

EXECUTIVE SUMMARY OF DRAFT EIA REPORT

FOR

PROPOSED DOLOMITE MINING PROJECT (Minor mineral)

Total Mine area is 5.811 ha

At

**Near Village: -Dhaurabhata (Block 1) , Tehsil- Bilha, District-
Bilaspur, State- Chhattisgarh**

APPLICANT

**M/s. Sri Shiv Shankar Minerals and Dolomite
(Proprietor: Shobha Agrawal)**

**R/O: -Azad Nagar, Tehsil- Bilha, District-Bilaspur
State- Chhattisgarh**

ENVIRONMENTAL CONSULTANT



**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

May, 2022

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EXECUTIVE SUMMARY

1.0 Introduction

The proposed dolomite mining mineral project of area 5.811 Hectare situated near the Khasra no. 252, 253/1, 253/3, 257, 260, 261/1, 261/2, 262, 263, 264. 265/1, 265/2, 288, 269/1269 of Village – Dhaurabhatha, Tehsil – Bilha, District – Bilaspur. The project is issued in favour of M/s. Sri Shiv Shankar Minerals and Dolomite by the Office of Collector, Mining Branch Bilaspur, Chhattisgarh, under Chhattisgarh Minor Mineral Rule 2015.

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 dated 13th September 2018.

Project Location

the Khasra no. 252, 253/1, 253/3, 257, 260, 261/1, 261/2, 262, 263, 264. 265/1, 265/2, 288, 269/1269 of Village – Dhaurabhatha, Tehsil – Bilha, District – Bilaspur. Dhaurabhata (Block 1) Dolomite mine of Lessee Shobha Agarwal featured in the Survey of India Toposheet No. 64 M/7.

