

Application Form (Draft EIA Report)

For

Thiru.K. Jeeva

Proposed Rough stone Quarry – 4.50.0 Ha
at

S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri
District, Tamilnadu State

Sector No. 1(a) (Sector No. 1 as per NABET)

Category of the Project: B1 Cluster Mining

Baseline Period: March, April, May 2023

*Environmental Consultant
& Laboratory details:*
Ecotech Labs Pvt Ltd,



No 48, 2nd Main road,
South extension Ram nagar,
Pallikaranai, Chennai -600100.

Proponent details:

Thiru.K.Jeeva,
Proponent
S/o.K.R. Kandasami,
D.No. 20/1,
Viveks Apartment,
1st Main road, 1st Block,
Anna Nagar East,
Chennai-600102.

Thiru.K.Jeeva,
Proponent,
S/o.K.R.Kandasami,
D.No. 20/1, Viveks Apartment,
1st Main road, 1st Block,
Anna Nagar East,
Chennai -600102.

UNDERTAKING

I, Thiru.K.Jeeva, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone Quarry over an extent of 4.30.0 Ha at S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide Letter No. SEIAA-TN/F. No. 9870/ SEAC/ToR-1449/2023 Dated: 09.05.2023.

I, hereby assure that all the information and data provided in the EIA report is accurate, true and correct and owns responsibility for the same.

Place: Krishnagiri

Date:

Yours faithfully

Thiru. K.Jeeva

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
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PAN NO: AADCE8103A



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DIN: U74900TN2014PTC054895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone Quarry over an extent of 4.50.0 Ha at S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

I also confirm that I shall be fully accountable for any misleading information mentioned in this Report.

Signature:

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA Consultant Organization: M/s. Ecotech Labs Pvt Ltd., Chennai.

NABET Certificate No: NABET/EIA/2124/SA 0147

Date:

Place: Chennai

Declaration by Experts contributing to the EIA of Existing Rough Stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva at S.F.No. (209 Part) of Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Dr. A. Dhamodharan



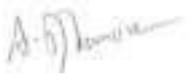
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Environmental Consultant
Eco Tech Labs Pvt. Ltd
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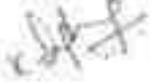
Signature:

Period of involvement: 01.03.2022 to Till now

Contact information: M/s. Ecotech Labs Pvt Ltd.,
No. 48, 2nd Main road, Ram Nagar South Extension,
Pallikaranai

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact <i>Period: March 2022 – Till now</i>	

2	WP	Dr. A. Dhamodhara n	<p>1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.</p> <p>2. Interpretation of baseline data collected</p> <p>3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project</p> <p>4. Preparation of suitable and appropriate mitigation plan.</p> <p>Period: March 2022 – Till now</p>	
3	SHW	Dr. A. Dhamodhara n	<p>1. Identification of nature of solid waste generated</p> <p>2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment</p> <p>3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated</p> <p>4. Top soil and refuse management</p> <p>Period: March 2022 – Till now</p>	
4	SE	Mr. S. Pandian	<p>1. Primary data collection through the census questionnaire</p> <p>2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report.</p> <p>3. Impact assessment & proposing suitable mitigation plan</p> <p>4. CSR budget allocation by discussing with the local body and allotting the same for need based activity.</p> <p>Period: March 2022 – Till now</p> <p>*Involves Public Hearing</p>	
5	EB	Dr. A. Dhamodhara n	<p>1. Primary data collection through field survey and sheet observation for ecology and biodiversity</p> <p>2. Secondary Collection through various authenticated sources</p> <p>3. Prediction of anticipated impacts and suggesting appropriate mitigation measures.</p>	

			<i>Period: March 2022 – Till now</i>	
6	HG	Dr. T. P. Natesan	<p>1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures</p> <p>2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system.</p> <p><i>Period: March 2022 – Till now</i></p>	
7	GEO	Dr. T. P. Natesan	<p>1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program.</p> <p><i>Period: March 2022 – Till now</i></p>	
8	SC	Dr. A. Dhamodharan	<p>1. Interpretation of baseline report</p> <p>2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.</p> <p><i>Period: March 2022 – Till now</i></p>	
9	AQ	Mrs. K. Vijayalakshmi	<p>1. Collection of Meteorological data for the baseline study period</p> <p>2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern</p> <p>3. Estimation of sources of air emissions and air quality modeling is done</p> <p>4. Interpretation of the results obtained</p> <p>5. Identification of the impacts and suggesting suitable mitigation measures.</p> <p><i>Period: March 2022 – Till now</i></p>	

10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures <p><i>Period: May 2022 – Till now</i></p>	
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> 1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. <p><i>Period: March 2022 – Till now</i></p>	
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures <p><i>Period: March 2022 – Till now</i></p>	

Declaration by the Head of the accredited consultant organization/ authorized person

I, Dr. A. Dhamodharan, hereby, confirm that the above-mentioned experts prepared the EIA report of mining project at Survey Numbers. S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature:



Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA consultant organization: M/s. Eco Tech Labs Private Limited

NABET Certificate No. & Issue Date: NABET/EIA/2124/SA 0147

Project	Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur village, Hosur taluk, Krishnagiri district	

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ABBREVIATION

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation

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<i>Project Location</i>	<i>Alur village, Hosur taluk, Krishnagiri district</i>	

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project total extent area is 4.50.00 Ha, It is a government Poramboke land in S.F.No.209 (Part) of Alur Village, Hosur Taluk, and Krishnagiri District. The category of project is B1, It is a Rough stone quarry in Alur village. The area is situated on hilly terrain area sloping towards western side 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 method using shot-hole drilling and smooth blasting. Rough stone is removed by using hydraulic excavators. proposed bench height is 7 m and bench width is 5 m. The thickness of topsoil in this area is 2.0 m .

