EXECUTIVE SUMMARY

1.0 INTRODUCTION

Environmental Impact Assessment (EIA) is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision making tool, which guides the decision makers in taking appropriate decisions for proposed projects. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are taken into account during the project designing.

1.1 ENVIRONMENTAL CLEARANCE

As per Environment Impact Assessment (EIA) notification dated 14th September 2006 as amended thereof, the proposed mining project falls under category 'B1' with project activity type "1(a) (i) "(Mining of Minerals) as it's a case of mining and according to the EIA Notification 2006 amendment dated 12/12/2018 if a cluster or an individual lease exceeds 5 ha and the total area is ≤ 100 ha which require prior Environmental Clearance (EC) from the State Environment Impact Assessment Authority (SEIAA). The present project forms a cluster along with two other mines. General condition is not applicable to this project. The proposed production capacity is 1,00,553 TPA of Dolomite mineral.

1.2 TERMS OF REFERENCE

The proposal was considered by the State Expert Appraisal Committee, Chhattisgarh (SEAC,C.G.) during its 349th meeting held on 08/12/2020 and subsequently issues Terms of Reference prescribed by the MOEF&CC along with additional ToR vide letter no. 1936/S.E.A.C.,C.G./Mine/1344 Nava Raipur Atal Nagar, dated 04/02/2021. Baseline study was conducted during March to May 2021 (Summer Season).

2.0 PROJECT DESCRIPTION

Open cast mechanized method of mining is proposed. Status of various statutory clearance of proposed project is listed below:

- Prospecting License has been granted to Shri Santosh Singh Rajput vide State Govt. order No. F3-19/2009/12 dated 04/01/2010 for six months i.e. 03/06/2010.
- The Letter of Intent of area under reference was issued in favour of Shri Santosh Singh Rajput by the Mineral Resource Department State Government vide letter No. 20.05.2016.
- The Quarry lease has been granted vide letter No. 6003/ ख.ली. /Q.L./ न. क्र. /2018, Janjgir dated 22/03/2018 for a period of 50 years from 22/3/2018 to 21/3/2068 under the provisions of Rule-23A(2)(B) & S. No.-2 of the Table of Rule-43 of Chhattisgarh Minor Mineral (Amendment) Rules, 2015.
- Earlier Environment Clearance (EC) with production capacity 99,294 TPA was granted by DEIAA, Janjgir vide its letter No. /1965/DEIAA/EC/JANJ./2016 Dated 28.01.2017.

- The Modified Quarry Plan is approved by the Directorate of Geology and Mining, Vide Letter No. 5335/Mining-2/Q.P./F.No. 94/2015, Atal Nagar, Raipur, dated 03/10/2019 for period FY 2018-19 to 2022-23.
- Forest NoC has been issued by DFO, vide letter no. 2599 dated 18/03/2021.
- NOC provided by Gram Panchayat dated 15/12/2015.
- District Collector (Mineral Division) issued NOC vide letter No. 1083/minor mineral/N.K./2020-21 Janjgir dated 04/07/2020 which states for presence of two other mines with lease area 8.54 ha in 500 m radius of proposed project.
- District Collector (Mineral Division) issued NOC vide letter No. 2487/minor mineral/N.K./2020-21 Janjgir dated 06/10/2020 which states that public places like temple, school, mosque, cremation grounds, hospital, school, bridge, dam, water supply etc are not constructed with in 200 metre periphery of the above said mine.
- District Collector (Mineral Division) issued certified production details vide letter No. 2486/minor mineral/N.K./2020-21 Janjgir, dated 06/10/2020.
- The Consent to Operate for 18000TPA issued by Chhattisgarh Environment Conservation Board on dated 28.09.2018 valid for the period of 12 months.

MAILING/ CORRESPONDENCE ADDRESS OF PROJECT PROPONENT:

Shri Santosh Singh Rajput
S/o Shri Bhagwat Singh Rajput
Quarter No. 46/5, Radhika Nagar Supela, Bhilai
District- Durg, Chhattisgarh,
Pin Code: 490020

ANTICIPATED LIFE OF PROJECT AND COST OF THE PROJECT

The anticipated life of the mine is about 6 years based on the level of exploration as per UNFC classification. Estimated Project cost of the project of Rs. 0.65 crore.

