

July

2022

Executive Summary for Conducting Public Hearing

FOR

“Rough Stone Quarry over a total extent of 2.60.0 Ha

At

**S.F.No. 166 (P) of Pirattiyur (East) Village,
Tiruchirappalli West Taluk, and Tiruchirappalli
District, Tamil Nadu**

Project Proponent:

**Thiru J.Bosco Arokiaraj
S/o A.Joseph,
No.22, Colony Main Road,
Crawford Colony,
Tiruchirappalli District - 620 012**

Project termed under schedule 1(a) Category B₁

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EXECUTIVE SUMMARY

1. Project Background:

The Rough Stone Quarry over an extent of 2.60.0 Ha, Government land in Pirattiyur (East) Village, Tiruchirappalli West Taluk, Tiruchirappalli District. The category of the project is B1 (cluster), the lease area exhibits undulated terrain and sloping towards North Western side covered with Rough Stone.

The quarry operation is proposed to carry out with conventional open cast semi 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 50m (5m above ground level & 45m below ground level). The Total Geological reserve is about 908190 m³ of Rough stone. The Mineable and the Recoverable reserves are 415425 m³ and 415425 m³ respectively, the proposed Year wise production is carried out 415425 m³ of Rough Stone is to be mined for (Sixty months) Five years only.

Mining plan was approved by department of Geology and Mining Tiruchirappalli district letter vide no. R.c.09/2020/Mines dated 04.12.2020 from the date of execution lease dead. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The Rough Stone Quarry over an extent of 2.60.0 Hectares land is located Pirattiyur (East) Village of Tiruchirappalli West Taluk, Tiruchirappalli District.

Mineral intends to quarry : Rough stone

District : Tiruchirappalli

Taluk : Tiruchirappalli West
 Village : Pirattiyur (East)
 S. F. Nos. : 166/P
 Extent : 2.60.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°46'13.94"N to 10°46'21.04"N
2	Longitude	78°39'31.43"E to 78°39'37.88"E
3	Site Elevation above MSL	79 m from MSL
4	Topography	Hilly elevated terrain
5	Land use of the site	Government land
6	Extent of lease area	2.60.0 Ha
7	Nearest highway	(NH-45B)- Trichy – Madurai Highway –1.2 km towards East
8	Nearest railway station	Trichy Railway Station – 3.8 km, NE
9	Nearest airport	Trichy Airport – 5.4 km, E
10	Nearest town / city	Tiruchirappalli - 5.2 Km -NE
11	Rivers / Canal	Nil
12	Lake	<ul style="list-style-type: none"> ➤ Karaiyar River – 240 m, E ➤ Odai – 260 m, W ➤ Uyakundaan Canal – 3 km, N ➤ Uyakundaan River – 4.2 km, N ➤ Pongudi Lake – 5.15 km, SW ➤ Manikandam Lake – 6 km, SW ➤ Vathiyar Kulam Lake – 8.57 km, E ➤ Gundur Lake – 8.95 km, SE ➤ Kaveri River – 8.59 km, N ➤ Thiruverumbur Lake – 12.5 km, E ➤ Kollidam River – 12 km, N
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	Nil in 15 Km radius
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 extracted will be transported to be Stone crusher of district Tiruchirappalli.
- ❖ 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.

