

OCTOBER

2022

**Executive Summary for Conducting Public Hearing
FOR**

**“Thiru.B.Kajamaideen Rough Stone and Gravel
Quarry over a total extent of 2.56.5 Ha”**

At

**S.F.No. 191/5 & 191/6 of Perumanadu Village, Illuppur
Taluk, Pudukkottai District, Tamilnadu State**

Project Proponent:

**Thiru.B.Kajamaideen,
S/o. Bahurudeen,
No.215, Kallar Street,
Thiruvappur,
Pudukkottai District – 622 003**

Project termed under schedule 1(a) Category B₁

Prepared By:

Ecotech Labs Pvt. Ltd.



NABET Accredited EIA Consultant

**48, 2nd Main Road, Ram Nagar South Extension,
Pallikarani
Chennai -600100**

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is 2.56.5 Ha, Patta land in Perumanadu Village of Illuppur Taluk, Pudukkottai District. The category of project is B1, It is a new Rough stone and Gravel quarry in Perumanadu village. The area is situated on Plain terrain sloping towards Western covered with Rough Stone which does not sustain any type of vegetation.

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

The quarry operation is proposed up to depth for 44m. The Total Geological reserve is about 7,99,440m³ of Rough Stone and 3452m³ of Gravel. The Mineable Reserves of Rough stone is 2,31,050m³ and 1184m³ of Gravel. The year wise production/recoverable resources of rough stone for 5 years are 2,31,050m³ and 1,184m³.

Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Pudukkottai vide R.c.No: 633/2020 (G&M) dated 19.04.2022. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wildlife protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The New Rough Stone Quarry over an extent of 2.56.5 Hectares land is located Perumanadu Village of Illuppur Taluk, Pudukkottai District.

Mineral intends to quarry : Rough stone and Gravel

District : Pudukkottai

Taluk : Illuppur

Village : Perumanadu

S. F. Nos. : 191/5 & 191/6

Extent : 2.56.5 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10° 22' 56.6270" N to 10° 22' 46.1527" N
2	Longitude	78° 43' 57.0758" E to 78° 43' 51.5080" E
3	Site Elevation above MSL	113.0 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Patta land
6	Extent of lease area	2.56.5 Ha
7	Nearest highway	NH 336 – Trichy to Pudukkottai – 5.99 Km - E
8	Nearest railway station	Pudukkottai Railway Station – 7.79km - E
9	Nearest airport	Tiruchirappalli International Airport – 42.04 Km - N
10	Nearest town / city	Town -Pudukkottai – 6.79 km - E City - Pudukkottai – 6.79 km - E District - Pudukkottai – 6.79 km - E
11	Rivers / Canal	<ul style="list-style-type: none">• Vellaru River – 2.28 Km - S
12	Lake	<ul style="list-style-type: none">• Perunjunai Lake – 5.15 Km – NE• Senthamangalam Dam – 2.19 Km – SE• Kavinadu kanmai – 3.95 Km – E• Adappankulam – 9.05 Km – E• Keerankudi Kanmai – 6.13 Km – SW• Old Keerankudi Kanmai – 6.32 Km - SW• Eerakkanmai – 9.77 Km – SW• Akkachiyar Kulam – 8.70 Km – E• Ariyur Lake – 4.74 Km – N• Ponnappan Orani – 7.14 Km – E• Melathemuthupatti Pond – 5.85 Km – SE

		<ul style="list-style-type: none"> • Kotti Kanmaai – 5.50 Km – SE • Thekkathur Pond – 8.15 Km – SE • Holdsworth Anaicut – 12.72 Km - SE
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	<ul style="list-style-type: none"> • Kudumiyamalai RF – 5.45 Km – NW • Mallangudi RF – 4.12 km – S • Vellar RF – 5.10 Km – SE • Perambur RF – 8.18 Km – NW • Pulvayal Fairly Dense Shrub – 1.48 Km – W • Chinna Valakkad R.F – 8.35 Km – E • Pudukkottai R.F – 11.35 Km – E • Fairly Dense Shrub – 7.15 Km – S • Oorlal Malai R.F – 12.60 - N
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)
18	Defense Installations	Nil in 15 Km radius

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 and Gravel 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.

