EXECUTIVE SUMMARY
OF
DRAFT EIA / EMP REPORT
FOR
ROUGHSTONE AND GRAVEL QUARRY

Extent	**4.42.0 Ha**
Location	**Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu**
S.F.Nos	**58/1A, 58/1B, 58/2A, 58/2B, 58/3, 58/6, 58/7, 58/8A, 58/8B, 59/2A, 61/1B, 61/2A, 61/2B, 61/3, 61/4A, 61/5A and 61/6**

Production

Year	Rough Stone in m^3	Weathered Rockm^3	Gravel in m^3	Depth in m
1 to 5	4,76,435	35,703	74,124	18
6 to 10	5,41,795	-	-	30
Total	10,18,230	35,703	74,124	48

PROJECT PROPONENT

THIRU R.KATHIRVELU
No.19C, Vilakkadi Kovil Thoppu Street, Kanchepeuram - 631501

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS
NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB
9B/4, Bharathwajar Street, East Tambaram, Chennai-600059.
Ph: 044-22395170, Cell: 09444133619 Email : cecgiri@yahoo.com,

Creating Possibilities

Category – B1

APRIL 2023

SUMMARY

1.1 INTRODUCTION:

Thiru. R.Kathirvelu proposes to operate a Rough Stone and Gravel Quarry at Survey No. 58/1A, 58/1B, 58/2A, 58/2B, 58/3, 58/6, 58/7, 58/8A, 58/8B, 59/2A, 61/1B, 61/2A, 61/2B, 61/3, 61/4A, 61/5A and 61/6 over an area of 4.42.0Ha in Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu and has initiated action towards obtaining environmental clearance. The lease period is 10 years. Entire land is a patta land.

It is proposed to mine 4,76,435 m^3 of Roughstone and 35,703 m^3 of Weathered Rock and 74,124 m^3 of Gravel for a period of first 5 years upto a depth of 18m as per approved ToR as against the mining plan approved quantity of 6,00,630 m^3 of Roughstone and 74,124 m^3 of Gravel and 35,703 m^3 of Weathered Rock for a period of 5 years upto a depth of 23m. In the second 5 years lease period, 5,41,795 m^3 of Roughstone will be mined upto a depth of 48m bgl.

Although the individual lease area of this project is less than 5 Ha, the other quarries within the 500m radius along with this subject project works out to > 5Ha and as such this proposal is considered under Category – B1 Nessistating preparation of EIA/EMP Report and public hearing.

1.2 STATUTORY APPROVALS:

1.	Precise Area Communication Letter	Rc.No. 1127/Kanimam/2021 dated 30.03.2022
2.	Mining Plan Approval	Rc.No1127/Kanimam/2021 dated 13.04.2022
3.	Terms of Reference	Issued by SEIAA, Tamil Nadu vide letter no. SEIAA-TN/F.No.9227/SEAC/ToR-1195/2022/Dated 14.07.2022 and its Amendment dated 28.11.2022

Based on the conditions of Precise Area Communication letter 7.5m safety distance has been left for the adjoining patta lands.

As per TOR Condition, EIA/EMP report is prepared. The impact assessment and mitigative measures is carried out for the peak production of the mine lease period and the entire area of quarry operation and can be construed as applicable for the entire lease period.

Salent details of the report is given below.