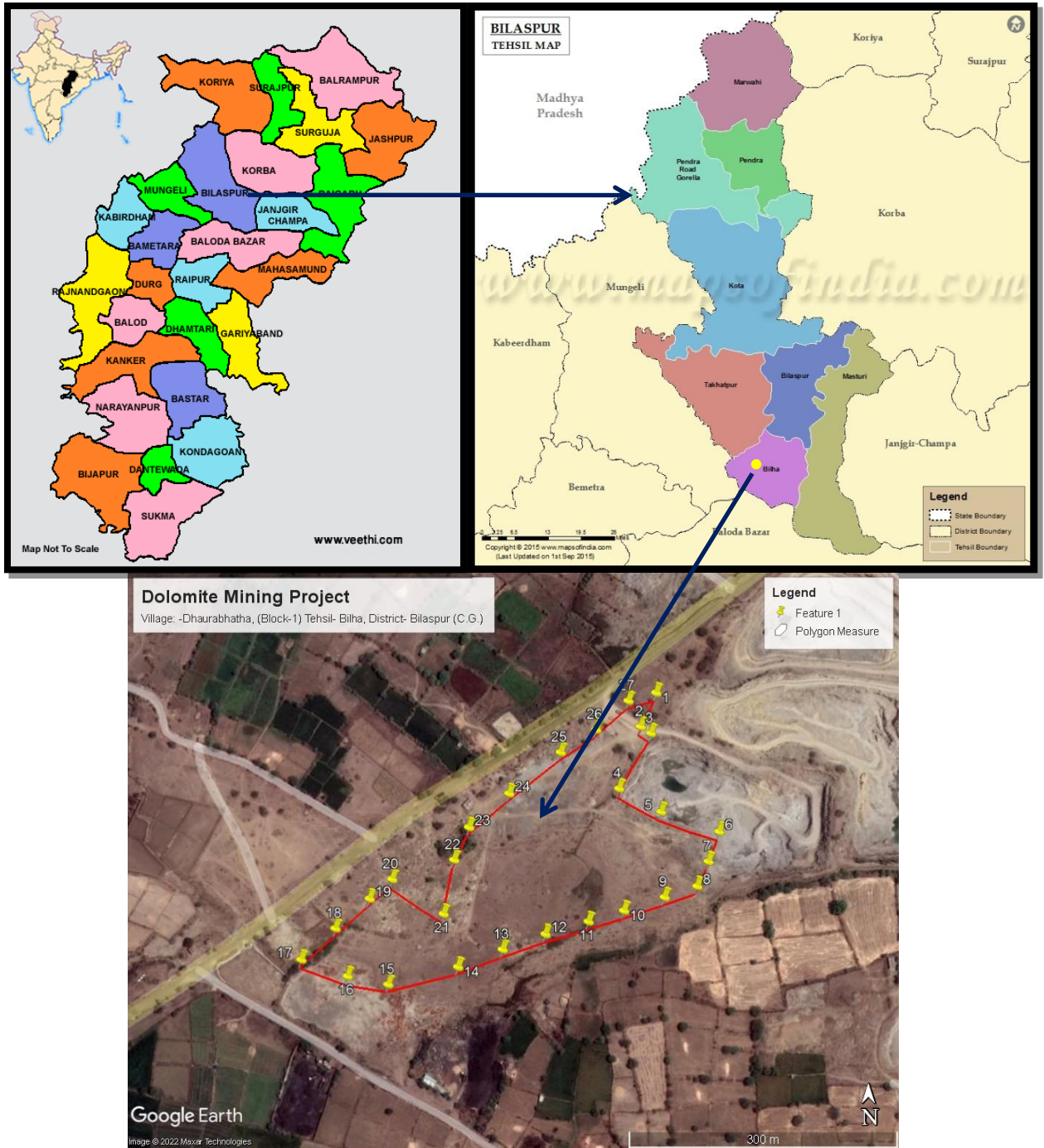


Figure E-1: Location map of the Project Site

The details of environmental setting are given below.

Table E.1: Environmental Setting around Project Site

Particulars	Details
Name of the Project	Proposed Dolomite Mining Project Area: 5.811 Hect. (Pvt. Land)

