February 2024

Executive Summary for Conducting Public Hearing

FOR

"Thiru.V.Sasikumar Rough Stone and Gravel Quarry over a total extent of 2.07.0 Ha"

At

S.F.No. 30/1, 30/3, 30/4, 30/5, 30/6, 30/7, 30/8A, 30/9, 30/10, 30/11 and 31/2 of Killukulavaipatti Village, Kulathur Taluk, Pudukkottai District, Tamilnadu State

Project Proponent:

Thiru.V.Sasikumar
S/o. P. Varatharajan,
No.13C, Selvapuram 1st Cross Street,
Thiruverumbur, Thiruverumbur Tk,
Tiruchirapalli Dist – 620 013

Project termed under schedule 1(a) Category B_1

Prepared By:

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EXECUTIVE SUMMARY

1. Project Background:

The New Rough Stone Quarry over an extent of 2.07.0 Ha, Own Patta land S.F. No: 30/1, 30/3, 30/4, 30/5, 30/6, 30/7, 30/8A, 30/9, 30/10, 30/11 and 31/2 of Killukulavaipatti Village, Kulathur Taluk, Pudukkottai District. The category of the project is B1 (cluster), The applied lease area is Undulated topography and sloping towards Southwestern side covered with Rough stone and does not sustain any type of vegetation.

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0meter vertical bench with a bench width of 5.0meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

The quarry operation is proposed up to depth for 42.0m (Surface ground level above – 6m & Surface ground level below – 36m). The Total Geological reserve is about 32,588m^3 of Gravel and 6,58,190m^3 of Rough Stone. The Mineable Reserves are 20,566m^3 of Gravel and 1,42,690m^3 of Rough stone. The production schedule proposes an average production of 20,566m^3 of Gravel and 1,42,690m^3 of Rough stone for (Sixty months) Five years only. The Mining Plan was approved by the Assistant Director, Geology & Mining, Pudukkottai vide letter Rc.No.382/2022 (G&M) dated 02.02.2023. There is no CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wildlife protection Act 1972, within the radius of 15Km.

The project does not require huge amount water for quarry operation and total water requirement is 2.0 KLD. (1.0 KLD) Drinking water use only Packaged drinking water is available from the nearby approved water vendors and (0.5 KLD) and (0.5 KLD) of water use only road tankers supply in Killukulavaipatti Village which is about ≃ 0.82 Km - SW it will also source from tank water suppliers.

The project cost is about Rs. 49,95,000/- (Forty-Nine Lakhs and Ninety Five Thousands Rupees Only). Total EMP cost is 3,50,000/- (Three Lakhs and Fifty Thousand Rupees Only).

2. Nature & Size of the Project

The proposed Rough stone quarry is located over an extent of 2.07.0 Hectares land in Killukulavaipatti Village, Kulathur Taluk, Pudukkottai District. The lease granted area for mining lease is a Undulated terrain and dry lands in nature.

Mineral : Rough Stone and Gravel

District : Pudukkottai

Taluk : Kulathur

Village : Killukulavaipatti

S. F. Nos. :30/1, 30/3, 30/4, 30/5, 30/6, 30/7, 30/8A, 30/9, 30/10, 30/11 & 31/2

Extent :2.07.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°37'32.8909" N to 10°37'30.3691" N
2	Longitude	78°55'35.0961" E to 78°55'28.2057" E
3	Site Elevation above MSL	122.0m above MSL.
4	Topography	Undulated terrain
5	Land use of the site	Patta land
6	Extent of lease area	2.07.0 Ha
7	Nearest highway	MDR 833 – Kunnandarkovil – Sengipatti Rd – 1.04 Km - SE SH 99 –Thirukattupalli–Sengipatti–Pattukkottai– 8.43Km - E NH 36 – Pudukkottai – Tanjore Road – 10.75 km - SE
8	Nearest railway station	Kulatur Railway Station – 15.79 km - W
9	Nearest airport	Tiruchirapalli International Airport – 27.81 km - NW
10	Nearest town / city	Town - Keeranur – 15.85 km - SW City - Pudukkottai – 27.55 km - SW District - Pudukkottai – 27.55 km – SW
11	Rivers / Canal	Nil within 15km radius
12	Lake/Pond	❖ Patti Kanmoi - 1.14 Km – SW ❖ Senalvethi Kulam – 0.30 Km – SWW ❖ Tittan Kulam – 0.22 Km – NWW ❖ Mareya Kulam – 0.41 Km – N ❖ Pudu Kulam – 0.44 Km – NW