The quarry operation is proposed up to depth of 43 m-topsoil 1.0 m + Rough stone 42 m (surface ground level above height is 10 m and surface ground level below depth is 33 m). The total Geological Resources is about 2133096 m³ of Rough stone and 50061 m³ of Top soil . The Mineable Reserves and proposed yearwise production is carried out 1589247 m³ of Rough stone and top soil of 45712 m³ to be mined for 5 years. The precise area letter and relevant mining laws in force. Mining Plan was approved by The Assistant Director, Department of Geology and Mining, Krishnagiri District vide letter Rc.No.216/2019/Mines dated 09.03.2021. Precise Area Communication letter was issued by the District Collectorate, Department of Geology and Mining, Krishnagiri vide Letter No. Na.Ka. En.216/2019/Kanimam 13.06.2019

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.

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2. NATURE & SIZE OF THE PROJECT

The Existing Rough Stone Quarry over an extent of 4.50.00 Hectares land is located at Alur Village, Hosur Taluk, Krishnagiri District.

Mineral intends to quarry : Rough stone Quarry
District : krishnagiri
Taluk : Hosur
Village : Alur
S. F. Nos. :209 (Part)
Extent : 4.50.00 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	Latitude : 12° 44' 05.64" N to 12° 44' 03.03" N
2	Longitude	Longitude : 77° 55' 03.65" E to 77° 54' 51.35" E
3	Site Elevation above MSL	847 m from MSL
4	Topography	Hilly terrain topography
5	Land use of the site	Government Poramboke
6	Extent of lease area	4.50.00 Ha
7	Nearest highway	NH-7, Bangalore to Krishnagiri , 3.2 km, SSE
8	Nearest railway station	Hosur Railway Station – 6.15 km, SE
9	Nearest airport	Kampegowda International Airport – 40 km, W
10	Nearest town / city	<ul style="list-style-type: none"> • Town - Hosur - 10 Km, W • City - Hosur - 10 Km, W • District -Krishnagiri – 40Km, SSW
11	Rivers / Canal	<ul style="list-style-type: none"> • Ponnaiyar River, 11.86 km, NE
12	Lake	<ul style="list-style-type: none"> ❖ Peddakullu lake-2.74 km, NW ❖ Muthali lake-3.14 km, NNW ❖ Thamayanapalli lake-3.26 km, SW ❖ Thummanapalli lake-3.58 km,SSE ❖ Bukkasagaram lake-3.70 km, ESE ❖ Doripalli lake-5.26 km, SE ❖ Kamandoddi lake-5.56 km, SE ❖ Kamandoddi old lake-6.43 km,SE ❖ Konerapalli lake-8.41 km,SE ❖ Chappadi lake-9.40 km, SE ❖ Achettapalli lake-11.24 km,SW

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		<ul style="list-style-type: none"> ❖ Karapalli lake-7.67 km, SW ❖ Tippalam lake-5.64 km, SW ❖ Kumudapalli lake-4.46 km, SW ❖ Bathlapalli lake-6.20 km, WSW ❖ Alasanatham lake-8.48 km, W ❖ Moranapalli lake-5.51 km, W ❖ Budde raya guntae pond-12.96 km, WSW ❖ Chandramkudi Eri-1066 km, W <p>Dam:</p> <ul style="list-style-type: none"> ➤ Kelavarapalli dam-5.70 km, NW <p>River:</p> <ul style="list-style-type: none"> ➤ Ponnaiyar river-1.80 km, W
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	<ul style="list-style-type: none"> ❖ Perandapalli RF-1.09 km, SSW ❖ Sanamavu RF-4.08 km, S
17	Seismicity	Proposed Lease area comes under Seismic zone-II
18	Defense Installations	Nil

2.NEED FOR THE PROJECT

- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.
- ❖ After the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ The rough stone is hard and compact in nature. It can be crushed only in crushers for producing aggregates.
- ❖ As the mining continues, no reclamation or back filling is required.

