February 2025

# Executive Summary for Conducting Public Hearing

FOR

# "Thiru.G.Pandurangan Rough Stone and Gravel Quarry over a total extent of 3.25.50 Ha"

At

S.F.No. 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District, Tamilnadu State


**Project Proponent:**

Thiru.G.Pandurangan,
S/o.Govindaraj.,
D. No.4/888, Balaji Nagar,
Soolakkarai Village & Post,
Virudhunagar.


Project termed under schedule 1(a) Category $B_1$


**Prepared By:**

Ecotech Labs Pvt. Ltd.

NABET Accreditated EIA Consultant
48, 2nd Main Road, Ram Nagar South Extension,
Pallikaranai, Chennai -600100

# EXECUTIVE SUMMARY

## 1. Project Background:

The Proposed project total extent area is 3.25.50 Ha, It is a Patta land in S.F. Nos: 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) of Sengundrapuram Village, Virudhunagar Taluk and Virudhunagar District. The category of project is B1, It is a Rough stone and Gravel quarry in Sengundrapuram village. The area is situated on a plain terrain with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with open cast mechanized mining with 5.0-meter bench for Topsoil & Gravel followed by 5.0-meter vertical bench with a bench width not less than the bench height. The quarry operation involves shallow jack hammer drilling, slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works.

The quarry operation is proposed up to depth for 46.0m Below ground level for the proposed mining plan. The Total Geological reserve is about 2,06,010$m^3$ of Gravel and 13,73,400$m^3$ of Rough Stone. The Mineable Reserves are 1,59,150$m^3$ of Gravel and 4,14,870$m^3$ of Rough stone for a period of 10 years. Production schedule is proposed production of 1,03,020$m^3$ of Gravel and 2,86,680$m^3$ of Rough stone for first five years and 1,28,190$m^3$ of Rough stone and 56,130$m^3$ of Gravel for next five years only after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.

The precise area communication letter was received from The Assistant Director, Geology & Mining, Virudhunagr vide letter no Roc.No.KV1/623/2024, dated 12.09.2024 for lease period of 10 years and The Mining Plan was approved by the Assistant Director, Geology & Mining, Virudhunagr vide letter Roc.No.KV1/623/2024, dated 20.09.2024 for the period of 10 years. There is no CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

The project area does not fall in the 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 Existing Rough Stone Quarry over an extent of 3.25.50 Hectares land is located at Sengundrapuram Village, Virudhunagar Taluk, Virudhunagar District.

| | |
|---|---|
| Mineral intends to quarry | : Rough stone and Gravel Quarry |
| District | : Virudhunagar |
| Taluk | : Virudhunagar |
| Village | : Sengundrapuram |
| S. F. Nos. | : 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) |
| Extent | : 3.25.50 Hectares |

**Table 1: Brief Description of the Project**

| S. No | Particulars | Details |
|---|---|---|
| 1 | Latitude | 09°36' 27.3458" to 09°36' 36.2543" N |
| 2 | Longitude | 77°53' 37.2835" to 77°53' 45.9033" E |
| 3 | Site Elevation above MSL | The altitude of the lease area is 111m above MSL. |
| 4 | Mining plan period | 10 Years |
| 5 | Topography | Plain topography |
| 6 | Land use of the site | Patta Land |
| 7 | Extent of lease area | 3.25.50 Ha |
| 8 | Nearest highway | SH 182 – Watrap – Alagapuri – Virudhunagar Road – 0.38 Km – N<br>NH 44 – Kanniyakumari – Tirunelveli – Madurai – Srinagar Road – 5.50 Km - E |
| 9 | Nearest railway station | Virudhunagar Railway Station – 7.03 km, E |
| 10 | Nearest airport | Madurai International Airport – 33.09 Km - NE |

