EXECUTIVE SUMMARY OF DRAFT EIA REPORT

FOR

PROPOSED LIMESTONE MINING PROJECT

(Minor mineral)

Proposed area is 3.38 ha

Total area 74.58 ha

Village: Mura & Dhansuli ,Tehsil- Tilda , District-Raipur ,

State - Chhattisgarh

APPLICANT

M/s. Bansal Stone
(Prop. Smt. Pushpa Agrawal)
W/o. Shri Ajay Agrawal
City –E-81, Aishwarya Kingdom
Khamardih Kachna, Raipur
Tehsil: Raipur& District: Raipur(C.G.)

M/s. Bhagwati Stone
(Prop. Smt. Minki Agrawal)
W/o. Shri Manish Agrawal
City – Khamardih Road Bhawna Nagar
House no. – 7 Bhagwati Niwas
Tehsil: Raipur& District: Raipur(C.G.)

ENVIRONMENTAL CONSULTANT

ULTRA-TECH
Environmental Consultancy & Laboratory
(Lab. Gazetted by MoEF-Govt. of India)

M/s. ULTRA-TECH
ENVIRONMENTAL LABORATORY AND CONSULTANCY

NABET Accredited EIA Consulting Organization
NABET Accreditation Number: NABET/EIA/2023/RA0194

Oct, 2022

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

EXECUTIVE SUMMARY

1.0 Introduction

The proposed Limestone mining mineral project of area 3.38 Hectare situated near Village – Mura & Dhansuli, Tehsil – Tilda , District – Raipur, State-Chhattisgarh. The Proposed Lease is issued in favour of project proponent M/s. Bansal Stone Prop. Smt. Pushpa Agrawal by Office of collector (Mining Branch) Raipur vide letter number 1101/Kha.Li./Tin-6/U.Pa./2020 Raipur dated 26/10/2020. First extension of validity of LOI extension were granted by Director, Directorate of Geology and Mining (DGM) Nawa Raipur through letter number 5527/Khani 02/U.Pa.-Anu. Nispa/Na. Kra.50/2017(1) Nawa Raipur dated 26/10/2021 for up to 24.10.2022. Seconed extension of validity of LOI extension by Director order of extension isuued by Director, Directorate of Geology and Mining (DGM) Nawa Raipur through order vide letter no.5937/khani-02/U.P.Anu. Nishpa/na. Kra. 50/2017(1) Nawa Raipur dated 31.10.2022 up to grant of Enviornmental clearance and mining lease grant of project proponent.

Copy of letter of intent and its validity extension of LOI enclosed as Annexure 2.

The proposed Limestone Quarry mine mineral project of 3.38 Hectare situated near Village-Mura & Dhansuli , Tehsil-Tilda, District – Raipur, State-Chhattisgarh. The Proposed Lease is issued in favour of M/s. Bhagwati Stone prop. Smt. Minki Agarwal & M/s. Bansal Stone Prop. Smt. Pushpa Agrawal by project proponent M/s. Bhagwati Stone Prop. Smt. Minki Agrawal by Office of collector (Mining Branch) Raipur vide letter number 624/Kha.Li./Tin-6/U.Pa./2021 Raipur dated 26/08/2021. Extension of validity of LOI by isuued by Director, Directorate of Geology and Mining (DGM) Nawa Raipur through. vide letter no.5650/khani-02/U.P.Anu. Nishpa/na. Kra. 50/2017(2) Nawa Raipur dated 28.10.2022 extended up to grant of Environmental clearance and mining lease grant of project proponent.

Copy of letter of intent and application for extension of validity of LOI are enclosed as **Annexure 2.**

This mining project comes under Category ‘B1’ (Cluster situation) Project or activity 1(a) as per EIA Notifications 2006, and its subsequent amendments and will be appraised at SEAC, Chattisgarh. The lease is falling in the cluster as per 15th January 2016 EIA Notification of MoEF&CC and NGT order dated13th September 2018.

Project Location

The mining lease area of Mura Limestone Quarry mine covers an area of 1.67 Ha. Under Khasra No. 397/2, 397/4, 397/17, 639/2, 639/7, 639/11, 639/13, 395/2, 396/2 of M/s. Bansal Stone Prop. Smt. Pushpa Agrawal and Dhansuli Limestone Quarry mine covers area of 1.710 Ha. under khasra no. 543/13, 544/3, 544/1, 545/1, 545/2. of M/s. Bhagwati Stone prop. Smt. Minki Agrawal respectively as lease holder of the mine lease area.