LOCATION

The lease area can be approached from Janjgir. Quarry lease area is 29 km from district head quarters Janjgir (C.G.) in South-West direction and approachable from NH-49 which is 2.2 km in South-East direction. The nearest Railway Station is Akaltara at 15.4 Km in North direction.

TABLE-1-SALIENT FEATURES OF PROPOSED PROJECTS

Sr. No.	Particular	Sh. Santosh Singh Rajput	Sh. Shambhu Dayal Mishra	Sh. Lalmani Agrahari	Mine cluster
1.0	Quarry Lease Area	4.497 Ha	4.83 ha	4.047 Ha	13.374 ha
2.0	Khasra No.	1652/1	1652/1	Not available	-
3.0	Latitude & Longitude	21°53'17.41"N to 21°53'24.09"N	21°53'17.41"N to 21°53'24.00"N	Not available	-
		82°24'44.51"E to	82°24'53.99"E to	Not available	

Sr. No.	Particular	Sh. Santosh Singh Rajput	Sh. Shambhu Dayal Mishra	Sh. Lalmani Agrahari	Mine cluster
		82°24'54.00"E	82°25'05.90"E		
4.0	Toposheet No.	64 K/5 & 64 K/9	64 K/5 & 64 K/9	64 K/5 & 64 K/9	64 K/5 & 64 K/9
5.0	Method of Mining	Opencast mechanized method	Opencast mechanized method	Not available	Opencast mechanized method
6.0	Bench Height (m)	3 m (sub benches of 1.5 m)	4 m (sub benches of 1.5 m)	Not available	3-4 m (sub benches of 1.5 m)
7.0	Bench Width (m)	3 m	3 m	Not available	3 m
8.0	Geological Reserve	15,73,950 Tons	16,90,500 Tons	Not available	32,64,450 Tons
	Mineable reserve	4,37,570 Tons	11,95,950 Tons	Not available	16,33,520 Tons
9.0	Production (TPA)	1,00,553	2,52,377	Not available	3,52,930
10.0	Life of Mine upto 15 m depth	6.0 years	6.0 years	Not available	6.0 years
11.0	Soil/OB Generation till 5 year (Cum)	23274(7000 cum soil/OB & 16274 cum mine waste)	58056(16982 cum soil/OB & 41074 cum mine waste)	Not available	81330 cum
12.0	Thickness of Mineral (bgl)	14 m	14 m	Not available	14m
13.0	Ultimate pit slope	45^0	45^0	Not available	45^0
14.0	Depth of Mining (m) till proposal period	15 m	15 m	Not available	15 m
15.0	General Ground level	258 m AMSL	258 m AMSL	Not available	258 m AMSL
16.0	Elevation of QL Area	Highest Elevation-259mAMSL towards North-East Lowest elevation-257mAMSL towards Southern part	Highest Elevation-259mAMSL towards North-East Lowest elevation-257mAMSL towards Southern part	Not available	Highest Elevation-259mAMSL towards North-East Lowest elevation-257mAMSL towards Southern part
17.0	Ground water table	2.00 mbgl to 4.00 mbgl Pre Monsoon	2.00 mbgl to 4.00 mbgl Pre Monsoon	Not available	2.00 mbgl to 4.00 mbgl Pre Monsoon

Sr. No.	Particular	Sh. Santosh Singh Rajput	Sh. Shambhu Dayal Mishra	Sh. Lalmani Agrahari	Mine cluster
		Season–256m AMSL Post Monsoon Season–254m AMSL	Season–256m AMSL Post Monsoon Season–254m AMSL		Season–256m AMSL Post Monsoon Season–254m AMSL
18.0	Man Power Requirement	21	30	Not available	51
19.0	Working Days	300 (single Shift)	300 (single Shift)	Not available	300
20.0	Project Cost	Rs. 0.65/- Crore	Rs. 0.52/- Crore	Not available	1.17
21.0	Water Requirement (KLD)	10.0 KLD	9.0 KLD	Not available	19 KLD
22.0	EMP Budget	Capital Cost –Rs 6.12/-Lakh Recurring cost- Rs. 2.87/-Lakh per annum	Capital Cost –Rs 6.809/-Lakh Recurring cost- Rs. 2.975/-Lakh per annum	Not available	Capital Cost –Rs 12.929/-Lakh Recurring cost- Rs. 5.845/-Lakh per annum