| | | |
|---|---|---|
| 11 | Nearest town / city | Town - Virudhunagar – 6.20 Km - E<br>City - Virudhunagar – 6.20 Km - E<br>District – Virudhunagar – 6.20 Km - E |
| 12 | Rivers / Canal / Dam | ❖ Kousiga River – 4.96 Km – E<br>❖ Arjuna River – 10.71 Km – SSW<br>❖ Kullursandai Dam – 11.35 Km - SE |
| 13 | Lake/Pond | ❖ Palaiya Urani – 0.22 Km – E<br>❖ Seeniapuram Kanmai – 0.81 Km – NE<br>❖ Vadamalaikurichi Kanmai – 2.09 Km – NE<br>❖ Valayankulam Kanmai – 3.62 Km – W<br>❖ Vairavankulam Kanmai – 4.44 Km – W<br>❖ Moolipatti Kanmai – 4.70 Km – SW<br>❖ Pavali Kanmai – 5.04 Km – E<br>❖ Amatur Pond – 6.22 Km – SW<br>❖ Maravapatty Pond – 6.62 Km – N<br>❖ Appaswamy Oorani – 7.04 Km – N<br>❖ V.Chatrapatti Kanmai – 7.10 Km – NW<br>❖ Chittoor Pond – 7.49 Km – NE<br>❖ Gopinayakanpatti Kanmai – 7.88 Km – NWW<br>❖ Mathiasenai Kanmai – 8.38 Km - SW<br>❖ Kundaneri Kanmai – 8.56 Km – W<br>❖ Vellur Kanmai – 8.90 Km – SW<br>❖ Erichanatham Kanmai – 8.95 Km – W<br>❖ Old Ramco quarry pit for Rainwater collection & Supplies to Virudhunagar municipality – 9.02 Km - SE<br>❖ Nadayaneri Sevalkulam Kanmai – 9.08 Km – W<br>❖ Servaikaranpatti Kanmai (PWD) – 9.35 Km - SW<br>❖ Muruganeri Kanmai – 9.40 Km – NW<br>❖ Kullursandai Reservoir – 9.64 Km – SEE<br>❖ Nallaiyankulam Kanmai – 10.88 Km – W<br>❖ Anaikulam Tank – 12.95 Km - SW |
| 14 | Hills / valleys | ❖ Nil in 15 km radius |
| 15 | Archaeologically places | ❖ Tirumalai Nayak's Palace, Srivilliputhur – 30.88 Km - SW |

| | | |
|---|---|---|
| 16 | National parks / Wildlife Sanctuaries | ❖ SMTR – 18.56 Km - NW |
| 17 | Reserved / Protected Forests | ❖ Venkatewarapuram RF – 23.46 Km – SW<br>❖ Saptur RF – 33.18 Km – W |
| 18 | Seismicity | Proposed Lease area come under Seismic zone-III (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 and Gravel extracted will be transported to be Stone crusher of district Virudhunagar.
- ❖ 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 artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or backfilling is required.