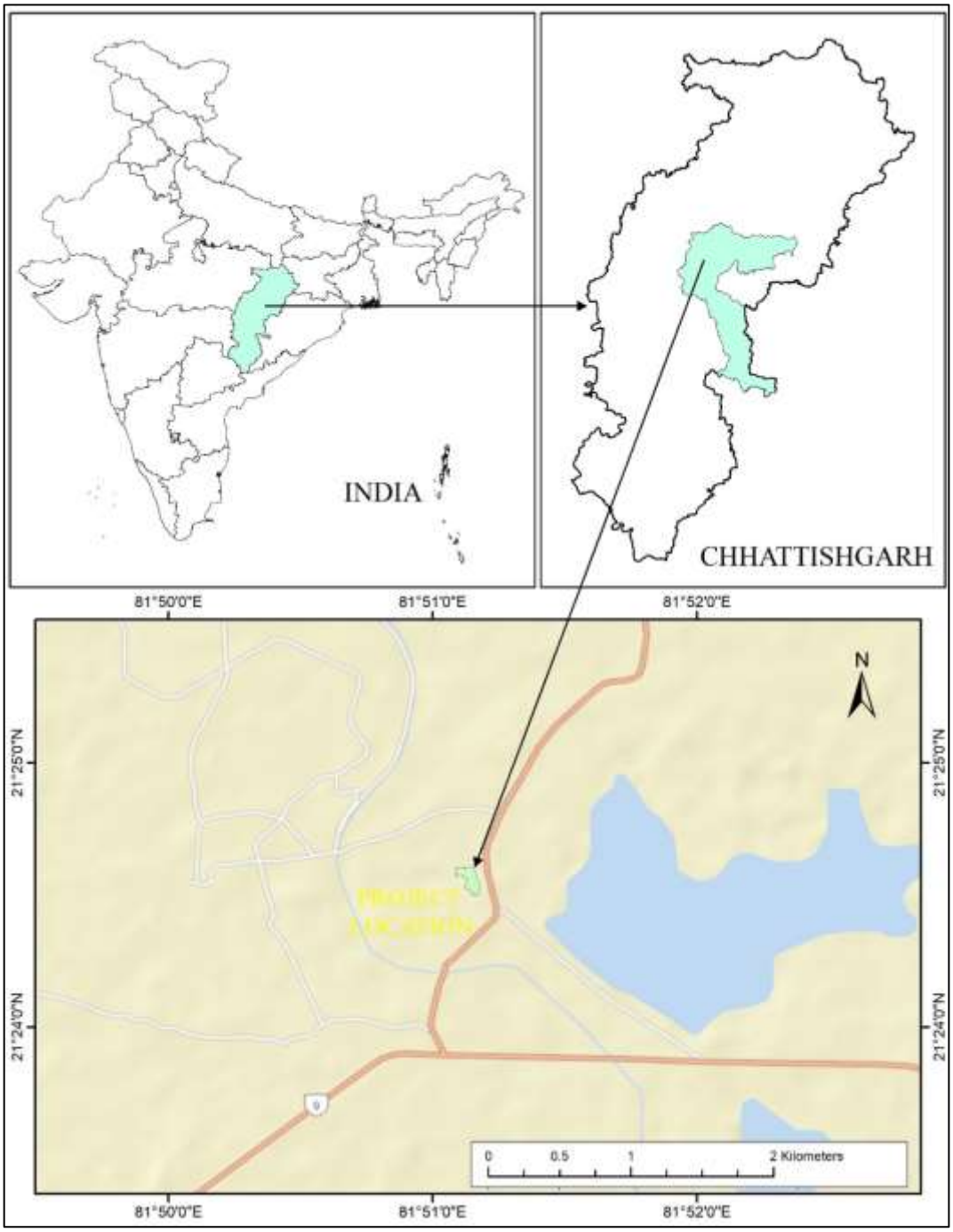

Figure E-1: Location map of the Project Site

Table E.1: Environmental Setting of Proposed Limestone Mining Projects

Particulars	Details

<table>
<tr><th>Particulars</th><th>Details</th></tr>
<tr><td>Name of the Project</td><td>Mura Limestone Quarry Mine & Dhansuli Limestone quarry mine Project, Area: 1.670Ha & 1.710 Ha. (Pvt. land)</td></tr>
<tr><td>Location of the Project</td><td>Near Village- Mura & Dhansuli, Tehsil- Tilda,
District- Raipur
State- Chhattisgarh</td></tr>
<tr><td>Geographical Coordinates:</td><td>M/s. Bansal Stone Prop. Smt. Pushpa Agrawal
<table>
<tr><th>Boundary Points</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>BL1</td><td>21°25'12.48"N</td><td>81°51'26.70"E</td></tr>
<tr><td>BL2</td><td>21°25'13.16"N</td><td>81°51'26.88"E</td></tr>
<tr><td>BL3</td><td>21°25'13.16"N</td><td>81°51'27.78"E</td></tr>
<tr><td>BL4</td><td>21°25'18.19"N</td><td>81°51'30.28"E</td></tr>
<tr><td>BL5</td><td>21°25'18.92"N</td><td>81°51'27.68"E</td></tr>
<tr><td>BL6</td><td>21°25'20.83"N</td><td>81°51'28.21"E</td></tr>
<tr><td>BL7</td><td>21°25'21.13"N</td><td>81°51'26.82"E</td></tr>
<tr><td>BL8</td><td>21°25'17.29"N</td><td>81°51'27.11"E</td></tr>
<tr><td>BL9</td><td>21°25'17.17"N</td><td>81°51'25.79"E</td></tr>
<tr><td>BL10</td><td>21°25'12.52"N</td><td>81°51'25.76"E</td></tr>
</table>
M/s. Bhagwati Stone prop. Smt. Minki Agarawal
<table>
<tr><th>Boundary Points</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>BL1</td><td>21°24'35.97"N</td><td>81°51'5.23"E</td></tr>
<tr><td>BL2</td><td>21°24'34.34"N</td><td>81°51'5.33"E</td></tr>
<tr><td>BL3</td><td>21°24'34.47"N</td><td>81°51'6.82"E</td></tr>
<tr><td>BL4</td><td>21°24'34.08"N</td><td>81°51'6.82"E</td></tr>
<tr><td>BL5</td><td>21°24'33.91"N</td><td>81°51'8.07"E</td></tr>
<tr><td>BL6</td><td>21°24'32.74"N</td><td>81°51'7.50"E</td></tr>
<tr><td>BL7</td><td>21°24'32.54"N</td><td>81°51'7.64"E</td></tr>
<tr><td>BL8</td><td>21°24'31.70"N</td><td>81°51'7.22"E</td></tr>
<tr><td>BL9</td><td>21°24'30.91"N</td><td>81°51'8.88"E</td></tr>
<tr><td>BL10</td><td>21°24'30.03"N</td><td>81°51'8.81"E</td></tr>
<tr><td>BL11</td><td>21°24'29.93"N</td><td>81°51'10.16"E</td></tr>
<tr><td>BL12</td><td>21°24'31.94"N</td><td>81°51'10.87"E</td></tr>
<tr><td>BL13</td><td>21°24'36.40"N</td><td>81°51'9.23"E</td></tr>
</table></td></tr>
<tr><td>Maximum Temperature</td><td>45.2° C</td></tr>
<tr><td>Minimum Temperature</td><td>8.6° C</td></tr>
</table>

