

# **Executive Summary**

## **Rough Stone Quarry**

M/s. Argunt Aggregate Private Limited,  
No.1B, Pattel Street,  
Sivagiri, Erode – 632 507  
Phone: +91 – 944320333  
E-mail: argunt.karthi@gmail.com

Extent : 2.00.0 Ha  
Village : Annaimallur  
Taluk : Arcot  
District : Ranipet

Total Extent of the Cluster quarries 11.10.0 Ha  
(2 Proposed quarry + 4 Existing quarries)

### **PREPARED BY**

**M/s. Geo Exploration and Mining Solution,**

Accredited for Sector 1, 28 & 38 Category 'A'  
Quality Council of India – National Accreditation Board for Education & Training, New Delhi  
Certificate No : NABET/EIA/1821/RA 0123

## 1. INTRODUCTION –

M/s. Argunt Aggregate Private Limited applied for Rough Stone quarry lease in S.F.Nos 374/5 (Part-14) over an extent of 2.00.0 Ha in Anaimallur Village, Arcot Taluk, Ranipet District .

The area applied for Rough Stone quarry lease require Environmental Clearance as per The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14<sup>th</sup> September 2006 and its subsequent amendments.

Environment Impact Assessment taken by including Cumulative load of Existing and proposed quarries within the radius of 500m from the proposed project site. Four Existing Quarries and Two proposed Quarry (including this) falls in the cluster area, total extent of Cluster is 11.10.0 ha. Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016.

The proposed project is categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of Final EIA/EMP Report for Grant of Prior Environmental Clearance.

This cumulative Environmental Impact Assessment (EIA) report is prepared comprising 2 proposed quarry and 4 Existing Rough Stone quarry over a combined extent of 11.10.0 ha.

***For the easy representations the six leases are considered as Lease 1 to Lease 6***

Description	P1 M/s. Argunt Aggregate Private limited	P2 Mrs. S. Arutselvi	E1 Thiru.A.V.Sarathy	E2 Tmt. R. Subanithyadeepa
<b>BASIC DETAILS</b>				
S.F.No's	374/5 (Part-14)	374/5 (Part-12)	374/5 (Part-11)	374/5 (Part-9)
Extent& Classification	2.00.0 ha	4.50.0 ha	0.80.0 ha	2.00.0 ha
Village, Taluk, district and state	Anaimallur Village, Arcot Taluk, Ranipet District.			
Description	E3 Thiru.A.V. Sarathy	E4 Thiru. G.S. Venkatesh		
<b>BASIC DETAILS</b>				
S.F.No's	374/5 (Part-10)	374/5 (Part-7)		
Extent&	0.80.0 ha	1.00.0 ha		

In this cluster quarry project proponent M/s. Argunt Aggregate Private Limited, Mrs. S.Arutselvi applied for Rough Stone quarry (New proposal) and Thiru.A.V.Sarathy , Tmt. R. Subanithyadeepa, Thiru.A.V. Sarathy, Thiru. G.S. Venkatesh quarries are already under operation.

The application was processed and has been recommended for quarrying lease with precise area communication vide Lr. Rc.No.318/2019 (Kanimam) Dated: 26.11.2019.

## 2. PROJECT DESCRIPTION –

The proponent is Private Limited; the key features of the project site are tabulated below.

**Table 1.0 KEY FEATURES OF THE PROJECT**

Description	Details
Name of the Proponent	<b>M/s.Argunt Aggregate Private Limited</b>
Latitude between	12°49'15''N to 12°49'21''N
Longitude between	79°16'07'E to 79°16'14''N
Mineable Reserves	<b>Rough Stone</b> <b>Topsoil</b>
	8,95,650                                      18880
Proposed Depth At present Plan period BGL	66 m (51 m agl + 15 m bgl)
Topography of the area	219m AMSL
Reserved forest	Punganur R.F – 5.0 km North West
Water level	50m during post monsoon and 53m in pre monsoon

**TABLE 2.0: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE**

Quarry	Proposed 5 Year Mining Plan Period Reserves in m <sup>3</sup>	Avg. Per Year Production m <sup>3</sup>	Per Day Production m <sup>3</sup>	Number of Lorry Load Per Day
P1	8,95,650	1,79,130	597	100
P2	13,00,238	2,60,048	867	144
E1	46,420	9,284	31	5
E2	75,130	15,026	50	8
E3	89,126	17,825	59	10
E4	3,22,500	64,500	215	36
<b>TOTAL</b>	<b>24,06,564 m<sup>3</sup></b>	<b>4,81,313 m<sup>3</sup></b>	<b>1604 m<sup>3</sup></b>	<b>267 Trips per day</b>