2.1 SITE DESCRIPTION:

Table No.1: SITE DETAILS

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Name of the Project</td><td>Rough Stone and Gravel Quarry of Thiru R.Kathirvelu</td></tr>
<tr><td>2.</td><td>Location of the project</td><td>Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu</td></tr>
<tr><td>3.</td><td>Proposed production</td><td>
<table>
<tr><th>Year</th><th>Rough stone(m3)</th><th>Weathered Rock(m3)</th><th>Gravel (m3)</th></tr>
<tr><td>I</td><td>109770</td><td>21988</td><td>45288</td></tr>
<tr><td>II</td><td>109780</td><td>13715</td><td>28836</td></tr>
<tr><td>III</td><td>126840</td><td>--</td><td>--</td></tr>
<tr><td>IV</td><td>127185</td><td>--</td><td>--</td></tr>
<tr><td>V</td><td>2860</td><td>--</td><td>--</td></tr>
<tr><td>Sub Total (Year I to V)</td><td>476435</td><td>35703</td><td>74124</td></tr>
<tr><td>Year VI to X</td><td>5,41,795</td><td>--</td><td>--</td></tr>
<tr><td>Total</td><td>10,18,230</td><td>35,703</td><td>74,124</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>Latitude & Longitude</td><td>Latitude: 12°44’34.02”N to 12°44’41.99”N
Longitude: 79°34’36.73”E TO 79°34’46.50”E</td></tr>
<tr><td>5.</td><td>Mining Lease area</td><td>4.420 Ha</td></tr>
<tr><td>6.</td><td>Type of land</td><td>Patta Land</td></tr>
<tr><td>7.</td><td>Mine site topography</td><td>Almost Plain Terrain</td></tr>
<tr><td>8.</td><td>Accessibility</td><td>The lease area can be approached through Sumangali Road which connects to Vembakkam on the northern side of the lease area and Cheyyar on the southern side of the lease area.</td></tr>
<tr><td>9.</td><td>Nearest Highway</td><td>(SH-5) Tindivanam – Vembakkam –6.5km (SW)</td></tr>
<tr><td>10.</td><td>Nearest Railway station</td><td>Kanchipuram – 16.5km - E</td></tr>
<tr><td>11.</td><td>Nearest Airport</td><td>Chennai – 68Km – SE</td></tr>
<tr><td>12.</td><td>Nearest major water bodies</td><td>odai 50m from mine area
Thangal – 53m(SW)
Tandarai canal - 2.6km (SE)
Mamandur Tank – 5.1km(E)
Palar River -9.5km(NE)</td></tr>
<tr><td>13.</td><td>Notified Archaeologically important places, Monuments</td><td>Mamandur Cave – 9.4km, E</td></tr>
<tr><td>14.</td><td>Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks,</td><td>Nil within 10m radius</td></tr>
</table>

S.No	Particulars	Details
	Wildlife sanctuaries, community reserves and conservation reserves)	
15.	Reserved / Protected Forests	Tandappantangal RF – 6.5km (NW) Pulavakkam RF – 9.1km (W)
16.	Seismic Zone	Zone – II (Least Active)

Table No.2: TECHNICAL DESCRIPTION

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Geological reserve</td><td>Roughstone – 19,83,285cum ,
Weathered Rock - 44,073cum
Gravel-88,146cum</td></tr>
<tr><td>2.</td><td>Mineable reserve</td><td>Roughstone – 10,18,230cum ,
Weathered Rock – 35,703cum
Gravel-74,124cum</td></tr>
<tr><td>3.</td><td>Method of Mining</td><td>Opencast semi mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers.</td></tr>
<tr><td>4.</td><td>Production</td><td>
<table>
<tr><th>Year</th><th>Rough stone(m3)</th><th>Weathered Rock(m3)</th><th>Gravel (m3)</th></tr>
<tr><td>I</td><td>109770</td><td>21988</td><td>45288</td></tr>
<tr><td>II</td><td>109780</td><td>13715</td><td>28836</td></tr>
<tr><td>III</td><td>126840</td><td>--</td><td>--</td></tr>
<tr><td>IV</td><td>127185</td><td>--</td><td>--</td></tr>
<tr><td>V</td><td>2860</td><td>--</td><td>--</td></tr>
<tr><td>Sub Total (Year I to V)</td><td>476435</td><td>35703</td><td>74124</td></tr>
<tr><td>Year VI to X</td><td>5,41,795</td><td>--</td><td>--</td></tr>
<tr><td>Total</td><td>10,18,230</td><td>35,703</td><td>74,124</td></tr>
</table>
</td></tr>
<tr><td>5.</td><td>Lease period</td><td>10 Years</td></tr>
<tr><td>6.</td><td>Waste Generation and Management</td><td>No waste generation anticipated in this quarry operation since the entire excavated material will be utilized.</td></tr>
<tr><td>7.</td><td>Ultimate Mine depth</td><td>5 years - 18m bgl, End of 10 years lease period – 48m bgl</td></tr>
<tr><td>8.</td><td>Manpower</td><td>32 People directly and more than 50 people indirectly</td></tr>
<tr><td>9.</td><td>Water Requirement &</td><td>Total water – 10 KLD</td></tr>
</table>