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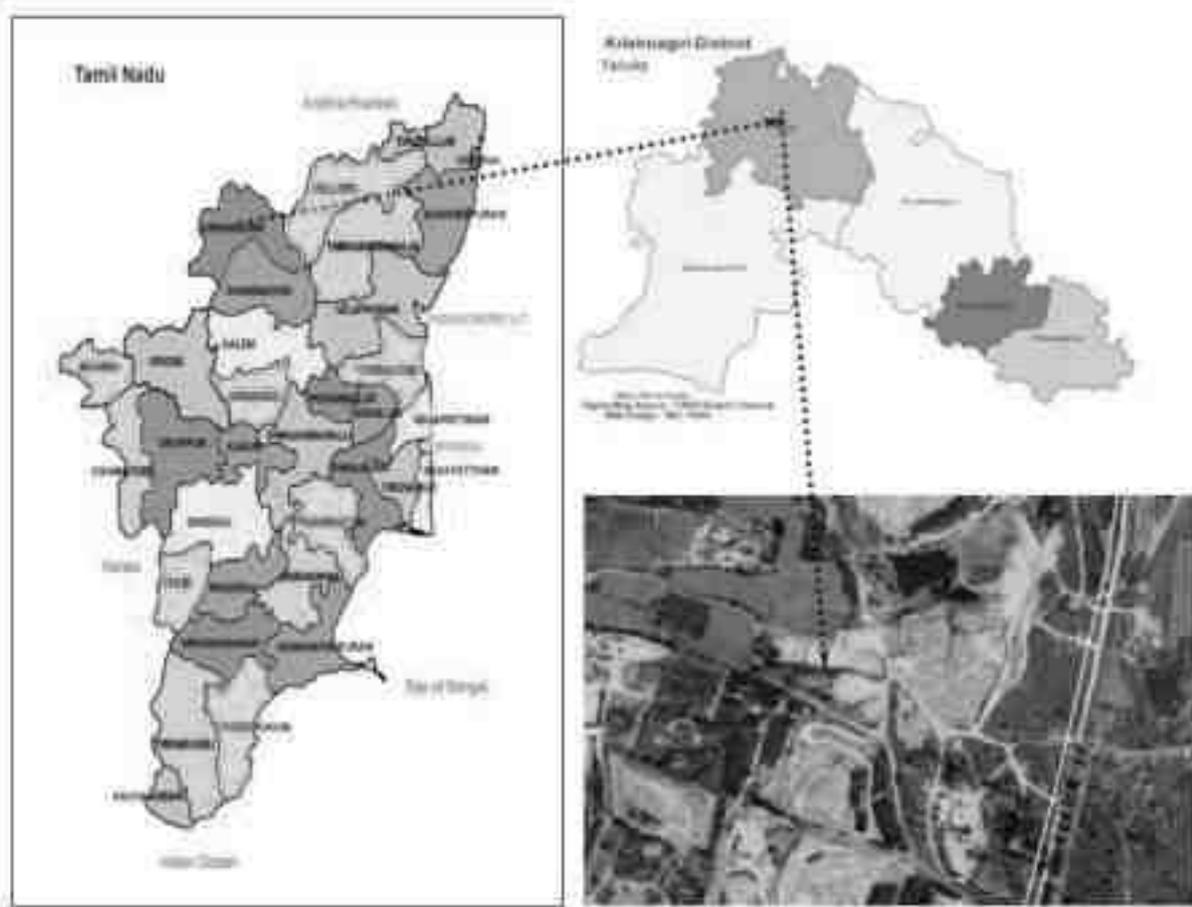


Figure 1: Location Map of the Project Site

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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 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.

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5. GEOLOGICAL RESOURCES

Table 2. Geological resources

GEOLOGICAL RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Geological Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	203	123	1				24969
	II	203	123	7	174783	166044	8739	
	III	203	123	7	174783	166044	8739	
	IV	203	123	7	174783	166044	8739	
	V	203	123	7	174783	166044	8739	
	VI	203	123	7	174783	166044	8739	
	VII	203	123	7	174783	166044	8739	
TOTAL					1048698	996264	52434	24969
XY-CD	I	123	204	1				25092
	II	100	204	7	142800	135660	7140	
	III	123	204	7	175644	166862	8782	
	IV	123	204	7	175644	166862	8782	
	V	123	204	7	175644	166862	8782	
	VI	123	204	7	175644	166862	8782	
	VII	123	204	7	175644	166862	8782	
	VIII	123	204	7	175644	166862	8782	
TOTAL					1196664	1136832	59832	25092
GRAND TOTAL					2245362	2133096	112266	50061

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Table 3. Mineable Resources

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Geological Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	196	119	1				23324
	II	195	118	7	161070	153017	8053	
	III	190	113	7	150290	142776	7514	
	IV	185	108	7	139860	132867	6993	
	V	180	103	7	129780	123291	6489	
	VI	175	98	7	120050	114048	6002	
	VII	170	93	7	110670	105137	5533	
TOTAL					811720	771136	40584	23324
XY-CD	I	116	193	1				22388
	II	92	192	7	123648	117466	6182	
	III	110	192	7	147840	140448	7392	
	IV	105	187	7	137445	130573	6872	
	V	100	182	7	127400	121030	6370	
	VI	95	177	7	117705	111820	5885	
	VII	90	172	7	108360	102942	5418	
	VIII	85	166	7	98770	93832	4938	
TOTAL					861168	818111	43057	22388
GRAND TOTAL					1672888	1589247	83641	45712

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Table 4. Year wise Production Plan

YEARWISE RESERVES									
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I-Year	XY-AB	I	196	119	1				23324
		II	195	118	7	161070	153017	8053	
		III	190	113	7	150290	142776	7514	
	TOTAL					311360	295793	15567	23324
II-Year	XY- CD	I	116	193	1				22388
		II	92	192	7	123648	117466	6182	
		III	110	192	7	147840	140448	7392	
	TOTAL					271488	257914	13574	22388
III- Year	XY-AB	III	185	108	7	139860	132867	6993	
		IV	180	103	7	129780	123291	6489	
	TOTAL					269640	256158	13482	
IV- Year	XY- CD	IV	105	187	7	137445	130573	6872	
		V	100	184	7	127400	121030	6370	
	TOTAL					264845	251603	13242	
V-Year	XY- CD	VI	95	177	7	117705	111820	5885	
		VII	90	172	7	108360	102942	5418	
	TOTAL					226065	214762	11303	
	GRAND TOTAL					1343398	1276230	67168	45712

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6. MINING

Opencast mining

Opencast method of semi mechanized mining is adopted to extract Rough Stone. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom [possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.

Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer 25.5mm Dia.
- Minimum Blasting With Class 3 Explosives.

7. Water Requirement

This Rough stone quarry project does not require huge water and electricity for the project.

Table 5. Water Balance

Purpose	Quantity	Sources
Drinking Water	0.5 KLD	Packaged Drinking water vendors available in Attur Village which is about 1.3 km from N side of the area.
Green belt	0.5 KLD	From Hired Water Tanker.
Dust suppression	0.5 KLD	From Hired Water Tanker.
Total	1.5 KLD	

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8. Manpower

The nearby villagers will be getting employment benefits in the proposed working quarry.

Table 6. Man Power

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total		18Nos

9. Solid Waste Management

Table 7 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	7.2 kg/day	Municipal bin including food waste
2	Inorganic	10.8 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.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Tvl.Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road,	Alur Hosur Taluk	212/1	2.02.5	29.12.2018 to 28.12.2023

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	West Tambaram, Chennai-600045				
2	Tmt.B.G.Manjula, W/o. Late Baskar, No.77 E Indira Nagar, Bagalur Road, Hosur 635109	Alur Hosur Taluk	208/1	3.03.5	19.06.2019 to 18.06.2024

2) Details of abandoned /Old Quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Tvl.Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Tambaram, Chennai 600045	Alur	209(Part)	3.46.5	20.3.2015 to 19.3.2020
2	R.Prasannakumar, S/o. Thiru Ramiyan, 122 Thinnur Village, Perandapalli Post, Hosur taluk.	Alur	209/(part)	4.21.5	19.11.2010 to 18.11.2015
3	Thiru M.Durai, S/o.Mallagounder, 13/12B Santhi Nagar, Opp Ragavendra Teater, Hosur	Alur	207/1B	0.81.0	23.11.2009 to 23.11.2014

3) Details of Present Proposed quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Thiru.K.Jeeva	Alur village, Hosur taluk	209(Part)	4.50.0	Instant Proposal

10. Land Requirement

The total extent area of the project is 4.50.00 Ha, government Poramboke Land in Village of Alur, Hosur Taluk, and Krishnagiri District.

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Table 9 Land Use Breakup

SL. NO.	LAND USE	PRESENT AREA (HECT)	AREA IN USE DURING THE QUARRYING PERIOD (HECT)
1.	Area under Quarrying	Nil	3.87.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	Nil	0.60.0
5.	Unutilized	4.49.0	Nil
	Total	4.50.0Ha	4.50.0Ha

11. Human Settlement

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

Table 10 Habitation

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Attur	150	1.3
2	East	Bukkasagaram	700	2.0
3	South	Sundatti	450	1.2
4	West	Dasapalle	300	1.0

12. Power Requirement

The Electricity for Mines office and Lights only at nights (working is restricted on day time only between 9 Am to 5 Pm). Diesel (HSD) will be used for quarrying machineries around **1028611 litres of HSD** will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the Night time the power will be taken from nearby electric poles after obtaining permission from concerned authorities.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario on the following parameters.

1. Micro – Meteorology
2. Water Environment

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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° C
- ii) Average Maximum Temperature. : 38°Celsius
- iii) Average Annual Rainfall of the area: 800 mm-900 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), and Nitrogen Dioxide (NO₂) were monitored and the results are summarized below.

The baseline levels of PM₁₀ (35- 67 µg/m³), PM_{2.5} (12- 34 µg/m³), SO₂ (5-22 µg/m³), NO₂ (10- 43 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from March to May 2023.

13.3 Noise Environment

The maximum Day noise and Night noise were found to be 65 dB(A) and 55dB(A) respectively in Government higher secondary school, Bukkasagaram. The minimum Day Noise and Night noise were 45 dB(A) and 35 dB(A) respectively which was observed in Anganwadi centre and Project site. The observed values are all well within the Standards prescribed by CPCB.

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13.4 Water Environment

- The average pH ranges from 7.34 to 8.1.
- TDS value varied from 505 mg/l to 1015 mg/l
- Hardness varied from 252 to 717 mg/l
- Chloride varied from 71.3 to 223 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 6.21 to 9.26 with organic matter 0.12 to 0.83 %. 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 a Government Poramboke land. There is no hutment in the lease area. No human being will be displaced from the project area so no person will be affected contrary local people will get job opportunities and better facilities. There is no rehabilitation & resettlement of people is required.