2.1 MINING

Quarry operation was carried out by opencast mechanized method. Quarrying will be carried out by adopting a system of benches of 3.0m. Hydraulic excavators will be deployed for progressing benches and for handling ore/ waste material. Drilling and blasting techniques will be used for hard formations. Dumpers will be used for loading and dumping of waste material/ore. Dolomite will be blasted, handled and loaded by excavators into dumpers having capacity of 20 tons. ROM will be crushed up to 75mm and transported to the different steel plants in Chhattisgarh and out of state by Rail/Road. Quarrying operations will be started from the west of the lease area because of area is suitable initially for development & transportation of produced Dolomite.

TRANSPORTATION ROUTE:

The ore will be sent directly to destination industry by Dumper through NH-49 road in South-East direction.

MINING DURING 1st FIVE YEAR

Development/working of deposit year wise given below.

TABLE-2- PRODUCTION PLAN FOR FIVE YEAR PLAN PERIOD

Year wise Production	Depth of Pit (mRL)	Area in Sq. m (a)	Depth in meter (b)	Volume of ROM in cum (c=a×b)	Volume of ROM/Year in cum (d)	ROM/Year in Tons (d×2.5)	Mine Waste in Tons (10%)	Salable Stone (Tons/Year) (90% of ROM)
1st Year	257-254	9420	3	28260	28260	**70650**	7065	63585
2nd Year	257-254	4945	3	14835	40035	**100088**	10009	90079

	254-251	8400	3	25200				
3rd Year	254-251	4407	3	13221	40221	**100553**	10055	90497
	251-248	9000	3	27000				
4th Year	251-248	2338	3	7014	28014	**70035**	7004	63032
	248-245	7000	3	21000				
5th Year	248-245	2958	3	8874	26208	**65520**	6552	58968
	245-243	8667	2	17334				
Total	**-**	**-**	**-**	**162738**	**162738**	**406846**	**40685**	**366161**

Source – Approved Modified Quarry Plan dated 03/10/2019

DISPOSAL OF WASTE

Nature of waste, its rate of yearly generation and proposals for disposal of waste:

(1) OB/Mine waste –

The excavated materials in the quarry can be classified broadly in to two types as saleable Dolomite and non-saleable soil/O.B. Physical rejects will be 100% useable.

TABLE NO-3: YEAR WISE WASTE GENERATION

Year	mRL	Soil/OB (in M³)	Mine waste in tonne (10% of R.O.M)
1st Year	258-257	4000	7065
2nd Year	258-257	3000	10009
3rd Year	-	Nil	10055
4th Year	-	Nil	7004
5th Year	-	Nil	6552
Total	**-**	**7000**	**40685**

Source – Approved Modified Quarry Plan dated 03/10/2019

2.2 USE OF MINERAL

Dolomite is used as a flux in iron & steel, Ferro-alloys, pharmaceutical, rubber, chemical industries, paper, leather, glass, potteries and high-magnesium limes. The low grade Dolomite is used as ornamental and building stone.

2.3 GENERAL FEATURES

I) TOPOGRAPHY AND DRAINAGE PATTERN

The Quarry Lease area is almost flat land. The highest elevation of the flat land is 259m AMSL at North-Eastern portion and lowest elevation is 257m AMSL towards southern part. The study area is a part of Eastern plain subzone of Eastern Plateau and hills agro-climatic zones of India. Eastern plain subzones further extends to Bolanagar, Dhenkanal, Sambalpur (Orissa), Balaghat, Bilaspur, Durg, Raipur, Rajnandgaon (Chhatisgarh), Bhandara, Chandarapur, to Garchiroli (Maharastra) and have medium to deep black and yellow soil. The Lilagar River is main drainage of the study area. There are various seasonal pond and wells in the study area. There are various man made canal which are made for irrigation purpose.

ii) INFRASTRUCTURE AND BASIC AMENITIES

Basic amenities like rest room shelter/tents, first aid facility, temporary office and water for drinking and toilets will be provided during operational phase.

2.4 WATER REQUIREMENT

Total 10 KLD water will be required. Water requirement will meet from mine quarry as well as from bore well for drinking water.

