

**November
2021**

Executive Summary

Proposed Rough stone and Gravel quarry- 1.79.5 Ha

For

PUBLIC HEARING

At

**S.F Nos : 1185/1, 1185/7A & 1185/8 Katchaikatti Village,
Vadipatti Taluk, Madurai District, Tamil Nadu State.**

Project Proponent

**M/s. Concretia Rock Products Pvt Ltd
Thiru.K.Rajesh (Managing Director)
Katchaikatti Road, Vadipatti Taluk,
Madurai District-625218**

EIA Notification 2006 Schedule 1(a) Category B1 (Cluster)

**Prepared By:
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EXECUTIVE SUMMARY

1. Project Background:

The Proposed Rough Stone and Gravel Quarry over an extent of 1.79.5 Ha in S.F Nos : 1185/1, 1185/7A & 1185/8 in Katchaikatti Village, Vadipatti Taluk, Madurai District, Tamilnadu. As per 500m Radius letter obtained from Assistant Director, Geology and Mining Madurai vide letter no Rc.No.KV1/407/2019 mines dated 10.08.2020, the total cluster area is **7.66.5 Ha**

The category of the project is B1 (cluster), the lease area plain terrain and sloping towards Southwest side covered with Rough Stone and Gravel. 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 48m below ground level. The Total Geological reserve is about 54885 m³ Gravel and Rough stone of 823275 m³. The Mineable and the Recoverable is about 20889 m³ Gravel and 126510 m³ of Rough stone respectively, the proposed Year wise production is carried out 20889 m³ Gravel and 126510 m³ of Rough stone is to be mined for (Sixty months) Five years only.

Mining plan was approved by Geology and Mining department of Madurai district letter vide no. R.c.No.407/2019/Mines dated 31.01.2020 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 Proposed Rough Stone and Gravel Quarry over an extent of 1.79.5 Hectares patta land is located Katchaikatti Village of Vadipatti Taluk, Madurai District.

| | |
|---------------------------|--------------------------|
| Mineral intends to quarry | : Rough stone and Gravel |
| District | : Madurai |
| Taluk | : Vadipatti |

Village : Katchaikatti
S. F. Nos. : 1185/1, 1185/7A & 1185/8
Extent : 1.79.5 Hectares

Table 1: Brief Description of the Project

| S. No | Particulars | Details | | |
|---------------|--------------------------|---|----------------------|------------------|
| 1 | Latitude | 10° 04' 36.80" N to 10° 04' 28.87" N | | |
| 2 | Longitude | 78° 00' 34.18" E to 78° 00' 30.79" E | | |
| 3 | Site Elevation above MSL | 206 m from MSL | | |
| 4 | Topography | Plain terrain | | |
| 5 | Land use of the site | Own Patta land | | |
| 6 | Extent of lease area | 1.79.5 Ha | | |
| 7 | Nearest highway | (SH 568) - Vadipatti to Palamedu Road – 1.38 km towards NW | | |
| 8 | Nearest railway station | Vadipatti Railway Station – 6.91 km, NW | | |
| 9 | Nearest airport | Madurai Airport – 27.61 km, SE | | |
| 10 | Nearest town / city | Town – Vadipatti – 5.20 Km - SE | | |
| 11 | Rivers / Canal | Periyar canal – 2.40 km S | | |
| 12 | Lake | Name | Distance (km) | Direction |
| | | Water Body | | |
| | | Odai – North and South side adjoining to the project site and 50m safety provided | | |
| | | Meetuneerthan Kanmai | 5.20 Km | SW |
| | | Puliyam Kanmai | 4.68 Km | NW |
| | | Ayyankottai Kanmai | 4.10 Km | S |
| | | Sambakulam Kanmai | 4.50 Km | SE |
| | | Kutladampatti Kanmai | 5.15 Km | NE |
| | | Kutladampatti falls | 6.48 Km | NE |
| | | Maavuthu Lake Dam | 8.32 Km | NW |
| | | Chithalangudi Kanmoi | 7.44 Km | SE |
| Sathaiyar Dam | 8.50 km | NE | | |
| 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 | Name | Distance (km) | Direction |
| | | Reserve Forest | | |
| | | Veguthumalai Reserve Forest | 250m | E |
| | | Sirumalai Reserve Forest | 5.64 Km | N |
| | | Kathiakatti Reserve Forest | 5.24 | NE |
| 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 Madurai.
- ❖ 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.