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, Vilvam, Panai, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 650 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

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Table.11. Plantation/ 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	80%	2250
Total		2250

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

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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 5,16,80,000/-** 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	Fixed cost	Rs.4,86,80,000/-
2	Operational cost	Rs.30,00,000/-
	Total	Rs.5,16,80,000/-

Table 13 EMP

S.No.	Categories	Capital cost	Recurring cost
1	Air Environment	215000	232500
2	Noise Environment	50000	1168640
3	Water Environment	45000	5000
4	Waste Management	6000	7000
5	Implementation of EC, Mining plan & DGMS Condition	816000	373000
6	Green belt development	585000	67500
		1717000	1853640
	Total	Rs.35,70,640	

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Year 1	Year 2	Year 3	Year 4	Year 5
3570640	1946322	2043638	2145820	2253111
Year 6	Year 7	Year 8	Year 9	Year 10
3224267	2484055	2608258	2738671	2875604

EMP cost for 10 years (Year 1 to Year 10) =Rs.25890385=Rs.289 lakhs

20. Corporate Environmental Responsibility

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

Table 14 CER Cost

S.No.	CER Activity	CER value (Rs)
1.	Panchayat Union Middle School, Alur village, Hosur taluk, Krishnagiri District Provision of <ul style="list-style-type: none"> ➤ Roof sheet for student dining ➤ Wooden round table for students ➤ Wooden benches for primary students ➤ Ceiling fan ➤ Incinerator ➤ Office table ➤ Smart board with projector ➤ Basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture. 	5,00,000
Total		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

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- 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.

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1 Introduction

1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project.

1.2 GENERAL INFORMATION ON MINING OF MINERALS

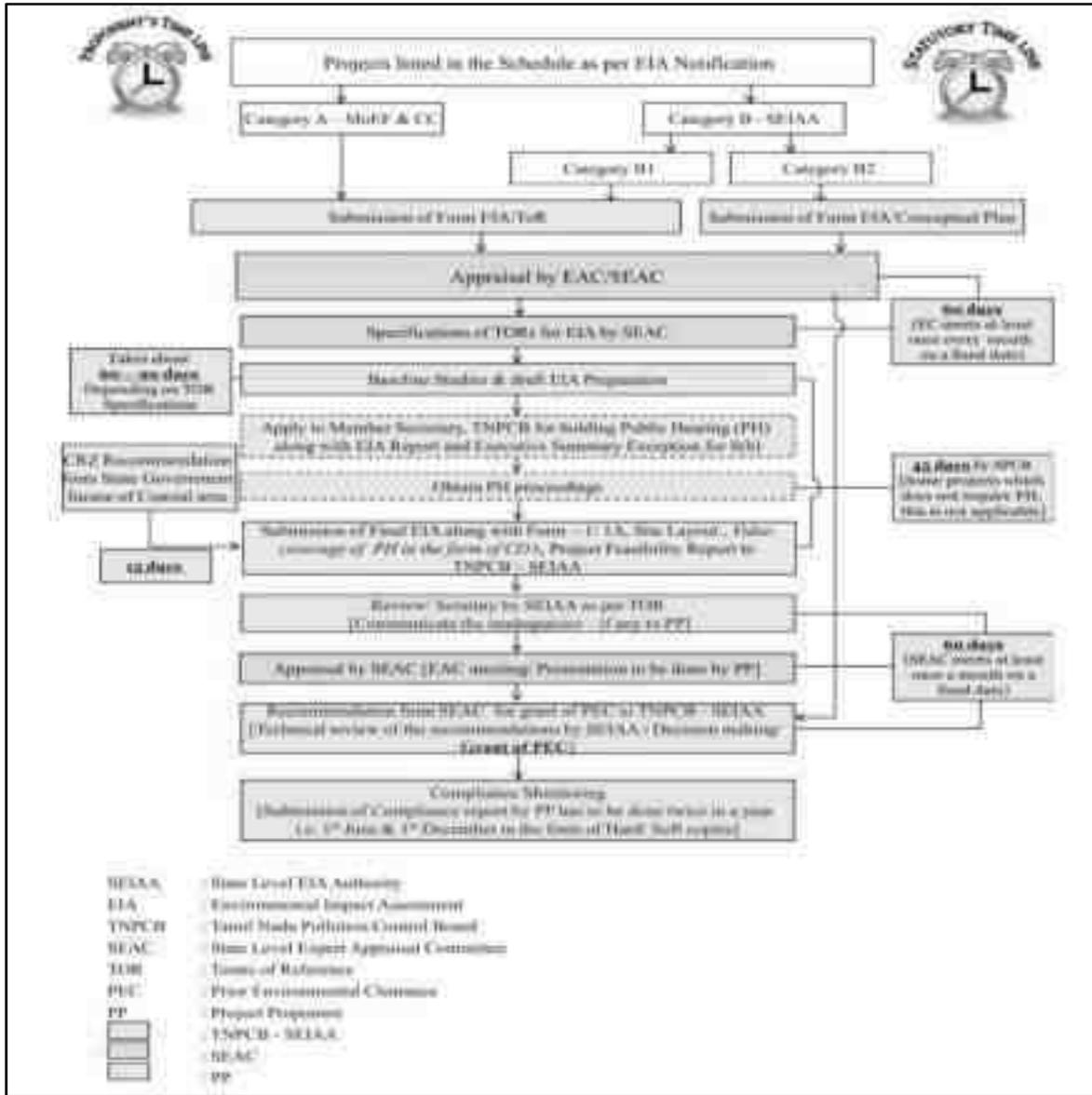
Minerals of Economic importance found in Krishnagiri District are mainly Apatite, Corundum Copper, Gold, Iron Ore, Limestone, Kankar, Vermiculite and Dimensional Stones. For good dimensional stones, this district is unique in possessing both Multi Coloured and black granite occurrences. The Multi Coloured granite named as “Paradiso” is extensively quarried in Chendarapalli - Sulamalai- Modikuppam-Velampatti belt. The Hosur- Denkanikottai belt is endowed with Multi Coloured granite deposits. The black granite deposits of Krishnagiri, Hosur and Denkanikottai taluks contains potential deposits of black granite.