**TABLE 2.1: CUMULATIVE PRODUCTION LOAD OF TOPSOIL**

Quarry	Proposed 5 Year Mining Plan Period Reserves in m <sup>3</sup>	Avg. Per Year Production m <sup>3</sup>	Per Day Production m <sup>3</sup>	Internal Trips – Lorry Load Per Day
P1	18,880	18,880	63	11

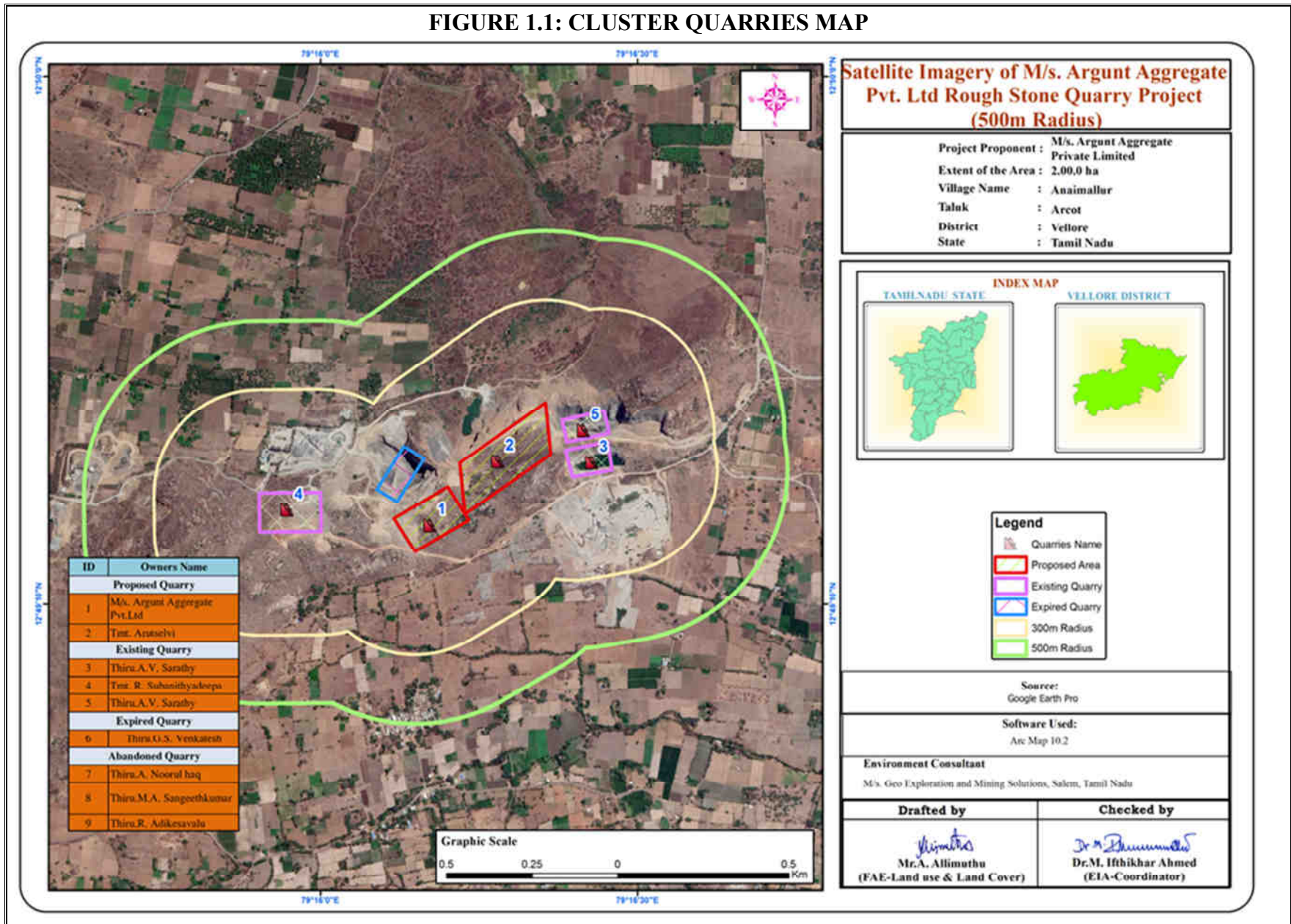
P2	Nil	Nil	Nil	Nil
E1	Nil	Nil	Nil	Nil
E2	Nil	Nil	Nil	Nil
E3	Nil	Nil	Nil	Nil
E4	6000	6000	20	3
<b>TOTAL</b>	<b>18,880 m<sup>3</sup></b>	<b>18,880 m<sup>3</sup></b>	<b>63 m<sup>3</sup></b>	<b>11 Trips per day</b>

