3 m width each and 1 bench i.e last bench of 3 m height only. Along with 0.25 m of top soil and 0.75 m of overburden in first bench. However during advancement of mining operation the mine will be worked into 1.5m - 1.5 m height of sub-benches. For Mineral conservation finally at mine boundary benches will be converted to 3m (H) X 3m (W).

Shri Dwitendra Kumar Mishra- Width of benches will be maintained similar to height of benches. The quarry will be developed in 1 bench of 3m height x 3 m width each and 1 bench i.e last bench of 3 m height only. Along with 0.50 m of top soil. However during advancement of mining operation the mine will be worked into 1.5m - 1.5 m height of sub-benches. For Mineral conservation finally at mine boundary benches will be converted to 3m (H) X 3m (W).

Smt. Kanti Gupta- Width of benches will be maintained similar to height of benches. The quarry will be developed in 3 benches of 3m height x 3 m width each and 4th bench i.e last bench of 3 m height only. Along with 0.50 m of top soil and 0.50 m of overburden in first bench. However during advancement of mining operation the mine will be worked into 1.5m - 1.5 m height of sub-benches. For Mineral conservation finally at mine boundary benches will be converted to 3m (H) X 3m (W).

Shri Rajendra Prasad Gupta- Width of benches will be maintained similar to height of benches. The quarry will be developed in 1 benches of 3m height x 3 m width each. Along with 0.50 m of top soil. However during advancement of mining operation the mine will be worked into 1.5m - 1.5 m height of sub-benches. For Mineral conservation finally at mine boundary benches will be converted to 3m (H) X 3m (W).

Table: Extent of Opencast Mechanized

S. NO.	NAME OF MACHINERY	NUMBER			
		Shri Aditya Bhagat	Shri Dwitendra Kumar Mishra	Smt. Kanti Gupta	Shri Rajendra Prasad Gupta
1.	Excavator/Loder	1	1	1	1
2.	Dumper/Tipper	2	1	1	1
3.	Tractor	1	1	1	1
4.	Water tanker with sprinklers	1	1	1	1
5.	Dewatering pumps	1	1	1	1
6.	Rock breaker	1	1	1	1
7.	Compressor	1	1	1	1

8.	Jack hammer	1	1	1	1
	Total	9	8	8	8
	Grand Total	33			

1.6 Meteorology Long Term Meteorology (Secondary Data)

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

1.6.1 Temperature

The average ambient temperature remains 22.7°C, varies from 17.8°C to 30.1°C. The minimum - maximum temperature range is 11.1 – 42.7 °C in summer, and 4.4 – 31.4 °C in winter. The average relative humidity remains around 64%, varies from 52% to 68 %. The station pressure varies from 18.1 hPa to 19.1 hPa, averaged around 18.6hPa

1.6.2 Wind

Long- term wind direction data is presented in Draft EIA, and indicates that the predominant wind during the study period (15th March to 15th June)-2021 is North and second predominant wind direction is SW. and average wind speed during the study period was observed to be 3.40 m/sec.

1.6.3 Rainfall

The annual rainfall in the district is around 1539.2 mm. The rainfall increase slightly from South to North. Out of the total annual rainfall, 90% occurs in SW monsoon in-between 15th June to 15th October. Due to the sub-tropical climate the maximum temperature ranges between 35 to 48°C where as humidity varies from 36% and 86%.

1.6.4 Relative Humidity

Most humid conditions were found in the monsoons, followed by post-monsoons, winter and summer in that order. The average relative humidity remains around 53.47%, varies from 12.6% to 87.2%

1.6.5 Site Specific Meteorology

Environmental monitoring was carried out for summer Season covering the months of (15th March to 15th June 2021). Meteorological data is collected for wind speed, wind direction, temperature, rainfall and cloud cover.

Meteorological data showed that the average wind speed during the study period was observed to be 3.40 m/sec. Wind rose diagram prepared for study period is shown as Figure 3-3 of Draft EIA Report.. It was observed that during study period wind blows pre dominantly from North and Second pre dominant direction is SW.

1.7 Existing Environment Scenario

1.7.1 Land Use

Land Use of the Study Area

The land use/land cover map of the study area has been prepared from using the recent satellite Resourcesat-2, Sensor- LISS-IV, image scene (DOP 02.02.2019) downloaded from Bhuvan NRSC portal (www.bhuvan.nrsc.gov.in) and processed using GIS software supported with ground checks / ground truth verification. Area and distance calculations have been carried out using GIS software after geo-referencing and interpretation has been performed based on site information acquired through ground survey with survey of India topographical maps of the scale 1:50,000 and Google Earth explorer (Professional Version).

1.7.2 Soil Quality

The soils of study area are predominantly Sandy loam in texture. The pH of the soil is ranges from 7.02 to 8.15. The soil being of friable consistency, the bulk density of the soil is in the range of 1.12 to 1.48 g/cm³. The organic matter content of the soil samples varies from 0.24 to 0.37 %. The nitrogen content of the soil varies from 14.1 to 17.9 mg/100g, and the available potassium content is 6.9 to 8.8 mg/100g. Soil of the area are low to moderate fertility. The type of soil will require more frequent irrigation and fertilization.

