

May

2024

**Executive Summary for Conducting Public Hearing
FOR**

**“Thiru. P. Sabapathi Rough Stone and Gravel Quarry
over a total extent of 1.18.5 Ha”**

At

**S.F.No. 153/2, 3, 4A, 4B, 4C & 5 of Veerapatti Village,
Illuppur Taluk, Pudukkottai District, Tamilnadu State**

Project Proponent:

**Thiru.P.Sabapathi,
S/o. Palaniyandi,
No.971, Seethapatty,
Mampatty, Iluppur Taluk,
Pudukkottai District - 622102**

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

Project Background:

The Proposed project total extent area is 1.18.5 Ha, Patta land in Veerapatti Village of Illuppur Taluk, Pudukkottai District. The category of project is B1, It is a new Rough stone and Gravel quarry in Veerapatti village. The area is situated on Plain terrain sloping towards Western covered with Rough Stone which does not sustain any type of vegetation.

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 42m. The Total Geological reserve is about 6,76,000m³ of Rough Stone and 12,530m³ of Gravel. The Mineable Reserves of Rough stone is 1,00,727m³ and 8,820m³ of Gravel. The year wise production/recoverable resources of rough stone for 5 years are 1,00,727m³ and 8,820m³.

The Mining Plan was approved by The Assistant Director, Dept. of Geology & Mining, Pudukkottai vide Rc.No.694/2022 (G&M) dated 08.03.2023. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundaries, 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 Quarry over an extent of 1.18.5 Hectares land is located Veerapatti Village of Iluppur Taluk, Pudukkottai District.

Mineral intends to quarry	: Rough stone and Gravel.
District	: Pudukkottai
Taluk	: Illuppur
Village	: Veerapatti

S. F. Nos. : 153/2, 3, 4A, 4B, 4C & 5

Extent : 1.18.5 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	10°27'53.79"N to 10°27'59.47"N
2	Longitude	78°40'07.18"E to 78°40'12.02"E
3	Site Elevation above MSL	130.0 m from MSL
4	Topography	Plain terrain
5	Land use of the site	Patta land (Consent registered)
6	Extent of lease area	1.18.5 Ha
7	Nearest highway	SH 71 – Manapparai to Pudukkottai Road – 0.97 Km - NNE NH 36 – Pudukkottai – Tanjore Road – 19.20 km - SE
8	Nearest railway station	Vellanur Railway Station – 13.94 km - W
9	Nearest airport	Tiruchirapalli International Airport – 32.85 km - N
10	Nearest town / city	Town - Iluppur – 6.94 km - NW City - Pudukkottai – 17.07 km - SE District - Pudukkottai – 17.07 km - SE
11	Rivers / Canal	• Nil within 15km radius
12	Lake	• Sokkan kulam – 0.32 Km - S • Varakavandi Kulam – 0.58 Km – S • Kaladi Kulam – 0.68 Km – NE • Vanner Kulam -1.13 Km – S • Palavan Kulam – 1.29 Km – E • Annavasal Periyakulam Lake–2.35 Km– E • Parambar Kanmai – 4.90 Km – SW • Panangudi Periyakulam – 5.54 Km – E • Puthakudi Kanmai – 6.64 Km – SW

		• Kurani Kulam – 6.74 Km – SW • Koyilankulam – 7.07 Km – SW • Memanapatti Periyakulam – 7.93 Km – S • Keemanur Kulam – 8.88 Km – S
13	Hills / valleys	• Pillaiyar Hill – 0.25 Km - E
14	Archaeologically places	• Jain image, Annavasal – 3.40 Km – E • Amman shrine, Sikkanthaswamy Temple, Cavern on the western side of the Kudumiyanmalai Temple hill, Kudumiyanmalai – 5.50 Km – S • Rock-cut Jain Temple, Sittanavasal – 6.19 Km – E • Jain image, Alathur – 6.43 Km – NW • Siva Temple, Ariyur – 8.70 Km – SE
15	National parks / Wildlife Sanctuaries	• Vettangudi Birds Sanctuary – 42.75 Km - SW
16	Reserved / Protected Forests	• Perambur RF – 3.90 Km – S • Kudumiyanmalai RF – 5.25 Km – SE • Pulvayal Fairly Dense Schrub – 9.92Km - SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (Moderate 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 and Gravel 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.