**Figure 1: Location Map of the Project Site**

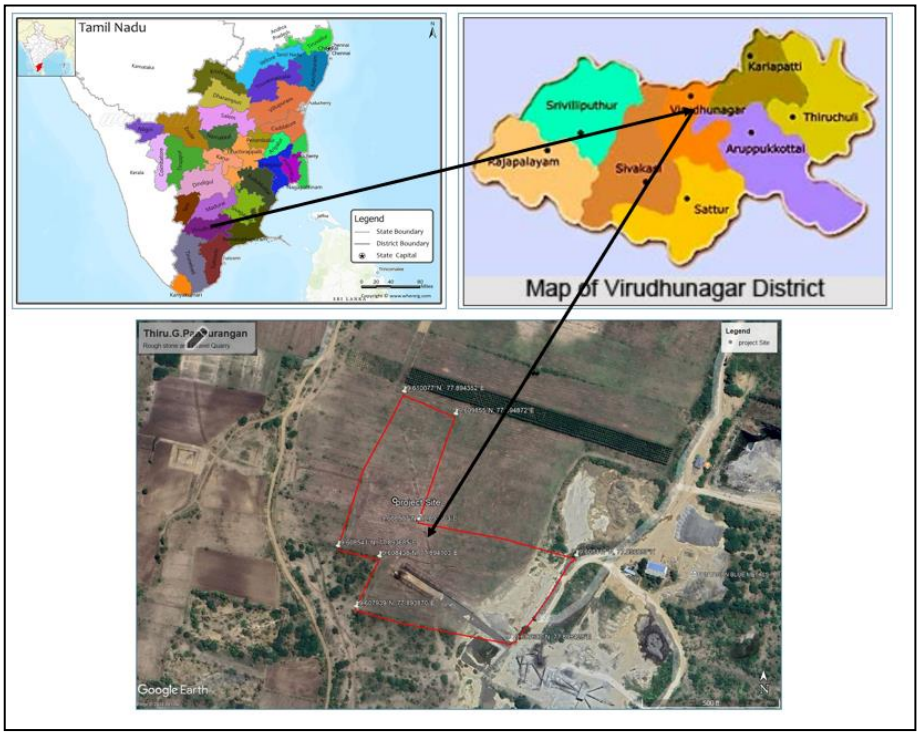


**Figure 2: Google Image of the Project Site**

## 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 observed in most of the quarry in Pandalgudi, Lakshmipuram, Gopalapuram, Sundakottai chinnakamanpatti, 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 and the availability of Geological Resources in this land is given below.

**Table 2. Geological resources**

| Section | Length (m) | Width (m) | Height (m) | Rough stone volume $m^3$ | Gravel Volume $m^3$ |
|---|---|---|---|---|---|
| A-A' & B-B' | 182<br>182 | 118<br>118 | 6.0<br>40.0 | -<br>859040 | 128856<br>- |
| A-A' & C-C' | 63<br>63 | 50<br>50 | 6.0<br>40.0 | -<br>126000 | 18900<br>- |
| C-C' & D-D' | 133<br>133 | 73<br>73 | 6.0<br>40.0 | -<br>388360 | 58254<br>- |
| **TOTAL GEOLOGICAL RESERVES** | | | | **13,73,400** | **2,06,010** |

Gravel Formation :206010$m^3$

The Geological Resources of Rough stone :1373400$m^3$

### Table 3. Mineable Resources

The available mineable reserves are calculated for the proposed lease period of 10 years based on the total minable reserves calculated by safety distances of 10.0m at southeastern side for the small drainage and 7.5m to the patta land on all other sides of the boundary side of the applied area and Bench losses.

| SECTION | BENCH | LENGTH (M) | WIDTH (M) | HEIGHT (M) | ROUGH STONE VOLUME ($M^3$) | GRAVEL VOLUME ($M^3$) |
|---|---|---|---|---|---|---|
| A-A' & B-B' | I | 171 | 101 | 6.0 | - | 1,03,626 |
| | II | 165 | 89 | 5.0 | 73,425 | - |
| | III | 160 | 79 | 5.0 | 63,200 | - |
| | IV | 155 | 69 | 5.0 | 53,475 | - |
| | V | 150 | 59 | 5.0 | 44,250 | - |
| | VI | 145 | 49 | 5.0 | 35,525 | - |
| | VII | 135 | 39 | 5.0 | 26,325 | - |
| | VIII | 125 | 29 | 5.0 | 18,125 | - |
| | IX | 115 | 19 | 5.0 | 10,925 | - |
| A-A' & C-C' | I | 55 | 42 | 6.0 | - | 13,860 |
| | II | 49 | 36 | 5.0 | 8,820 | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | III | 44 | 31 | 5.0 | 6,820 | - |
| | IV | 39 | 26 | 5.0 | 5,070 | - |
| | V | 34 | 21 | 5.0 | 3,570 | - |
| | I | 124 | 56 | 6.0 | - | 41,664 |
| | II | 118 | 44 | 5.0 | 25,960 | - |
| C-C' & D-D' | III | 113 | 34 | 5.0 | 19,210 | - |
| | IV | 108 | 24 | 5.0 | 12,960 | - |
| | V | 103 | 14 | 5.0 | 7,210 | - |
| **TOTAL MINEABLE RESERVES** | | | | | **4,14,870** | **1,59,150** |

The available mineable reserves have been computed as **4,14,870m$^3$** of **Rough Stone and 1,59,150m$^3$** of **Gravel** up-to the depth of **46.0** meters from the ground level.