Particulars	Details	
Annual rainfall	1193.40 mm	
Size of the Project	Cluster area is 74.58 hect whereas size of two applied mines are 1.67 hect & 1.71 hect therefore total applied area is 3.38 hectare	
Distance details	**Mura limestone quarry mine of M/s Bansal Stone**	**Dhansuli Limestone quarry mine of M/s. Bhagwati Stone**
Nearest Highway	NH 200 at 18.00 km towards west (Raipur-Simga Road)	NH 200 at 17.75 km towards west (Raipur- Simga Road)
Nearest railway station	At 9.85 km towards west (Raipur-Bhatapara railway Line)	At 9.75 km towards north-west (Raipur-Bhatapara railway Line)
Nearest Airport	Swami Vivekanda International Airport, Raipur –27.30 km, S	Swami Vivekanda International Airport, Raipur – 27.30 km, S -28.75 S
Nearest town/City	Tilda –15.50 km -N	Tilda – 16.50 km - N
Nearest water body	Nalla – 680 m -W	Nalla – 1.40 km –W
Major water bodies within 10 km radius	Kharun River -22.60 -E	Kharun River – 21.85 km -W
Densely populated or built-up area	Raipur -21.00 km- S	Raipur -21.50 km -S
Archaeologically important places	None within 10 km radius	
Protected areas as per Wildlife Protection Act (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	None within 10 km radius	
Reserved / Protected Forests	1. Mohrenga PF: 3.16 Km, NE 2. Khaluidabri PF :3.42 Km, E 3. Open Mixed Jungle :6.41 Km, N	
Defense Installations	None within 10 km radius	
Seismicity	Since project site comes under Seismic zone II, which is least active zone for earthquakes as per IS: 1893 (Part 1:	

Particulars	Details
	2002).
WildlifeSanctuary	None within 10 km radius
National Park	None within 10 km radius
Biosphere reserves	None within 10 km radius
Important migration routes of birds	None within 10 km radius
Ramsar sites (Wetlands of International Importance	None within 10 km radius
Unique or threatened ecosystems	None within 10 km radius
Important topographical features, including ridges, river valleys, shorelines, and riparian areas	None within 10 km radius
Mangrooves	None within 10 km radius
Physical Sensitive Receptors	None within 10 km radius
Notified Ground Water Zone by CGWA	None within 10 km radius
Critically Environmental polluted Area	None within 10 km radius
Pollution Sources	None within 10 km radius

2.0 Project Description

The porposed project of Mura Limestone Quarry mine covers an area of 1.67 Ha. Under Khasra No. 397/2, 397/4, 397/17, 639/2, 639/7, 639/11, 639/13, 395/2, 396/2 of M/s. Bansal Stone Prop. Smt. Pushpa Agrawal and Dhansuli Limestone Quarry mine covers area of 1.710 Ha. under khasra no. 543/13, 544/3, 544/1, 545/1, 545/2. of M/s. Bhagwati Stone prop. Smt. Minki Agrawal respectively. The proposed method of mining is open cast semi mechanized mining.