Particulars	Details																																																																																												
Location of the Project	Near Village- Dhaurabhatha, (Block-1) Tehsil- Bilha, District- Bilaspur State- Chhattisgarh																																																																																												
Geographical Coordinates:	<table border="1" data-bbox="595 450 1350 2020"> <thead> <tr> <th data-bbox="595 450 708 533">Pillars</th> <th data-bbox="708 450 995 533">Latitude(N)</th> <th data-bbox="995 450 1350 533">Longitude(E)</th> </tr> </thead> <tbody> <tr><td>Base</td><td>21°58'1.7621"N</td><td>82°1'8.0796"E</td></tr> <tr><td>BL1</td><td>21°58'5.4025"N</td><td>82°1'15.7586"E</td></tr> <tr><td>BL2</td><td>21°58'4.1897"N</td><td>82°1'15.1518"E</td></tr> <tr><td>BL3</td><td>21°58'3.9718"N</td><td>82°1'15.5719"E</td></tr> <tr><td>BL4</td><td>21°58'1.96"N</td><td>82°1'14.3193"E</td></tr> <tr><td>BL5</td><td>21°58'1.1297"N</td><td>82°1'15.9963"E</td></tr> <tr><td>BL6</td><td>21°58'0.4006"N</td><td>82°1'18.2302"E</td></tr> <tr><td>BL7</td><td>21°57'59.3203"N</td><td>82°1'17.7968"E</td></tr> <tr><td>BL8</td><td>21°57'58.426"N</td><td>82°1'17.3553"E</td></tr> <tr><td>BL9</td><td>21°57'58.0312"N</td><td>82°1'16.0833"E</td></tr> <tr><td>BL10</td><td>21°57'57.5459"N</td><td>82°1'14.5005"E</td></tr> <tr><td>BL11</td><td>21°57'57.1501"N</td><td>82°1'13.1193"E</td></tr> <tr><td>BL12</td><td>21°57'56.6988"N</td><td>82°1'11.4397"E</td></tr> <tr><td>BL13</td><td>21°57'56.1426"N</td><td>82°1'9.7706"E</td></tr> <tr><td>BL14</td><td>21°57'55.5132"N</td><td>82°1'8.0263"E</td></tr> <tr><td>BL15</td><td>21°57'54.8789"N</td><td>82°1'5.2992"E</td></tr> <tr><td>BL16</td><td>21°57'55.1783"N</td><td>82°1'3.7087"E</td></tr> <tr><td>BL17</td><td>21°57'55.7806"N</td><td>82°1'1.9073"E</td></tr> <tr><td>BL18</td><td>21°57'56.9115"N</td><td>82°1'3.2441"E</td></tr> <tr><td>BL19</td><td>21°57'57.9854"N</td><td>82°1'4.5822"E</td></tr> <tr><td>BL20</td><td>21°57'58.6927"N</td><td>82°1'5.4635"E</td></tr> <tr><td>BL21</td><td>21°57'57.433"N</td><td>82°1'7.4665"E</td></tr> <tr><td>BL22</td><td>21°57'59.3899"N</td><td>82°1'7.884"E</td></tr> <tr><td>BL23</td><td>21°58'0.5664"N</td><td>82°1'8.4655"E</td></tr> <tr><td>BL24</td><td>21°58'1.7876"N</td><td>82°1'10.0292"E</td></tr> <tr><td>BL25</td><td>21°58'3.2656"N</td><td>82°1'12.035"E</td></tr> <tr><td>BL26</td><td>21°58'4.0837"N</td><td>82°1'13.4175"E</td></tr> <tr><td>BL27</td><td>21°58'4.8221"N</td><td>82°1'14.6714"E</td></tr> <tr><td>Ref-1</td><td>21°57'55.8115"N</td><td>82°0'58.3767"</td></tr> </tbody> </table>			Pillars	Latitude(N)	Longitude(E)	Base	21°58'1.7621"N	82°1'8.0796"E	BL1	21°58'5.4025"N	82°1'15.7586"E	BL2	21°58'4.1897"N	82°1'15.1518"E	BL3	21°58'3.9718"N	82°1'15.5719"E	BL4	21°58'1.96"N	82°1'14.3193"E	BL5	21°58'1.1297"N	82°1'15.9963"E	BL6	21°58'0.4006"N	82°1'18.2302"E	BL7	21°57'59.3203"N	82°1'17.7968"E	BL8	21°57'58.426"N	82°1'17.3553"E	BL9	21°57'58.0312"N	82°1'16.0833"E	BL10	21°57'57.5459"N	82°1'14.5005"E	BL11	21°57'57.1501"N	82°1'13.1193"E	BL12	21°57'56.6988"N	82°1'11.4397"E	BL13	21°57'56.1426"N	82°1'9.7706"E	BL14	21°57'55.5132"N	82°1'8.0263"E	BL15	21°57'54.8789"N	82°1'5.2992"E	BL16	21°57'55.1783"N	82°1'3.7087"E	BL17	21°57'55.7806"N	82°1'1.9073"E	BL18	21°57'56.9115"N	82°1'3.2441"E	BL19	21°57'57.9854"N	82°1'4.5822"E	BL20	21°57'58.6927"N	82°1'5.4635"E	BL21	21°57'57.433"N	82°1'7.4665"E	BL22	21°57'59.3899"N	82°1'7.884"E	BL23	21°58'0.5664"N	82°1'8.4655"E	BL24	21°58'1.7876"N	82°1'10.0292"E	BL25	21°58'3.2656"N	82°1'12.035"E	BL26	21°58'4.0837"N	82°1'13.4175"E	BL27	21°58'4.8221"N	82°1'14.6714"E	Ref-1	21°57'55.8115"N	82°0'58.3767"
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Particulars	Details		
			E
	Ref-2	21°57'55.3478"N	82°0'57.3478" E
Maximum Temperature	46° C		
Minimum Temperature	10° C		
Annual rainfall	1287.4 mm		
Size of the Project	5.811 Ha		
Nearest Highway	NH 130 Road distance- 2.39 km Aerial distance- 1.19 km, E		
Nearest railway station	Belha Railway Station – 5.75 km E		
Nearest Airport	Bilasa Devi Kevat Airport -10.74 km, North-East		
Nearest town/City	Bilha – 3.41 km, E		
Nearest water body	Maniyari River-0.5 km West		
Major water bodies within 10 km radius	Maniyari River-0.5 km West Shivnath River-10 km south		
Densely populated or built-up area	Chunchuni – 0.90 km, South-east District Headquarter, Bilashpur – 17.25 km North-east		
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	None within 10 km radius		
Defense Installations	None within 15 km radius		
Seismicity	Since project site comes under Seismic zone II, which is least active zone for earthquakes as per IS: 1893 (Part 1: 2002).		
Wildlife Sanctuary	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		

Particulars	Details
Unique or threatened ecosystems	None within 10 km radius
Important topographical features, including ridges, river valleys, shorelines, and riparian areas	Maniyari River-0.5 km, West
Reserve & protected Forests	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 proposed project of Dhaurabhata (Block 1) Dolomite mine having an area of 5.811 Ha is situated at Village- Dhaurabhata (Block 1) , Tahsil- Bilha, District: Bilaspur, State: Chattishgarh. The life span of proposed mine block is 50.5 years with an estimated production of 50000 MTPA (ROM). The proposed method of mining is open cast semi mechanized mining