**Table 4.Year wise Production Plan**

| Section | Year | Bench | Length (m) | Width (m) | Height (m) | Rough stone Volume (m$^3$) | Gravel volume (m$^3$) |
|---|---|---|---|---|---|---|---|
| A-A' & B-B' | I-Year | I | 65 | 101 | 6.0 | - | 39,390 |
| | | II | 53 | 89 | 5.0 | 23,585 | - |
| | | III | 43 | 79 | 5.0 | 16,985 | - |
| | | IV | 33 | 69 | 5.0 | 11,385 | - |
| | | V | 23 | 59 | 5.0 | 6,785 | - |
| **I – YEAR PRODUCTION** | | | | | | **58,740** | **39,390** |
| A-A' & B-B' | II-Year | I | 26 | 101 | 6.0 | - | 15,756 |
| | | II | 26 | 89 | 5.0 | 11,570 | - |
| | | III | 26 | 79 | 5.0 | 10,270 | - |
| | | IV | 26 | 69 | 5.0 | 8,970 | - |
| | | V | 26 | 59 | 5.0 | 7,670 | - |
| | | VI | 39 | 49 | 5.0 | 9,555 | - |
| | | VII | 29 | 39 | 5.0 | 5,655 | - |
| | | VIII | 19 | 29 | 5.0 | 2,755 | - |
| **II – YEAR PRODUCTION** | | | | | | **56,445** | **15,756** |
| A-A' & B-B' | III-Year | I | 26 | 101 | 6.0 | - | 15,756 |
| | | II | 26 | 89 | 5.0 | 11,570 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | III | 26 | 79 | 5.0 | 10,270 | - |
| | | IV | 26 | 69 | 5.0 | 8,970 | - |
| | | V | 26 | 59 | 5.0 | 7,670 | - |
| | | VI | 26 | 49 | 5.0 | 6,370 | - |
| | | VII | 26 | 39 | 5.0 | 5,070 | - |
| | | VIII | 26 | 29 | 5.0 | 3,770 | - |
| | | IX | 35 | 19 | 5.0 | 3,325 | |
| **III – YEAR PRODUCTION** | | | | | | **57,015** | **15,756** |
| A-A' & B-B' | IV-YEAR | I | 26 | 101 | 6.0 | - | 15,756 |
| | | II | 26 | 89 | 5.0 | 11,570 | - |
| | | III | 26 | 79 | 5.0 | 10,270 | - |
| | | IV | 26 | 69 | 5.0 | 8,970 | - |
| | | V | 26 | 59 | 5.0 | 7,670 | - |
| | | VI | 26 | 49 | 5.0 | 6,370 | - |
| | | VII | 26 | 39 | 5.0 | 5,070 | - |
| | | VIII | 26 | 29 | 5.0 | 3,770 | - |
| | | IX | 26 | 19 | 5.0 | 2,470 | - |
| **IV – YEAR PRODUCTION** | | | | | | **56,160** | **15,756** |
| A-A' & B-B' | V-YEAR | I | 27 | 101 | 6.0 | - | 16,362 |
| | | II | 27 | 89 | 5.0 | 12,015 | - |
| | | III | 27 | 79 | 5.0 | 10,665 | - |
| | | IV | 27 | 69 | 5.0 | 9,315 | - |
| | | V | 27 | 59 | 5.0 | 7,965 | - |
| | | VI | 27 | 49 | 5.0 | 6,615 | - |
| | | VII | 27 | 39 | 5.0 | 5,265 | - |
| | | VIII | 27 | 29 | 5.0 | 3,915 | - |
| | | IX | 27 | 19 | 5.0 | 2,565 | - |
| **V – YEAR PRODUCTION** | | | | | | **58,320** | **16,362** |
| **TOTAL PRODUCTION FOR FIVE YEARS** | | | | | | **2,86,680** | **1,03,020** |

**Year wise Production summary:**

| YEAR | ROUGH STONE VOLUME ($M^3$) | GRAVEL VOLUME ($M^3$) |
|---|---|---|
| I – Year | 58,740 | 39,390 |
| II – Year | 56,445 | 15,756 |
| III – Year | 57,015 | 15,756 |
| IV – Year | 56,160 | 15,756 |
| V – Year | 58,320 | 16,362 |
| **Total I to V Years** | **2,86,680** | **1,03,020** |
| **Balance VI to X years** | **1,28,190** | **56,130** |
| **Total for 10 Years** | **4,14,870** | **1,59,150** |

## 6. Mining

### Opencast Mining

Open cast Semi-Mechanized Mining with one 6.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height. The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

### Process Description

- The reserves and resources are arrived based upon the Geological investigation
- Removal of Gravel by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 30-32 mm 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 6.0 KLD. Domestic water will be sourced from nearby Sengundrapuram Village and other water will be sourced from nearby road tankers supply.