		❖ Sannasi Kulam – 0.72 Km - W ❖ Karadivayal Lake – 4.38 Km – SW ❖ Thenmavur Lake – 2.89 Km – SW ❖ Kunnandarkoil Lake – 3.76 Km – SW ❖ Kulathur Lake – 4.21 km – SW
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	❖ Rock-cut Siva cave temple and the hall of hundred pillars or car mantapam with wheels in front part of the plinth, Kunnandar Kovil – 5.65 Km – SW ❖ Perumal & Shiva Rock cut temple – Malayadipatti – 4.43Km – NW ❖ Siva Temple – Visalur – 6.83 Km – NWW ❖ Dolmens & Urns – Sengalur – 6.58 Km - NW
15	National parks / Wildlife Sanctuaries	Nil in 15 km radius
16	Reserved / Protected Forests	❖ Killikottai RF – 3.16 Km – N ❖ Komapuram RF – 5.68 Km – E ❖ Tudimparai RF – 7.20 Km - S
17	Seismicity	Proposed Lease area come under Seismic zone-II (Moderate risk area)

3. Need for the Project

❖ The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone extracted will be transported to be Stone crusher of district Pudukkottai.

❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.

❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.

❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.

❖ No damage to the land is caused, no reclamation or back filling is required.

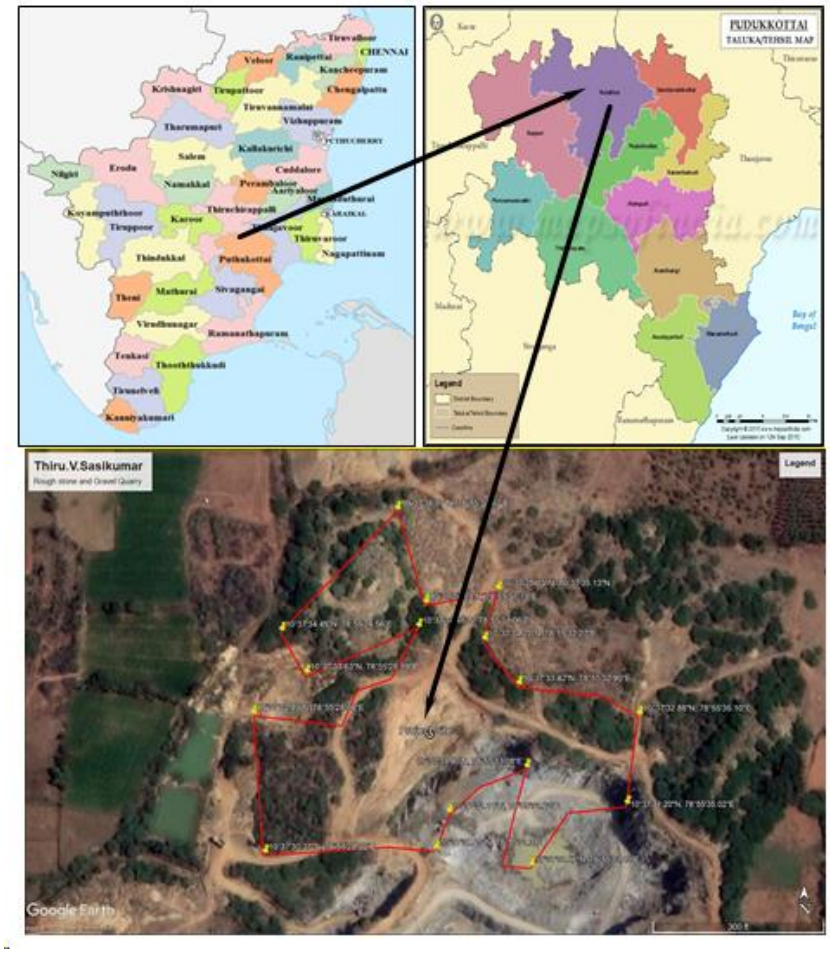

Figure 1: Location Map of the Project Site

Figure 2: Google Image of the Project Site

4. Charnockite

Generally, the Charnockite is grey to greenish colored, coarse to medium grained, greasy nature with or without garnet. Because of the limited outcrops, the quarry sections are studied to infer the various interrelationships between the litho units. Charnockite is interbedded nature with crystalline carbonate rocks are observed in most of the quarry in the areas of Kunnandavarkoil, Thirumayam, Kulathur, Weathering of the Charnockite on the surface gives a deceptive look of gneiss and in the quarry sections at depth the fresh charnockite is exposed, which are well exemplified in almost all the Charnockite quarry sections.