1.3 ENVIRONMENTAL CLEARANCE

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1

The proposed project is categorized under Category “B1” 1(a) (Cluster) - {Mining of Minerals} as the 500m radius area is more than 5 Ha including the mine lease area. Hence, the project will be considered at SEAC, Tamil Nadu.

Project	Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur village, Hosur taluk, Krishnagiri district	



1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 9870/SEAC/ToR-1449/2023 Dated: 09.05.2023. 46 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur taluk, Krishnagiri district</i>	

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

1.5.1 Methodology adopted

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

Table 1-1: Post Environmental Clearance Monitoring

S. No.	Description	Frequency of Monitoring
1.	Ambient Air Quality Monitoring	Quarterly/ Half Yearly
2.	Water level & Quality Monitoring	Quarterly/ Half Yearly
3.	Noise Level Monitoring	Quarterly/ Half Yearly
4.	Soil Quality Monitoring	Yearly
5.	Medical Check-up	Yearly

1.6 GENERIC STRUCTURE OF THE EIA DOCUMENT

Chapter 1: Introduction. This chapter contains the general information on the mining of minerals, major sources of environmental impacts in respect of mining projects and details of environmental clearance process.

Chapter 2: Project Description. In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule, estimated cost of development as well as operation etc. should be also included.

Chapter 3: Analysis of Alternatives (Technology and Site). This chapter gives details of various alternatives both in respect of location of site and technologies to be deployed, in case the initial scoping exercise considers such a need.

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur taluk, Krishnagiri district</i>	

Chapter 4: Description of Environment. This chapter should cover baseline data in the project area and study area.

Chapter 5: Impact Analysis and mitigation measures. This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

Chapter 6: Environmental Monitoring Program. This chapter should cover the planned environmental monitoring program. It should also include the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7: Additional Studies. This chapter should cover the details of the additional studies required in addition to those specified in the ToR and which are necessary to cater to more specific issues applicable to the particular project.

Chapter 8: Project Benefits. This chapter should cover the benefits accruing to the locality, neighborhood, region and nation as a whole. It should bring out details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

Chapter 9: Environmental Cost Benefit Analysis. This chapter should cover on Environmental Cost Benefit Analysis of the project.

Chapter 10: Environmental Management Plan. This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase and provisions made towards the same in the cost estimates of project construction and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

Chapter 11: Summary and Conclusions. This chapter gives the summary of the full EIA report condensed to ten A-4 size pages at the maximum. It should provide the overall justification for implementation of the project and should explain how the adverse effects have been mitigated.

Chapter 12: Disclosure of Consultants. This chapter should include the names of the consultants engaged with their brief resume and nature of consultancy rendered.

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur taluk, Krishnagiri district</i>	

1.7 DETAILS OF PROJECT PROPONENT

Project Proponent : Thiru.K.Jeeva
Status of the Proponent : Individual
Proponent's name & address : S/o. K.R.Kandasami,
D.No.20/1, Viveks Apartment,
1st Main road, 1st Block,
Anna Nagar East,
Chennai-600102

1.8 BRIEF DESCRIPTION OF THE PROJECT

1.8.1 Project Nature, Size & Location

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II (M) Government of India MoEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to Rough stone mining project by opencast mechanised method on allotted mine lease area at Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu. It is a hilly terrain area. The total allotted mine lease for the proposed project is 4.50.00 Ha with their maximum production capacity i.e., 1276230 m³ of Rough stone and 45712 m³ of Top soil for the period of five years only.

Project	Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur village, Hosur taluk, Krishnagiri district	