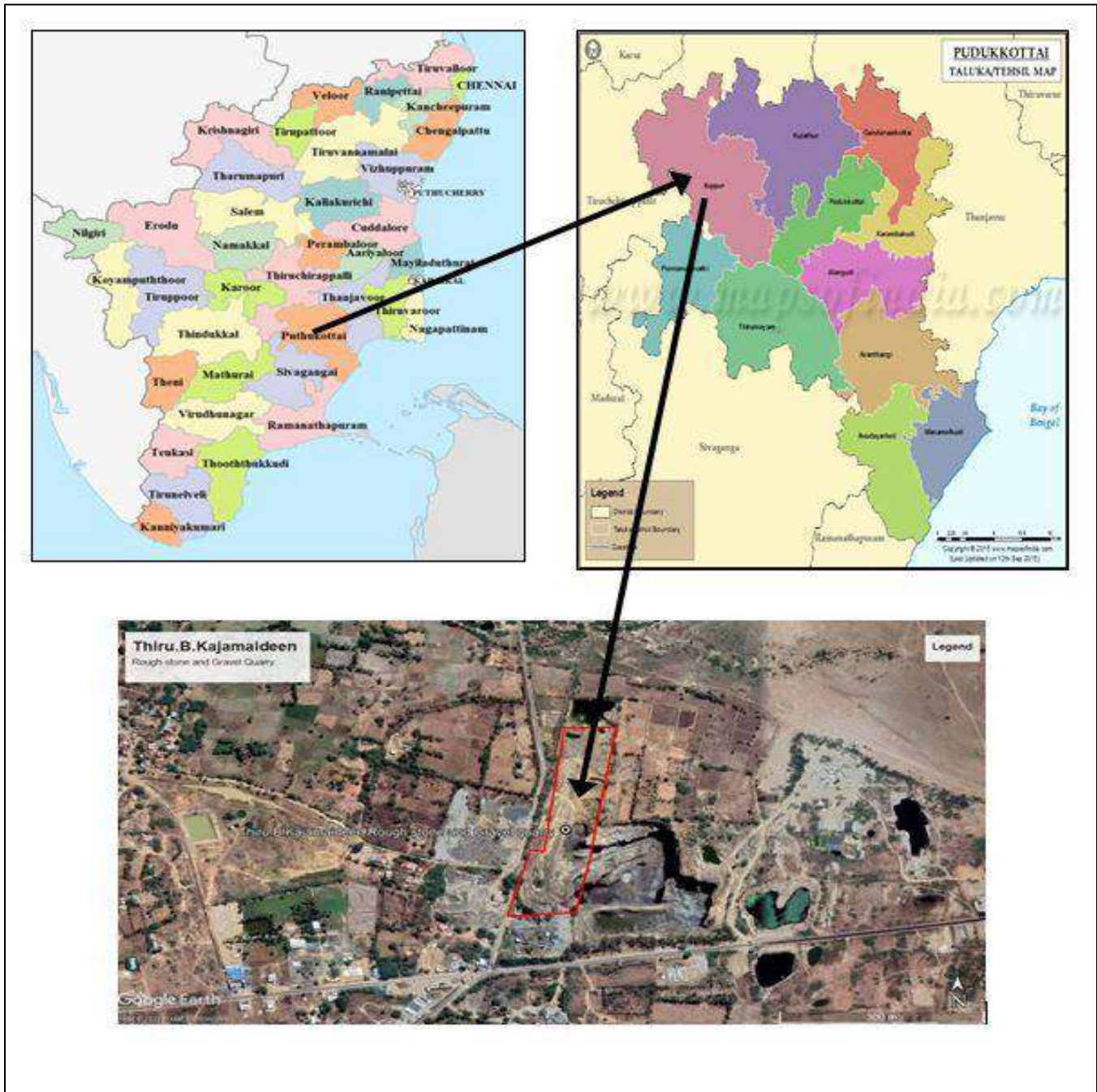


Figure 1: Location Map of the Project Site



Figure 2: Google Image of the Project Site

4. Charnockite

Charnockite and granitic gneisses are extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value added products like hollow blocks, pillar stones, M-sand etc. Charnockite occurs as massive bodies, greyish colour, medium to coarse grained, composed quartz, feldspar and orthopyroxene. At places, metamorphic gneissic banding (alternate dark and black colour) in charnockite is noticed. Top portion, it gives gneissic appearance but 1-5m depth below it is typical charnockite of grey colour.

