

**EXECUTIVE SUMMARY OF DRAFT ENVIRONMENTAL
IMPACT ASSESSMENT AND
ENVIRONMENT MANAGEMENT PLAN
FOR OBTAINING**

Environmental Clearance under EIA Notification – 2006

Schedule Sl. No. 1 (a) (i): Mining Project

“B1” CATEGORY- MINOR MINERAL- CLUSTER- NONFOREST LAND- FRESH QUARRY

CLUSTER EXTENT = 6.65.2hectares

Patta Land- Rough Stone & Gravel Quarry

At

Kolathur Village, Srirangam Taluk,

Tiruchirappalli District, Tamil Nadu State.

TOR File No. 12529 and ToR Identification No. TO25B0108TN5769639N, Dated: 04.09.2025

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and address	Extent & S.F.No	Production in m³ & Tons
S. VIJAYAKUMAR, S/o. (Late) N. Swaminathan, No.10, Collector Office Road, Cantonment, Tiruchirappalli District- 620 001.	4.00.0ha & S.F. Nos. 790/1B (Part) & 790/2 (Part)	Rough stone 981104 & 2698036 Gravel 34196 & 68392 Depth- 50m (BGL)

ENVIRONMENTAL CONSULTANT



GEO TECHNICAL MINING SOLUTIONS

No: 1/213-B, Ground Floor, Natesan Complex
Oddapatti, Collectorate Post office, Dharmapuri-636705. Tamil Nadu.

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

NABET ACC. NO: NABET/EIA/23-26/RA 0319

Valid till: 31.12.2026

ENVIRONMENTAL LAB

EXCELLENCE LABORATORY

NABL Accredited and MoEF notified Laboratory

No.23/93, 5th Street Ram Nagar,

S.S.Colony, Madurai, Tamil Nadu

NABL Certificate Number: TC-13674,

Valid Until: 12.05.2026

Baseline Study Period- October through December- 2025

JANUARY- 2026

EXECUTIVE SUMMARY

1 INTRODUCTION

As the proposed rough stone and gravel mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 6.65.2ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No. 790/1B (P) & 790/2 (P) over the extent of 4.00.0 ha is situated in the cluster falling in Kolathur Village, Srirangam Taluk, Tiruchirappalli District and Tamil Nadu. The quarries involved in the calculation of cluster extent are one proposed quarry, one existing quarry.

2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 10°40'36.02"N to 10°40'42.88"N and Longitudes from 78°32'18.07"E to 78°32'26.38"E in in Kolathur Village, Srirangam Taluk, Tiruchirappalli District and Tamil Nadu. According to the approved mining plan, about 9,81,104m³ & 26,98,036Ts of rough stone and 34,196m³ & 68,392Ts of gravel will be mined up to the ultimate depth of 50m BGL in the five years. The quarrying operation is proposed to be carried out by opencast semi mechanized mining method involving drilling, blasting, and formation of benches of the prescribed dimensions.

3 DESCRIPTION OF THE ENVIRONMENT

Baseline data were collected to evaluate the existing environmental condition in the core and buffer areas during **October to December 2025** as per CPCB guidelines. The data were collected by both the FAEs and NABL accredited and MoEF notified **Excellence Laboratory** for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic, and socio-economy.

3.1 Land Environment

Land use pattern of the area of 5 km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 1.

Table.1 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Water	10.70	0.13
2	Trees	14.74	0.18
3	Flooded Vegetation	6118.33	74.03
4	Crops	105.50	1.28
5	Built Area	1033.26	12.50
6	Mining area	4.20	0.05
7	Bare Ground	978.16	11.84
Total		8264.89	100.0

