

June

2022

Executive Summary for Conducting Public Hearing

FOR

“Rough Stone Quarry over a total extent of 1.50.5 Ha

At

**S.F.Nos. 425/14A1 & 425/32 of Lembalakudi Village,
Thirumayam Taluk, and Pudukkottai District**

Project Proponent:

Tmt M.Selvarani

W/o. Murugan,

Vadakutheru,

V.Lakshmipuram (Post), Neikonam,

Thirumayam Taluk,

Pudukkottai District

Project termed under schedule 1(a) Category B₁

Prepared By:

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EXECUTIVE SUMMARY

1. Project Background:

The Rough Stone Quarry over an extent of 1.50.5 Ha, Own Patta land in Lembalakudi Village, Thirumayam Taluk, Pudukkottai 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 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 47m below ground level. The Total Geological reserve is about 671310 m³ of Rough stone. The Mineable and the Recoverable reserves are 195240 m³ and 185478 m³ respectively, the proposed Year wise production is carried out 185478 m³ of Rough Stone is to be mined for (Sixty months) Five years only.

Mining plan was approved by department of Geology and Mining Pudukkottai district letter vide no. R.c.No.353/2020/(G&M) dated 06.08.2021 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, wildlife 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 1.50.5 Hectares land is located Lembalakudi Village of Thirumayam Taluk, Pudukkottai District.

Mineral intends to quarry : Rough stone
District : Pudukkottai

Taluk : Thirumayam
 Village : Lembalakudi
 S. F. Nos. : 425/14A1 & 425/32
 Extent : 1.50.5 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10° 16' 55.1786" N to 10° 16' 54.6735" N
2	Longitude	78° 43' 41.5560" E to 78° 43' 34.2935" E
3	Site Elevation above MSL	104 m from MSL
4	Topography	Undulated terrain
5	Land use of the site	Own Patta land
6	Extent of lease area	1.50.5 Ha
7	Nearest highway	(NH-226) Thanjavur-Pudukottai - is about 3.3 km on eastern side of the area SH 201- Namanasamudram – Ponnamaravathy is about 4.72 km on NW side of the area.
8	Nearest railway station	Pudukkottai Railway Station – 13 km, NE
9	Nearest airport	Trichy International Airport – 55 km, N
10	Nearest town / city	Pudukkottai - 13 Km -NE
11	Rivers / Canal	Nil
12	Lake	<ul style="list-style-type: none"> ➤ Pudhu Kanmai – 0.18 km, NW ➤ Old Keerankudi Kanmai – 10.35 km, NW ➤ Keerankudi Kanmai – 11.22 km, NW ➤ Kavinadu Kanmai – 11.77 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	Mallangudi R.F - 5.22 km in Northern Direction
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 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.