5. Geological Resources

Gravel:

The Thickness of Gravel in this area is 2.0m and the total volume of Gravel will be 32,588m^3.

Rough Stone:

The Available Geological Reserve is estimated as 6,58,190m^3 respectively at the rate of 100% recovery upto the permissible depth. Gravel is calculated upto a depth of 2m and Rough stone at a depth of 40m. Total Depth – 42.0m (Surface Ground Level Above – 6m & Surface Ground Level Below – 36m)

Table 2. Geological resources

GEOLOGICAL RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Geological Reserves in m^3 @ 100%	Gravel in m^3
XY-AB	I	82	51	2			8364
	II	82	51	5	20910	20910	
	III	82	51	5	20910	20910	
	IV	82	51	5	20910	20910	
	V	82	51	5	20910	20910	
	VI	82	51	5	20910	20910	
	VII	82	51	5	20910	20910	
	VIII	82	51	5	20910	20910	
	IX	82	51	5	20910	20910	
TOTAL					**167280**	**167280**	**8364**
X1Y1-CD	I	87	83	2			14442
	II	55	83	5	22825	22825	
	III	87	83	5	36105	36105	
	IV	87	83	5	36105	36105	
	V	87	83	5	36105	36105	
	VI	87	83	5	36105	36105	

	VII	87	83	5	36105	36105	
	VIII	87	83	5	36105	36105	
	IX	87	83	5	36105	36105	
TOTAL					**275560**	**275560**	**14442**
X1Y1-EF	I	73	67	2			9782
	II	73	67	5	24455	24455	
	III	73	67	5	24455	24455	
	IV	73	67	5	24455	24455	
	V	73	67	5	24455	24455	
	VI	73	67	5	24455	24455	
	VII	73	67	5	24455	24455	
	VIII	73	94	5	34310	34310	
	IX	73	94	5	34310	34310	
TOTAL					**215350**	**215350**	**9782**
GRAND TOTAL					**658190**	**658190**	**32588**

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION RESERVES								
YEAR	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Recoverable Reserve in m^3 @ 100%	Gravel in m^3
I-YEAR	XY-AB	I	65	31	2			4030
		II	61	27	5	8235	8235	
		III	51	17	5	4335	4335	
	X1Y1-CD	I	79	60	2			9480
		II	55	56	5	15400	15400	
	X1Y1-EF	I	63	56	2			7056
		II	61	54	5	16470	16470	
	TOTAL					**44440**	**44440**	**20566**
II-YEAR	X1Y1-CD	III	77	46	5	17710	17710	
	X1Y1-EF	III	56	49	5	13720	13720	
	TOTAL					**31430**	**31430**	
III-YEAR	X1Y1-CD	IV	72	36	5	12960	12960	
	X1Y1-EF	IV	51	44	5	11220	11220	
	TOTAL					**24180**	**24180**	
IV-YEAR	X1Y1-CD	V	67	26	5	8710	8710	

	X1Y1-EF	V	46	39	5	8970	8970	
	TOTAL					**17680**	**17680**	
V-YEAR	X1Y1-CD	VI	62	16	5	4960	4960	
	X1Y1-EF	VI	41	34	5	6970	6970	
		VII	36	29	5	5220	5220	
		VIII	26	41	5	5330	5330	
		IX	16	31	5	2480	2480	
	TOTAL					**24960**	**24960**	
GRAND TOTAL						**142690**	**142690**	**20566**

6. Mining

Opencast mining

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

Process Description

- The reserves and resource are arrived based upon the Geological investigation.
- Removal of Topsoil by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 25.5mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

7. Water Requirement

Total water requirement for the mining project is 2.0 KLD. Domestic water will be sourced from nearby Killukulavaipatti Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Killukulavaipatti village which is about 0.82 km SW from the project site.
Green belt	0.5 KLD	Other domestic activities through road tankers supply.
Dust suppression	0.5 KLD	From road tankers supply.
Total	**2.0 KLD**	

8. Manpower

Total manpower required for the project is approximately 15 persons. Workers will be from nearby villages.

Table 5. Man Power

1.	Skilled	Operators	2 Nos
		Mechanic	1 No
		Blaster/Mat	1 No
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours	7 Nos
		Cleaners	2 Nos
		Office Boy	1 No
4.	Management & Supervisory staff		2 Nos
Total			**18 Nos**

No child less than 18 years will be entertained during quarrying operations.