Source: Sentinel II Satellite Imagery

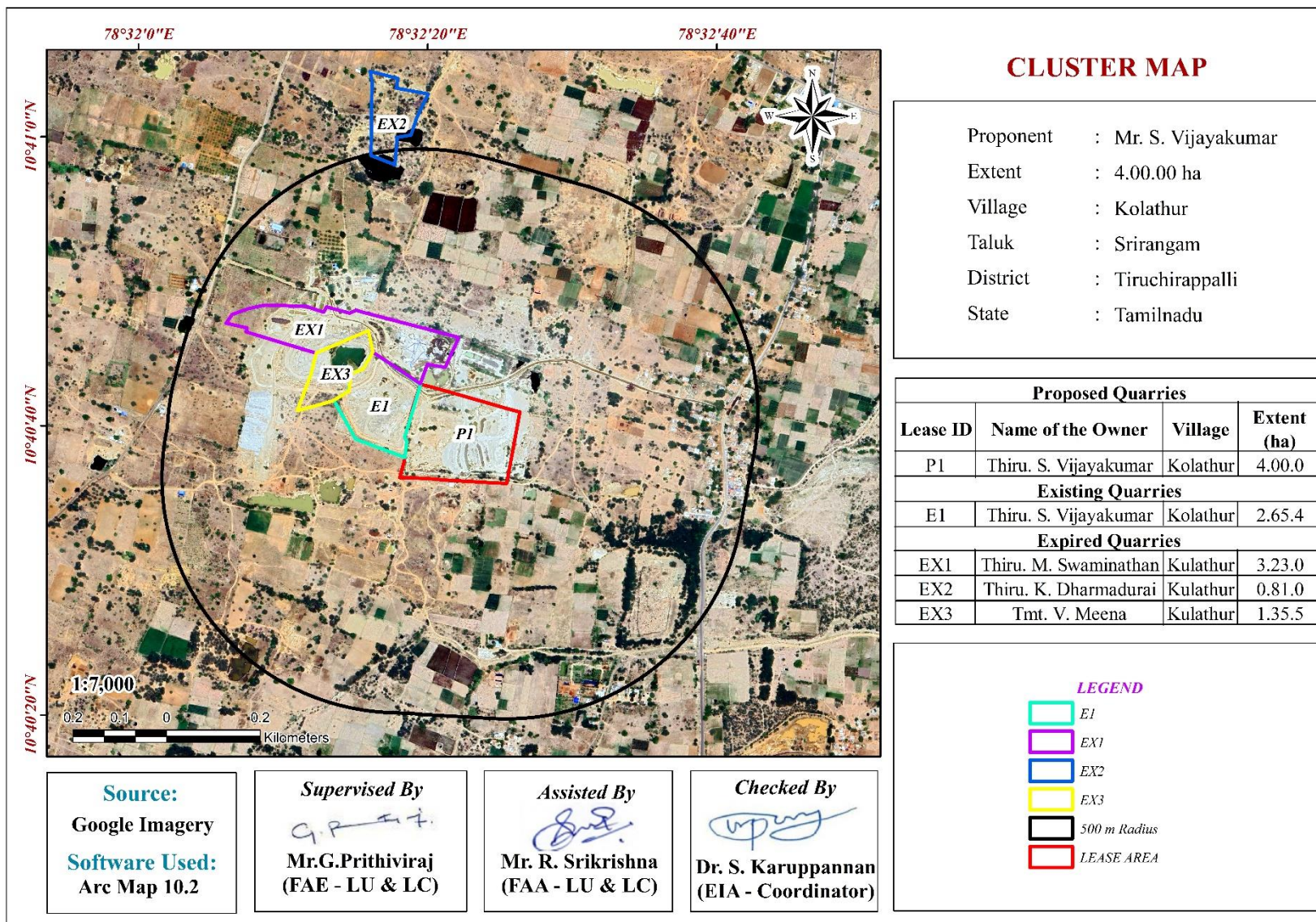


Figure 1 Location of Proposed and Existing Quarries in the Cluster of 500m Radius

3.2 Soil Environment

Physical Characteristics & Chemical Characteristics

- pH ranged from 8.4 to 9.7 indicating that the soil is neutral to slightly alkaline, which is favourable for most crops.
- EC value ranged from 161 to 704 μ S/cm, suggesting low salt concentration and non-saline soil across the sampling area.

Physical Properties

- Bulk Density values ranged from 5.7 to 11.2g/cc, which are within the typical range for loamy soils and support good root penetration and aeration.

Soil Fertility Status:

- Total Organic matter levels ranged from 1.7 to 3.9% by weight, classifying soils as low to moderately fertile in terms of organic matter.
- Nitrogen (N) content varied from 0.07 to 1.1% by mass indicating moderate nitrogen availability.
- Potassium (K) ranged from 0.022 to 0.158% by mass moderate fertility potential in terms of potassium.

Base Elements and Cation Ratios:

- Calcium (Ca) levels were highest with 426mg/kg and lowest with 42mg/kg.
- Magnesium (Mg) ranged from <1.0mg/kg.