Figure E-2: Area of the proposed Mining site

Table E.2: Salient Features of Proposed Project

INFORMATION	DETAILS
Name of the project	Proposed Dolomite Mining Project, Area 5.811 Ha
Village	Dhaurabhatha
Taluka	Bilha
District	Bilaspur
State	Chhattisgarh
Toposheet No	64K/1
Name of Lease holder	Sri Shiv Shankar Minerals and Dolomite Proprietor Smt Shobha Agrawal
Address and Contact details of Lease Holder	R/O: -Azad Nagar, Tehsil- Bilha, District-Bilaspur, State- Chhattisgar
Name of the Mineral to be mined	Dolomite
Type of land	Private Land. There is no Forest land and no human settlement.
Status of Operation (New Project or Existing Project operating since)	New Project
Mine Area	5.811 Hectare

Minable Reserve	25,34,355.24 MT
Production Capacity	50,000 MT
Life of Mine	Approx. 50.5 years
Quantity of topsoil and Overburden estimated to be removed	4757.85 MT
Depth of Ground Water Table	>40 m BGL
Method of Mining	Opencast Semi Mechanized
No. of working days	300 Days
Seismic Zone	Seismic Zone II

Mining methodology

Mechanized Open pit mining methodology shall be the proposed method of mining which includes drilling in exposed ore by series of large diameter holes of 114 mm diameter and 6.0 meter depth (max) after seeking mechanized open pit permission from Director General of Mines Safety under Regulation 106 (2)(b) of Metalliferous Mines Regulation-1961. The initial opening of deposit is made by box cut. The hole is then charged and blasted with large diameter cartridge explosive (83 mm) primed with NONEL. The blasted muck will then be sized by rock breaker, if needed, and loaded by excavator into the tipper. The sized material is then crushed in the crushing and screening plant of lessee in other surface lease of the lessee. It is also proposed to be located the mobile crushing and screening plant in future

Power Requirement

Power is required for blasting, stone cutting, pumping of water, temporary administrative building and rest shelters. Total power requirement will be approx. 25 HP. Local electricity board shall be applied for electric connection. Electric power is available in the lease area.

Water Requirement

The total water requirement shall be 5.07 KLD for domestic and sprinkling purpose, which will be sourced from Water Tankers from nearby village. Water is available in Dug well and Borewell in Dhaurabhata village. Detail of water requirement is given below:

Dust suppression – 2.0 KLD

Green Belt – 2.72 KLD

Domestic (Sanitation & Drinking)– 0.35 KLD

Table E.3: Water Requirement Details

Sr. No.	Usage	Water Requirement	
1.	Greenbelt Development@ 1.39 L/tree	1961 Trees X 2.5Lit/day = 2725.79 Lit/day	2.72 KLD
2.	Dust Suppression @ 0.5 L/Sqm (twice a day)	Haul road Area = (500 m Length x 4 m width = 2000 sqm.) x 0.5 li/sqm = 1000 lit /day x 2 time = 2000 lit/day	2.00 KLD
3.	Domestic Purpose @25 lpd/worker	14 workers x 25 liter per day = 350 Lit/Day	0.35 KLD
Total ::			5.07 KLD

Manpower

The mining project will generate direct & indirect employment. About 14 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: -

S.No.	Category	No. of persons
1	Mine manager	1
2	Mine Foreman	2
3	Blaster	3
4	Workers	8
Total		14

3.0 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 **October 2021 to December 2021** (Post Monsoon Season).

3.1 Meteorology

The secondary meteorological data of the study period collected from www.imdpune.gov.in/. The month wise meteorological data is given in **Table E.4**.

Table E.4: Summary of the Meteorological (Site Ambikapur)

Period	Wind Speed (Km/Hr)		Temp (°C)		Relative Humidity (%)		Rainfall (mm)
	Max	Min	Max	Min	Max	Min	

October 2021	4.52	0.05	31.46	13.47	98.44	53.19	64.920
November 2021	5.6	0.33	28.56	10.83	100	41.31	27.080
December 2021	5.2	0.13	27.92	8.9	100	19.75	72.330

Air Environment

Particulate Matter (PM₁₀):

A maximum value of PM₁₀ is 71µg/m³ was observed at the AAQM-1 and minimum value of 42 µg/m³ was observed at AAQM-5.

