

JUNE

2022

Executive Summary for Conducting Public Hearing

FOR

**“Thiru.M.Duraipandian Rough Stone and Gravel
Quarry over a total extent of 2.19.0 Ha”**

At

**S.F.No. 220/2 & 220/3 of Aladipatti Village,
Aruppukkottai Taluk, Virudhunagar District,
Tamilnadu State**

Project Proponent:

**Thiru.M.Duraipandian,
S/o. Muthaiah,
No.4/58a, North Street,
Melappatti Village, Sivalarpatti Post,
Vilathikulam Taluk,
Thoothukudi District – 628 905**

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 Rough Stone and Gravel Quarry over an extent of 2.19.0 Ha, Own Patta land in SF.No. 220/2 & 220/3 of Aladipatti Village, Aruppukkottai Taluk, Virudhunagar District. The category of the project is B1 (cluster), the lease area exhibits plain terrain and gentle slope towards south and covered by brownish red sand soil followed by weathered rock formation and massive charnockite rock formation

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 37m below ground level. The Total Geological reserve is about 4,65,413 m³ of Rough stone and 508 m³ of Gravel up to a depth of 37.0m(Max). The Mineable Reserves is 2,30,562 m³ of Rough Stone and 36 m³ of Gravel up-to the depth of 37.0 meters. Production Schedule is proposed production of 2,30,562 m³ of Rough Stone and 36 m³ of Gravel for the period of five years.

The fresh Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Roc No: KV1/178/2019 dated 20.11.2021. 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 and Gravel Quarry over an extent of 2.19.0 Hectares land is located Aladipatti Village of Aruppukkottai Taluk, Virudhunagar District.

Mineral intends to quarry : Rough stone and Gravel

District : Virudhunagar

Taluk : Aruppukkottai

Village : Aladipatti
S. F. Nos. : 220/2 & 220/3
Extent : 2.19.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	9° 28' 28.1060" N to 9° 28' 24.8173" N
2	Longitude	78° 12' 16.8688"E to 78° 12' 10.2578" N
3	Site Elevation above MSL	64 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Own Patta land
6	Extent of lease area	2.19.0 Ha
7	Nearest highway	SH 47 - Parthibanur – Kamuthi – Aruppukottai – 3.73 km, SW
8	Nearest railway station	Tiruchchuli Railway Station – 7.07 km, N
9	Nearest airport	Madurai International Airport – 42.16 km - NW
10	Nearest town / city	Aruppukkottai - 12.19 km - NW
11	Rivers / Canal	Gundar River – 4.69 km, NE
12	Lake	<ul style="list-style-type: none"> ❖ Periya Kanmai – 5.57 km, SE ❖ Neeravi Pond – 6.00 km, S ❖ Puliyan Lake – 8.55 km, NW ❖ Thumbai Kulam – 11.39 km, NW ❖ Temple Pond – 11.87 km, NW ❖ Sengattoorani Pond – 12.17 km, NW

		<ul style="list-style-type: none"> ❖ Periya Kanmai – 12.74 km, NW ❖ Seva Kanmai – 13.16 km, NW ❖ Tamaraikulam Oorani – 13.54 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 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 an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.