Conclusion:

The soils in the study area are generally non-saline, neutral to slightly alkaline, and moderately fertile with low contamination levels. They exhibit good permeability, porosity, and suitable textural classes for agriculture and greenbelt development. The absence of heavy metals confirms that baseline soil conditions are unpolluted and safe for reclamation and vegetation growth

3.3 Water Environment

Mettupatti, a key surface water body in the area, is characterized as an ephemeral lake, meaning it only holds water after rainfall events. A water sample, labelled as SW1, was collected from the lake, specifically 1.79 km southwest, to establish a baseline water quality assessment, as detailed in Table 3.8 and Figure 3.10.

Inference: The surface water quality when compared against CPCB standards does not meet the criteria for drinking water (Class A) but is suitable for irrigation (Class E). Surface water can infiltrate the ground and replenish groundwater reserves which are another important source of freshwater.

Physical Parameters:

The observation from the lab results given in Table 3.6 are as follows. The lab results for the water samples collected from the site as per IS 10500:2012 indicate that the basic physical and chemical parameters are within acceptable and permissible limits. The water is generally considered potable but there are potential issues related to hardness and alkalinity that could affect taste and potentially cause scaling in domestic equipment.

- The **pH** value ranges from 7.1 to 8.9 mg/L. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) recommend a pH range of 6.5 to 8.5 for drinking water and the values are within the acceptable limits.
- The **turbidity** value is less than 1 NTU which is within the acceptable limit of 1 NTU and permissible limit of 5 NTU indicating minimal presence of suspended particles.
- The **TDS levels** ranged from 569 to 1510 mg/L. In bore well water the TDS is higher than the WHO recommendation of 500 mg/l for drinking water. High TDS levels can affect the taste of water potentially making it salty or bitter. In the long-term excessive TDS can irritate the stomach and according to some health sources may lead to kidney stones and cardiac issues.

Chemical Parameters:

- The **calcium** levels range from 64 to 145 mg/L which is within the permissible limit of 200mg/L but slightly above the acceptable limit of 75mg/L. High calcium levels can cause scaling in domestic equipment, reduced detergent efficiency and potential health issues like constipation, gas and bloating.
- The **magnesium** levels range from 07 to 35 mg/L which is within both the acceptable and permissible limits. However, elevated magnesium levels can cause diarrheic and vomiting in children.
- The **chloride** levels range from 35 to 411 mg/L which is within the acceptable and permissible limits of 250 mg/L and 1000 mg/L respectively. Chloride levels exceeding permissible limits can cause a bitter taste in the water and contribute to corrosion.

- The **total alkalinity** levels ranging from 48 to 402 mg/L are slightly above the acceptable limit of 200 mg/L but within the permissible limit of 600 mg/L. Excessive alkalinity can impart a soda taste to the water.
- The **hardness** levels ranging from 110 to 488 mg/L, are within the permissible limit but higher than the acceptable limit. Hardness can lead to corrosion and scaling problems, increased soap consumption and a salty taste.

Overall, the water quality of Borewell and open well based on the analysed parameters is generally suitable for drinking purposes as per IS 10500:2012. However, the higher levels of calcium, alkalinity and hardness could potentially lead to some undesirable effects such as scaling in domestic appliances and a salty or soda taste. Further treatment might be needed to address these issues especially if the water is to be used for a wider range of applications.

3.4 Air Environment

As per the monitoring data PM_{2.5} ranges from 14.40µg/m³ to 16.79µg/m³, PM₁₀ from 40.64µg/m³ to 44.14µg/m³, SO₂ from 4.35µg/m³ to 5.42µg/m³, NO_x from 8.93µg/m³ to 11.15g/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 42 causing minimal impact to human health.

3.5 Noise Environment

Noise level in core zone was 45.2dB (A) Leq during day time and 38.6dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 42.2 to 47.6dB (A) Leq and during night time from 36.7 to 42.4dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

3.6 Biological Environment

The study found that there is no endemic, endangered migratory fauna found in the area. This area is not also a migratory path of any faunal species. Hence, this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

Flora in mine lease area (core zone)

The core zone presents in tree, shrubs, herbs and grasses. Taxonomically total of 18 species belonging to 11 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Trees 5 (26%) followed by Shrubs 5 (26%), Herbs 8 (35%) and Climbers 3 (13%). The result of core zone of flora studies shows

that *Fabaceae* and *Amaranthaceae*, *Lamiaceae* are the main dominating species in the quarry lease area.