**TABLE 2.2: CUMULATIVE PRODUCTION LOAD OF TOPSOIL  
WAEATHERED GRAVEL**

Quarry	Proposed 5 Year Mining Plan Period Reserves in m <sup>3</sup>	Avg. Per Year Production m <sup>3</sup>	Per Day Production m <sup>3</sup>	Number of Lorry Load Per Day
P1	Nil	Nil	Nil	Nil
P2	35,728	35728	119	20
E1	16,380	5460	18	3
E2	50,400	50400	168	28
E3	Nil	Nil	Nil	Nil
E4	Nil	Nil	Nil	Nil
<b>TOTAL</b>	<b>1,02,508 m<sup>3</sup></b>	<b>91,588 m<sup>3</sup></b>	<b>305 m<sup>3</sup></b>	<b>51 Trips per day</b>

- The quarried out Rough Stone will be transported to needy crushing units
- Opencast, Mechanized Mining is proposed the Bench Height is about 5 Meters and Bench Width is 5 Meters with 90° Slope
- No wastages anticipated the entire quarried out material is utilized as 100%
- Short-hole drilling of 32-35 mm diameter by jackhammer drills with Air Compressor.
- Project has provided direct employment opportunities to 27 peoples and indirect employment opportunities within the surrounding region for about 87 peoples in the field of Mineral transport, service sector, garages, shops/canteen, etc.,
- There is No Protected Areas Notified under The Wild Life (Protection) Act, 1972, Critically Polluted Areas as notified by the Central Pollution Control Board constituted, Notified Eco-Sensitive Areas, Interstate boundaries and International Boundaries, besides there are No National Parks, Reserve forest, Biosphere Reserves, Elephant Corridors, Mangrove Forest, Archeological Monuments, Heritage Site etc. within 10 KM Radius from Project Site.

**FIGURE 1.1: CLUSTER QUARRIES MAP**



### **3. DESCRIPTION OF THE ENVIRONMENT –**

Baseline data generation forms a part of the Environment Impact Assessment Study, which helps to evaluate the predicted impacts on the various environmental attributes and helps in preparing an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and scope of future expansions for environmentally sustainable development.

Baseline data was generated for various environmental parameters including air, water (surface and ground water), land and soil, ecology and socio-economic status to determine quality of the prevailing environmental settings. The Base Line Study was conducted during pre-monsoon (October – December) season in 2020.

#### **3.1 Land Environment**

Land use pattern of the area is studied through the Bhuvan (ISRO) by covering 10KM radius from the periphery of the cluster quarries. Existing land use pattern of the area is dry barren land, proponent own patta land, No forest land is involved.

The project area of 2.00.0 ha contributes about 0.84 % of the total mining area within the study area .

This small percentage of Mining Activities shall not have any significant impact on the environment. The majority of the land in the study area is Forest land 33.78 % followed by Crop land 39.55%, water bodies 20.19% . The total mining area within the study area is 237.11 ha i.e., 0.70 %. The cluster area of 11.10.0 ha contributes about 4.68 % of the total mining area within the study area. This percentage of Mining Activities shall not have any significant impact on the environment.

#### **Soil Environment**

Six soil sampling locations were selected and analysed.

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.217 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 32 – 55 %.

#### **Chemical Characteristics –**

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.18 to 7.86
- The available Nitrogen content range between 59 to 131 kg/ha
- The available Phosphorus content range between 73 to 179 kg/ha

- The available Potassium range between 6.2 to 8.1 mg/kg

#### **Water Environment –**

Around 4 ground water and 2 surface water samples were collected to assess the water quality. The ground water samples were drawn from bore wells of villages being used for domestic needs. Surface water samples were taken from lakes and mine pit.