Table E.2: Salient Features of Proposed Project

INFORMATION	DETAILS
Name of the project	Mura limestone quarry mine & Dhansuli liomestone quarry mine
Village	Mura & Dhansuli
Tahsil	Tilda
District	Raipur
State	Chhattisgarh
Toposheet No	64 G/14, 64G/15
Name of Leaseholders 1. 2.	 M/s. Bansal Stone Prop. Smt. Pushpa Agrawal M/s. Bhagwati Stone prop. Smt. Minki Agrawal
Address and Contact details of Lease Holders	**M/s. Bansal Stone** **Proprietor: Smt. Pushpa Agrawal** W/o. Shri Ajay Agrawal E-18, Aishwarya Kingdom, Khamardih Kachna Contact no -9179690508 (RQP) **M/s. Bhagwati Stone** **Proprietor: Smt. Minki Agrawal** W/o. Shri Manish Agrawal Khamardih Road, Bhawna Nagar, House No. 7 Bhagwati Niwas Contact no -9424202411
Name of the Mineral to be mined	Limestone
Type of land	Private Land . There is no Forest land. No human settlement.
Status of Operation (New Project or Existing Project operating since)	New Project
Mine Area	M/s. Bansal Stone Prop. Smt. Pushpa Agrawal – 1.670 ha M/s. Bhagwati Stone prop. Smt. Minki Agrawal – 1.710 ha
	Total area - 3.38 ha
Ultimate depth of mining	20 m
Minable Reserve	3,28,232.50 MT(Smt. Pushpa Agrawal) 3,38,837.50 MT(Smt. Minki Agrawal)

Production Capacity	46,496.10 TPY (Smt.Pushpa Agrawal) 40,836.60 TPY (Smt.Minki Agrawal)
Life of Mine	As per Lease period -30 years
Quantity of topsoil and Overburden estimated to be removed	Top soil – 0.25 m OB 0.75 m
Depth of Ground Water Table	Approx. 40 meters of below from the normal surface level
Method of Mining	Opencast Semi-Mechanized
No. of working days	240 Days
SeismicZone	Seismic Zone II

3.0 Mining methodology

The methodology for conducting the baseline environmental survey is based on the Terms of reference issued by SEIAA for non coal mining projects. Baseline information with respect to air, noise, land and water quality in the study has been collected by primary sampling/field studies during the period of **December 2021 to March 2022**. Baseline status of the biological and socio-economic environment were also studied.

3.1 Water Requirement

The total water requirement shall be 5.50 KLD and 5.0 KLD for M/s. Bansal Stone Prop. Smt. Pushpa Agrawal and M/s. Bhagwati Stone prop. Smt. Minki Agrawal respectively for domestic, green belt and sprinkling purpose, which will be sourced from Water Tankers from nearby village. Detail of water requirement is given below

Table E. 3.1: Water Requirment Details (Bansal Stone)

Sr. No.	Usage	Water Requirement	
1.	Greenbelt Development@ 2.5 L/tree	516 Trees X 2.5 Lit/day =1,290 Lit/day or say 2 KLD	2.00 KLD
2.	Dust Suppression @ 0.25L/Sqm (twice a day)	Haul road Area = (750 m Length x 4 m width = 3000 sqm.) x 0.5 li/sqm =15000 lit /day x 2 time = 30000 lit/day	3.00 KLD

3.	Domestic Purpose @25 lpd/worker	20 workers x 25 lit per day = 500 Lit/Day	0.50 KLD
		Total ::	**5.50 KLD**

Table E. 3.2 : Water Requirment Details (Bhagwati Stone)

Sr. No.	Usage	Water Requirement	
1.	Greenbelt Development@ 2.5 L/tree	471 Trees X 2.5Lit/day = 1,177 Lit/day say 1.50 KLD	1.50 KLD
2.	Dust Suppression @ 0.25 L/Sqm (twice a day)	Haul road Area = (1000 m Length x 5 m width = 5000 sqm.) x 0.25 li/sqm = 1250 lit /day x 2 time = 2500 lit/day	2.50 KLD
3.	Domestic Purpose @25 lpd/worker	21 workers x 25 lit per day = 525 Lit/Day say 1.00 KLD	1.00 KLD
		Total ::	**5.00 KLD**

3.2 Power Requirement

No power is required for mining purpose only for labour, admin building. State electricity board will supply the electricity. Electric power is available in the lease area

3.3 Manpower

The mining project will generate direct & indirect employment. About 41 per day people will get direct employment, and some persons will also be affected indirectly and employed with allied and related industries, such as transportation, maintenance, etc. Following staff & workers are proposed to be employed:

Table E. 4: Manpower Details of Dhansuli Limestone mine quarry of M/s. Bhagwati Stone

S.No.	Category	No. of persons
1	Mining Mate	1
2	Supervisor	1
3	Extra skilled labour	1
4	Skilled labour	12
5	Machine Operator	6
Total		**21**

Table E. 4.1: Manpower Details of Mura Limestone quarry mine of M/s. Bansal Stone

S.No.	Category	No. of persons
1	Mining mate	1
2	Supervisor	1
3	Skilled labour	13
4	Machine Operator	5
Total		**20**

4.0 Description of Environment

The area around the proposed mining site has been surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been done from the period of **December 2021 to March 2022** (Winter Season).