Respirable Particulate Matter (PM_{2.5}):

A maximum value of PM_{2.5} is 49µg/m³ was observed at AAQM-1 and minimum value of 19µg/m³ was observed at AAQM7.

Sulphur Dioxide (SO₂):

Maximum concentration of SO₂ is observed to be 12 µg/m³ at AAQM-1 and minimum value of 5 µg/m³ observed at 6 locations.

Oxides of Nitrogen (NO_x):

Maximum concentration of NO_x is observed to be 25 µg/m³ at AAQM-1 and minimum value of 9 µg/m³ observed at AAQM-2, AAQM-4, AAQM-6.

Carbon Monoxide (CO):

Maximum concentrations in the region are observed to be 0.9 mg/m³ at 6 locations and minimum value of 0.5mg/m³ observed at all 8 locations.

The overall air quality around the proposed mine lease is within the limits of NAAQ standards.

Silica

Silica in the ambient air of the 10 Km radius of the study area of the project site has been analysed from the PM₁₀ filter paper of the Ambient Airquality monitoring stations mentioned in **Table 3.8** (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 0.03µg/m³ to 0.08µg/m³.

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

3.3 Noise Environment

Noise levels were monitored in nine locations including project within the study area. The noise levels ranged between 48.9 to 52.9dB (A) during day time and noise levels ranged between 39.3 to 42.8dB (A) during night time. Over all the monitored noise levels are found to be within the stipulated standards set by CPCB.

3.4 Water Environment

Groundwater quality: 8 stations

- The analysis results indicate that the pH ranges in between 7.2 to 7.7, which is well within the specified standard of 6.5 to 8.5. The minimum pH of 7.2 was observed at GW7 and GW8; the maximum pH of 7.7 was observed at GW2 and GW4..
- Total hardness was observed to be ranging from 344 to 384 mg/l. The minimum hardness (344 mg/l) was recorded at GW3 and the maximum (384 mg/l) was recorded at GW4.
- Chlorides were found to be in the range of 68 to 82 mg/l, the minimum concentration of chlorides (68 mg/l) was observed at GW3, whereas the maximum value of 82 mg/l was observed at GW4.
- Sulphates were found to be in the range of 62 to 76 mg/l. The minimum value observed at GW1 and GW3 (62 mg/l) whereas the maximum value observed at GW4 (76 mg/l).
- The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 492 to 578 mg/l, the minimum TDS observed at GW3 (492 mg/l) and maximum concentration of TDS observed at GW4 (578 mg/l).
- Zinc and iron found below detectable limit

All parameters are within desirable limits as per IS 10500:2012 for all stations.

Surface water quality: 8 stations

- The analysis results indicate that the pH values in the range of 7.2 to 7.6, the minimum value was observed at SW3 and maximum value was observed at SW5& SW7.
- DO was observed to be in the range of 4.5 to 5.9 mg/l. The minimum DO value was observed at SW1 and maximum DO was observed at SW7.
- The TDS was observed in the range of 222 to 298 mg/l, the minimum TDS value was observed at SW6 and SW8, and where as maximum value was observed at SW1.
- The chlorides and Sulphates were found to be in the range of 26 to 36 mg/l and 31 to 42 mg/l, respectively.
- Total hardness expressed as CaCO₃ ranges between 156 to 210 mg/l.
- The calcium & magnesium were found to be in the range of 31 to 43 mg/l and 19 to 25 mg/l, respectively. Zinc is found below detectable limit.

All parameters are within desirable limits as per IS 2296:1982 Class C for all stations. *E.Coli* is present in 6 locations. This will not be used for drinking water purpose.

3.5 Soil Quality

- A total of 8 samples in and around the project site are collected and analysed. It has been observed that the pH of the soil quality ranged from 7.3 (S5, S7) to 7.8 (S1, & S4) indicating that the soil is slightly alkaline in nature

The site of the Dhaurabhatha village in Bilha Tehsil of Bilaspur district in Chhattisgarh. According to Census 2011 information the location code or village code of Dhaurabhatha village is 438990. It is situated 8km away from sub-district headquarter Bilha and 25 km away from district head quarter Bilaspur. As per 2009 stats, Dhaurabhata is the gram panchayat of Dhaurabhatha village. The total geographical area of the village is 635.27 hectares. Dhaurabhatha has a total population of 3,076 people. There are about 610 houses in Dhaurabhatha village. As per 2019 stats, Dhaurabhatha villages come under Bilha assembly & Bilaspur parliamentary constituencies. Bilha is the nearest town to Dhaurabhatha which is approximately 8km away.

