# EXECUTIVE SUMMARY OF 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 = 6.98.0hectares**

## Black Granite Quarry

At

Ajjanahalli Village, Pennagaram Taluk, Dharmapuri District,

Tamil Nadu State

**ToR File No. 11777**

## ToR Identification No. TO25B0108TN5878289N, Dated.08/04/2025

**NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT**

| Name and address | Extent & S.F.No. | Mineral Production |
|---|---|---|
| **Tvl. KMB TRADING COMPANY**<br>**No.3/50, Bangalore Main Road,**<br>**Five Roads,**<br>**Salem District – 636 004.** | **4.50.0Ha &**<br>**823(P) & 824/3** | **Black Granite**<br>**20% Recovery**<br>**20918MT** |

**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- 2025 to May- 2025**

**OCTOBER- 2025**

# EXECUTIVE SUMMARY

## 1 INTRODUCTION

As the proposed Black Granite mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 6.98.0ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No's. 823 (Part) and 824/3 over the extent of 4.50.0 ha is situated in the cluster falling in Ajjanahalli Village, Pennagaram Taluk, Dharmapuri District, Tamil Nadu. The quarries involved in the calculation of cluster extent are three proposed quarries and five existing Quarries.

## 2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 12°02'36.9302"N to 12°02'48.7413"N Longitudes from 77°47'52.0568"E to 77°48'05.2343"E in Ajjanahalli Village, Pennagaram Taluk, Dharmapuri District, Tamil Nadu. According to the approved mining plan, Black granite 20% recovery of about 20918MT and Granite waste 80% of 83666MT will be mined up to the depth of 45m (24m AGL + 21m 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 and Land Cover (LU/LC) map, as shown in Figure 3.3 & 3.3a was prepared using Sentinel II image for the study area of 5 km radius. Totally, 7 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 12.83 ha of which lease area of 1.87.0 ha contributes only about 0.02%. This small percentage of mining activities shall not have any significant impact on the land environment.