Flora in 10 km radius buffer zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area because of nearby forest covers and agriculture land was found to dominate mostly in Northeast directions. There are 78 belonging to 41 families have been recorded from the buffer zone. Among the identified, floral (78) species were 26 (30%) trees, Shrubs 19 (19%) Herbs 19 (18%) & Climbers 5 (17%), Creepers & Grasses 13 (16%). According to the findings of the buffer zone flora studies, the dominant species in the study area are *Fabaceae*, *Asteraceae*, and *Euphorbiaceae* as shown in Table 3.22. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Details of flora with the scientific name were mentioned in Table 3.22. A list of floral species has been prepared based on a primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.22.

Fauna in Core Zone

A total of 24 species were observed in the Core zone (Table. 3.24). Among them are 8 Insects, 5 Reptiles, 4 Mammals and 9 Avian. A total of 24 species belonging to 20 families were recorded from the core area. The study shows that number of species decreases towards the mining area. This might be due the lack of vegetation. None of these species in the core zone are threatened or endemic. The survey was conducted to identify species listed in IUCN Red List. According to the field data, any species are not of Schedule I and nine species are of schedule IV. There are no critically endangered, endangered, vulnerable and endemic species were observed.

3.7 Socio Economic Environment

The proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area, thus leading to the improvement of people's standard of living.

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Land Environment

Anticipated Impact

-  Change in land use and land cover and topography of the mine lease area
-  Problems to human habitations due to dust and noise caused by movement of heavy vehicles
-  Soil erosion and sediment deposition in the nearby water bodies during the rainy season
-  Siltation of water course due to wash off from the exposed working area
-  Deterioration of soil quality in the surrounding area due to runoff from the project area

- ✚ Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

Mitigation Measures

- ✚ Construction of garland drains, settling pits, and check dams to prevent runoff and siltation
- ✚ Runoff water will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site
- ✚ The vegetation will be retained at the site wherever possible
- ✚ Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

4.2 Water Environment

Anticipated Impact

- ✚ Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas
- ✚ As the proposed project acquires 4.0 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

Mitigation Measures

- ✚ Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes
- ✚ Domestic sewage from site office will be discharged in septic tank and then directed to soak pits
- ✚ Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse
- ✚ The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- ✚ Periodic (every 6 months once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted
- ✚ Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program.

4.3 AIR ENVIRONMENT

Anticipated Impact

- ✚ During mining at various stages of activities such as excavation, drilling and transportation of materials, particular matter (PM), gases such as sulphur dioxide, oxides of nitrogen from vehicular exhaust are the main air pollutants.
- ✚ Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.

- ✚ The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- ✚ Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area

Mitigation Measures

Drilling

- ✚ To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Haul Road and Transportation

- ✚ Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- ✚ Transportation of material will be carried out during day time and material will be covered with tarpaulin
- ✚ The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- ✚ Water sprinkling on haul roads and loading points will be carried out twice a day
- ✚ Main source of gaseous pollution will be from vehicle used for transportation of mineral. Therefore, weekly maintenance of machines improves combustion process and reduces pollution.
- ✚ The un-metalled haul roads will be compacted weekly before being put into use.
- ✚ Overloading of tippers will be avoided to prevent spillage.
- ✚ It will be ensured that all transportation vehicles carry a valid PUC certificate.
- ✚ Haul roads and service roads will be graded to clear accumulation of loose materials

Green Belt

- ✚ Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers.

- ✚ Green belt of adequate width will be developed around the project site.

Occupational Health

- ✚ Dust mask will be provided to the workers and their use will be strictly monitored
- ✚ Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers.
- ✚ Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed

4.4 Noise Environment

Anticipated Impact

- ✚ Mining operations generate significant noise impacting both worker health and nearby communities.
- ✚ These impacts can range from annoyance and sleep disturbance to structural damage and hearing loss. Effective management of noise is crucial to mitigate these adverse effects.

Sources of Noise in Mining:

- ✚ **Drilling and Blasting:** Prolonged exposure to high-intensity noise from drilling and blasting can lead to hearing loss and other auditory problems
- ✚ **Heavy Machinery:** Excavators, haul trucks, and other equipment used in mining operations generate substantial noise.
- ✚ **Loading and Transportation:** The movement and handling of materials within the mine site contribute to noise pollution.

Mitigation Measures

The following noise mitigation measures are proposed for control of noise:

- ✚ Usage of sharp drill bits while drilling which will help in reducing noise
- ✚ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- ✚ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- ✚ The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system

- ✚ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise
- ✚ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise
- ✚ Silencers / mufflers will be installed in all machineries
- ✚ Greenbelt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise
- ✚ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness
- ✚ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

Ground Vibrations

Anticipated Impact

- ✚ Mining operations generate significant noise and vibration impacting both worker health and nearby communities.
- ✚ These impacts can range from annoyance and sleep disturbance to structural damage and hearing loss. Effective management of noise and vibration is crucial to mitigate these adverse effects.