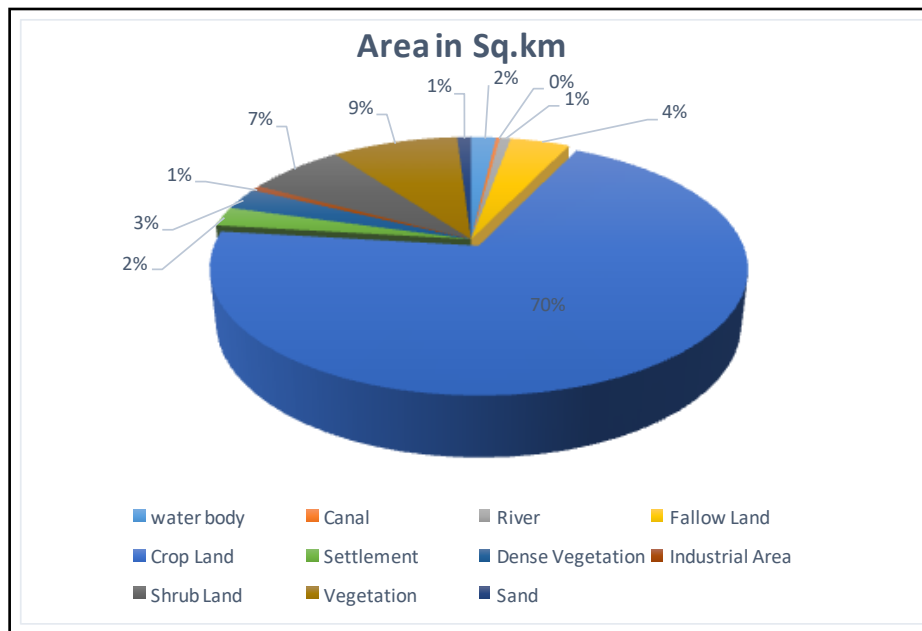


Figure E-3: LULC Classification (10 km radius of the Proposed Project Area)

3.7 Ecology and Biodiversity

An ecological survey of the study area was conducted, as per following steps, with reference to listing of species, assessment of the existing baseline ecological conditions and predicting impacts with suggestive mitigation measures. Studies were undertaken in core zone (Mining Lease Area) & buffer zone various types of Flora; viz. trees, shrubs, herbs including grasses were enumerated in. Fauna like mammals, birds, reptiles’ amphibians & butterflies. Were surveyed and enlisted. With reference to avifauna diversity, birds were studied through direct evidence, in the form of visual sightings, and indirect evidence such as calls, nests, burrows, droppings, scats, tracks etc. All available types of habitats at the site were evaluated and marked.

Identified vegetation patches through GIS map and physically surveyed representative sites

- Different types of animals, including avifauna, available in this area, have been recorded,
- Secondary data, pertaining to flora and fauna within 10 Km boundary from the project site have been collected from literature, forest department, and discussions with local people & NGOs.
- Probable impact, if any, of project activity on biota and mitigation measures have been delineated.

3.8 Socio Economics

Bilha is Tehsil in Chhattisgarh state, Bilha Tehsil population in 2022 is 508,300. According to 2011 census of India, Total Bilha population is 397,109 people are living in this Tehsil, of which 202,131 are male and 194,978 are female. Population of Bilha in 2021 is 492,415 Literate people are 243,530 out of 142,756 are male and 100,774 are female. Total workers are 170,305 depends on multi skills out of which 104,490 are men and 65,815 are women. Total 22,489 Cultivators are depended on agriculture farming out of 15,890 are cultivated by men and 6,599 are women. 41,008 people works in agricultural land as a labour in Bilha, men are 23,358 and 17,650 are women