S.No	Particulars	Details
	source	Will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.
10.	Power Requirement	All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.
11.	Site services	Mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.
12.	Project cost	Rs.98,68,000/-
13.	CER cost	Rs.5.0 Lakhs

3.1 EXISTING ENVIRONMENTAL SCENARIO:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Winter Season (December 2022 to February 2023)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. The proposed quarry is located in in kaganam Village, Vembakkam Taluk, Tiruvannamalai District. Based on 2011 census data, in the 10km radius the following are present:

Table No.3: SOCIAL, ECONOMIC AND DEMOGRAPHIC PROFILE OF THE STUDY AREA

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	80104	50.10
Female Population	79779	49.90
Total	**159883**	**100**
B. Caste-wise population distribution		
Scheduled Caste	31389	19.63
Scheduled Tribes	1728	1.08
Other	126766	79.29
Total	**159883**	**100**
C. Literacy Levels		
Total Literate Population	111591	69.80
Others	48292	30.20

Details	Population	Percentage
Total	**159883**	**100**
D. Occupational structure		
Main workers	61775	38.60
Marginal workers	16060	10.10
Total Workers	**77835**	**48.70**
Total Non-workers	**82048**	**51.30**
Total	**159883**	**100**

3.2.1 EXISTING ENVIRONMENTAL QUALITY:

Table 1: Baseline Data

B) AMBIENT AIR QUALITY	**Monitoring Location –** 5 locations		
PARAMETER	**RESULT (µg/m3)**		***LIMIT (µg/m3)**
Location	**Core Zone**	**Buffer Zone**	
Particulate Matter (Size <10 µm)	52.6 – 78.6	39.4 – 65.2	100
Particulate Matter (Size <2.5 µm)	24.4 – 36.4	17.9 – 30.8	60
Sulphur Dioxide (as SO_2)	5.4 – 7.7	4.2 – 7.2	80
Nitrogen Dioxide (as NO_2)	7.1 – 11.8	5.8 – 10.5	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m3, 60 µg/m3, 80 µg/m3 & 80 µg/m3. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m3)			
C) WATER QUALITY	**Monitoring Location –** 5 locations		
PARAMETER	**Result**		***LIMIT (µg/m3)**
pH at 25 ˚C	7.05 – 7.66		**6.5-8.5**
Total Dissolved Solids, mg/L	340 – 656		**2000**
Chloride as Cl-, mg/L	13.7 – 216		**1000**
Total Hardness (as CaCO3), mg/L	184 – 368		**600**
Total Alkalinity (as CaCO3), mg/L	187– 257		**600**
Sulphates as SO42-, mg/L	BDL(D.L - 5.0) – 55.4		**400**
Iron as Fe, mg/L	BDL(D.L - 0.01)– 0.05		**0.3**
Nitrate as NO3, mg/L	1.5– 4.65		**45**
Fluoride as F, mg/L	0.16 – 0.58		**1.5**
Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.			
D) NOISE LEVELS	**Monitoring Location –** 5 locations		

PARAMETER	RESULT dB(A)		*LIMIT (µg/m3)
	Day Equivalent	Night Equivalent	
Core Zone	46.5	39.6	**90**
Buffer Zone	46.9 – 48.8	37.8 – 40.7	**Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)**
*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.			
E) SOIL QUALITY	**Monitoring Location –** 3 locations		
PARAMETER	**Range of values**		
pH	6.96 – 7.65		
Electrical Conductivity (µmho/cm)	39.68 – 98.54		
Organic matter (%)	0.64 – 0.89		
Total Nitrogen (mg/kg)	55.6 – 165		
Phosphorus (mg/kg)	1.56 – 2.65		
Sodium (mg/kg)	428- 492		
Potassium (mg/kg)	320 -362		
Soil is of Sandy Clay Loam type.			