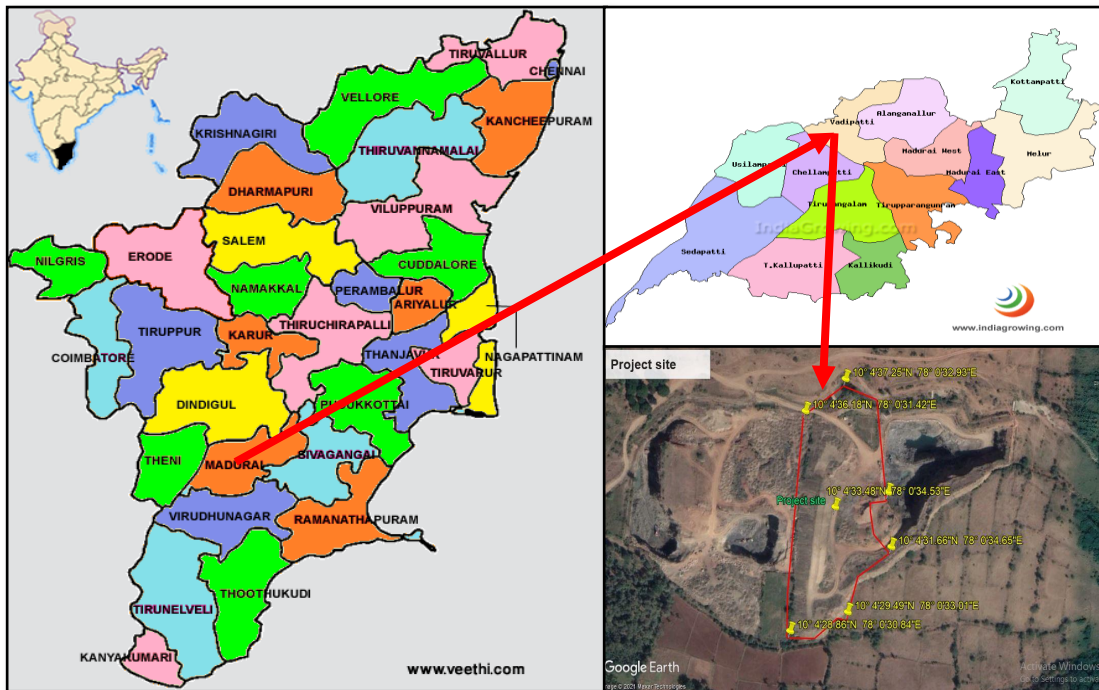


Figure 1: Location Map of the Project Site



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 Madurai, Thirumangalam, Vadipatti, Peraiyur 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 | Roughstone Reserves in m3 @ 100% | GRAVEL in m3 |
| XY-AB | I | 112 | 88 | 3 | | | 29568 |
| | II | 112 | 88 | 5 | 49280 | 49280 | |
| | III | 112 | 88 | 5 | 49280 | 49280 | |
| | IV | 112 | 88 | 5 | 49280 | 49280 | |
| | V | 112 | 88 | 5 | 49280 | 49280 | |
| | VI | 112 | 88 | 5 | 49280 | 49280 | |
| | VII | 112 | 88 | 5 | 49280 | 49280 | |
| | VIII | 112 | 88 | 5 | 49280 | 49280 | |
| | IX | 112 | 88 | 5 | 49280 | 49280 | |
| | X | 112 | 88 | 5 | 49280 | 49280 | |
| TOTAL | | | | | 443520 | 443520 | 29568 |
| XY-A1B1 | I | 97 | 87 | 3 | | | 25317 |
| | II | 97 | 87 | 5 | 42195 | 42195 | |
| | III | 97 | 87 | 5 | 42195 | 42195 | |
| | IV | 97 | 87 | 5 | 42195 | 42195 | |
| | V | 97 | 87 | 5 | 42195 | 42195 | |
| | VI | 97 | 87 | 5 | 42195 | 42195 | |
| | VII | 97 | 87 | 5 | 42195 | 42195 | |
| | VIII | 97 | 87 | 5 | 42195 | 42195 | |
| | IX | 97 | 87 | 5 | 42195 | 42195 | |
| | X | 97 | 87 | 5 | 42195 | 42195 | |
| TOTAL | | | | | 379755 | 379755 | 25317 |
| GRAND TOTAL | | | | | 823275 | 823275 | 54885 |

Table 3. Year wise Production Plan

| YEARWISE DEVELOPMENT AND PRODUCTION | | | | | | | |
|--|--------------|--------------|--------------|--------------|---------------------|------------------------------|---------------------|
