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- NON- FOREST LAND

CLUSTER EXTENT = 9.41.35hectares

COLOUR GRANITE

At

Nagojanahalli Village, Pochampalli Taluk, Krishnagiri District,

Tamil Nadu State.

ToR File No. 11776

ToR Identification No. TO25B0108TN5712663N, Dated.07/04/2025

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F.No.	Mineral Production
M/s. KMB Granite Enterprises No.4/59, Bharathi Street, Swarnapuri Five Roads, Salem District – 636 004.	4.10.0Ha & 609A (Part) (Bit-2)	Colour Granite 30% Recovery 66513MT

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

INTERSTELLAR TESTING CENTRE Pvt. Ltd

Plot.No.2, Site No.12/2A, Industrial Estate, Perungudi, Chennai, Tamil Nadu

NABL Certificate Number: TC-6952,

Valid Until: 30.07.2026

Baseline study period- March to May, 2025

NOVEMBER- 2025

EXECUTIVE SUMMARY

1 INTRODUCTION

As the proposed Colour Granite mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 9.41.35 ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No. 609A(P) (Pit-2) over the extent of 4.10.0 ha is situated in the cluster falling in Nagojanahalli Village, Pochampalli Taluk, Krishnagiri District, Tamil Nadu. The quarries involved in the calculation of cluster extent are three proposed quarries and one existing Quarry.

2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 12°22'22.52"N to 12°22'29.57"N Longitudes from 78°16'48.61"E to 78°16'57.12"E in Nagojanahalli Village, Pochampalli Taluk, Krishnagiri District, Tamil Nadu. According to the approved mining plan, Colour Granite 30% recovery of about 66513MT and Granite waste 70% of 155187MT will be mined up to the depth of 26m (20m AGL and 6m BGL) in the five years. The quarrying operation is proposed to be carried out by open cast manual mining method involving drilling 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 **March – May 2025** as per CPCB guidelines. The data were collected by both the FAEs and NABL accredited and MoEF notified **Interstellar Testing Centre Pvt. Ltd** 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 11.1

Table.1 LULC Statistics of the Study Area

S. No	Classification	Extent (ha)	Area (%)
1	Water	201.47	2.31
2	Trees	2704.9	30.97
3	Crops	1846.89	21.15
4	Built Area	2679.36	30.68
5	Mining area	56.83	0.65
6	Bare Ground	1.31	0.01
7	Rangeland	1242.73	14.23
Total		**8733.49**	**100.0**