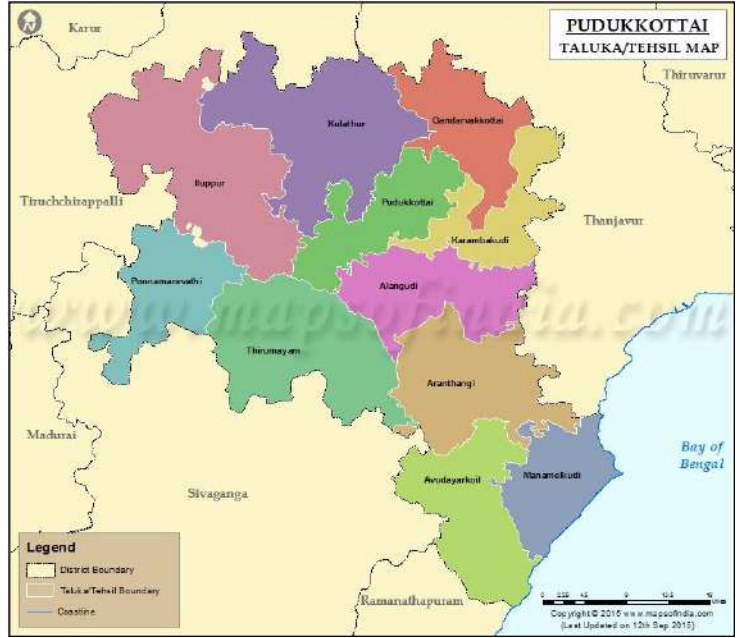
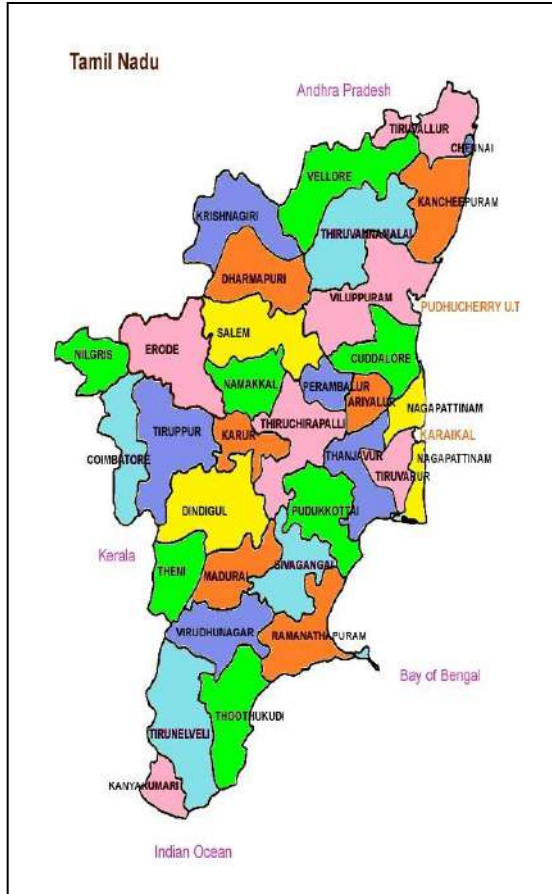


Figure 1: Location Map of the Project Site



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 interbanded 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

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

Table 2. Geological resources

Geological Reserves								
Section	Bench	L (m)	W (m)	D (m)	Volume in m³	Geological Reserves in m³ @ 95%	Mine waste in m³ @ 5%	Top Soil in m³
XY-AB	I	102	111	2				22644
	II	102	111	5	56610	53780	2830	
	III	102	111	5	56610	53780	2830	
	IV	102	111	5	56610	53780	2830	
	V	102	111	5	56610	53780	2830	
	VI	102	111	5	56610	53780	2830	
	VII	102	111	5	56610	53780	2830	
	VIII	102	111	5	56610	53780	2830	
	IX	102	111	5	56610	53780	2830	
	X	102	111	5	56610	53780	2830	
Total					509490	484020	25470	22644
XY-CD	I	62	58	2				7192
	II	62	58	5	17980	17081	899	
	III	62	58	5	17980	17081	899	
	IV	62	58	5	17980	17081	899	
	V	62	58	5	17980	17081	899	
	VI	62	58	5	17980	17081	899	
	VII	62	58	5	17980	17081	899	
	VIII	62	58	5	17980	17081	899	
	IX	62	58	5	17980	17081	899	
	X	62	58	5	17980	17081	899	
Total					161820	153729	8091	7192
Grand Total					671310	637749	33561	29836