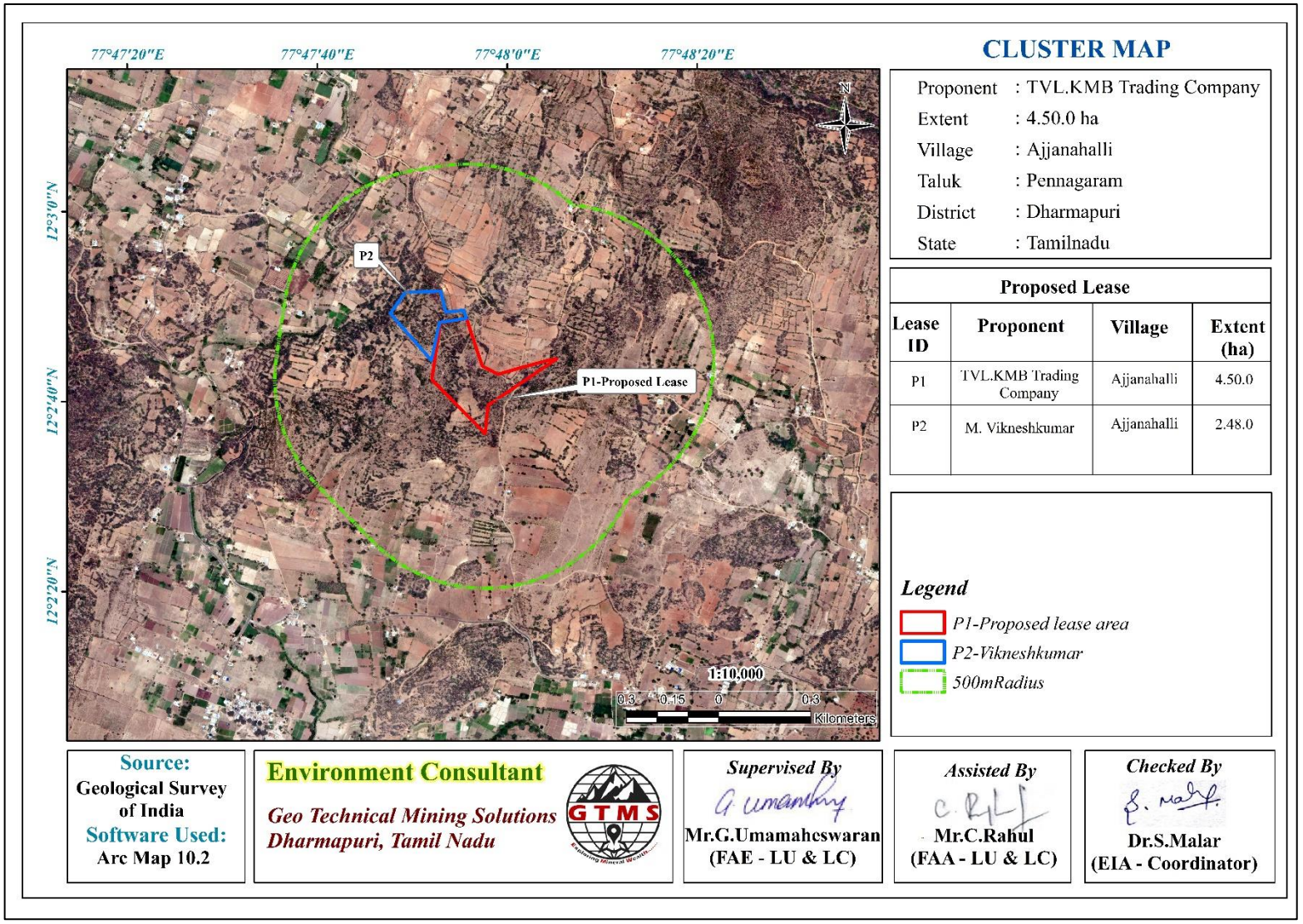


**Figure 1. Google Earth Image Showing in cluster map**

### 3.2 Soil Environment

***Physical Characteristics***

The soil samples in the study area show loamy textures varying between silty clay loam. pH of the soil varies from 7.54 to 8.62 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 0.159 to 0.891mS/m. Nitrogen ranges between 0.023%- 0.068%, Phosphate ranges between 0.0012%- 0.0067%, Potassium ranges between 0.0014% - 0.0032%, Chloride ranges between 0.0029%- 0.0169%. Organic matter content ranges between 0.12 and 0.29%.

***Soil erosion***

- Soil erosion is moderate in the proposed lease area
- Low to moderate soil erosion is in Southeast side of the lease area.

### 3.3 Water Environment

Groundwater in the study area occurs in the Peninsular Gneiss and Charnockite Gneiss. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Dug wells and bore wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.

Four groundwater samples, known as OW1, OW2, OW3, BW1 & SW1 were collected from open well and bore well and analyzed for physico-chemical conditions, heavy metals. Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 3 open wells and 1 bore wells and 1 Surface Water at various locations within 3km radius around the proposed project sites for the period from March through May, 2025 (Pre-Monsoon Season) and from October through December, 2024 (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.7 and 3.8. According to the data, average depths to the static water table in open wells range from 8.9 to 12.9 m BGL in pre monsoon and 8.2 to 11.4m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of October through December 2024 (Post- Monsoon Season) vary from 59.4 to 63.5 m and from 64.1 to 66.9 m for the period of March through

May, 2025 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

From the maps of open well groundwater flow direction shown in Figures 3.8 -3.9, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 2 & 9 located in SE direction of the proposed project site. The groundwater flow maps in Figure 3.10-3.11 show that most of the bore well groundwater for the post- and pre-monsoon seasons flow towards the bore well number 5. It is located in Southwest direction of the proposed project site. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

**3.4 Air Environment**

As per the monitoring data, $PM_{2.5}$ ranges from 16.9 µg/$m^3$ to 20.1 µg/$m^3$; $PM_{10}$ from 43.8 µg/$m^3$ to 52.2µg/$m^3$; $SO_2$ from 5.1 µg/$m^3$ to 6.1 µg/$m^3$; $NO_X$ from 12.1 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 40.6dB (A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 37.6 to 41.1 dB (A) Leq and during night time from 37.6 to 40.7 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 14 species belonging to 9 families have been recorded from the mine lease area. 2 trees, 4 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 38 species belonging to 23 families have been recorded from the buffer zone. 10 Trees, 11 Shrubs and 11 Herbs, Climbers & Grass 6 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.

***Flora within 10km radius buffer zone***

Similar type of environment also in buffer area but with more flora diversity compare than core zone area. It contains a total of species belonging to 41 families have been recorded from the buffer zone. The floral (71) varieties among them 22 Trees, 11 Shrubs, Herbs and Climbers, Creeper, Grass & Cactus, 38 were identified. Details of flora with the scientific name details of diversity species rich ness index were mentioned in Table 3.23.

***Fauna in Core Zone***

A total of 26 varieties of species observed in the Core zone of Ajjanahalli Village, among them numbers of Insects 9, Reptiles 2, Mammals 4 and Avian 7. A total of 17 species belonging to 16 families have been recorded from the core Zone. There is no schedule I and II species. A total of 12 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 68 species belonging to 49 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were followed by insects 11, reptiles 11, Aves 38, Mammals 5 and amphibians 3. A total of 38 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**

- 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 4.0KLD 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.

**4.3 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 < 20km/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.

## 4.4 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.

## 4.5 Biological Environment

***Anticipated Impact***

- 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 which vegetation in the lease area may be removed during mining.
- Carbon released from quarrying machineries and tippers during quarrying would be 450kg 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

- 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 134448kg of carbon per year. Therefore, we recommend 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 4.19), about 2250 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 2459kg of the total carbon, as provided in Table 4.8.

## 4.6 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

## 4.7 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**

**Table 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 four 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. 10,00,000/- 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 2250 about trees in and around the lease area
- The proposed three projects will add 23 PCU per day to the nearby roads.

## 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. 3242300** as capital cost and **Rs.1390430** 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. 7683003** and the overall EMP cost for 5 years will be **Rs. 10925303**, as shown in Table 10.2.