Sources of Noise and Vibration in Mining:

- ✚ ***Drilling and Blasting:*** A primary source of both noise and ground vibrations, with the intensity dependent on the amount of explosives, atmospheric conditions and proximity to the blast.
- ✚ **Heavy Machinery:** Excavators, haul trucks, and other equipment used in mining operations generate substantial noise.
- ✚ **Loading and Transportation:** The movement and handling of materials within the mine site contribute to noise pollution.

Common Mitigation Measures

- ❖ The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- ❖ Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting
- ❖ Adequate safe distance from blasting will be maintained as per DGMS guidelines
- ❖ Blasting shelter will be provided as per DGMS guidelines

- ❖ Blasting operations will be carried out only during day time
- ❖ The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- ❖ During blasting, other activities in the immediate vicinity will be temporarily stopped
Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast
- ❖ A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- ❖ A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- ❖ Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- ❖ The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- ❖ The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.5 Biological Environment

Impact on Ecology and Biodiversity

- ✚ During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- ✚ The Number of plants in the mining lease area is given in chapter 3 table 3.21 which vegetation in the lease area may be removed during mining.
- ✚ Carbon released from quarrying machineries and tippers during quarrying would be 718kg per day, 194005kg per year and 970026kg over ten years.

Mitigation Measures on Flora

- ✚ During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

- ✚ None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.
- ✚ Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- ✚ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 194005kg of carbon per year. Therefore, we recommend 500 planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- ✚ As per the greenbelt development plan as recommended by SEAC (Table 4.12), about 2000 trees (Table 4.13) will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 2481383kg of the total carbon.

Anticipated Impact on Fauna

- ✚ Direct impact is anticipated on fauna of core zone
- ✚ Insignificant impact is anticipated on fauna in the buffer area due to air emissions, noise, vibration, transportation, waste water discharges, and changes in land use

Mitigation Measures on Flora

- ✚ Fencing will be constructed around the proposed mine lease area to restrict the entry of stray animals
- ✚ The workers shall be trained not to harm any wildlife near the project site

4.6 Socio Economic Environment

An essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic conditions in the area, which deals with the total environment. Socio economic study includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature of aesthetic significance such as temples, historical monuments etc. at the baseline level. This would help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. Socio-economic study of an area provides a good opportunity to assess the socio -economic condition and possibly makes a change in living and social standards of the particular area benefitted due to the project.

4.7 Occupational Health

- ✚ All the persons will undergo pre-employment and periodic medical examination

- ✚ Employees will be monitored for occupational diseases by conducting medical tests: General physical tests, Audiometric tests, Full chest, X-ray, Lung function tests, Spiro metric tests, Periodic medical examination – yearly, Lung function test – yearly, those who are exposed to dust and Eye test
- ✚ Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost.
- ✚ The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

5 Environment Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1 SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

6 ADDITIONAL STUDIES

6.1 Risk Assessment

The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

6.2 Disaster Management Plan

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- ✚ Rescue and treat casualties;
- ✚ Safeguard other people;
- ✚ Minimize damage to property and the environment;
- ✚ Initially contain and ultimately bring the incident under control;
- ✚ Secure the safe rehabilitation of affected area; and
- ✚ Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

6.3 Cumulative Impact Study

The results on the cumulative impact of the proposed project on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.

- ✚ The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time
- ✚ PPV resulting from the proposed project is well below the permissible limit of Peak Particle Velocity of 5 mm/s
- ✚ The cluster project will allocate Rs. 10,00,000/- towards CER as recommended by SEAC
- ✚ The cluster project will directly provide jobs to 50 local people, in addition to indirect jobs
- ✚ The cluster project will plant 7087 about trees in and around the lease area

7 Project Benefits

Various benefits are envisaged due to the proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- ✚ Direct employment to 22 local people
- ✚ Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,
- ✚ Strengthening of existing community facilities through the Community Development Program
- ✚ Skill development & capacity building like vocational training.
- ✚ Rs. 5,00,000 will be allocated for CER

8 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs. 31.53L** as capital cost and recurring cost as **Rs. 20.96L** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs. 136.73L** as shown in Table 10.2.