2.5 EMPLOYMENT GENERATION

The mine will be worked in a single shift in day light hours. The total manpower requirement in this project is 21 persons. Around 100 people will be benefitted indirectly.

3.0 DESCRIPTION OF ENVIRONMENT

Environmental data has been collected in relation to proposed mining for:-

(a) Land, (b) Water, (c) Air,(d) Noise, (e) Soil, (e) Biological, (f) Socio-economic

(a) LAND USE: Study area land use pattern tabulated below. The area is fertile and dominated by the crop land.

LAND USE LAND COVER DISTRIBUTION OF STUDY AREA (10 AREA RADIUS)

S. No.	Categories	Area in (ha)	Percentage (%)
1	Water Bodies	1885.189	5.75
2	Deciduous Tree Cover	2225.033	6.79
3	Built Up Land	2236.816	6.83
4	Degraded Shrub Land	5645.053	17.23
5	Crop Land	18777.287	57.32
6	Fallow Land	1035.087	3.16
7	Waste Land	954.449	2.91
Total		**32758.913**	**100.00**

There is no national park, wildlife sanctuary and critically polluted area within 10km radius from the project site. There is no habitation within QL area.

The results of baseline status of study area are as follows.

PARAMETERS	DESCRIPTION	
Ambient Air Quality Monitoring	PM_{10}– 28.2 to 62.53 µg/m³ $PM_{2.5}$ – 16.99 to 36.58 µg/m³ SO2 – 3.12 to 11.24 µg/m³ NOx – 5.9 to 16.54 µg/m³ Free silica- 0.14 to 0.47 µg/m³	
Noise Level Monitoring	Noise level during day time - 38.9 dB (A) to 56.5 dB (A) Noise Levels during night time – 30.5 dB (A) to 47.8 dB (A)	
Water Sampling	Ground Water sampling results	All the parameters like pH 7.0 to 7.4, TDS 365 to 678 mg/l, Total Hardness 195 to 344 mg/l, Sulphate 15.4 – 38.6 mg/l, Chloride 36.7 – 68.8 mg/l , Fluoride 0.25 to 0.35 mg/l etc., were found well within the permissible limits.
	Surface water sampling results	The parameters results are as follows; pH value is 6.8 to 7.8, TDS was observed as 176 mg/l to 352 mg/l, Chlorides were

		found as 15.7 mg/l to 62.7 mg/l, Fluoride 0.14 to 0.55 mg/l, Sulphates were found as 6.9 to 28.4 mg/l and Total hardness ranges between 65 to 172 mg/l.
Soil Quality	pH – 7.34 to 8.02. The pH of the soil is slightly alkaline. Nitrogen ranges between 45.4 to 167.6 kg/ha. The nitrogen content in the study area is better. Electrical conductivity was observed to be in the range from 265 to 658 µS/cm. Phosphorus values range from 26.3 to 158.7 (kg/ha), potassium values range from 73.8 to 388.4 (kg/ha)	

(e) BIOLOGICAL ENVIRONMENT

The core zone was devoid of any plant or tree naturally growing over there. Natural plantation growth has been largely degraded by human intervention. The other common species to be found are Gajarghass; Peeli Kanteli; Aakra; Arandi etc. There is no tree in the applied area some stunted saplings of Palash; Babul and Mahua are found.

Buffer Zone: Some of the most dominant species such as sal (Shorea robusta), Semal (Bombax ceiba), Neem (Azadirachta indica), Gulmohar (Delonixregia.), Amaltas (Cassia fistula), Dhatura (Daturastramonium), Arandi (Ricinus communis), Ber (Ziziphusjujube), Bougainvellia (Bougainvillea spectabilis), Peepal (Ficusreligiosa), Sagwan (Tectona grandisL.f.) etc. were observed within 10km radius of the study area.

(f) SOCIO- ECONOMIC

The study area involves one urban settlement Malhar (NP), and 71 rural villages. The total number of settlements in the study area is 71. About 46557 number of Household with the total population of 211052 individuals reside in the study area.