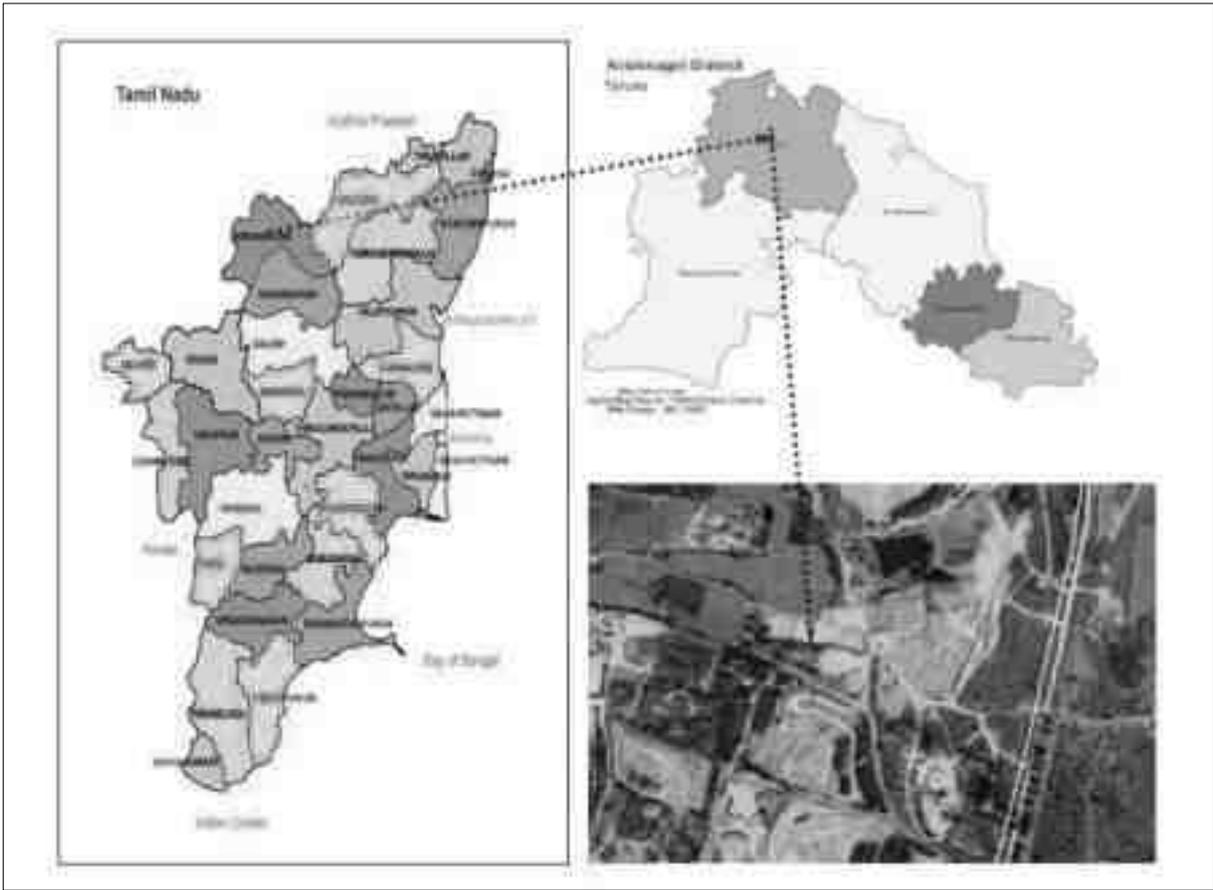


Figure 1.1: Location Map of the Project site

<i>Project</i>	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

2 Project Description

This chapter furnishes detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during mining, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. The project implementation schedule estimated cost for carrying out entire mining activity is included.

2.1 GENERAL

Proposed proposal pertains to Rough stone mining project by open cast mechanized method on allotted mine lease area at Alur Village, Hosur Taluk of Krishnagiri District, Tamil Nadu. It is a hilly terrain area. We have obtained fresh mining plan from Department of Geology and Mining, Krishnagiri District for 4.50.00 Ha land area in the S.F.Nos. 209(Part) for a proposed mining depth of 43 m below ground level and five years production of 1276230 m³ of Rough stone.

Type of the project:

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II (M) Government of India MoEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Krishnagiri District. The proceedings of the same will be incorporated in the Final EIA Report. The mines within 500m radius from the project site is listed below.

Table 2-1: Quarry within 500m Radius

1) Existing other quarries:

Project	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
Project Proponent	<i>Thiru.K.Jeeva</i>	
Project Location	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Tvl.Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Tambaram, Chennai-600045	Alur Hosur Taluk	212/1	2.02.5	29.12.2018 to 28.12.2023
2	Tmt.B.G.Manjula, W/o. Late Baskar, No.77 E Indira Nagar, Bagalur Road, Hosur 635109	Alur Hosur Taluk	208/1	3.03.5	19.06.2019 to 18.06.2024

2) Details of abandoned /Old Quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Tvl.Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Tambaram, Chennai 600045	Alur	209(Part)	3.46.5	20.3.2015 to 19.3.2020
2	R.Prasannakumar, S/o. Thiru Ramiyan, 122 Thinnur Village, Perandapalli Post, Hosur taluk.	Alur	209/(part)	4.21.5	19.11.2010 to 18.11.2015
3	Thiru M.Durai, S/o.Mallagounder, 13/12B Santhi Nagar, Opp Ragavendra Teater, Hosur	Alur	207/1B	0.81.0	23.11.2009 to 23.11.2014

3) Details of Present Proposed quarries

<i>Project</i>	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Thiru.K.Jeeva	Alur village, Hosur taluk	209(Part)	4.50.0	Instant Proposal

2.1.1 Need for the project:

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials, the rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths. Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction.

Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Rocks and minerals of economic importance found to occur in Krishnagiri District are Rough stone deposits suitable for the production of Jelly, Cut stones and Pillar Stones.

As a result of developmental activities and market demand for minor minerals, mining of minor mineral is vital. In addition to that, geological reserves of rough stone is abundant in the project area which is evident from the mine activities carried out in the nearby sites.