Table 3. Year wise Production Plan

Yearwise Development And Production Reserves									
YEAR	Section	Bench	L (m)	W (m)	D (m)	Volume in m³	Recoverable Reserve in m³ @ 95%	Mine waste in m³ @ 5%	Top Soil in m³
I- YEAR	XY-AB	I	112	98	2				21952
		II	108	94	5	50760	48222	2538	
	TOTAL						50760	48222	2538
II- YEAR	XY-AB	III	98	84	5	41160	39102	2058	
	TOTAL						41160	39102	2058
III- YEAR	XY-AB	IV	88	74	5	32560	30932	1628	
	TOTAL						32560	30932	1628
IV- YEAR	XY-AB	V	78	64	5	24960	23712	1248	
		VI	68	54	5	18360	17442	918	
	TOTAL						43320	41154	2166
V- YEAR	XY-AB	VII	58	44	5	12760	12122	638	
		VIII	48	34	5	8160	7752	408	
		IX	38	24	5	4560	4332	228	
		X	28	14	5	1960	1862	98	
	TOTAL						27440	26068	1372
GRAND TOTAL						195240	185478	9762	21952

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 1.5 KLD. Domestic water will be sourced from nearby Lembalakudi Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Sources
Drinking Water	0.75 KLD	Packaged Drinking water vendors available in Lembalakudi village
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	1.75 KLD	

8. Man Power

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

Table 5. Man Power

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labors	4 Nos
		Cleaners	2Nos
		Office Boy	1No
4.	Management & Supervisory staff		2No.
	Total =		15Nos

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	2.7 kg/day	Municipal bin including food waste
2	Inorganic	4.05 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. S.Ravi	Lembalakudi Village & Thirumayam Taluk	425/28	1.71.0	21.01.2019 to 20.01.2024
2.	Thiru. A.M.Xavier	Lembalakudi Village & Thirumayam Taluk	454 (part) and 455/2 (part)	2.00.0	13.01.2020 to 12.01.2025

2) Proposed Area:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
1.	Tmt M Selvarani	Lembalakudi Village & Thirumayam Taluk	425/14A1 & 425/32	1.50.5

3) Lease Expired:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent	Lease Status
1.	K.Subbulakshmi	Lembalakudi Village & Thirumayam Taluk	425/11	1.81.5	17.06.2009 to 16.6.2014
2.	M.A.Murugappan	Lembalakudi Village & Thirumayam Taluk	425/1 (P)	1.00.0	10.12.2010 to 09.12.2015

The Total extent of the Existing / Lease expired / Proposed quarries are 8.03 Ha

10. Land Requirement

The total extent area of the project is 1.50.5 Ha, Own Patta land in Lembalakudi Village of Thirumayam Taluk, Pudukkottai 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	Nil	0.77.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.01.0
4.	Green Belt & Dump	Nil	0.21.0
5.	Unutilized Area	1.50.5	0.50.5
	Total	1.50.5 Ha	1.50.5 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

Direction	Village	Distance in kms	Population
North	Neikonam	1.4 Kms	230
East	Nallipatti	1.2Kms	120
South	Solanpatti	2.0kms	280
West	Virachilai Bit II	2.0Kms	150

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 (60.3-40 µg/m³), PM2.5 (29-17 µg/m³), SO₂ (15-5 µg/m³), NO₂ (30.6-8 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 Day noise and Night noise were found to be 55 dB(A) and 53 dB(A) respectively in Sri Aladi Karuppar Kovil. The minimum Day Noise and Night noise were 40 dB(A) and 41 dB(A) respectively which was observed in Arangirampatti Govt School.

13.4 Water Environment

- The average pH ranges from 7.6 - 8.1
- TDS value varied from 367 mg/l to 1950 mg/l
- Hardness varied from 186 to 672 mg/l

- Chloride varied from 33.3 to 96.5 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 7.02 to 8.16 with organic matter 0.28 % to 0.59 %. 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
2021	Neem/Pungam	North	80	5m	70%
2022	Naval	South	80	5m	70%
2023	Poovarasu/Pungam	East	80	5m	70%
2024	Naval/Pungam	South	80	5m	70%
2025	Neem	West	80	5m	70%
Total			400		

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 49,00,000** for deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room

Table .11 Project Cost details

S. No.	Description	Cost
1	Project Cost	15,30,000
2	Expenditure Cost	30,00,000
3	EMP Cost	3,70,000
	Total	49,00,000

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 Lembalakudi Village	5,00,000

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.