5. Geological Resources

The geological reserves have been calculated based on the cross-section method.

The Geological Resources is estimated as 7,99,440m³ of rough stone & 3,452m³ Gravel up to a depth of 44.0m (2.0m Gravel, 2.0m Weathered Rock & 45.0m Rough stone).

Table 2. Geological resources

GEOLOGICAL RESERVES

Section	Bench	L (m)	W (m)	D (m)	Volume In m³	Geological Reserves in m³ @ 100%	Weathered Rock in m³	Gravel in m³
XY-AB	I	58	22	2				2552
	II	58	70	2			8120	
	III	93	70	5	32550	32550		
	IV	128	70	5	44800	44800		
	V	128	70	5	44800	44800		
	VI	128	70	5	44800	44800		
	VII	128	70	5	44800	44800		
	VIII	128	70	5	44800	44800		
	IX	128	70	5	44800	44800		
	X	128	70	5	44800	44800		
	XI	128	70	5	44800	44800		
	TOTAL					390950	390950	8120
XY-CD	I	1	8	2				16
	II	1	8	2			16	
	III	1	25	5	125	125		
	IV	1	35	5	175	175		
	V	23	35	5	4025	4025		

	VI	23	35	5	4025	4025		
	VII	96	70	5	33600	33600		
	VIII	96	70	5	33600	33600		
	IX	96	70	5	33600	33600		
	X	96	70	5	33600	33600		
	XI	96	70	5	33600	33600		
	TOTAL				176350	176350	16	16
XY-EF	I	26	17	2				884
	II	26	17	2			884	
	III	26	17	5	2210	2210		
	IV	26	17	5	2210	2210		
	V	26	17	5	2210	2210		
	VI	26	17	5	2210	2210		
	VII	110	38	5	20900	20900		
	VIII	110	92	5	50600	50600		
	IX	110	92	5	50600	50600		
	X	110	92	5	50600	50600		
	XI	110	92	5	50600	50600		
		TOTAL				232140	232140	884
GRAND TOTAL					799440	799440	9020	3452

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION										
YEAR	Section	Bench	L (m)	W (m)	D (m)	Volume In m³	Recoverable Reserves in m³@ 100%	Weathered Rock in m³	Gravel in m³	
I- YEAR	XY-AB	I	48	12	2				1152	
		II	46	10	2			920		
		III	79	46	5	18170	18170			
		IV	109	41	5	22345	22345			
	XY-CD	III	1	15	5	75	75			
		IV	1	10	5	50	50			
	XY-EF	I	16	1	2				32	
		II	14	1	2			28		
		III	12	1	5	60	60			
		IV	7	1	5	35	35			
		TOTAL						40735	40735	948
	II- YEAR	XY-AB	V	104	36	5	18720	18720		
			VI	99	31	5	15345	15345		
XY-CD		V	23	5	5	575	575			
		VI	23	1	5	115	115			

	XY-EF	V	2	1	5	10	10		
		TOTAL				34765	34765		
III- YEAR	XY-AB	VII	94	26	5	12220	12220		
	XY-CD	VII	96	35	5	16800	16800		
	XY-EF	VII	84	21	5	8820	8820		
		TOTAL				37840	37840		
IV- YEAR	XY-AB	VIII	89	21	5	9345	9345		
	XY-CD	VIII	96	30	5	14400	14400		
	XY-EF	VIII	79	60	5	23700	23700		
		TOTAL				47445	47445		
V- YEAR	XY-AB	IX	84	16	5	6720	6720		
		X	79	11	5	4345	4345		
	XY-CD	IX	96	25	5	12000	12000		
		X	96	20	5	9600	9600		
	XY-EF	IX	74	55	5	20350	20350		
		X	69	50	5	17250	17250		
		TOTAL				70,265	70,265		
	GRAND TOTAL					2,31,050	2,31,050	948	1,184

6. Mining

Opencast mining

The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, 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 32mm Dia.
- Minimum Blasting With Class 2 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 Perumanadu Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.0KLD	Packaged Drinking water vendors available in Perumanadu village which is about 0.95 km E from the project site.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	2.0 KLD	

8. Manpower

Total manpower required for the project is approximately 18 persons. Workers will be from nearby villages.