3.2.2 LAND EVIRONMENT:

For the present study on land use pattern in the study area, remote sensing satellite data have been used. Major part of the study area is fallow land followed by land with scrub, water bodies, mining areas, river and builtup area.

3.2.3 BIOLOGICAL ENVIRONMENT:

Flora: The lease area is a non-forest, private land. Major part of lease area is barren fallow land with few bushes (Prosopis juliflora) and grasses.

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals are commonly found. No wild mammalian species was directly sighted during the field survey. There is no Schedule I species in the core & buffer zone.

3.2.4 HYDROLOGICAL STUDY:

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it reduces during summer.

The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

4.1 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This is a proposed project and Semi – Mechanized Open Cast mining will be carried out to quarry out Rough Stone, & Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc. The impact assessment and mitigative measures is carried out for the peak production of the mine lease period and the entire area of quarry operation and can be construed as applicable for the entire lease period.

4.1.1 AIR ENVIRONMENT:

The principal sources of air pollution in general due to mining and allied activities will be Excavation, Drilling, Movement of HEMM such as Excavators, tippers etc., Loading and unloading operation and transportation. In case of this mine, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

- Regular wetting of transport road using mobile water tanker.
- Wet drilling / Covering of drill holes with wet clothes
- Proper maintenance of roads.
- Avoiding overloading of tippers & Transportation of material by tarpaulin covered trucks
- Proper maintenance of HEMM to minimize gaseous emission

- Setting up of tyre washing facility in the lease area exit.
- Vehicular emission tests with digital smoke meter.
- Provision green netting around the lease periphery on all sides.
- Development of green belt/ plantation in various areas within the mine lease area etc.

By adoption of all these measures, no adverse impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM_{10} are in the range of 57.2 μg/m3 to 84.4 μg/m3 and with respect to PM2.5 are in the range of 26.9 μg/m3 to 38.7 μg/m3 which are within the statutory limits in each case.

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

4.1.2 WATER ENVIRONMENT:

The total water requirement for this project will be 10.0 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose.

The domestic effluent to be generated from the project will be collected in septic tank with soak pits arrangements. This being a mining project there will not be any process effluent. The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.

There is an odai at a distance of 50m in the south western side of the lease area. It connects to a Thangal at a distance of 53m on the south western side of the lease area. There is no

proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

4.1.3 NOISE ENVIRONMENT:

During mining operation there will be noise generation due to working of excavators, movement of vehicles, etc. However, it will be felt near the active working area only and at away from its source it will get reduced. There will also be attenuation due to vegetation , tin sheet/ green netting to be erected by the proponent all around the lease and as such there will not be any adverse noise propagation outside the lease boundary Due to natural attenuation effects, by proper green belt development, design / maintenance of machines, etc., the impact on noise levels will be negligible and are expected to be well within the prescribed limits.

4.1.4 VIBRATION:

In the proposed mine workings, blasting & vibration effects will be controlled by adopting following measures.

- Carrying out controlled blasting using Nonel delay detonator.
- Optimum design for burden and spacing.
- Reducing explosive charge per delay to minimum.
- Using rock breaker wherever possible
- Proper care and supervision during blasting by a competent and experienced person to be carried out.
- Besides, different blasting time for both the projects is suggested and the timing is to be mentioned in the display board in the mines entrance.

By adoption of above measures, it will be ensured that ground vibrational levels due to blasting will be maintained within the prescribed DGMS conditions of 10 mm/s for the domestic houses/structures.

4.1.5 IMPACT ON LAND ENVIRONMENT:

Mining will be carried out up to 18m depth for 5 years, Subsequently, in the remaining 6th to 10th year, the entire lease area will be mined at a depth of 48m. Ultimately the entire mined out area of 3.550 Ha will be left as water body. 0.030 Ha will be the mine roads & infrastructure,

0.400 Ha will be covered with vegetation, and 0.440 Ha will be left as unutilized area. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the rainwater harvested in the mined out void shall be utilized.