POPULATION COMPOSITION

According to Census 2011, Core zone doesn't have any human habitation. The buffer zone houses about 46,557 Individuals general caste dominate with a percentage of 59 % and schedule caste and schedule tribe are forming 34 & 7 percent respectively. The male and female percentages are 51 & 49 percent respectively hence there is a gender gap of 3 %.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 IMPACT ON AMBIENT AIR QUALITY

The predictions for air quality during operation phase were carried using CPCB/MoEF&CC/SEIAA approved "AERMOD. The 24 hr maximum incremental value will be 7.29 µg/m^3. It is seen that the GLC's obtained at various locations for the study period are well within the CPCB standards (dated 18th November, 2009).

MITIGATION MEASURES

- Water sprinkling will be done on the haul roads twice in a day.
- Sprinklers shall be adopted to wash off the dumpers and its wheels
- Plantation will be carried out by restricted area and in Lease boundary.
- Planning transportation routes of mined material so as to reach the nearest paved roads by

shortest route. (minimize transportation over unpaved road);

- Personal Protection Equipments (PPE) like dust masks, ear plugs etc. will be provided to mine workers.
- Progress of blast (delay) shall be opposite to the predominant direction along with direction of house/structures of importance;
- Wet drilling practiced to suppress the dust generated at the source.
- Blasting is done in control manner with the use of the detonator to minimize dust.
- Speed limit will be enforced to reduce airborne fugitive dust from vehicular traffic.
- Deploying PUC certified vehicles to reduce their noise emission.
- Haul road shall be covered with gravels.
- Spillage from the dumpers will be prevented by covering tarpaulin over the dumpers.
- Water will spray at mineral stack and OB dump before loading to suppress dust generation.
- Species which act as air purifiers and ornamental shall be preferred.
- Internal roads shall be maintained so that no fugitive dust emission shall be there.

4.2 NOISE ENVIRONMENT

S.No	Impact Prediction	Mitigation Measures
1	Noise Impact due to mining activities.	➢ Proper maintenance, oiling and greasing of machines at regular intervals is done to reduce the generation of noise. ➢ Conduct regular maintenance; replace all unbalanced or loose parts of machine. ➢ Plantation of fleshy leaves along the sides of approach roads, around mine area is done to minimize the propagation of noise. ➢ Earmuffs/earplug will be provided to all operators and workers working near machineries or at higher noise zone. ➢ Periodical noise level monitoring is being done and will be carried out in future.
2	Impact of Noise Due to Drilling & Blasting	➢ Drilling is carried out with the help of sharp drill bits which help in reducing noise; ➢ Controlled blasting will be done to minimize noise, ground vibration, fly rock and air overpressure; ➢ Noise level shall be controlled by using optimum explosive charge per delay detonators and proper stemming to prevent blow out of holes; ➢ Delay interval between rows of blast holes shall be maximized whenever confinement is greater like corner of benches or the portions close to structures of importance. Delay period shall be increased in the last rows; ➢ Progress of blast (delay) shall be opposite to the direction of house/ structures of importance; ➢ A safe distance of about 750 m from center of blasting will be maintained and during blasting other activities in the immediate vicinity shall be temporarily stopped;

3	Noise impact due to vehicular movement.	➢ No other equipment except the transportation vehicles and excavator for loading will be allowed. ➢ Unnecessary use of horns by the drivers shall be not allowed. ➢ The vehicles operating will be maintained and provided with good silencers. All machines will be use at optimum capacity.

4.3 BIOLOGICAL ENVIRONMENT

S.	Impact Prediction	Mitigation Measures
1	Mining activity affect the movement of animals and birds	Mining activities will be restricted to day hours only. The non mineable and restricted area will be converted into green belt (2.907 ha).
2	Increase in noise may affect the movement of animals	Regular maintenance of machineries and dumpers.
3	Dust to be generated by movement of vehicles on leaves may results in to stunted growth of vegetation	All the vehicles delivering materials to the site shall be covered to avoid spillage of material. Approach road used by vehicles shall be kept clean and clear of dust.
4	labor population will influx the area during mining operation	Poaching of animals by laborers will be strictly prohibited. It may be ensured by the mine management that no hunting is practiced at the site by any of the workers