#### **Ground Water –**

- The pH was varying from 7.36 to 8.24
- The TDS values is ranging from 486 - 733 mg/l
- Hardness values is ranging from 194 – 246 mg/l

#### **Surface Water (Mine pit water) –**

- The pH value is 7.22 to 7.74
- The TDS values is 524 to 658 mg/
- Total Hardness value is 227 mg/l to 238 mg/l. The heavy metal content has been found to be well within the limit. The physio-chemical and biological analysis revealed that these waters are well within the prescribed limits as per CPCB standard.

### **3.2 Air Environment –**

#### **Meteorology (Climate) –**

The study area is part of tropical climate. The mean maximum temperature ranges from 27.3 to 29.4 °C the wind speed ranges from 1.111 to 10.9032 m/s. The day temperatures increase gradually from January onwards. The lowest temperature is reached in January. April and May are the hottest months in the year.

#### **Air quality Monitoring -**

As per monitoring data, PM<sub>10</sub> ranges from 40.2 µg/m<sup>3</sup> to 49.3 µg/m<sup>3</sup>, PM<sub>2.5</sub> data ranges from 14.2 µg/m<sup>3</sup> to 19.9 µg/m<sup>3</sup>, SO<sub>2</sub> ranges from 5.0 µg/m<sup>3</sup> to 9.7 µg/m<sup>3</sup> and NO<sub>2</sub> data ranges from 14.3 µg/m<sup>3</sup> to 19.9 µg/m<sup>3</sup>.

#### **Noise Environment –**

- Baseline noise levels were monitored at 7 locations, using continuous noise measurement device. Day levels were monitored during 6 AM to 10 PM and the night levels during 10 PM to 6 AM.
- The day equivalents during the study period are ranging between 45.2 – 47.9 dB (A)
- The night equivalents were in the range of 35.1 – 37.4 dB (A).

From the results, it can be seen that the Day equivalents and the Night equivalents were within the Ambient Noise Standards of Industrial / Commercial / Residential Area.

### **3.3 Biological Environment –**

Ecological survey has been carried out to understand baseline ecological status, important floristic elements and fauna structure.

There are no medicine plants in the vicinity of the project area and no schedule I fauna mentioned as per Wild Life Protection Act 1972 or under threatened category of the IUCN Red List of Threatened Species.

### **3.4 Socio Economics –**

Sample survey was carried out to collect qualitative information about the socio-economic environment of the area. The Study area has all basic amenities such as roads, drinking water facilities, township, education institution, temples, medical facilities and electricity facilities and was evident during the site visit.

Though agriculture is the main occupation in the surrounding villages, it has provided employment opportunities to only 50-60% of the families. The remaining population is depended on the other type of employment opportunities mainly as laborers.

## **4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

### **4.1 Land Environment:**

In the Opencast Mining method the major impact is Land Environment, The existing land use pattern of the area is dry barren land, No forest land is involved in this project. The project area of 11.10.0 ha which is about only 0.84% of the total study area and contributing 4.68% of the total mining area within the study area which will have the impact during the mining activity. After end of the mine the mined out pit will be partially backfilled and partially allowed to store the rain water which act as a temporary reservoir.

There is no vegetation found in the project area at present, after the completion of the mining operation the rate of the green belt development will be increased in the project site.

### **4.2 Water Environment**

The proposed depth for the mining operation is well above the water table, there is no intersection of surface water (streams, Canal, Odai etc.,) within the study area.

#### **Mitigation Measures –**

- Construction of garland drains to divert surface run – off in to the mining area
- Construction of retaining with weep holes around the Mineral reject dumps to prevent the siltation to the nearby lands.



### **4.3 Air Environment–**

The air borne particulate matter generated by mining operations and transportation is the main air pollutant. The emissions of Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Oxides (NO<sub>2</sub>) contributed by vehicles plying on haul roads will be marginal.

The Predicted maximum Ground level concentration of 24 Hour average of particulate matter concentration is superimposed on the maximum baseline concentration obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase.

#### **Mitigation Measures –**

- Controlled blasting techniques will be implemented
- Water sprinkling on working face to control dust emission from loading & handling operations
- Water sprinklers along the mine haulage roads to reduce dust generation during plying of HEMM
- Periodic water sprinkling on waste dumps and haul roads to minimize dust emissions.
- Practicing wet drilling & Dust mask provision to workers
- Avoiding of overloading of tippers and covering of loaded tippers with tarpaulins during ore transportation
- Green belt development will be carried out to arrest the dust particles.
- Periodical monitoring of air quality to take steps to control the pollutants

### **4.4 Noise Environment**

Noise pollution is mainly due to the blasting, Operation of machineries and Occasional plying of tippers in the mines.