9. Solid Waste Management

Table 6 Solid Waste Management

S.	Type	Quantity	Disposal Method
1	Organic	3.24 kg/day	Municipal bin including food waste
2	Inorganic	4.86 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

Table 7 500m Radius Cluster Mine

1) Existing other quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.V.Sasikumar S/o. P.Varatharajan, No.13C, Selvapuram 1st Cross Street, Thiruverumbur, Thiruverumbur Tk, Tiruchirapalli Dist – 620 013	Killukulavaipatti & Kulathur	30/1 & etc.,	2.00.5	23.02.2018 to 22.02.2023
2.	Thiru. M.Ravi, S/o.Ganesan (late), B/147, Koothipar road, Thiruverumbur,Tiruchirapalli	Killukottai & Kulathur	383/12 & etc.,	2.23.0	10.06.2021 to 09.06.2026
3.	Thiru.S.Devendiran, S/o.A.R.Srinivasan, No.25, I.A.S Nagar, Thiruverumbur, Trichy	Killukulavaipatti & Kulathur	40/4	0.53.5	25.04.2022 to 24.04.2027
	Total			4.77.0	

2) Proposed Area:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
1.	Thiru.V.Sasikumar S/o. P.Varatharajan, No.13C, Selvapuram 1st Cross Street, Thiruverumbur, Thiruverumbur Tk, Tiruchirapalli Dist – 620 013	Killukulavaipatti & Kulathur	30/1 & etc.,	2.07.0
2.	Thiru.S.Balasubramanian, S/o. Sepperumal, No.1241, NGO Colony, Subramaniyapuram, Pudukottai Collectorate Post, Pudukkottai	Themmavur & Killukulavaipatti Kulathur	117/3 (1.13.5) & 117/1A (1.83.5) of Themmavur village and 44/10 (0.10.5) & 44/9B (0.13.0) of Killukulavaipatti	3.20.5
3	Thiru.K.Nataraj, S/o.Krishnasamy, No.46A, Kallar Street, Koppampatti (post), Kulathur Taluk, Pudukkottai District.	Themmavur & Killukulavaipatti Kulathur	111/1B (0.64.0), 111/2 (0.65.0), 115/9 (0.50.5) of Killukulavaipatti village and 40/5 (0.66.5) of Themmavur village	2.86.0
	Total			8.13.5

3) Lease Expired:

S. No.	Name of the lessee/ Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Thiru.Devendiran, S/o.Srinivasalu, No.25, I.A.S. Nagar, Thiruvarambur, Trichy	Killukulavaipatti & Kulathur	33	0.41.0	22.10.2016 to 21.10.2021
2.	Thiru.Meda Ramesh, H.No.1-378, Manikantan Complex, Killukottai village, Kulathur Taluk, Pudukottai Dist	Killukulavaipatti & Kulathur	44/4 & etc.,	2.15.0	28.07.2017 to 27.07.2022
3.	Kanagu Magalir Ponvizha Grama Suya Velai Vaippu Thitta Nala Sangam, Koppampatti, Kulathur Taluk.	Killukulavaipatti & Kulathur	35 (p)	0.42.5	27.06.2017 to 26.06.2022
4.	Manjal Magalir Ponvizha Grama Suya Velai Vaippu Thitta Nala Sangam, Koppampatti, Kulathur Taluk.	Killukulavaipatti & Kulathur	37 (South)	0.80.0	27.06.2017 to 26.06.2022
5.	Samanthi Magalir Ponvizha Grama Suya Velai Vaippu Thitta Nala Sangam, Koppampatti, Kulathur Taluk.	Killukulavaipatti & Kulathur	37 (North)	0.63.0	27.06.2017 to 26.06.2022
6.	K.Natraj S/o.Krishnasamy, Koppampatti (v), Themmavur (p)	Themmavur & Killukulavaipatti Kulathur	40/5 (0.66.5) 111/1B (0.64.0)	1.30.5	25.07.2014 to 24.07.2019
7.	A.Mahalakshmi, W/o.Andiyappan, Koppampatti, Themmavur Post.	Themmavur i Kulathur	127/2, 3	0.78.0	13.06.2014 to 12.06.2019
	Total			6.50.0	

The Total extent of the Existing / Lease expired / Proposed quarries are 17.32.0 Ha.

10. Land Requirement

The total extent area of the project is 2.07.0 Ha, Own Patta land in Killukulavaipatti Village of Kulathur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Area under quarrying	0.51.0	1.40.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt & Dump	Nil	0.65.0
5.	Unutilized Area	1.55.0	Nil
	Total	**2.07.0 Ha**	**2.07.0 Ha**

11. Human Settlement

There are no habitations within 500m radius. There are villages located in this area within 5km radius of the quarry.