4.4 LAND

S.No	Impact Prediction	Mitigation Measures
1.	Change in the Topography of the Land / Land Degradation	The proposed Quarry Lease area is almost flat land. Area proposed for mining is 4.497 ha. Present level is between 257m AMSL -259m AMSL and level after mining 243mAMSL. After removal of ore body, avoid will be created. The excavated area (1.49 ha) will further be converted into a water pond and used as a natural water harvesting system for collection of rain water. This will recharge the ground water and will be used by local people. The non-mineable and restricted area will be converted into green belt (2.907 ha).
2.	Removal of top soil and exposure of topsoil to wind and water erosion	Topsoil to be stored in small heaps (2.5 m high). The appropriate moisture content with proper vegetation will be utilized for bio-stabilization of heaps. Top soil will be removed & stored along lease boundary of the quarry lease area of (2.674 ha), which will be utilize for plantation. To improve its quality, soil stabilizers will be mixed and leguminous plantation (Pigeon pea) will be done over soil stacks.
3.	Existing surface profile will be replaced by a depressed surface (pit)	The pits formed after mining operation will be utilized as water reservoirs at the end of life of mine and part of the remaining region will be developed as green belt for plantation. Proper protection (Barbed wire fencing) for survival of saplings will be provided along with periodic watering arrangement.
4.	Impact on soil from Solid waste generation	During proposal period total generated soil/OB/mine waste of (23,274 cum) will be used for preparation of mine road and maintenance of mine and approach roads. At the cessation of mining operations after the extractions of minerals. No waste dump will be remaining at the end of life of mine. The step benches will be made in the safety zone and Afforestation work

S.No	Impact Prediction	Mitigation Measures
		will be carried out on them. Care will be taken to transfer the waste preserved separately to put in back on the mined out area so as to make it convenient for cattle's to come and drink the water collected in the reservoir and the dump surfaces along with the grass cover.
5.	Impact on the Agricultural activities in nearby area due to dust generation	Regular water sprinkling on active areas for example haul roads, excavation sites will be strictly followed. Tarpaulin covered transportation will be carried out to with sprinkling of water through overhead sprinklers.

4.5 WATER ENVIRONMENT

S.No	Impact Prediction	Mitigation Measures
1.	Effect on the Ground Water Table	The site elevation varies from 257m AMSL to 259m AMSL. The ultimate depth of mining is 15m below ground level i.e. up to 243mAMSL. Whereas, ground water table in the area varies from 2mbgl (256 m AMSL) to 4 mbgl (254m AMSL) during pre and post monsoon period respectively. The general ground level is 258m AMSL. Hence the mining operation will be intersecting ground water table. Project Proponent has been advised to carry out Hydro geological studies and to secure the CGWA permission for dewatering, if required. The project proponent will comply the conditions imposed by CGWA on the project.
2.	Change in Drainage Pattern and siltation in nearby area	Water flow / course will not be obstructed and natural drains or nalas will not be disturbed. There is no perennial nala flowing through the applied Quarry Lease area. Run-off from mine and OB/Waste stack will be prevented to get discharged out side the premises. Garland drains, settling tank followed by storage pond will be constructed to prevent run off from project site.
3.	Wash off from the dumps	There is no overburden or reject generating from mining activity, moreover the excavated mineral itself is relatively nontoxic and hence no surface water pollution is anticipated due to water flow during rains following the contours of the area is expected. No dumping is proposed.
4.	Waste Water generation/ Discharge	Toilets (One for men and other for women) with septic tank followed by soak pits will be provided for sewage management of mine workers.
5.	Siltation in nearby agriculture field	The drainage system (garland) will be designed in such a way even to meet excess rainfall. Garland drain in 3027 cum is constructed and 5 settling pond of 338 cum each towards the sloping side of QL area will be constructed. Thus no water will be allowed to flow across the temporary waste dumps and outside the QL area. The collected water shall be used in plantation and spraying on haul roads. Settling ponds will be designed on the basis of silt loading, slope of the lease, detention time required etc.

5.0 ANALYSIS OF ALTERNATIVES

Mining is a site specific activity and quarry lease is Govt. Revenue land. In project opencast mechanized method of mining will be carried out. For that, no other methodology is going to be

changed, depending upon the geological set up, strata of the rock and its structural behavior. The striping ratio is also low.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

The monitoring of the environment parameters will be out sourced and carried by the lab of SPCB or a lab approved by MoEF & CC/NABL.