#### **Mitigation Measures –**

- Controlled blasting techniques will be implemented, Noise due to the blasting from the mine site not going to be significant it will be upto a few seconds in the whole day.
- In the high noise intensity working areas, earmuffs or earplugs or any other suitable personal protective equipment will be provided to the workers.
- Regular noise level monitoring shall be done periodically for taking corrective action.
- Green belt development around the mine site, office buildings and all along the internal road will be practiced as to create a barrier between the source and the receiver so that the noise is absorbed and the exposure level is minimized.

#### **4.5 Biological Environment**

The impact on biodiversity is not anticipated as there is no forest, wild life sanctuaries, Eco sensitive zone within the radius of 10KM.

The impact on the terrestrial ecology would be due to emission of gaseous pollutant like NO<sub>x</sub>. Adequate dust control measures will be taken to control dust emission. Besides the air quality standards values for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> within the AAQ standards. Thick Greenbelt development will be carried out in the mine area and haul roads to control the dust emission.

#### **4.6 Socio Economic Environment.**

Due to the mining activities 27 number of skilled and unskilled workers are benefitted through direct employment. About 90 number of peoples will be get employment opportunities indirectly.

Additional facilities such as medical, educational and infrastructural development will also take place under CSR/CER activities.

Considering the socio – economic and sociological impact it has been noticed that the economic level and living standard of the people will generally increase.

### **5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)**

#### **Site Alternatives –**

No alternative site has been proposed as Rough Stone occurrence is site specific in nature and the location of the proposed project is restricted to the geology and mineral deposition of the area.

#### **Mining Technology alternatives –**

Mining will be carried out through Open cast category mechanized mine, as it is more economically viable, and preserves the conservation of minerals and environment. Unlike other industries, the project cannot be shifted to other sites.

The project will follow opencast mining method because of surface mineral deposits and to ensure higher mineral conservation. The mining by opencast method will be highly productive & economical as compared to underground method.

### **6 ENVIRONMENT MONITORING PROGRAM –**

Usually an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment. The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;

- To establish a data base for future impact assessment studies.

#### **7 ADDITIONAL STUDIES - RISK ASSESSMENT & HAZARD –**

The components associated with risk and hazard in this mining case include drilling & blasting, waste dump, heavy earth moving machinery and explosive storage. Measures to reduce and avoid any incidents occurring from the above mentioned components shall be planned and implemented as soon as the mine starts commissioning; this includes measures to avoid the above discussed risk factors. Proper risk management plan will be proposed to avoid any kind of accident/ disaster.

#### **8 PROJECT BENEFITS –**

- Improvement in physical infrastructure
- Improvement in Social Infrastructure
- Employment Potential
- Proponent will carry out CSR activities like community awareness program, health camps, Medical aid, family welfare camps etc.,
- A massive plantation will be done in the mine area to mitigate the ill-effects of mining and to improve the vicinity and environment of mine and its surrounding area.

#### **9 ENVIRONMENTAL COST BENEFIT ANALYSIS.**

Environmental cost benefit analysis is not recommended.

#### **10 ENVIRONMENT MANAGEMENT PLAN –**

The Environmental Management Plan (EMP) is a site specific plan developed based on the base line environmental status, mining methodology and environmental impact assessment. In each of the areas of impact, measures have to be taken to reduce potentially significant adverse impacts and where these are beneficial in nature, such impacts are to be enhanced/ augmented so that the overall adverse impacts are reduced to as low level as possible.

The proponent shall organize an Environment Monitoring Cell which is responsible for the management and implementation of the environmental control measures. Basically, this department shall supervise the monitoring of environmental pollution levels like ambient air quality, water quality, soil quality and noise level by appointing approved external agencies.

The working conditions in the mines are governed by the enactments of the Director General of Mines Safety (DGMS). The proponent shall take all necessary precautions regarding

health and safety of workers as per the guidelines of the Mines Act, sanitary facilities shall be provided within the lease area carry out periodic health check-up of workers.

The proponent will carry out CSR activities for overall development of the people in the area. The activities shall include medical camps, water supply, improvement of school infrastructure, etc. The proponent Proposed to carry out CER activities Providing sanitary facilities and RO water purifier to the Government school and Hospitals @ 2% from the total project cost the cost would be around 3.53 Lakhs

#### **11 CONCLUSION –**

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for continuous monitoring and immediate rectification at site. Due to the mining activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Environmental Clearance shall be granted at the earliest.