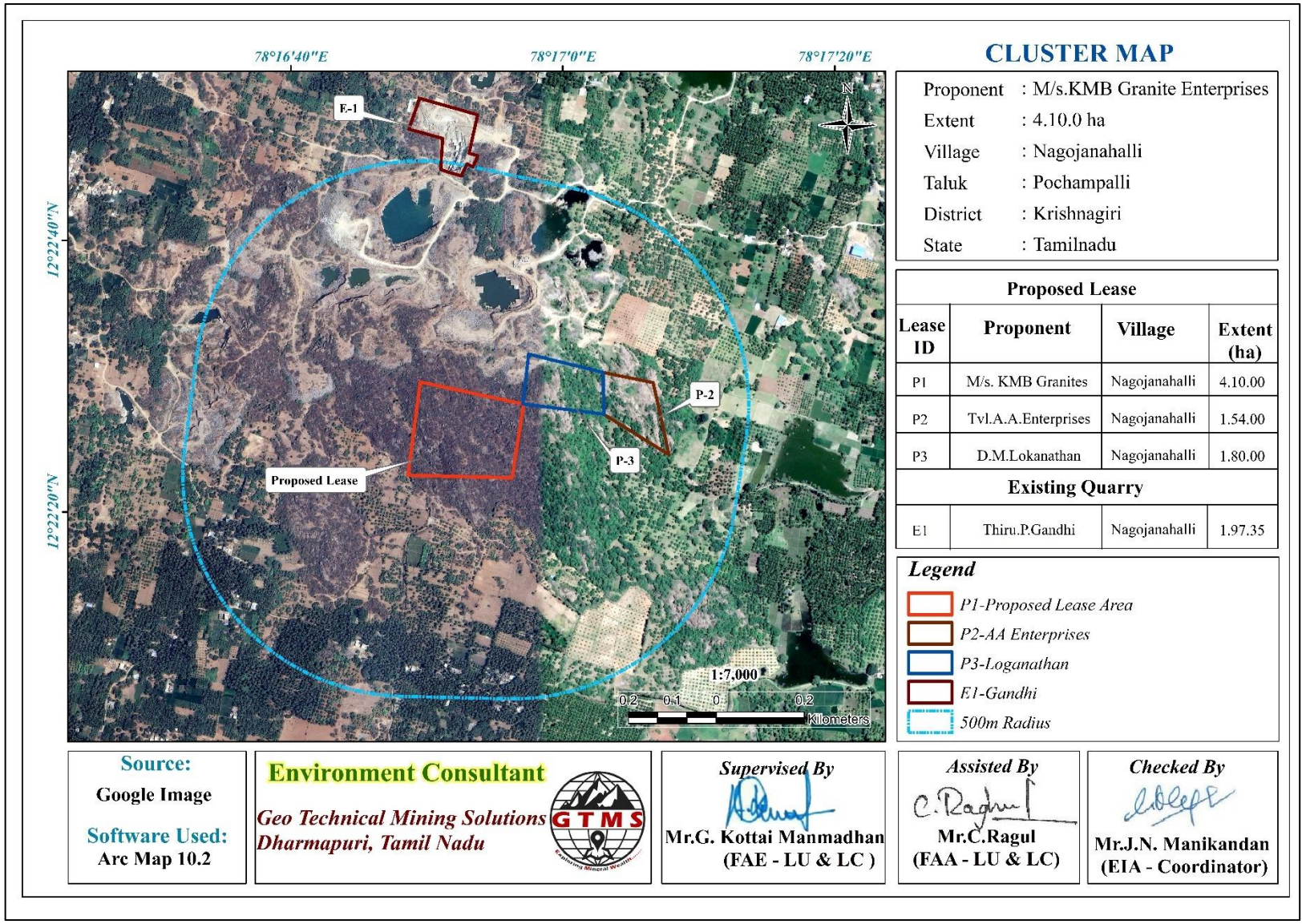

Figure 1. Google Earth Image Showing in cluster map

3.2 Soil Environment

Physical Characteristics

Physical characteristics of soils were determined through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity, texture are presented in Table 3.4.

- **Texture:** In lease area the soil is red calcareous. They are mostly Silt loam and characterised by the hard and compact layer of lime. In other places the soil found is brown in colour.
- **Structure:** The grain size is greater than 2mm in the lease area and in other places where the samples collected ranges from 0.02mm to 2mm.
- **Porosity:** The porosity of the soils is significantly impacted by the degree of weathering and fracture development in the underlying bedrock. The 500m radius cluster consists of Charnockite formations affect the porosity found in this study.
- **Density:** The soil samples collected within 5km radius are generally characterized by higher bulk densities typically ranging from 1.036 to 1.612g/cc.
- This is due to the presence of red sandy and in some areas with red loamy soil. The dominant soil types include red calcareous and red non- calcareous. Sandy soils have larger pore spaces between them compared to finer- grained soils like silt and clay.
- **Consistence:** Coarse (sandy) soils may require slightly higher moisture content while fine (clay) soils may require slightly lower. This range falls within the 45- 60% available water zone where plants are at risk of stress if a water deficit is prolonged.

B. Chemical Characteristics of Soil

- Chemical characteristics of soils through selected parameters viz. pH, soluble cations and anions, exchangeable cations, organic content and fertility status in the form of NPK values and organic matter are presented in Table 3.5. pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in the pH of the soil in the study area is presented in Table 3.5 and it is found to be from slightly acidic to neutral (7.14 – 8.63) in reaction. Electrical conductivity a measure of soluble salts in the soil is in the range of 0.163 to 0.361mS/m as shown in Table 3.5.