4.1.6 BIOLOGICAL ENVIRONMENT:

Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation or agricultural activity nearby. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area

4.1.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is private patta land owned by the applicant. There are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

The mining operations in the proposed mine will provide the following socio-economic benefits:

- Direct Employment for about 32 persons.
- Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service-related activities connected with the project operations.
- Benefit to State and central exchequer by way of royalty, taxes.

Towards the socio-economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in the nearby Government school. In consultation with the locals based on the need & priority it will be implemented.

By carrying out systematic and scientific mining and implementing all the environmental mitigative measures it will be ensured that there will be no adverse impact on this front.

4.1.8 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

The material mined out from this lease area will be directly transported to the required customers. During the project operations, there will be a maximum of 8 trips/hr. The transport

route will be properly maintained to absorb this traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- Water sprinkling on mineral in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- Plantation on either side of the transport road in consultation with the concerned department.
- Proper maintenance of transport road.
- Proper maintenance of transport vehicles.
- Avoiding overloading of material.
- Covering of loaded vehicles with tarpaulins sheet.
- Keeping traffic regulators at vulnerable locations.
- Limiting of speed
- Installation of barriers at vulnerable locations

4.1.9 WASTE MANAGEMENT:

There is no process effluent generation from this mine. Hence no liquid waste is generated. Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

5.1 ENVIRONMENTAL MONITORING PROGRAME:

Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area. The Mines Manager in the mine project site will be directly responsible for various environmental activities in the mine and will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. Towards EMP measures, Rs.29.81 Lakhs is allocated under capital cost. Besides, Rs.28.56 Lakhs per annum is allocated as recurring cost. The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarry.

6.1 CONCLUSION:

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved income for local people, improved social welfare facilities in respect of education, medical healthcare systems, etc. in its own way and also revenue to Government through royalty, taxes etc. Besides, it will meet the raw material requirement of the construction industry also.

* * * * * * * * *

Table1: Environmental Control Cost

Rs. In lakhs

S. No	Mitigation Measure	Capital cost	Recurring Cost /Annum
Air Environment			
1	Water sprinkling	8.00	0.50
2	Installing wheel wash system near gate of quarry	0.50	0.20
3	Muffle blasting – To control fly rocks during blasting	0.00	0.05
4	Wet Drilling with dust extraction	0.25	0.03
5	Environmental Monitoring	0.00	0.50
6	Transport Trucks -Monitoring exhaust fumes, covering with tarpaulin, monitoring manually with security guard to avoid overloading and installation of speed governers, Parking area with flaggers for traffic management	2.90	0.74
7	Road Maintenance - Haul road maintenance Regular sweeping and maintenance of approach road	0.00	0.88
Sub-Total (A)		**11.65**	**2.90**
Noise Environment			
8	Controlled Blasting using NONEL, provision of blaster shed	0.50	15.92
Sub-Total (B)		**0.50**	**15.92**
Water Environment			
9	Surface Runoff Management Structures	0.44	0.05
Sub-Total (C)		**0.44**	**0.05**
Implementation of EC, Mining Plan & DGMS Condition			
10	Waste Management - Collection and Disposal	0.30	0.22
11	Fencing and Green Net Provision	8.84	0.10
12	Health and Safety - Provision of PPEs, IME, PME, First aid facility	1.28	0.82
13	Sign Boards -safety precaution signages, EC Conditions display board	0.20	0.03
14	Installation of CCTV cameras	0.30	0.05
15	Remuneration of statutory persons	0.00	7.80
Sub-Total (D)		**10.92**	**9.02**
Green Belt Development			
16	Plantation Inside the lease area(450 Nos.)	0.90	0.14
17	Plantation Outside the lease area (1800 Nos.)	5.40	0.54
Sub-Total (E)		**6.30**	**0.68**
Grand Total		**29.81**	**28.56**

Towards EMP measures, Rs.29.81 lakhs is allocated under capital cost. Besides, Rs.28.56 lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.