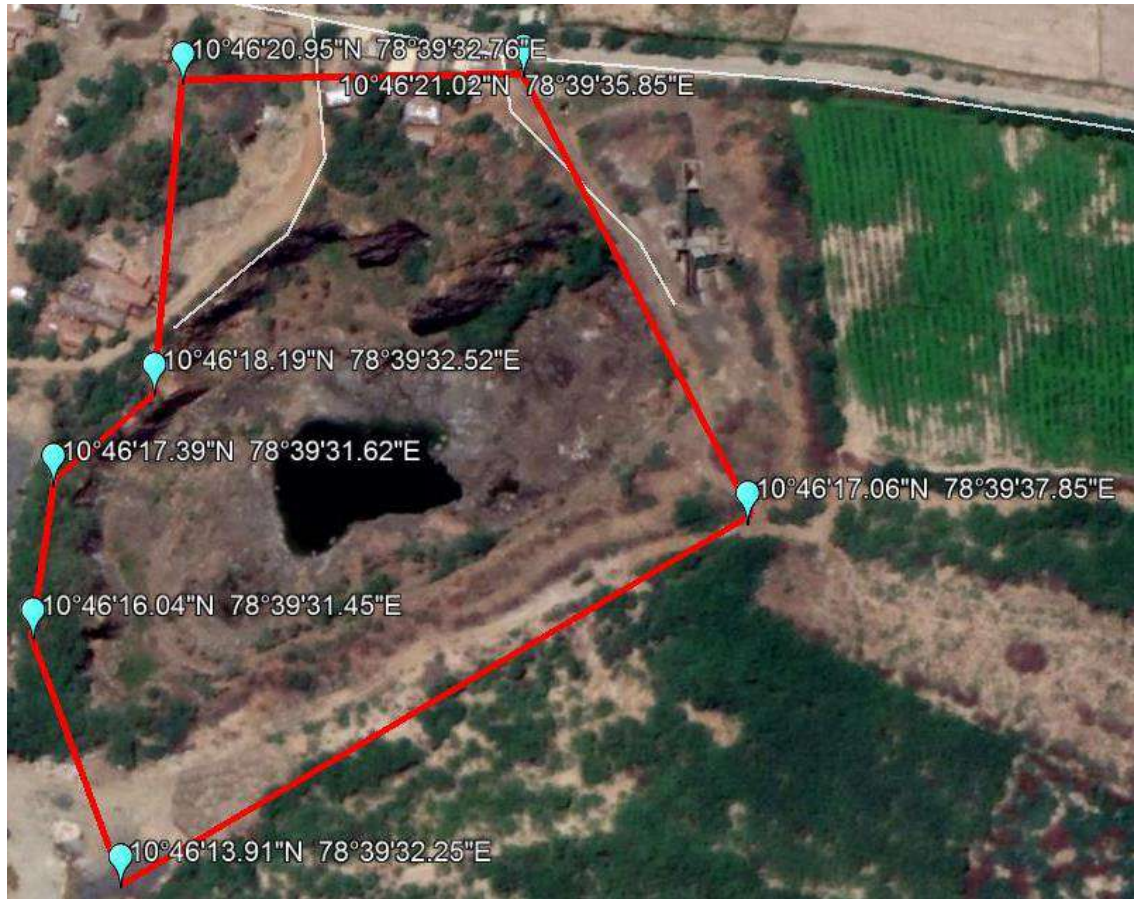


Figure 2: Google Image of the Project Site

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 interbanded nature with crystalline carbonate rocks are observed in most of the quarry in the areas of Tiruchirappalli. 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

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

Table 2. Geological resources

Geological Resources					
Topography	Section	Length in (m)	Width in (m)	Depth in (m)	Geological Resources Rough Stone in m ³
Above Ground level	XY-AB	45	112	5	25200
Below Ground level	XY-AB	45	112	50	252000
	XY-CD	123	171	30	630990
Total					908190

Table 3. Year wise Production Plan

Year wise Development & Production Reserves								
Topography	Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Recoverable Reserves of Rough stone in m ³
Above Ground level	I	XY-AB	79-74	45	112	5	25200	25200
Below Ground level		XY-AB	74-69	35	92	5	16100	16100
			69-64	30	82	5	12300	12300
			64-59	25	72	5	9000	9000
			59-54	20	62	5	6200	6200
			54-49	15	52	5	3900	3900
XY-CD		54-49	15	151	5	11325	11325	
Total								84025
Below Ground level	II	XY-CD	54-49	98	151	5	73990	73990
			49-44	15	141	5	10575	10575
Total								84565
Below Ground level	III	XY-CD	49-44	93	141	5	65565	65565
			XY-AB	49-44	10	42	5	2100
		XY-CD	44-39	5	32	5	800	800
			44-39	25	131	5	16375	16375
Total								84840
Below Ground level	IV	XY-CD	44-39	78	131	5	51090	51090
			39-34	55	121	5	33275	33275
Total								84365
	V	XY-CD	39-34	43	121	5	26015	26015

Below Ground level			34-29	93	111	5	51615	51615
	Total							77630
Grand Total								415425

6. Mining

Opencast mining

The quarry operation is proposed to carry out with conventional open cast semi 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.