- The important water- soluble cations in the soil are Nitrogen, Phosphate and Potassium whose concentration levels ranged from N- 0.043%- 0.095%, P- 0.0012%- 0.0027% and K- 0.0015% - 0.0034% respectively. Chloride (Cl) is in the range of 0.0031%- 0.0688%.
- The soil samples in the study area show loamy textures varying between Silt Loam and sandy loam. pH of the soil varies from 7.14 – 8.63 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 0.163 –361mS/m. The physical and chemical properties of soil is shown in the Table 3.5.

3.3 Water Environment

Physical Parameter of ground water:

The basic physical parameters of water include. The baseline water quality result as shown in Table 3.7.

Colour:

- Value observed in Project Site (True/Apparent Color): 1 Hazen unit.
- Acceptable and permissible limits: 5 Hazen units and 10 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as "*Standards*" from herein).

Odour & Taste:

- The water is odour less. The taste of the water is slightly salty which is due to the presence of hardness in water which is attributed to the presence of calcium and magnesium in the water. As per the standards the odour and taste should be agreeable.

pH:

- Value observed in the Project Site: Min.- 7.36 & Max. 8.08.
- Acceptable and permissible limits: 6.5- 8.5. The pH value is the measure of acid- base equilibrium. The value of pH in the project site clearly indicates that water is neutral in nature.

Turbidity:

- Value observed in the Project Site: Min- 1.5 & 1.8NTC.
- Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplankton and other sediments.

Total Dissolved Solids:

- Value observed in the Project Site: Min.- 454 & Max. 816mg/L.

- Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively.
- TDS is the presence of inorganic salts and small amounts of organic matter present in the water.

Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

- Value observed in Min. 59.7 & Max. 128 mg/L.
- Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.
- Calcium is an essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

- Value observed in Min.- 2.7 & Max. 7.3 mg/L.
- Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.
- The value of Magnesium in the project site is below in acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

Chloride

- Value observed in Min.- 127.2 & Max. 228 mg/L.
- Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.
- The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as $CaCO_3$:

- Value observed in Min- 118.2 & Max. 262 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides, which will impart soda taste to the water. The value of the total alkalinity is within acceptable and permissible limits in the project site.

Hardness:

- Value observed in Min.- 127 & Max. 318 mg/L.
- Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.
- The value of Hardness in the project site is higher than acceptable and permissible limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.4 Air Environment

As per the monitoring data, $PM_{2.5}$ ranges from 16.6 µg/m^3 to 20.1 µg/m^3; PM_{10} from 43.1 µg/m^3 to 52.2µg/m^3; SO_2 from 5.1µg/m^3 to 5.9 µg/m^3; NO_X from 12.0 µg/m^3 to 14.6 g/m^3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

3.5 Noise Environment

Noise level in core zone was 45.1dB (A) Leq during day time and 38.3dB (A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 40.3 to 44.0 dB (A) Leq and during night time from 35.4 to 38.4 dB (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 core zone

The mine lease area contains total of 19 species belonging to 15 families have been recorded from the mine lease area. 5trees, 6 shrubs, 8 herbs were identified. It is a grassy land. There are no endangered species in mine lease area. Details of vegetation with scientific name indicated in Table 3.19.

Flora in 300 m radius zone

The mine lease area is containing a total of 37 species belonging to 28 families have been recorded from the buffer zone. 10 Trees, 11 Shrubs and 18 Herbs, Climbers & Grass were identified. Details of flora with the scientific name details and of diversity species Richness index were mentioned in Table 3.20 and Figure 3.25. There is no threat to the Flora species in 300m radius.