7.0 ADDITIONAL STUDIES DISASTER MANAGEMENT

In order to avoid any danger in the mine site at the end of life of mine a disaster management cell headed by local authority District Collector will be constituted. Police department health authorities, including doctor, ambulances and so on will have a vital part to play following a disaster along with the mine management, and they will be an integral part of the disaster management plan.

8.0 PROJECT BENEFITS AND COSTS EVALUATION

The project will give direct employment to 21 persons and indirect employment to another 100 persons. Local people will be preferred for providing job opportunity. The mine management will recruit skilled & unskilled workers.

BUDGET FOR ENVIRONMENTAL PROTECTION

SI. No.	Measures	Capital cost (in Rs.)	Annual recurring Cost (in Rs.)
1.	Dust suppression(Sprinkler and water tanker) (internal haul road – 300m and approach road 100 m) Cost of tanker 400 /tanker/day (capacity 5000 liter) (1.5 tanker required for dust suppression) (400*1.5*300)	1,80,000/-	1,00,000/-
2.	Garland drain(370m x1.5 m x2m)	75,000 /-	15,000 /-
3.	Greenbelt Within Lease Area (In Barrier Zone, restricted and non mining area- 7500 saplings) (@17 Rs./sapling during the five year of plan period year)	1,27,500/-	50,000 /-
4.	Maintenance of Road to Mine	50,000 /-	10,000/-
5.	Pollution Monitoring(6 monthly)	--	Air- 40,000 Water-20,000 Noise- 10,000 Soil-10,000
6.	Firefighting Equipment's (2 No's) (@20000/firefighting and first aid @2000 per kit)	42,000 /-	2,000/-
7.	Occupational Health and PPE (1500x 21 worker) (Boot, helmet, goggles, safety shoes, ear plug and dust mask)	31,500 /-	10,000 /-

8.	PUC certification of vehicles and maintenance (4 vehicles @ Rs 2000)	-	8000/-
9.	Wire fence (900 m x100per meter)	90000/-	5000/-
10.	Safety signage and warning boards like red flags , cones etc	10000/-	5000/-
11	**Solid Waste Management**		
a	Bins 4 Nos. @Rs 1500 each	6000/-	2000/-
Total		**6,12,000/-**	**2,87000/-**

9.0 IMPORTANT ASPECTS OF THE ENVIRONMENTAL MANAGEMENT PLAN

STAGE WISE PLANTATION AND ITS AREAS ARE GIVEN IN TABLE BELOW

A	B		C	D
Year	**Total Area covered during the 1st year**		**Total Area for Plantation (sqm)**	**Total Plantation**
	Along 7.5 m safety zone(sqm) Plants/Area	**Green belt (Restricted and non mining) Area (sqm) Plants/Area**		
Existing	125/500	200/800	1300	325
During the 1st year	550/2200	6625/25596	27796	7175

The proposed land use at the end of fifth year and at the end of mine life is given in table below:

BREAK-UP OF LAND UTILIZATION PATTERN (AREA IN HA)

SI.No.	Heads	Forest Land	Agriculture Land	At present (Hect.)	At the end of 5 years (Hect.)
A	**Lease Area**	Nil	Nil	4.497	4.497
1.	Area under pits	Nil	-	Nil	1.49
2.	Area under dumping	Nil	-	Nil	0.267 (along lease boundary)
3.	Area for road	Nil	-	Nil	0.09 (within pit)
4.	Area for infrastructure	Nil	-	Nil	-
5.	Plantation	Nil	-	Nil	2.907 (0.267along lease boundary & 2.64 in restricted area)
6.	Storage of Mineral	Nil	-	Nil	-
7.	Storage of fines	Nil	-	Nil	-
8.	Crushing Unit	Nil	-	Nil	0.1
9.	Undisturbed area	Nil	-	4.497	0.00
TOTAL		**-**	**-**	**4.497**	**4.497**

9.1 IMPORTANT ASPECTS OF THE ENVIRONMENTAL MONITORING PROGRAMME

The monitoring of the environment parameters will be out sourced and carried by the lab of SPCB or a lab approved by MoEF/NABL.

10.0 SUMMARY & CONCLUSION

As discussed, it is safe to say that the proposed mine is not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigative technique.

11.0 DISCLOSURE OF CONSULTANTS ENGAGED

Aplinka Solutions & Technologies Pvt. Ltd. is an environment consulting and research organization is accredited by QCI NABET.

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