Table 5. Man Power

1.	Skilled	Operator, Mechanic & Blaster/Mat	4 Nos
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labors, Cleaners & Office Boy	10 Nos
4.	Management & Supervisory staff		2 No.
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. No	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 Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1. NIL.....				

2) Proposed Area

S. No.	Name of the Owner	Village & Taluk	S.F.No	Extent in Ha
1.	Thiru.V.Sekaran S/o.Veerappan, No.137, Keelaveethi, Thiruvappur, Pudukkottai	Perumanadu Illuppur	196/1	1.48.0
2	Thiru.B.Kajamaideen, S/o. Bahurudeen, 215, Kallar street, Thiruvappur, Pudukkottai	Perumanadu Illuppur	191/5 and 191/6	2.56.5

3) Lease Expired

S. No.	Name of the Owner	Village & Taluk	S.F Nos.	Extent in Hect.	Lease Period
1.	Thiru.B.Kajamaideen, S/o. Bahurudeen, 215, Kallar street, Thiruvappur, Pudukkottai.	Perumanadu Illuppur	191/5, 6	2.56.5	20.12.2016 to 19.12.2021
2	Thiru.V.Sekaran S/o.Veerappan, No.137, Keelaveethi, Thiruvappur, Pudukkottai	Perumanadu Illuppur	194/2	2.12.0	21.12.2016 to 20.12.2021

The Total extent of the Existing / Lease expired / Proposed quarries are **6.16.5 Ha**

10. Land Requirement

The total extent area of the project is 2.56.5 Ha, Patta land in Perumanadu Village of Illuppur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

Sl. No.	Description	Present Area (Ha.)	Area in use during the quarrying period (Ha.)
01.	Quarrying Pit	1.55.0	2.06.0
02.	Infrastructure	Nil	0.01.0
03.	Roads	0.01.0	0.01.0
04.	Green Belt	Nil	0.48.5
05.	Unutilized Area	1.00.5	Nil
	TOTAL	2.56.5 Ha	2.56.5 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

S.No	Direction	Village	Distance in kms	Population
1	N	Marayapatti	3.59 Km	1757
2	S	Mallangudi	1.19 Km	324
3	E	Perumanadu	0.95 Km	805
4	W	Pulvayal	1.76 km	2216

12. Power Requirement

The Rough Stone Quarry project does not require huge water and electricity for the project.

16 Litre diesel per hour for excavator for mining and loading for Rough stone needed.

10 Litre diesel per hour for excavating for mining and loading for gravel 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 : 18 to 23 °C
- ii) Average Maximum Temperature : 30 to 40 °C
- iii) Average Annual Rainfall of the area : 821 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 10 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 PM₁₀ (69-34 µg/m³), PM_{2.5} (15-32 µg/m³), SO₂(4.6-11.8 µg/m³), NO₂ (28.6-8µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June to August 2022.

13.3 Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. The maximum Day noise and Night noise were found to be 61 dB(A) and 46 dB(A) respectively in Tamilnadu Warehouse corporation, Pudukkottai. The minimum Day Noise and Night noise were 38 dB(A) and 30 dB(A) respectively which was observed in Panchayat Union Primary School, Irumbali.

13.4 Water Environment

- The average pH ranges from 7.28 – 7.85.
- TDS value varied from 962 mg/l to 1390 mg/l
- Hardness varied from 477 to 771 mg/l
- Chloride varied from 198 to 508 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 5.56 to 8.24 with organic matter 0.19 to 0.32 %. 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 Patta land. There is 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 components 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 150 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table.10 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	1250
Total		1250

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 equipment 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 this equipment 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 53,45,000/-** 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	23,45,000/-
2	Operational Cost	30,00,000/-
	Total	53,45,000/-

Environmental Mngement Cost :- **30,36,000/-**

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 value (Rs)
1.	Government High School, Perumanadu – 1 km, SW Provision of <ul style="list-style-type: none">➤ Construction of Classrooms,➤ Construction of Dining Hall,➤ Desktop with internet connection,➤ Projector for Smart class,➤ Construction of Drinking Water Tank,➤ Construction of Compound Wall,➤ Environmental books for library (in Tamil language),➤ Greenbelt facilities and➤ Basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture.	5,00,000
Total		5,00,000

21. Benefits of the Project

- There is positive impact on socioeconomics 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.