Fauna in Core Zone

A total of 24 varieties of species observed in the Core zone of Nagojanahalli Village, among them numbers of Insects 8, Reptiles 3, Mammals 4 and Avian 9. A total of 26 species belonging to 18 families have been recorded from the core Zone. There is no schedule I and II species. A total of 10 species of bird were sighted in the study area. Details of fauna in core zone with the scientific name were mentioned in Table. 3.26.

Fauna in Buffer Zone

Taxonomically a total of 82 species belonging to 49 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were Birds 50, followed by insects 13, reptiles 11, mammals 5 and amphibians 3. A total of 50 species of bird were sighted in the buffer zone. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in buffer zone with the scientific name were mentioned in Table. 3.27. data collation in secondary data.

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

- Permanent change on land use and land cover. Change in topography of the mine lease area.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles.
- Degradation of the aesthetic environment of the core zone due to quarrying.
- Soil erosion and sediment deposition in the nearby agricultural fields during the rainy season.
- Siltation of water course due to wash off from the exposed working area.

Mitigation Measures

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigate measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during

rainfall and also to collect the storm water for various uses within the proposed area.

- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt. At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir.
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5m safety barrier and other safety provided) so as to help minimize dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 SOIL ENVIRONMENT

4.2.1 Anticipated Impact on Soil Environment

Following impacts are anticipated due to mining operations:

- Removal of protective vegetation cover
- Exposure of subsurface materials which are unsuitable for vegetation establishment

4.2.2 Mitigation Measures from proposed project

- Run-off diversion- Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation- Retain existing or re-plant the vegetation at the site wherever possible.

Monitoring and maintenance- Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.3 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 3.2KLD 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 month 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.

4.4 AIR ENVIRONMENT

Anticipated Impact

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software. The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further

Mitigation Measures

- 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
- Dust mask will be provided to the workers and their use will be strictly monitored
- 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
- The un-metaled haul roads will be compacted weekly before being put into use
- 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
- Planting of trees all along main mine haul roads and around the project site will be practiced to prevent the generation of dust
- Dust mask will be provided to the workers and their use will be strictly monitored

4.5 NOISE ENVIRONMENT

Anticipated Impact

Total noise level in all the sampling areas is well below the CPCB standards for industrial and residential areas.

Mitigation Measures

- ❖ Usage of sharp drill bits while drilling which will help in reducing noise;
- ❖ 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;
- ❖ Green Belt will be developed around the project areas 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 though training and awareness.
- ❖ Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects

4.6 BIOLOGICAL ENVIRONMENT

Anticipated Impact

- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.

- A total of 17 species belonging to 12 families have been recorded from the mining lease area. 2 trees, 6 shrubs and 9 herbs were identified. The survival rate of uprooted trees is 30% Quarry so instead of one tree 10 saplings are bought and planted in 7.5 conservation zone.
- Carbon released from quarrying machineries and tippers during quarrying would be 498kg per day, 134448kg per year and 793714kg over five years, as provided in Table 4.7.

Mitigation Measures

- 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.
- Existing roads will be used; new roads will not be constructed to reduce impact on flora.

4.7 SOCIO ECONOMIC ENVIRONMENT

Anticipated Impact

- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area
- Approach roads can be damaged by the movement of tippers
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

Mitigation Measures

- Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines
- Air pollution control measure will be taken to minimize the environmental impact within the core zone
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc.., from this project directly and indirectly

4.8 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

Table 11.2 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 (1SW & 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 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 three proposed projects 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 three proposed project is well below the permissible limit of Peak Particle Velocity of 5 mm/s
- The proposed three projects will allocate Rs. 30,00,000/- towards CER as recommended by SEAC
- The proposed three projects will directly provide jobs to 100 local people, in addition to indirect jobs
- The proposed three projects will plant 2976 about trees in and around the lease area

7 Project Benefits

Various benefits are envisaged due to the three 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. 10,00,000 will be allocated for CER

8 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs. 10830230** as capital cost and **Rs. 1318150** 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 total recurring cost over 5 years is **Rs. 7283611** and the overall EMP cost for 5 years will be **Rs. 18113841**, as shown in Table 10.2**.**