| Section | Bench | L (m) | W (m) | D (m) | Volume In M3 | Reserves in m3 @ 100% | Gravel in m3 |
| GRAVEL (I TO V YEAR) | | | | | | | |
| I TO V YEAR | | | | | | | |
| | I | 51 | 73 | 3 | | | 11169 |
| | I | 45 | 72 | 3 | | | 9720 |
| TOTAL | | | | | | | 20889 |
| ROUGH STONE | | | | | | | |
| I-YEAR | | | | | | | |
| | II | 48 | 70 | 5 | 16800 | 16800 | |
| | II | 42 | 69 | 5 | 14490 | 14490 | |
| TOTAL | | | | | 31290 | 31290 | |
| II-YEAR | | | | | | | |
| | III | 43 | 65 | 5 | 13975 | 13975 | |
| | III | 37 | 64 | 5 | 11840 | 11840 | |
| TOTAL | | | | | 25815 | 25815 | |
| III-YEAR | | | | | | | |
| | IV | 38 | 60 | 5 | 11400 | 11400 | |
| | IV | 32 | 59 | 5 | 9440 | 9440 | |
| TOTAL | | | | | 20840 | 20840 | |
| IV-YEAR | | | | | | | |
| | V | 33 | 55 | 5 | 9075 | 9075 | |
| | VI | 28 | 50 | 5 | 7000 | 7000 | |
| | V | 27 | 54 | 5 | 7290 | 7290 | |
| | VI | 22 | 49 | 5 | 5390 | 5390 | |
| TOTAL | | | | | 28755 | 28755 | |
| V-YEAR | | | | | | | |
| | VII | 23 | 45 | 5 | 5175 | 5175 | |
| | VIII | 18 | 40 | 5 | 3600 | 3600 | |
| | IX | 13 | 35 | 5 | 2275 | 2275 | |
| | X | 8 | 30 | 5 | 1200 | 1200 | |
| | VII | 17 | 44 | 5 | 3740 | 3740 | |
| | VIII | 12 | 39 | 5 | 2340 | 2340 | |
| | IX | 7 | 34 | 5 | 1190 | 1190 | |
| | X | 2 | 29 | 5 | 290 | 290 | |
| TOTAL | | | | | 19810 | 19810 | |
| GRAND TOTAL | | | | | 126510 | 126510 | 20889 |

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 Katchaikatti Village which is 1.50 km NW and other water will be source from nearby road tankers supply.