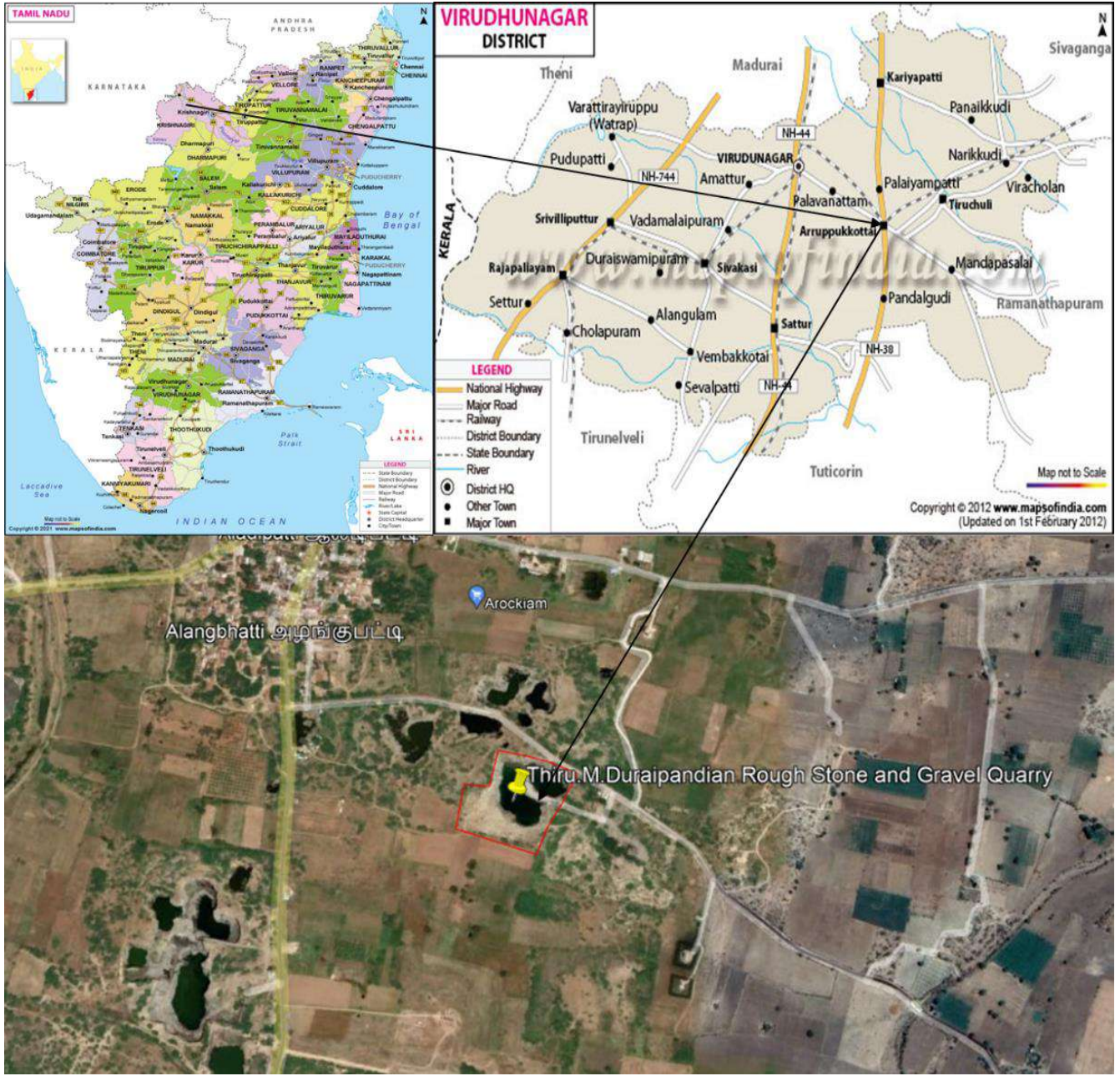


Figure 1: Location Map of the Project Site

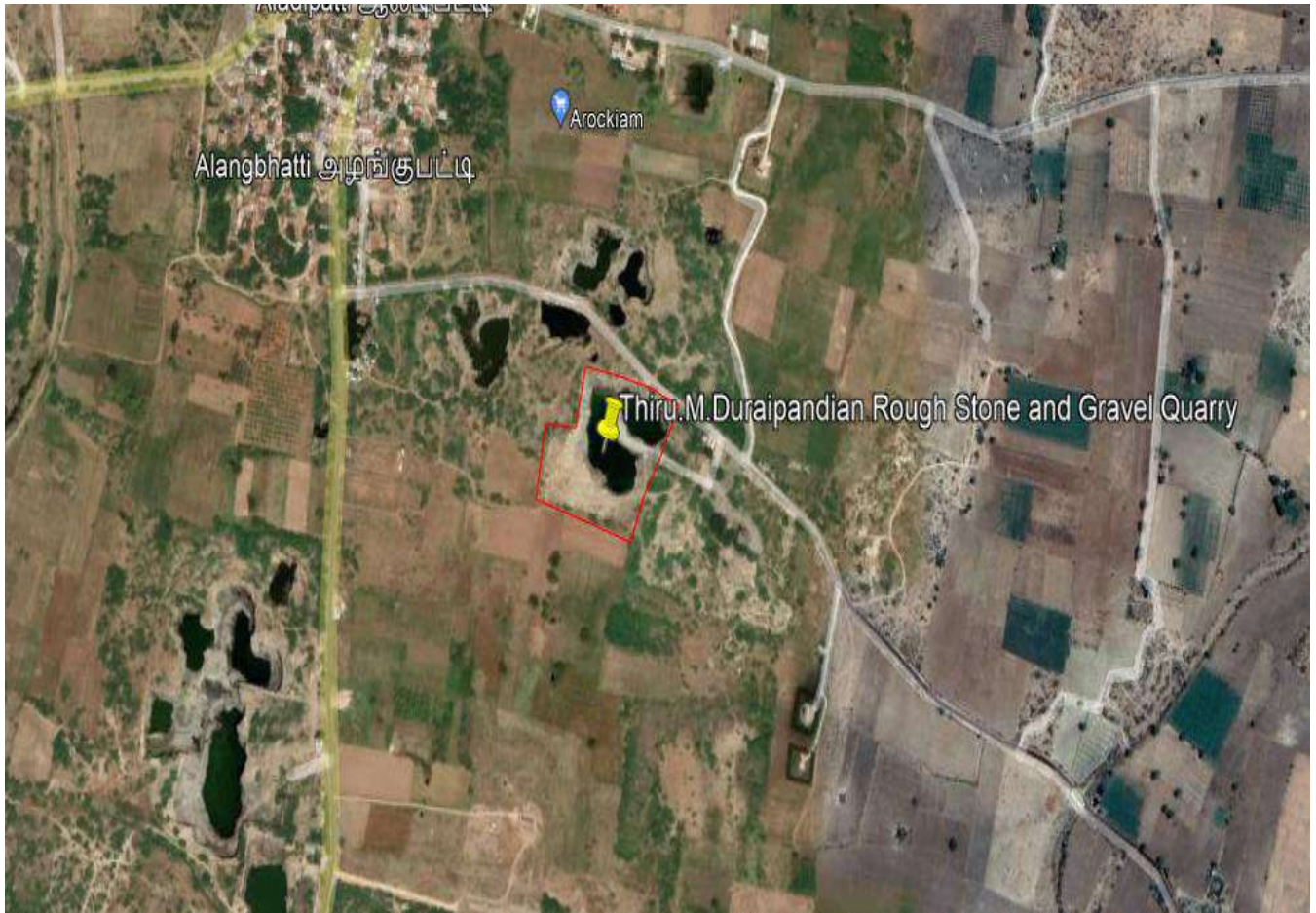


Figure 2: Google Image of the Project Site

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 Panaiyur, Sundakottai, Konganakurichi, Veppilaiseri, Erasinampatti. 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	Reserves in m³ @ 95%	Mine waste in m³ @ 5%	Gravel in m³
XY-AB	I	8	13	2				208
	II	8	13	5	520	494	26	
	III	8	27	5	1080	1026	54	
	IV	8	27	5	1080	1026	54	
	V	85	130	5	55250	52488	2762	
	VI	85	130	5	55250	52488	2762	
	VII	85	130	5	55250	52488	2762	
	VIII	85	130	5	55250	52488	2762	
TOTAL					223680	212498	11182	208
XY-CD	I	6	25	2				300
	II	43	85	5	18275	17361	914	
	III	43	85	5	18275	17361	914	
	IV	43	85	5	18275	17361	914	
	V	70	151	5	52850	50208	2642	
	VI	70	151	5	52850	50208	2642	
	VII	70	151	5	52850	50208	2642	
	VIII	70	151	5	52850	50208	2642	
TOTAL					266225	252915	13310	300
GRAND TOTAL					489905	465413	24492	508