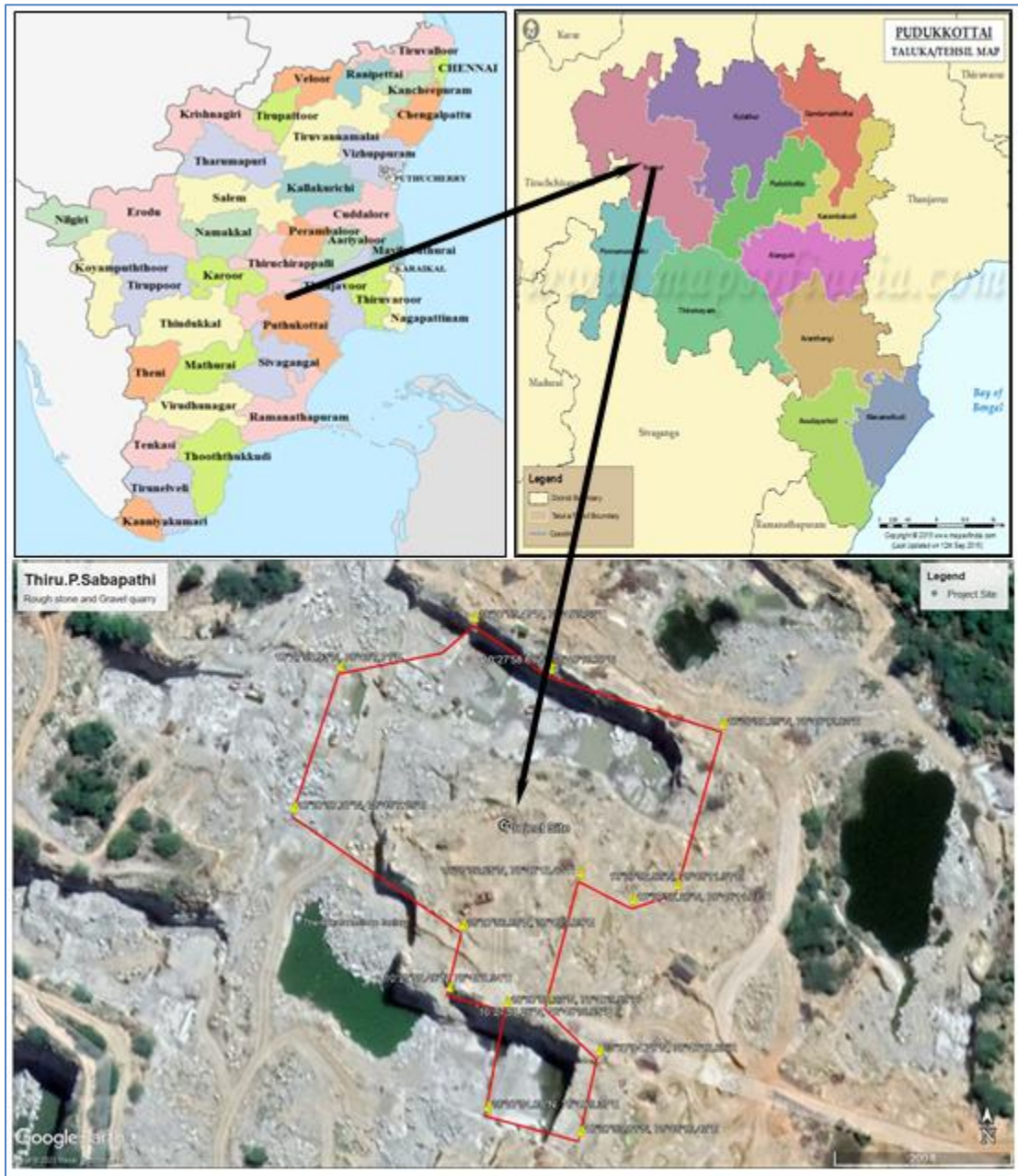


Figure 1: Location Map of the Project Site

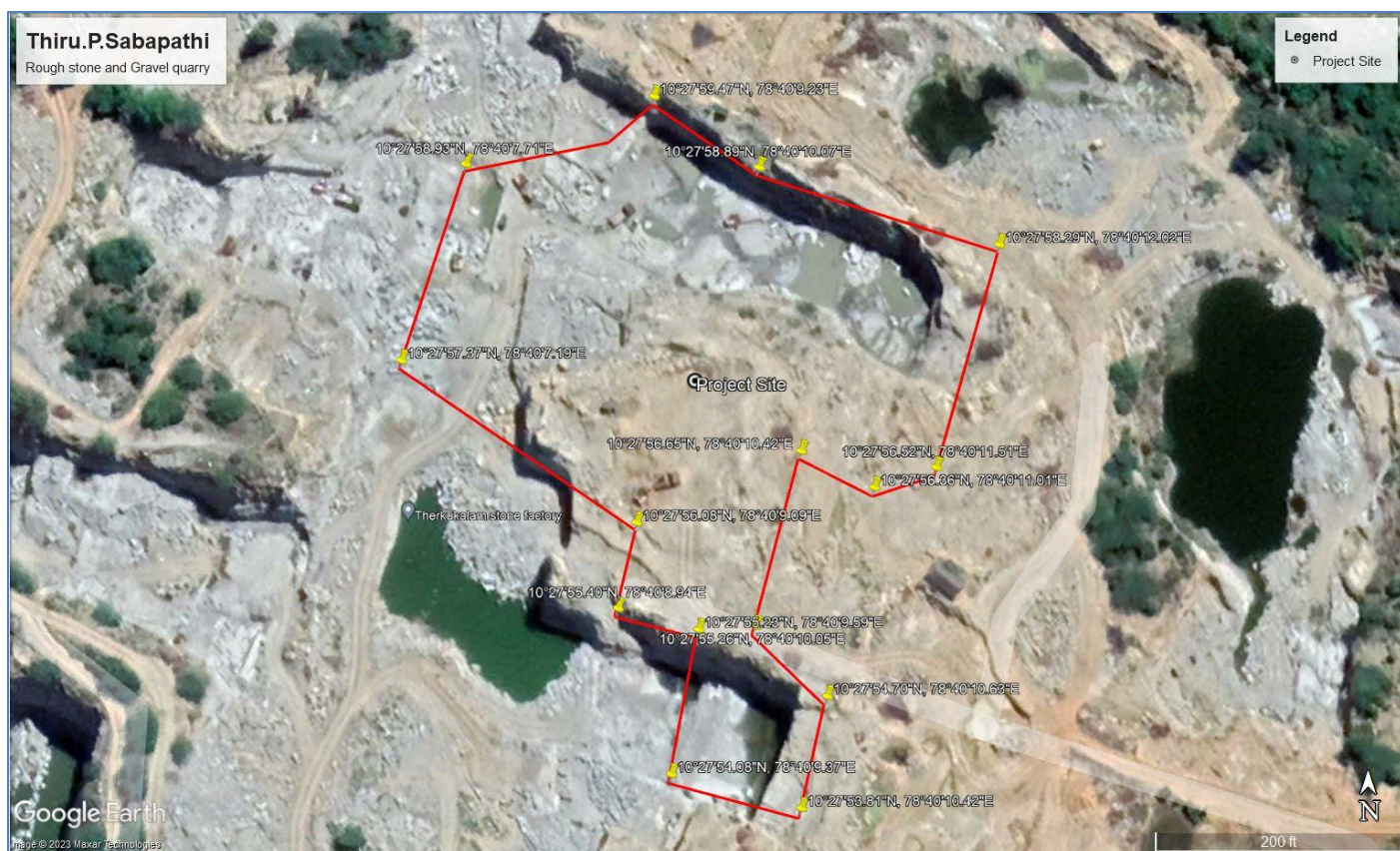


Figure 2: Google Image of the Project Site

4. Charnockite

Charnockite and granitic gneisses are extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value-added products like hollow blocks, pillar stones, M-sand etc. Charnockite occurs as massive bodies, greyish colour, medium to coarse grained, composed quartz, feldspar and orthopyroxene. At places, metamorphic gneissic banding (alternate dark and black colour) in charnockite is noticed. Top portion, it gives gneissic appearance but 1-5m depth below it is typical charnockite of grey color.

5. Geological Resources

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

The Geological Resources is estimated as 676000m³ of rough stone & 12530m³ Gravel up to a depth of 67.0m (2.0m Gravel & 65.0m Rough stone).

Table 2. Geological resources & Mineable reserves