Table 4. Water Balance

| Purpose | Quantity | Source |
|------------------|----------------|---|
| Drinking Water | 0.5 KLD | Packaged Drinking water vendors available in Katchaikatti village which is about 1.50 km NW 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 | 1.5 KLD | |

8. Man Power

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

Table 5. Man Power

| S.No. | Name of the Employment | No. of Employees |
|-------|--------------------------------|------------------|
| 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 | 2 Nos |
| | Office Boy | 1 No |
| 4. | Management & Supervisory Staff | 2 No |
| | Total | 15 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 | Biodegradable | 2.7 kg/day | Municipal bin including food waste |
| 2 | Non-Biodegradable | 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 owner | Village | S. F. No. | Extent |
|--------|--------------------------------------|--------------|--------------------------------------|--------|
| 1. | S.Jayaraman | Katchaikatti | 1186/1B, 1186/5A, 1186/5B,1186/6A | 1.82.5 |
| 2. | Ramji Prabu | Katchaikatti | 1511/1 etc | 2.14.5 |
| 3. | M/s. Concretia Rock Products Pvt Ltd | Katchaikatti | 1185/2 etc | 1.90.0 |

2) Expired Area:

| S. No. | Name of the owner | Village | S. F. No. | Extent |
|--------|-------------------|---------|-----------|--------|
| Nil | | | | |

3) Proposed Expired:

| S. No. | Name of the owner | Village | S. F. No. | Extent |
|--------|--------------------------------------|--------------|------------|--------|
| 1. | M/s. Concretia Rock Products Pvt Ltd | Katchaikatti | 1185/1 etc | 1.79.5 |

The Total extent of the Existing / Lease expired / Proposed quarries are 7.66.5 Ha

10. Land Requirement

The total extent area of the project is 1.79.5 Ha, Own Patta land in Katchaikatti Village of Vadipatti Taluk, Madurai District.

Table 8 Land Use Breakup

| SL. NO. | Land Use | Present Area (Hect) | Area In Use During The Quarrying Period (Hect) |
|---------|----------------------|---------------------|--|
| 1. | Area under Quarrying | Nil | 0.64.5 |
| 2. | Infrastructure | Nil | 0.01.0 |
| 3. | Roads | Nil | 0.01.0 |
| 4. | Green Belt & Dump | Nil | 0.12.0 |
| 5. | Unutilized Area | 1.79.5 | 1.01.0 |
| | Total | 1.79.5 Ha | 1.79.5 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 Nearest Habitation

| S.No | Direction | Village | Distance | Population |
|------|-----------|-----------------------|----------|------------|
| 1 | NW | Ramayanpatti | 0.90 Km | 9204 |
| 2 | NW | Katchaikatti | 1.50 Km | 4973 |
| 3 | SE | Periya llandhai Kulam | 4.5Km | 1436 |
| 4 | SW | Poochampatti | 0.75 km | 2031 |
| 5 | SW | Chockalingapuram | 1.5Km | 1050 |

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 and **10 litre** 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 : 26.3 °C
- ii) Average Maximum Temperature. : 40 °C
- iii) Average Annual Rainfall of the area : 806 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 (60-42 µg/m³), PM2.5 (31-19 µg/m³), SO₂ (20-5µg/m³), NO₂ (32-10 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June to August 2021.

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 44 dB(A) respectively in Vadipatti. The minimum Day Noise and Night noise were 43 dB(A) and 37 dB(A) respectively which was observed in Raj department store chavadi & Pinanthodu village.

13.4 Water Environment

- The average pH ranges from 7.16-7.60.
- TDS value varied from 505 mg/l to 1836 mg/l
- Hardness varied from 280 to 1052 mg/l
- Chloride varied from 31.3 to 479 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 7.20 to 8.38 with organic matter 0.28 % 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 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 54,00,000** 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 | 20,60,000 |
| 2 | Expenditure Cost | 30,00,000 |
| 3 | EMP Cost | 3,40,000 |
| | Total | 54,00,000 |

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 2% of the project cost (Rs.) |
|-------|--|----------------------------------|
| 1. | Developing Sports facilities and Providing Toilet, Water Filter facilities to Government Schools in Katchaikatti Village | 1,08,000 |
| | Total | 1,08,000 |

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.