**Table 5. Water Balance**

| Purpose | Quantity | Sources |
|---|---|---|
| Drinking Water | 1.0 KLD | Packaged Drinking water vendors are available in Sengundrapuram village which is about 0.44 km NW from the project site. |
| Afforestation & Green belt | 2.0 KLD | Other domestic activities through road tankers supply |
| Dust suppression | 3.0 KLD | From road tankers supply |
| **Total** | **6.0 KLD** | |

## 8. Manpower

Total manpower required for the project is approximately 16 persons. The workers will be from nearby villages.

**Table 6. Man Power**

| S.No. | Levels & Details | | Persons |
|---|---|---|---|
| 1. | Skilled | Operators | 3 |
| | | Mechanic | 1 |
| | | Blaster/Mate | 1 |
| 2. | Semi – skilled | Drivers | 2 |
| 3. | Unskilled | Musdoor/Labours | 8 |
| | | Cleaners | 2 |
| | | Office Boy | 1 |
| 4. | Management & Supervisory staff | | 2 |
| **Total** | | | **20** |

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

## 9. Solid Waste Management

**Table 7 Solid Waste Management**

| S. No | Type | Quantity | Disposal Method |
|---|---|---|---|
| 1 | Organic | 3.6 kg/day | Municipal bin including food waste |
| 2 | Inorganic | 5.4 kg/day | TNPCB authorized recyclers |

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

**Table 8. 500m Radius Cluster Mine**

**1) Existing other quarries:**

| S. No. | Quarry details | Village | S.F. Nos & Extent (Ha) | Proceeding No & Lease Period |
|---|---|---|---|---|
| **I.** | **Existing Quarries** | | | |
| 1 | Thiru.G.Pandurangan, S/o.Govindharaj | Sengundrapuram | 79/2A (P), 79/2B(P), 81/1(P), 81/2(P), 83/1, 83/2(P), 84/1(P), 85(P) **2.51.0 HA** | KV1/533/2020 dated: 30.11.2022 & 07.11.2022 to 06.11.2027 |
| 2 | Thiru.S.Ramasamy, S/o. Sesathiri | Sengundrapuram | 94/1, 94/2, 94/3 **1.13.5 Ha** | KV1/1174/2022 dated: 06.06.2023 08.06.2023 to 07.06.2028 |
| **II.** | **Abandoned Quarry** | | | |
| 1. | Thiru.S.Govindaraj, s/o. Sesathiri | Seeniyapuram | 11/1, 11/2, 12/6, 9/7, 9/9 **2.37.5 Ha** | KV1/541/2018 dated: 15.01.2019 29.01.2019 to 28.01.2024 |
| **III.** | **Present Proposed Quarry** | | | |
| 1. | Thiru.G.Pandurangan S/o. Govindaraj | Sengundrapuram | 84/1(P), 85(P), 86/1, 86/2, 87/1, 87/2, 88, 109/2, 109/3A, 109/3B, 110/1B, 110/2B(P) and 110/2C(P) **3.25.50 Ha** | KV1/623/2024 Dated: .09.2024 |
| **Total Cluster area** | | | **6.90.0 Ha** | |

## 10. Land Requirement

The total extent area of the project is 3.25.50 Ha, Patta Land in Sengundrapuram Village of Virudhunagar Taluk, Virudhunagar District.