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 2.1 KLD. Domestic water will be sourced from nearby Pirattiyur (East) Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Sources
Drinking Water	1.1KLD	Packaged Drinking water vendors available in Pirattiyur (East) village which is about 2.2km from site.
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	2.10KLD	

8. Man Power

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

Table 5. Man Power

1.	Mines Manager	1 No
2.	Mines Foreman	1 No
3.	Mines mate	1 No
4.	Blaster	1 No
5.	Skilled (Operators – Excavator & Jackhammer)	8 Nos
6.	Semi-skilled (Driver)	8 Nos
7.	Unskilled (Musdoor/Labours, Cleaners & Watchman)	2 Nos
	Total	22 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	3.96 kg/day	Municipal bin including food waste
2	Inorganic	5.94 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	S. F. No.	Extent	Lease Period
1.	Thiru. K.Samikkannu	Pirattiyur (west) Village	123/2 (Part), 269/1 (Part) Block 1 Pirattiyur west	2.26.0 ha	10.03.2017 to 9.03.2022
2.	Thiru. J.Bosco Arokiaraj	Pirattiyur (East & West) Village	123/2 (part), 166 (part) Block 2 Pirattiyur (East & West) Village	2.06.5	10.03.2017 to 9.03.2022

2) Proposed Area:

S. No.	Name of the applicant	Village	S. F. No.	Extent
1.	Thiru J.Bosco Arokiaraj	Pirattiyur (East) Village	166 Pirattiyur (East)	2.60.0

The Total extent of the Existing / Lease expired / Proposed quarries are 6.925 Ha

10. Land Requirement

The total extent area of the project is 2.60.0 Ha, Government land in Pirattiyur (East) Village of Tiruchirappalli West Taluk, Tiruchirappalli District.

Table 8 Land Use Breakup

S. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Area under Quarrying	1.29.0	1.81.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt & Dump	Nil	0.15.0
5.	Unutilized Area	1.30.0	0.62.0
	Total	2.60.0Ha	2.60.0Ha

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	Name of the Village	Approximate distance	Direction from lease applied area	Approximate population
1.	Pirattiyur	2.2Km	North–West	1000
2.	Melapudur	4.0Km	North -East	2500
3.	Panjappur	2.2 Km	South - West	1200
4.	KK Nagar	3.7 Km	South - East	3000

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.

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 : 24 °C
- ii) Average Maximum Temperature. : 33.7 °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 PM10 (60-35 µg/m³), PM2.5 (29-16 µg/m³), SO₂ (15-5µg/m³), NO₂ (24-10 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from March to May 2022.

13.3 Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. The maximum & minimum Day noise were found to be 53 dB(A) and 44 dB(A) respectively in Infant Jesus Church-Dheeran Nagar. The maximum & minimum Night noise were 42 dB(A) and 39 dB(A) respectively which was observed in Jennys College of Nursing.

13.4 Water Environment

- The average pH ranges from 7.42-8.3.
- TDS value varied from 599 mg/l to 1850 mg/l
- Hardness varied from 60 to 516 mg/l
- Chloride varied from 113 to 636 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 7.1-8.12 with organic matter 0.2 % to

1.4 %. 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 Government 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 120 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
2022	Neem/Pungam	North	120	5m	70%
2023	Naval	South	120	5m	70%
2024	Poovarasu/Pungam	East	120	5m	70%
2025	Naval/Pungam	South	120	5m	70%
2026	Neem	West	120	5m	70%
Total			600		

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 1,11,80,000** 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	Project Cost	56,00,000
2	Expenditure Cost	40,00,000
3	EMP Cost	15,80,000
	Total	1,11,80,000

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(Rs.)
1.	Developing Sports facilities and Providing Toilet, Water Filter facilities to Government Schools in Pirattiyur (East) Village	500000

21. Benefits of the Project

- There is 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.