The observations for post monsoon season-(December 2021 –March 2022) are summarized below:

Meteorology

The secondary meteorological data of the study period collected from www. imdpune.gov.in/. The month wise meteorological data is given in Table 3.3. The wind rose during the study period is presented in **Table E.5.**

Table E. 5 : Meteorological Data of the study area (IMD – Raipur)

Period	Wind Speed (m/s)		Temp (°C)		Relative Humidity (%)		Rainfall (mm)
	Max	Min	Max	Min	Max	Min	
Dec-21	5.43	0.07	25.83	3.66	100	25.56	8.75
Jan-22	4.44	0.11	26.03	4.65	100	28.69	2.66
Feb-22	6.18	0.07	33.28	6.41	100	16.81	1.03
March - 22	4.25	0.13	34.73	14.62	87.88	17	0.09

Source: Weather Summary for December 2021-March 2022(https://www.imdpune.gov.in/

Air Environment

The ambient air quality is carried out at 12 locations in and around the project site and studies are carried out as per CPCB standards. It is observed that, all the values are within the prescribed limits as per National Ambient Air Quality Standards (NAAQS), 2009.

The observations for Winter season - (December 2021 – March 2022) are summarized below

Particulate Matter (PM_{10}) :

A maximum concentration of PM_{10} is 75 µg/m^3 was observed at the AAQM-1 and minimum value of 43 µg/m^3 was observed at AAQM - 6

Respirable Particulate Matter ($PM_{2.5}$) :

A maximum concentration of $PM_{2.5}$ is recorded to be 38 µg/m^3 at AAQM-1 and minimum value of 10 µg/m^3 was observed at AAQM 8

Sulphur Dioxide (SO_2):

Maximum concentration of SO_2 is observed to be 11 µg/m^3 at AAQM -1 and minimum value of 5 µg/m^3 observed at AAQM- 2,4,5,6,8, 9,10,11,12

Oxides of Nitrogen (NO_X):

Maximum concentration of NO_x is observed to be 18 µg/m^3 at AAQM – 1&12 & minimum value of 9 µg/m^3 observed at AAQM – 5&6

Carbon Monoxide (CO):

Maximum concentrations in the region are observed to be 0.9 mg/m^3 at AAQM- 8&9 and minimum value of 0.2 mg/m^3 observed at AAQM-4.

Silica

Silica in the ambient air of the 10 Km radius of the study area of the project site has been analysed from the PM_{10} filter paper of the Ambient Airquality monitoring stations mentioned in Table 3.3 (7601 ,Issue 3 as per NIOSH Methods). The result indicates that silica concentration in the surrounding of project site was found to be in the range of 0.01μg/$m^3$to 0.07μg/m^3.

The results are compared with the standards prescribed by Central Pollution Control Board (CPCB).The overall ambient air quality around the proposed mine lease is within the limits of ambient air quality standards prescribed by CPCB.

Noise Environment

Noise levels were monitored in Twelve locations including project within the study area. The noise levels ranged between 50.2 to 58.4 dB (A) during day time and noise levels ranged between 42.5 to 47.2 dB (A) during night time. Over all the monitored noise levels are found to be within the stipulated standards set by CPCB.

Water Environment

In order to establish the baseline water quality, 5 ground water and 5 surface water samples were collected and analyzed in the study area. The quality of surface water samples was compared with surface water specification IS 2296:1982 and the surface water quality comes under Class D (Propagation of wildlife and fisheries). The ground water samples were compared with drinking water specification IS 10500:2012 standards.

Soil Quality

A total of 12 samples in and around the project site are collected and analysed. It has been observed that the pH of the soil quality ranged from 7.1 (S9) to 7.7 (S7) indicating that the soil is slightly alkaline in nature

Particullar	Number of Locations	Description
Background Ambient Air Quality Monitoring	Sampling was done at 12 Locations	PM_{10} :- 43 to 75 μg/m^3 $PM_{2.5}$:- 10 to 38 μg/ m^3 SO_2 :- 5.0 ug/m3 to 11.0 μg/ m^3 NOx:- 9.0 to 18.0 μg/ m^3 CO:-0.2 to 0.9 mg/ m^3
Noise Level Monitoring	Monitored at 12 Locations	Noise Level During Day Time :– 50.2 to 58.4 dB(A) Noise Level During Night Time:–42.5 to 47.2 dB(A)
Water Sampling	Ground water sampling was done at 5 Locations	pH :- 7.3 to 7.6 TDS :- 492 -566 mg/l ; Total Hardness :- 324 -384 mg/l SO_4 :-58 mg/l to 76 mg/l; Chloride :- 68 mg/l to 82 mg/l;

		Zn & Fe:- Below detectable limit.
	Sampling:- 5 at Surface water	pH :- 7.2 to 7.6; TDS :- 234 mg/l to 298 mg/l; Dissolve oxygen: - 5.1 to 5.4 mg/l. Chloride :- 26 mg/l to 36 mg/l; Calcium :- 33 mg/l to 43 mg/l; Magnesium :-19 mg/l to 25 mg/l; Total Hardness :- 162 to 210 mg/l ;
Soil Sampling	Sampling was done at 12 Locations	pH :- 7.1 to 7.7 Nitrogen:- 133 to 157 kg/ha Phosphorus:– 62 to 83 kg/ha Potassium :– 191 to 293 kg/ha Electric Conductivity:- 0.24 to 0.644 ms/cm

Land Use/Land Cover of the Study Area

Mura and Dhansuli are villages in the Tilda Tehsil of the Raipur District in Chattisgarh State, India. Figure 4 depicts the village area as covered by Survey of India topo sheets 65G/14 and 65G/15 (SOI).