**Table 9 Land Use Breakup**

| S. No. | Land Use | Present Area (Hect) | Area after the quarrying period of 5 years (Hect) |
|---|---|---|---|
| 1. | Area under quarrying | Nil | 1.70.00 |
| 2. | Infrastructures | Nil | 0.01.00 |
| 3. | Roads, cart tracks etc., | Nil | 0.03.00 |
| 4. | Green Belt | Nil | 0.62.75 |
| 5. | Unutilized Area | 3.25.50 | 0.88.75 |
| | **Total** | **3.25.50** | **3.25.50** |

## 11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within a 15 km radius of the quarry.

**Table 10 Habitation**

| SL. NO | DIRECTION | VILLAGE | POPULATION | DISTANCE |
|---|---|---|---|---|
| 1 | North | Pudupatti | 1,200 | 4.2 Km |
| 2 | NE | Vadamalaikuruchi | 2,200 | 3.0 Km |
| 3 | NW | Kundalapatti<br>Sengundrapuram<br>Elinganaickenpatti | 600<br>2,600<br>1,100 | 1.0 Km<br>2.5 Km<br>3.7 Km |
| 4 | South | Veerachellaiapuram (Kavalur) | 1,200 | 3.5Km |
| 5 | SE | Chandragiripuram<br>Chokkalingapuram<br>Pavali<br>Kumaralingapuram | 1,000<br>800<br>4,700<br>2,600 | 1.0 Km<br>2.5 Km<br>3.0 Km<br>3.2 Km |
| 6 | SW | Nattarmangalam | 1,000 | 1.0 Km |
| 7 | East | Seeniyapuram | 2,000 | 1.5 Km |
| 8 | West | Moolipatti | 3,400 | 3.6 Km |

## 12. Power Requirement

The proposed Rough stone quarrying does not require any power supply for the quarrying operation.

**16 Litre** diesel per hour for excavator for mining and loading for Rough stone needed and **10 Litre** diesel per hour for excavator for mining and loading for Topsoil.

## 13. Scope of the Baseline Study

This chapter contains information on existing environmental scenarios 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 : 30º C

ii) Average Maximum Temperature: 38ºC

iii) Average Annual Rainfall of the area: 829 mm

### 13.2 Air Environment

Ambient air monitoring was carried out on a 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 7 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide ($SO_2$), Nitrogen Dioxide ($NO_2$) were monitored, and the results are summarized below.

The baseline levels of $PM_{10}$ (39- 61 µg/m³), $PM_{2.5}$ (17- 29 µg/m³), $SO_2$ (5-18 µg/m³), $NO_2$ (9-18 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from November 2024 to January 2025.

### 13.3 Noise Environment

The maximum Day noise and Night noise were found to be 61 dB(A) and 51 dB(A) respectively in Sri Bharasakthi Kaliyamman. The minimum Day Noise and Night noise were 40 dB(A) and 32 dB(A) respectively which was observed in project site. The observed values are all well within the Standards prescribed by CPCB.

### 13.4 Water Environment

- The average pH ranges from 7.27 – 8.20.
- TDS value varied from 325 mg/l to 1851 mg/l
- Hardness varied from 230 to 1730 mg/l
- Chloride varied from 59 to 553 mg/l

### 13.5 Land Environment

The analysis results show that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 7.02 to 7.72 with organic matter 0.22 to 0.65 %. 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 mine is a 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, Vilvam, Panai, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 340 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

**Table.11Plantation/ Afforestation Program**

| Name of species proposed | Survival | No of species |
|---|---|---|
| Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam | 70% | 1700 |
| **Total** | | **1700** |

## 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 1,63,40,000/-** 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 .12 Project Cost details**

| S. No. | Description | Cost (Rs.) |
|---|---|---|
| 1 | Investment Cost | 20,00,000/- |
| 2 | Expenditure Cost | 1,43,40,000/- |
| | **Total** | **1,63,40,000/-** |

**Total EMP Cost**: **Rs. 2,62,47,912/- (Two crore sixty-two lakhs forty-seven thousand and nine hundred twelve rupees only) for 10 years, approximately (Rs. 262 Lakhs)**

## 20. Corporate Environmental Responsibility

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

**Table 13 CER Cost**

| S. No. | CER Activity | CER value (Rs) |
|---|---|---|
| 1. | Panchayat Union Primary School in Kundhalapatti – 626 103, Sengudrapuram (Post), Virudhunagar (Via).<br>Providing facilities are:<br>➢ Renovation of damaged old school building and construction of a classroom building and storeroom (Stock room) and<br>➢ Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, RO water purifiers, Hygienic Toilet and maintenance of toilet upto lease period. | 5,00,000 |
| **Total** | | **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 a positive impact by providing direct and indirect jobs opportunities
- The project is environmentally compatible, financially viable and would be in the interest of the 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.