GEOLOGICAL RESOURCES						
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m ³	Geological Resources of Gravel in m ³	Geological Resources of Rough stone in m ³
XY-AB	53	24	2	2544	2544	
	53	56	65	192920		192920
XY-CD	45	49	2	4410	4410	
	63	64	65	262080		262080
X1Y1-AB	82	34	2	5576	5576	
	100	34	65	221000		221000
TOTAL					12530	676000

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Gravel Formation in m ³	Mineable Reserves of Rough stone in m ³
XY-AB	130-128	43	17	2	1462	1462	
	128-123	43	17	5	3655		3655
	123-118	43	17	5	3655		3655
	118-113	43	17	5	3655		3655
	113-108	43	17	2	1462		1462

	113-108	43	49	3	6321		6321
	108-103	38	44	5	8360		8360
	103-98	33	39	5	6435		6435
	98-93	28	34	5	4760		4760
	93-88	23	29	5	3335		3335
TOTAL						1462	41638
XY-CD	130-128	55	34	2	3740	3740	
	128-123	55	34	5	9350		9350
	123-118	38	29	3	3306		3306
	123-118	38	44	2	3344		3344
	118-113	38	39	5	7410		7410
	113-108	39	29	2	2262		2262
	113-108	56	29	3	4872		4872
	108-103	50	19	5	4750		4750
TOTAL						3740	35294
X1Y1- AB	130-128	67	27	2	3618	3618	
	128-123	67	27	5	9045		9045
	123-118	80	22	5	8800		8800
	118-113	70	17	5	5950		5950
TOTAL						3618	23795
GRAND TOTAL						8820	100727

Table 3. Year wise Production Plan

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel Formation in m³	Recoverable Reserves of Rough stone in m³
I	XY-AB	130-128	43	17	2	1462	1462	
		128-123	43	17	5	3655		3655
		123-118	43	17	5	3655		3655
	XY-CD	130-128	55	34	2	3740	3740	
		128-123	55	34	5	9350		9350
		123-118	38	29	3	3306		3306
		123-118	38	44	2	3344		3344
	TOTAL						5202	23310
II	X1Y1-AB	130-128	67	27	2	3618	3618	
		128-123	67	27	5	9045		9045
		123-118	80	22	5	8800		8800
	XY-AB	118-113	43	17	5	3655		3655
	TOTAL						3618	21500
III	XY-AB	113-108	43	17	2	1462		1462
		113-108	43	49	3	6321		6321
	XY-CD	118-113	38	39	5	7410		7410
		113-108	39	29	2	2262		2262
		113-108	56	29	3	4872		4872
	TOTAL							22327
IV	XY-AB	108-103	38	44	5	8360		8360