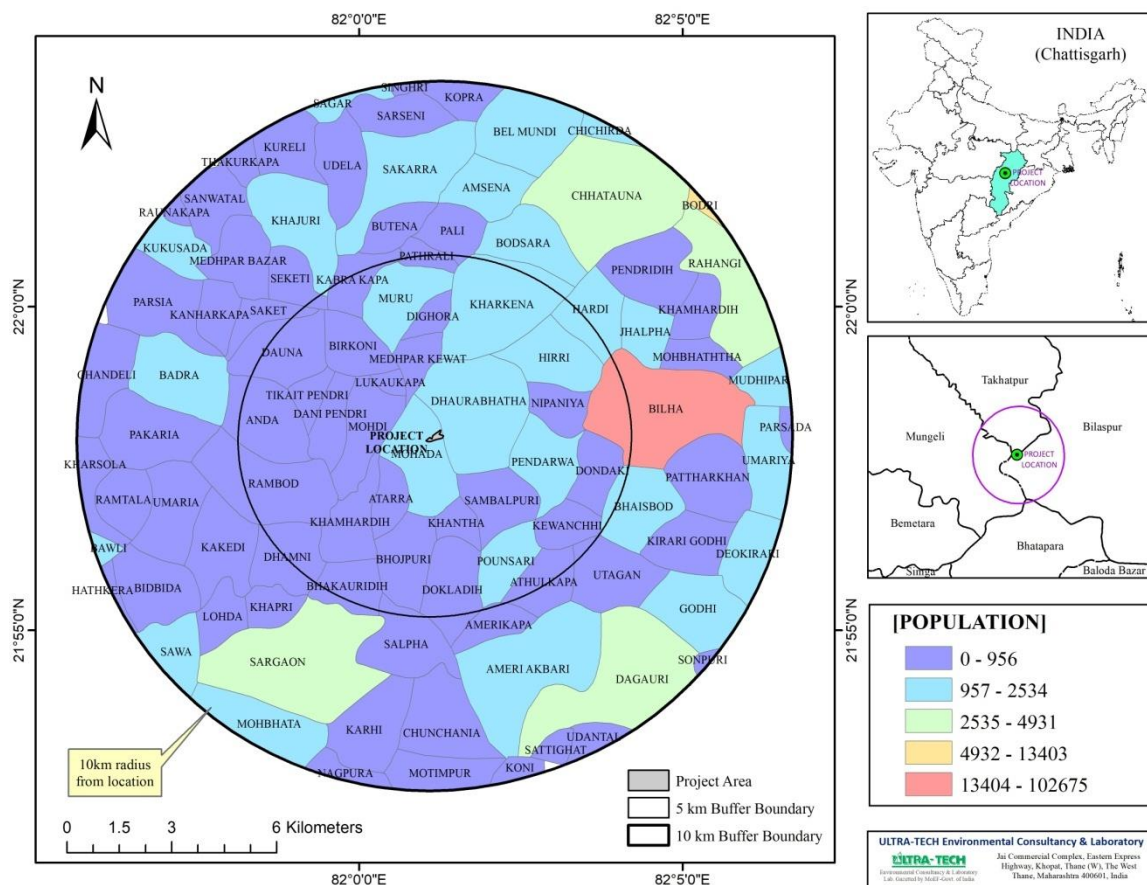


Figure E-4: Population Concentration map of the study area SC and ST Population

4.0 Anticipated Environment Impacts and Environment Management Plan

Land/Soil Environment Impact Mitigation

- Before the mining activity the top soil will be scrapped and stored in the lease area, which will be utilized for plantation purpose.
- The dolomite excavated from the lease area will be completely sellable 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 besides improving the ground water potential.
- Due to manual mining operation emission from the Dolomite stone mines is very less. There will be least 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 of 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 prescribed by CPCB.
- 2 KLD water required towards dust suppression purpose for which 1 no. of water tanker with 10000 liter capacity will be hired and used for water sprinkling twice in a day at haul roads, dumping site, loading and unloading site of each lease within the cluster and this will be regularly monitored by the cluster management.
- Regular water sprinkling on the dumping areas.
- All the mines workers are provided with the dust masks.
- Trees can act as efficient biological filters and barrier. 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.
- Dust suppression by water sprinkling in and around the project mining lease area
- Vehicles with valid PUC shall be used for transporting the minerals, which will help in reducing the exhaust emission and noise levels.

- A greenbelt development plan is prepared consisting of native plant species. The greenbelt on the periphery will reduce the noise and dust levels
- 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 and generator sets to be serviced regularly and maintained properly to avoid any unwanted generation of noise or vibration.
- Green belt and garden trees will reduce noise, traffic related pollution and heat island effect
- Proper lubrication, muffling and modernization of equipment shall be used to reduce the noise during operation phase
- 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

- 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
- Provision of temporary toilets for laborers
- All stacking and loading areas should be provided with proper garland drains
- Check dams should also 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.