Figure E.2 shows a pie diagram of the 10-kilometer research region's land use and land cover maps. The LULC map, shown in Figure 4, shows that the analysis is separated into nine areal classes: Water body, Canal, Lake, Crop Land, Settlement, Vegetation, Industry, Fallow Land, and Forest

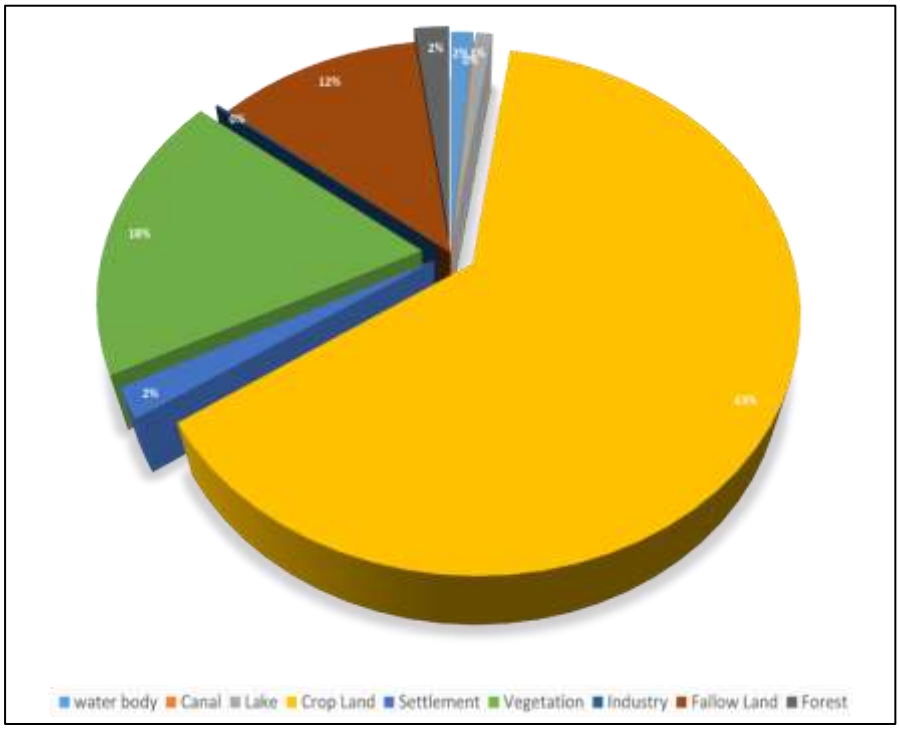

Figure E-2: LULC Classification (10 km radius of the Proposed Project Area)

Biological Environment

- The impact of the mining activity on the biological environment is as follows:
- The mining core zone does not include any forest land. There will be no cutting of trees during the mining activity so no deforestation activity will be under taken.
- The existing vegetation within the core area includes very less vegetation which are sparsely scattered as it is a mining project of limestone activities will be confined to core zone only. The project area is surrounded by agricultural land. They will not be disturbed due to the mining activity.so, the impact on the vegetation is very less.
- The transportation of limestone stone and waste may create dust pollution which may create loss of biodiversity of the area.
- Dust in atmosphere, contributed by mining and associated activities, when deposited on theleaves of the plants in the surrounding areas may retard their growth.
- The cluster area and its buffer zone are devoid of any Eco sensitive area. So the impact on the biodiversity and wild life is minimal.

Socio Economics

- For the mining work, an average of 41workers will be required in the project sites, which will be met from skilled and unskilled labourers from the local population as far as possible. Thus, the project can provide employment to local workers during the operation of mines.
- The area is considered as industrially backward. The population in general does not have opportunities of earning from employment. The only employment to depend on is agriculture, which is seasonal
- There is no human settlement in or around the mining block areas, hence no clearance of human settlement is required for the mining operation.
- The proposed mining project activity does not involve any resettlement and rehabilitation process as the project is freshly designed at representative site where none of the settlement is present.
- The mining activity could lead to increased nuisance level from air emissions and noise due to transportation of material and equipment as well as laborers.

5.0 Anticipated Environment Impacts and Environment Management Plan

Land/Soil Environment Impact Mitigation

The mitigation measure of the land environment includes:-

- Before the mining activity the top soil will be scrapped and stored in the lease area and will be utilized for plantation purpose. Balance top soil if any preserved separately will be used to spread over partially reclaimed land.
- The limestone excavated from the lease area will be completely selleable resulting no dump within the lease area.
- At the end of conceptual period the excavated quarry will converted into water reservoir to supply water for local use like irrigation and pisciculture.
- Due to manual mining operation emission from the Limestone mines are veryless, there will be no impact on the surrounding soil quality and cropping pattern of the area.
- The propose project falls under the seismic zone –II (Low Hazard Risk Zone). Since this project will not have physical infrastructure to be constructed, no impact of seismicity is envisaged in this project. Further, this project will not change/alter the seismic behavior of the area.