Table 9 Habitation

SL. NO.	DIRECTION	VILLAGE	DISTANCE	POPULATION
1	SE	Koppampatty	0.78 Km	250
2	SW	Killukulavaipatti	0.82 Km	930
3	N	Ulagangathanpatti	1.72 Km	566
4	NE	Melur	3.14 Km	240

12. Power Requirement

The Rough Stone Quarry project does not require huge water and electricity for the project. **16 Litres** diesel per hour for excavator for mining and loading for Rough stone needed.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario on the following parameters.

1. Micro – Meteorology
2. Water Environment
3. Air Environment
4. Noise Environment
5. Soil / Land Environment
6. Biological Environment
7. Socio-economic Environment

13.1 Micro – Meteorology

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data.

i) Average Minimum Temperature : 3 3.7 ^{0}C

ii) Average Maximum Temperature. : 2 4 ^{0}C

iii) Average Annual Rainfall of the area : 922.8 mm

13.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e., in the study area of 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) were monitored, and the results are summarized below.

The baseline levels of PM_{10} (63 – 33 µg/m³), $PM_{2.5}$ (32 - 13 µg/m³), SO_2 (25 – 5 µg/m³), NO_2 (45 -12 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from October to December 2023.

13.3 Noise Environment

Ambient noise levels were measured at 7 locations around the proposed project site. The maximum Day noise and Night noise were found to be 61 dB(A) and 47 dB(A) respectively in

Government High School, Themmavur. The minimum Day Noise and Night noise were 37 dB(A) and 30 dB(A) respectively which was observed in Project Site.

13.4 Water Environment

- The average pH ranges from 7.01-7.64.
- TDS value varied from 309 mg/l to 1215 mg/l
- Hardness varied from 279 to 838 mg/l
- Chloride varied from 47.3 to 229 mg/l

13.5 Land Environment

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.81 to 7.55 with organic matter 0.17 % to 1.69 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

The proposed Mining lease area is mostly dry barren ground with small shrubs and bushes. No specific endangered flora & fauna exist within the mining lease area.

14. Rehabilitation/ Resettlement

- The overall land of the mine is private patta land. There are no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.
- The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.

3. Local trees like Neem, Pungam, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 80 trees per annum with interval 5m.

4. The rate of survival expected to be 70% in this area

Table.10 Plantation/ Afforestation Program

Year	Name of species	Place of planted	No of species	Spacing	Survival
2024	Neem, Pungam, Poovarasu	North	207	5m	80%
2025	Naval, Mantharai, Arasa Maram	South	207	5m	80%
2026	Magizham, Vilvam, Vaagai, Marudha maram	East	207	5m	80%
2027	Usil, Aaththi, Panai	South	207	5m	80%
2028	Illuppai, Eachai, Vanni maram	West	207	5m	80%
Total			**1035**		

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

1. Water sprinkling will be done on the roads & unpaved roads.
2. Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
3. Plantation will be carried out on approach roads, solid waste site & nearby mine premises.
4. To control the emissions regular preventive maintenance of equipments will be carried out.

16.2 Noise Environment and Mitigation Measures

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.
2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

i. Environmental Monitoring of the surrounding area

ii. Developing the green belt/Plantation

iii. Ensuring minimal use of water

iv. Proper implementation of pollution control measures

18. Environmental Monitoring Program

A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater Quality, Noise Quality as per Tamil Nadu State Pollution Control Board (TNPCB), shall be maintained.

19. Project Cost

The total project cost is **Rs. 49,95,000** for deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc., including electrifications and water supply.

Table .11 Project Cost details

S. No.	Description	Cost
1	Fixed Asset cost	19,95,000
2	Expenditure Cost	30,00,000
	Total	**49,95,000**

Environmental Management Plan Cost – 64,70,741/- (Environmental Management Plan Cost for the period of five years).

20. Corporate Environmental Responsibility

The Corporate Environment Responsibility (CER) fund will be provided to the below activity.

Table 12 CER Cost

S.No.	CER Activity	CER Cost (Rs.)
1.	Panchayat Union Middle School, Koppampatti. Provision of ➢ RO plant for entire school and basic amenities such as Environmental books for library (in Tamil language), Greenbelt facilities, drinking water, Hygienic Toilets facilities maintenance of toilet upto lease period.	**5,00,000**

21. Benefits of the Project

- There is a positive impact on socio-economics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities.
- The project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

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