Ecology and Biodiversity Impact Mitigation

Flora

- Plantation will be carried out on approach roads and nearby vicinity at river banks areas.
- Native plant species which are stress and pollution tolerant, comparatively well acclimatized with local ecology should be grown along roadsides. For selection of plant species, it is necessary to consider certain factors as agro climatic suitability, height and canopy architecture, growth rate and habit and aesthetic effect (foliage, conspicuous and attractive flower color).
- Annual bio-monitoring of roadside plants exposed to vehicular pollution will be done to understand the impacts if any..

Fauna

- All equipment should have sound-control devices like proper maintenance, acoustic lining or enclosures.. Motorized equipment used should be adequately muffled and maintained.
- Use exhaust silencers and optimized acoustical pipe lagging (acoustical wrapping) to minimize compressor noise.
- Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat
- Thus there will be no loss for wildlife.
- Large woody debris will be left undisturbed or replaced when moved and not be burnt.
- Operation and storage of heavy equipment within habitat will be restricted.
- Access roads will not encroach into the riparian zones.

Socio-Economic Environment Impact Mitigation

- Project proponent should take appropriate steps to keep environment clean and healthy during construction phase.
- Provision of adequate drinking water, rest room, first aid instrument and toilet facilities should be made available on project site also in labour camp site.
- Water shall be sprinkle/spread over the truck and road to suppress dust during transportation of mining material to control air pollution and thereby avoid adverse health impact.
- While transportation of dragging material, truck, tractors should be covered.
- Proper Training and awareness programme should be carried out so that the workers understand the importance of wearing the personal protective and safety equipment's and pollution aspects of the mining.

5.0 Analysis of Alternatives

The proposed Dhaurabhata Cluster Dolomite Quarry, which includes the Dolomite Quarry of Leases, is owned by six lessees and will be operated within the lease grant area.

So, no alternate sites have been assessed. The mining technology is semimechanized open cast method in single shift manual mining without any change in technology.

This project is being granted to the respective project proponents by the Office of Director of Geology & Mining, Chhattisgarh in the approved mineralized zone. This project is far distance from habitation & on maximum non productive land hence this is best suitable for mining activity. Procedure used for recovery of minerals the traditional method and as labour intensive, this is adopted for the site proved as the best practice

6.0 Environmental Monitoring Program

Environmental monitoring shall be carried out at the locations to assess the environmental health in the post period. A post study monitoring programme is important as it provides useful information on the following aspects.

- It helps to verify the predictions on environmental impacts presented in this study.
- It helps to indicate warnings of the development of any alarming environmental situations, and thus, provides opportunities for adopting appropriate control measures in advance.

Detailed EMP plan during construction and operation phase is given chapter 6 of EIA/EMP report.

7.0 Risk Assessment

The hazards and its risk assessed during the operation phase of the proposed dolomite mining project are low, medium & high. The project proponents are proposed to implement all the mitigation measures to prevent the impact or consequences of the risk expected to be happened in both the project sites. The level of impact after implementing the mitigation measures will be low/medium in all the hazards identified.

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 Dolomite mining project is estimated to cost Rs 105.5 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 dolomite 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 105.5 lacs . Rs 2.97 lac 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.

Expenditure Proposed for Environmental Protection Activities:

S. No.	Activity	Sub Activity	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Green Belt Plantation & Maintenance	Green belt will be developed along with mine safety zone	1,43,000	191,000
2	Air Pollution Control	Sprinkling on haulage route for dust suppression / dust control	-	90,000
3	Maintenance of Ramp and haul road	Maintenance of Ramp and haul road across the mine area		40,000

4.	Facilities for mine workers	Insurance cover, health check-up, shelter, safe drinking water, Sanitation facility, Personal Protective equipment such as Goggles, Helmet, safety Shoes, Face Mask and Hand Gloves.	50,000	63,000
Total ::			1,93,000	3,84,000
Total Cost of EMP ::			5,77,000	

13.0 Conclusions

As discussed, it is safe to say that the collection of minor mineral 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. Green belt development in the statutory boundary, approach roads, Govt. buildings, Schools also proposed with the help of local Govt. department and local people as social forestry in the area for betterment of environment.