		103-98	33	39	5	6435		6435
	XY-CD	108-103	50	19	5	4750		4750
TOTAL								19545
V	XY-AB	98-93	28	34	5	4760		4760
		93-88	23	29	5	3335		3335
	X1Y1-AB	118-113	70	17	5	5950		5950
TOTAL								14045
GRAND TOTAL							8820	100727

6. Mining

Opencast mining

The quarry operation is proposed to be carried 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, 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 32mm 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 2.5 KLD. Domestic water will be sourced from nearby Veerapatti Village and other water will be source from nearby road tankers supply.

Table 4. Water Balance

Purpose	Quantity	Source
Drinking Water	1.5 KLD	Packaged Drinking water vendors available in Veerapatti village which is about 1.35 km NNE 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	2. 5 KLD	

8. Manpower

Total manpower required for the project is approximately 18 persons. Workers will be from nearby villages.

Table 5. Man Power

1.	Skilled	Operators- Excavator & Jackhammer	2 Nos
2.	Semi – skilled	Drivers	2 Nos
3.	Unskilled	Musdoor/Labours, Cleaners & Watch man	28 Nos
4.	Management & Supervisory staff	Second Class Mines Manager, Mines Foreman, Mines Mate, Blaster	4 Nos
Total			36 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	6.48 kg/day	Municipal bin including food waste
2	Inorganic	9.72 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 & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	Thiru.K.Manickam, S/o.Krishnan, Agarappatti, Vayalogam Post, Illuppur Taluk, Pudukkottai District	Veerapatti & Illuppur	153/7A1B1	0.73.5	28.02.2022 to 27.02.2027

2) Proposed Area

S. No.	Name of the Owner	Village & Taluk	S.F. No	Extent in Ha
1.	Thiru.Dineshwaran, S/o.Devadass, No.54/B, Periyasengapatti, Annavasal, Iluppur Taluk, Pudukottai (D)	Veerapatti Illuppur	145/3A and 145/4A	0.87.5
2	Thiru.Selvaraj, S/o. Chokkalingam, No.34/D, Sengapatti, Annavasal, Iluppur Taluk, Pudukkottai District	Veerapatti Illuppur	159/5B2, 160, 161/1, 159/3A, 159/3B, 159/3C, 159/4A, 159/4B, 159/5A and 159/5B1	2.17.0

3	Thiru.M.Karuppaiya, S/o.Maduraiveeran, No.252, West Street, Mannavelampatti, Mangudi, Iluppur Taluk, Pudukkottai District.	Veerapatti Iluppur	153/11, 153/9A2 and 153/7A1B2A	1.62.5
4	Thiru.P.Sabapathi, S/o. Palaniyandi, Seethapatty, Kilikudi Post, Iluppur Taluk, Pudukkottai District.	Veerapatti Iluppur	153/2 & etc.,	1.18.5
Total				5.85.5

3) Lease Expired

S. No.	Name of the Owner	Village & Taluk	S.F Nos.	Extent in Hect.	Lease Period
1.	Thiru.C.Shanmugam, S/o.Chidambaram, Sivankoil Theru, Iluppur Post & Taluk, Pudukottai Dt	Veerapatti Iluppur	532/3J	0.60.5	19.01.2017 to 18.01.2022
2	Thiru.A.Alagupandiyan, S/o.Alaguperumal, Poikkaadipatti, Iluppur Post & Taluk.	Veerapatti Iluppur	148/3A	0.33.0	30.12.2016 to 29.12.2021
3	Thiru.A.Alagupandiyan, S/o.Alaguperumal, Poikkaadipatti,	Veerapatti Iluppur	145/3A, 145/4A	0.87.5	01.03.2016 to