Air Impact Mitigation

The mitigation measures undertaken in the mine for control of air pollution are:

- Checking of vehicles and machinery to ensure compliance to Indian Emission Standards Transportation vehicles and machinery to be properly and timely maintained and serviced regularly to control the emission of air pollutants in order to maintain the emissions of NO_x and SO_x within the limits established by CPCB.
- 5.5 KLD water required towards dust suppression purpose for which 2 no. of water tanker with 2000 liter capacity will be hired and used for water sprinkling twice in a day in haul roads, dumping site, loading and unloading site of each lease within the cluster and this will be regularly monitored by the cluster management.Water sprinkling on transport road side, stock yard (if any) etc. will be done by tractor mounted water sprinkler.
- Regular ompaction and grading of haul roads will be done to clear the accumulaion of loose material
- All the mines workers will be provided with the dust masks.
- Trees can act as efficient biological filters. As this is a small lease, the area available for plantation is very less. However a well planned plantation programme has been proposed for the mining area to arrest the dust pollution within the lease boundary. There is the proposal for continuous plantation along the cluster boundary and both side of the road connecting the cluster.
- Vehicles with valid PUC shall be used for transporting the minerals to avoid the exhaust emission.
- A greenbelt development plan is prepared with local species. The greenbelt on the periphery will reduce the dust levelsits
- Sharp drill bits will be used for drilling and regrinding willbbe done periodically to reduce generation of dust.
- Regular monitoring of the air quality as per the monitoring plan detailed in Chapter 6 of this EIA report, shall be adopted during the operation phase, to ensure that, the air quality is within the desired limits prescribed by CPCB.

Noise Impact Mitigation

- No noise polluting work shall be carried out in the night hours
- Provision of PPE's for the workers
- Vehicles to be serviced regularly and maintained properly to avoid any unwanted generation of noise or vibration from them

- Green belt plantation and garden trees will help in reducing the noise, traffic related pollution and heat island effects.
- Proper lubrication, muffling and modernization of equipment shall be used to reduce the noise during operation phase.
- Vibration and noise due to blasting will be reduced by adopting controlled blasting technique.
- Blasting will be avoided under unfavourable conditions.
- Rock breakers is being/ will be used instead of secondary blasting.
- Regular monitoring of the noise levels as per the monitoring plan detailed in Chapter 6 of this EIA report, shall be adopted during the operation phase, to ensure that, the noise levels are within the limits prescribed by CPCB.

Water Impact Mitigation

- Provision of temporary toilets for laborers
- Domestic waste water will be treated into septic tank followed by soak pit outside of the proposed cluster project with a safe distance and no wastewater will be allowed to be get discharged into the water body
- All stacking and loading areas should be provided with proper garland drains
- Check dams should be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated and dumped areas so that flow of water with loose material is prevented.
- The mine water should be passed through specially constructed catch pits to arrest any loose material being carried away with water.
- Any areas with loose debris within the leasehold should be planted.
- Garland drains should be constructed surrounding the waste dumps and should be connected to the surface water reservoir to avoid the run-off mixing directly to natural water channels before settling.
- Ground water table will not be intersected during the mining activity

Biological Impact Mitigation

- Green belt will be developed along the core zone boundary which will act as a pollution barrier for the biological environment.

- The drilling and transportation will be carried out during the day time only minimizing the impact on the wild fauna movement.
- Fencing around the entire mine lease area is recommended in order to restrict the entry of stray animals into the mining area.

Socio-Economic Environment Impact Mitigation

In order to mitigate the adverse impacts likely to arise in the surrounding area due to proposed project activity, it is necessary to formulate an effective mitigation plan. The suggestions are as follows:

Before Commencing and During Initial Phase :-

- Communication with the local community should be institutionalized and done on a regular basis. The forum could provide opportunities to discuss local critical issues and prepare programmers of mutual benefits.
- Information regarding the proposed development plan, community programmes etc. should be communicated to the local community.

6.0 Environmental Monitoring Program

The environmental monitoring is important in terms of evaluating the performance of pollution control equipments installed in the project. The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board/Chattisgarh Environment Conservation Board (CECB). The frequency of sampling and location of sampling will be as per the directives of CPCB/CECB.

Environmental monitoring will be conducted on regular basis by the lessees included on the cluster to assess the pollution level in the surrounding area. Usually, as in the case of the study, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environment.

Detailed EMP plan during the operation phase is given chapter 6 of EIA report.

Objective of environmental monitoring:

- To verify the result of the impact assessment study in particular with regard to new developments;
- To follow the trend of parameters which have been identified as critical;
- To check or assess the efficacy of the controlling measures

- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through the commissioning of new installations or through the modification in the operation of existing facilities;
- To check assumptions made with regard to the development and to detect deviations in order to initiate necessary measures; and
- To establish a database for future Impact Assessment Studies for new projects.