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%	Gravel in m³
I- YEAR	XY-AB	III	1	14	5	70	67	3	
		IV	1	14	5	70	67	3	
	XY-CD	I	1	18	2				36
		II	36	76	5	13680	12996	684	
		III	31	71	5	11005	10455	550	
		IV	26	66	5	8580	8151	429	
	TOTAL						33405	31736	1669
II- YEAR	XY-AB	V	72	110	5	39600	37620	1980	
	XY-CD	V	48	119	5	28560	27132	1428	
	TOTAL						68160	64752	3408
III- YEAR	XY-AB	VI	67	100	5	33500	31825	1675	
	XY-CD	VI	43	109	5	23435	22263	1172	
	TOTAL						56935	54088	2847
IV- YEAR	XY-AB	VII	62	90	5	27900	26505	1395	
	XY-CD	VII	38	99	5	18810	17870	940	
	TOTAL						46710	44375	2335
V- YEAR	XY-AB	VIII	57	80	5	22800	21660	1140	
	XY-CD	VIII	33	89	5	14685	13951	734	
	TOTAL						37485	35611	1874
GRAND TOTAL						242695	230562	12133	36

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 25.5 mm 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 1.81 KLD. Domestic water will be sourced from nearby Aladipatti Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	0.81KLD	Packaged Drinking water vendors available in Aladipatti which is about 0.42 Km Northwest of the area
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	1.81 KLD	

8. Manpower

Total manpower required for the project is approximately 18 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	7 Nos
	Cleaners	2 Nos
	Office Boy	1 No
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

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
I) Existing other quarries:					
1.	Thiru.M.Saravananesan	Aladipatti & Aruppukkottai	210	3.18.5	04.01.2019 to 03.01.2024
II) Abandoned Quarry:					
1.	P.Packiamuthu	Aladipatti & Aruppukkottai	221/4,5,7	0.68.5	09.10.2010 to 28.10.2015
III) Present Proposed Quarry:					
1.	Thiru. M.Duraipandian	Aladipatti & Aruppukkottai	220/2, 220/3	2.19.0	07.10.2021
2.	Thiru.A.Ayyappan	Aladipatti & Aruppukkottai	211/10, 211/11, 211/12 & 211/13	1.34.5	28.10.2020
Total				7.40.5	

The Total extent of the Existing / Lease expired / Proposed quarries are 7.40.5 Ha

10. Land Requirement

The total extent area of the project is 2.19.0 Ha, Own Patta land in Aladipatti Village of Aruppukkottai Taluk, Virudhumnagar 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	1.66.0	1.54.0

2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt	Nil	0.36.0
5.	Dump	Nil	0.27.0
6.	Unutilized Area	0.52.0	Nil
	Total	2.19.0 Ha	2.19.0 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	Population
1.	North	Veppilaiseri	2.3Km	160
2.	East	Parattanatham	2.0Kms	210
3.	South	Kalyanasundarapuram	1.0km	190
4.	West	Kallurani	4.2Kms	570

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 : 23.14 °C
- ii) Average Maximum Temperature : 35.25 °C
- iii) Average Annual Rainfall of the area : 829.6 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 (58-47 µg/m³), PM2.5 (21-15 µg/m³), SO₂ (15-5µg/m³), NO₂ (18-10µg/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 57 dB(A) and 48 dB(A) respectively in Sundakottai

Village. The minimum Day Noise and Night noise were 38 dB(A) and 34 dB(A) respectively which was observed in Konganacheri.

13.4 Water Environment

- The average pH ranges from 7.82-7.97.
- TDS value varied from 582 mg/l to 746 mg/l
- Hardness varied from 277 to 396 mg/l
- Chloride varied from 112 to 149 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 7.82-7.97 with organic matter 0.025 % to 0.20 %. 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 components of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Pungam, Naval, Tamarind, Casuarinas 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	No of species	Spacing	Survival
2022	Neem/Pungam	80	5m	70%
2023	Naval	80	5m	70%
2024	Poovarasu/Pungam	80	5m	70%
2025	Tamarind/ Casuarinas	80	5m	70%
2026	Neem	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 51,60,000** 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	18,20,000
2	Expenditure Cost	30,00,000
3	EMP Cost	3,40,000
	Total	51,60,000

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.	Provision of basic amenities such as safe drinking water, Hygienic toilet facilities, furniture, Solar lights to Government Primary school, Kalayarkarisalkulam	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.