	Veerapatti, Illuppur				28.02.2021
4	Thiru.C.Chelladurai, S/o.Chinnaiah, Veerapatti village & post, Illuppur Taluk, Pudukottai District	Veerapatti Illuppur	145/1	0.88.0	30.07.2016 to 29.07.2021
5	Thiru.U.Ganasamoorthy, S/o. Umayan sekey, Punginipatti, Irundhirapatti	Veerapatti Illuppur	153/1 & etc.,	0.41.0	23.06.2016 to 22.06.2021
6	Thiru.P.Sabapathi S/o.Palaniyandi, Seethapathy, Kilikudi Post, Iluppur Taluk, Pudukottai District	Veerapatti Illuppur	153/2 & etc.,	1.18.5	23.08.2017 to 22.08.2022
7	Thiru.D.Ramu servai, S/o.Duraisamy servai, Mannavelanpatti, Illuppur Taluk, Pudukkottai District	Veerapatti Illuppur	153/6B	0.46.0	29.09.2017 to 28.09.2022
Total				4.74.5	

The Total extent of the Existing / Lease expired / Proposed quarries is 6.59.0 Ha.

10. Land Requirement

The total extent area of the project is 1.18.5 Ha, Patta land in Veerapatti Village of Illuppur Taluk, Pudukkottai District.

Table 8 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	0.31.8	0.60.7
2.	Infrastructure	0.01.0	0.03.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	0.02.0	0.35.8
5.	Unutilized	0.82.7	0.17.0
	Total	1.18.5 Ha	1.18.5 Ha

11. Human Settlement

There are no habitations within a 500m radius. There are villages located in this area within a 5km radius of the quarry.

Table 9 Habitation

S.No	Direction	Village	Distance in kms	Population
1	NE	Kaladipatty	1.00 Km	231
2	NW	Therkukulam	0.33 Km	165
3	SE	Mukknamalpatti	0.83 Km	1414
4	SW	Wawnadi	1.22 Km	195

12. Power Requirement

The Rough Stone Quarry project does not require huge water and electricity for the project.

16 Litres diesel per hour for excavator for mining and loading for Rough stone and **10 Liters** per hour 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 : 18 to 23 °C
- ii) Average Maximum Temperature : 30 to 40 °C
- iii) Average Annual Rainfall of the area: 821 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 10 km. radius, air quality survey has been conducted at 7 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 (67-41 µg/m³), PM_{2.5} (33-16 µg/m³), SO₂(20-5 µg/m³), NO₂ (32-9µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from July to September 2023.

13.3 Noise Environment

Ambient noise levels were measured at 7 locations around the proposed project site. The maximum Day noise and Night noise were found to be 58 dB(A) and 47 dB(A) respectively in Ariyur Sri Meenakshi Sundareswarar Temple, Ariyur. The minimum Day Noise and Night noise were 39 dB(A) and 32 dB(A) respectively which was observed in Project site.

13.4 Water Environment

- The average pH ranges from 6.37 – 7.76.
- TDS value varied from 262 mg/l to 1819 mg/l
- Hardness varied from 133 to 601 mg/l
- Chloride varied from 51.8 to 469 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 6.83 to 8.64 with organic matter 0.08 to 0.24 %. 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 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. The Green belt has been recommended as one of the major components of the 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 80% in this area

Table.10 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Thethankottai maram, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	600
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 equipment 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 this equipment 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 35,95,600/-** 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	Fixed Asset Cost	15,95,600/-
2	Operational Cost	20,00,000/-
	Total	35,95,600/-

Environmental Mnagement Cost :- **61,57,825/-** (Sixty One Lakhs Fifty Seven Thousands Eight Hundred and Twenty Five Rupees Only).

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 value (Rs)
1.	Panchayat Union Middle School, Kaaladipatti Village Veerapatti Post – Provision of • Almirah for arranging books, • Smart TV for smart class • Table & Chair and • Basic amenities such as Environmental awareness books (Tamil) in Library for students, Green Belt development, 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 socioeconomics 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 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 nearby vicinity.

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