1.7.3 Ambient Air Quality

The above 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. The Results are-

1. **PM₁₀ concentration-** Max. & Min. is 57.22 µg/m³ to 69.82 µg/m³
2. **PM_{2.5} Concentration-** Max. & Min. is 12.42 µg/m³ to 30.24 µg/m³
3. **SO₂ Concentration-** Max. & Min. is 7.24 µg/m³ to 18.52 µg/m³
4. **NO₂ Concentration-** Max. & Min. is 8.12 µg/m³ to 30.62 µg/m³
5. **Free Silica Concentration-** Max. & Min. is 0.56 µg/m³ to 0.94 µg/m³

1.7.4 Noise

Generally, noise levels in public places like temples and community hall have higher values in day time.

Day time Noise Levels (Leq day)

- ✓ The day time (Leq day) noise levels observed in the range of 40.2 (NQ9) to 49.4 dB (A) (NQ5) in study area. (Residential)

Night time Noise Levels (Leq night)

- ✓ The night time (Leq night) Noise levels observed in the range of 37.9 (NQ7) to 39.6 dB (A) (NQ5) which is within the prescribed limit of 45 dB (A) in study area.

It was also observed from the noise monitoring results that the noise levels at the mine site was 63.4 (NQ1) to 63.9 dB (A) (NQ3) at day time and 58.9 (NQ3) to 59.4 dB(A)(NQ1) at night time. However, within the noise standards prescribed by CPCB for residential, sensitive and industrial areas.

1.7.5 Water Environment

Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3 and GW4, GW5, ranged from 7.13 to 7.64 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 530.0 mg/l to 579.0 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 251-281 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 147.0-162.0 mg/l.

Fluoride content varies from 0.59 mg/l – 0.78 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 (73.0 mg/l to 91.0 mg/l), sulphate (42.0 mg/l to 53.0 mg/l) and hardness

Surface Water Quality

Surface water samples were collected, and analyzed, pH value was found to be 7.89 to 8.02 mg/l which indicate that surface water is alkaline in nature; TDS was found to be 261 to 273 mg/l. Dissolve oxygen were found about 6.7 and 6.89 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.

1.7.6 Socio Economic Status

The study area includes 54 villages within the 10 km. radius with a total population 69998. as per census 2011. As per census 2011, about 19806 of the total are main workers, 16021 are marginal workers.

1.7.7 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.

1.7.8 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.

Table 0-2: Existing Carrying Capacity of Roads

Project site to NH	Vol. of vehicle in PCU/hr	Capacity of Roads in PCU/hr	LOS
NH-343	388.95	1500	0.259 Very good

Post project PCU will be 406.25 PCUs (388.95 PCUs Existing + 17.30 PCUs Proposed PCUs) on NH-343. It can be clearly stated that the road used for carrying mineral to the end users is capable of handling the additional load due to mining activities. With the additional traffic load due to transportation of Limestone the Level of Service will remain within B category. Comparison is as follows-

Table 7: Comparison Carrying Capacity of Road in Existing & Proposed PCU

Location	Existing Traffic Load			Total Traffic load including applied project		
	No of PCUs	V/C	LoS	No of PCUs	V/C	LoS
Project site to NH-343	388.95	0.2593	B	406.25	0.27	B

1.7.9 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.

1.7.10 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

As evident from nearby wells, as well as also by villagers during the summer water table goes down below 45 meter and in rainy season water table comes up within 35 meter. Since the water table is below The ultimate pit depth is 6 m for Shri Aditya Bhagat, Shri Dwitendra Kumar Mishra and Shri Rajendra Prasad Gupta and the ultimate depth is 12 m for Smt. Kanti Gupta) of operation and the flow or extent of nearest hydrology is too far from the proposed lease area thus no impact can be assessed on water table, water flow or hydrology.

Moreover no sewage or other effluents will be generated from the mine closure activity which are required to be discharged on water. Hence no water pollution can be assessed. The mine closure shall not cause any change or diversion of any source of water in the area or any drainage pattern. Garland around the mine will also maintain the natural drainage system.

1.7.11 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.

1.7.12 Impact on Top Soil

During mining of limestone top soil will be generated and will be used for plantation.

1.7.13 Impact on Socio Economic Status

Socio-economic survey was conducted in six 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.

1.8 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 twice in a year 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. The annual budget given below -

SN	Particulars	Aditya Bhagat		Dwitendra Kumar Mishra		Smt. Kanti Gupta		Rajendra Prasad Gupta	
		Capital Cost in Rs	Recurring Cost in Rs	Capital Cost in Rs	Recurring Cost in Rs	Capital Cost in Rs	Recurring Cost in Rs	Capital Cost in Rs	Recurring Cost in Rs
1	Air Pollution Control	-	1,44,000		1,44,000		1,44,000		1,44,000
2	Green Belt Development	1,00,000	2,44,300	1,05,700	2,67,400	88,300	2,38,500	80,900	2,34,900
3	Maintenance of Road	-	60,000	-	60,000	-	60,000	-	60,000
4	Facilities for Mine workers	2,00,000	46,500	1,00,000	43,000	2,00,000	50,000	1,00,000	36,000
	Total ::	3,00,000	4,94,800	2,05,700	5,14,400	2,88,300	4,92,500	1,80,900	4,74,900
Total Capital Cost in Rs		9,74,900							
Total Recurring Cost in Rs		19,76,600							
Total Cost of EMP in Rs		29,51,500							

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 twice 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. 1.26 lakhs/- every year will be spent on monitoring of environmental parameters.

1.9 Additional Studies

1.9.1 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.

1.10 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. 19.76 Lakhs/- would be spent on environment management activities every year.

1.11 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.

Rs. 1.72 lakh will be spent under corporate Environment responsibility at village schools.