7.0 Risk Assessment

- Risk is the probability of harmful consequences or expected losses resulting from the interaction between natural or human induced hazards and vulnerable conditions. Risk assessment is a methodology to determine the nature and extend of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, livelihood and the environment on which they depends. The objectives of risk assessment are :-
- Assessing risk levels due to the limestone mining
- Identification of the risk mitigation measures to bring the potential risk within the acceptable range
- To suggest general safety improvement measures
- To identify emergency scenarios and suggest mitigation measures

It is necessary to manage the risk to minimize the after effects or losses to be confronted. Risk management refers to the practices, policies and procedures designed to minimize or eliminate the unacceptable risk. It is helpful to think of risk management as being a process of determining the exposure to risk, and the initiating action to either minimize or eliminate the risk. The Risk Assessment and Management Plan are to be implemented to eliminate the risk and its consequences on the proposed Limestone mining project.

Objective

The objectives of Disaster Management Plan (DMP) is to describe the emergency preparedness organization, the resource availability and response actions applicable to deal with various types of emergencies that could occur at the mine with organization structure being deployed in shortest time possible during the emergency. Thus, the overall objectives of the emergency plan are summarized as:

- Rapid control and containment of hazardous situation;
- Minimizing the risk and impact of event/accident; and
- Effective prevention of damage to property.

In order to achieve effectively the objectives of emergency planning, the critical elements that form the backbone of Disaster Management Plan (DMP) are:

- Reliable and early detection of an emergency and immediate careful planning;
- The command, co-ordination and response organization structure along with availability of efficient trained personnel;
- The availability of resources for handling emergencies;
- Appropriate emergency response action;
- Effective notification and communication facilities;
- Regular review and updating of DMP; and
- Protect training of the concerned personnel.
- Minimizing the effects may include rescue, first aid, evacuation, rehabilitation and giving information promptly to people living nearby and scrutinized information's to media

8.0 Emergency Response and Disaster Management Plan

Impact of disaster can be significantly reduced through attempts at preparedness, mitigation, and post-event rehabilitation work. Based on hazard identification in the proposed project, an emergency plan has been prepared and the same plan will be implemented by the project implementing agency with the coordination of District Authorities to minimize the damage. The risk assessment and disaster management plan is detailed in Chapter 7 of the EIA report.

9.0 Capital Investment and Project Schedule

The proposed Limestone mining project is estimated to cost Rs 91.4 Lacs.

Once the statutory clearance being obtained, the mine will start operating.

10.0 Project Benefits

Mining is back bone of infra-structure development of country. Proposed project has following benefits as given below:

- Employment for local people
- Revenue for the State Government in form of excise duties, GST, taxes, levies etc.
- Generate business opportunity for the people
- Need based funds will be used for welfare of people in villages
- EMP funds will improve environmental quality.

The operation of the Limestone mining would help to improve socio-economic condition of people in villages through separate fund allocated for Need Based Activity.

11.0 Need Based Activity

The proposed mining project is aware of the obligations towards the society and to fulfill the social obligations unit will employ semi-skilled and unskilled labor from the nearby

villages for the proposed project as far as possible. Unit will also try to generate maximum indirect employment in the nearby villages by appointing local contractors during construction phase as well as during operation phase. The Project Proponents will contribute reasonably as part of social development as a part of EMP and will carry out various activities in nearby villages.

The total estimated cost of the project is 91.4 lacs. The Proposed Cluster EMP/CER Budget Will be allocated for Need based activity for causes of poor people of nearby villages for drinking water, sanitation, education, health.

12.0 Environment Management Plan (EMP)

The detailed Environment Management Plan has been prepared based on the mining activities and the impacts imparting on land/soil, air, noise, water by the activities. The EMP and the cost for the environment protection measures are detailed in Chapter 10 of EIA report.

Table E 6.1 Expenditure Proposed for Environmental Protection Activities:

S.No.	Particulars	M/s. Bansal Stone Area - 1.67 Hect.		M/s. Bhagwati Stone Area - 1.71 Ha.	
		Capital Cost in Rs	Recurring Cost in Rs	Capital Cost	Recurring Cost in Rs
1	Air Pollution Control	-	72,000	-	72,000
2	Green Belt Development	70,000	1,54,000	65,000	1,53,000
3	Maintenance of Road	-	40,000		40,000
4	Facilities for Mine workers	1,00,000	90,000	1,00,000	94,500
	Total ::	**1,70,000**	**3,56,000**	**1,65,000**	**3,59,500**
Total Capital Cost in Rs		**3,35,000**			
Total Recurring Cost in Rs		**7,15,500**			
Total Cost of EMP in Rs		**10,50,500**			

Apart from above fund will also be allocated by project proponents for corporate environment responsibility and common EMP.

13.0 Conclusions

As discussed, it is safe to say that the collection of minor minerals from the proposed lease area is not likely to cause any significant impact on the ecology of the area as the mineral is and waste generated is non-toxic and does not harm the surrounding environment.

Adequate measures will be taken to control the fugitive emissions to be generating during mining operation. Socio-economic condition of the surrounding villages will improve in long run due to involvement of local population and improvement of infrastructure facilities.

Green belt development in the statutory boundary, approach roads, schools are proposed with the participation of local people. This proposed plantation in the area will improve the aesthetic look along with betterment of ecology and environment of the locality.