2.2 **BRIEF DESCRIPTION OF THE PROJECT**

Project	Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Thiru.K.Jeeva Rough stone Quarry
2	Proponent	Thiru.K.Jeeva
3	Mining Lease Area Extent	4.50.0 Ha
4	Location	S.F.No.209(Part)
5	Latitude	Latitude : 12° 44' 05.64" N to 12° 44' 03.03" N
6	Longitude	Longitude : 77° 55' 03.65" E to 77° 54' 51.35" E
7	Topography	Hilly terrain topography
8	Site Elevation above MSL	847 m from MSL
9	Topo sheet No.	57-H/14
10	Minerals of Mine	Rough Stone Quarry
11	Proposed production of Mine	Proposed Capacity of reserves – Rough stone : 1276230 m ³
12	Ultimate depth of Mining	43 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	1.5 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	18Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Department of Geology and Mining, Krishnagiri District vide letter Rc.No.216/2019/Mines dated 09.03.2021.
18	Precise area communication letter	Precise Area Communication letter was issued by the District Collectorate, Department of Geology and Mining, Krishnagiri vide Letter No. Na.Ka. En.216/2019/Kanimam 13.06.2019
19	Production details	Geological reserves: 2245362 m ³ of Rough stone Proposed year wise reserves= 1276230 m ³ of Rough stone

<i>Project</i>	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

20	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
21	Disposal of overburden	Top soil formation will be removed and transported to the needy end user only after obtaining permission and paying necessary seigniorage fees to the Government.
22	Ground water	The ground water table is reported as 60m BGL in nearby open wells and bore wells of this area. Mining depth taken as 43m . Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Attur village which is 1.3 Km.

Project	Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

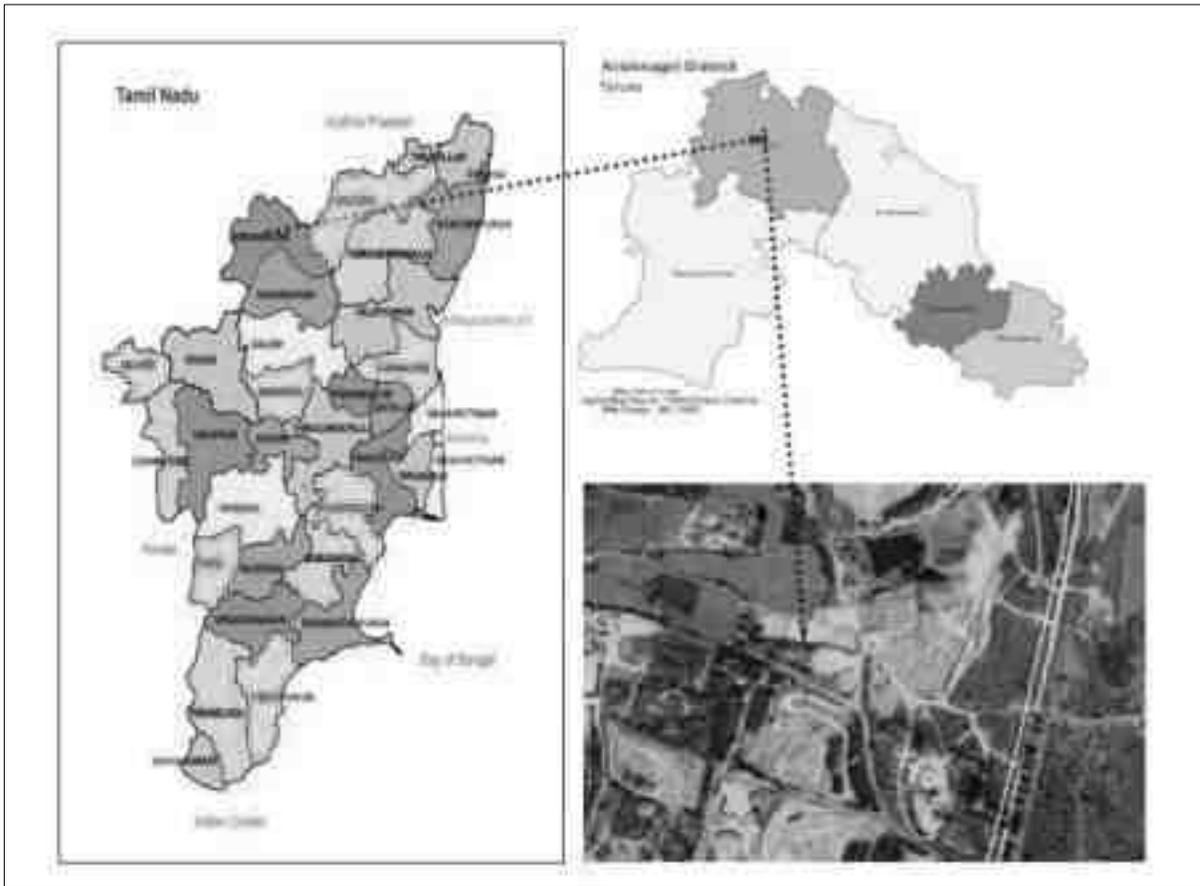


Figure 2.1: Location Map of the Project Site

<i>Project</i>	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	



Figure 2.2: Google Earth Image and Coordinates of the Project Site

2.2.1 Site Connectivity:

The site is connected to the roadways as follows.

NH 7 – Bangalore to Krishnagiri – 3.2 km, SSE

Project	Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur Village, Hosur Taluk, Krishnagiri District	



Figure 2.3: Site Connectivity

2.3 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	12° 44' 05.64" N to 12° 44' 03.03" N
2.	Longitude	77° 55' 03.65" E to 77° 54' 51.35" E

Project	Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

3.	Site Elevation above MSL	847 m from MSL
4.	Topography	Hilly terrain topography
5.	Land use of the site	Government Poramboke
6.	Extent of lease area	4.50.00 Ha

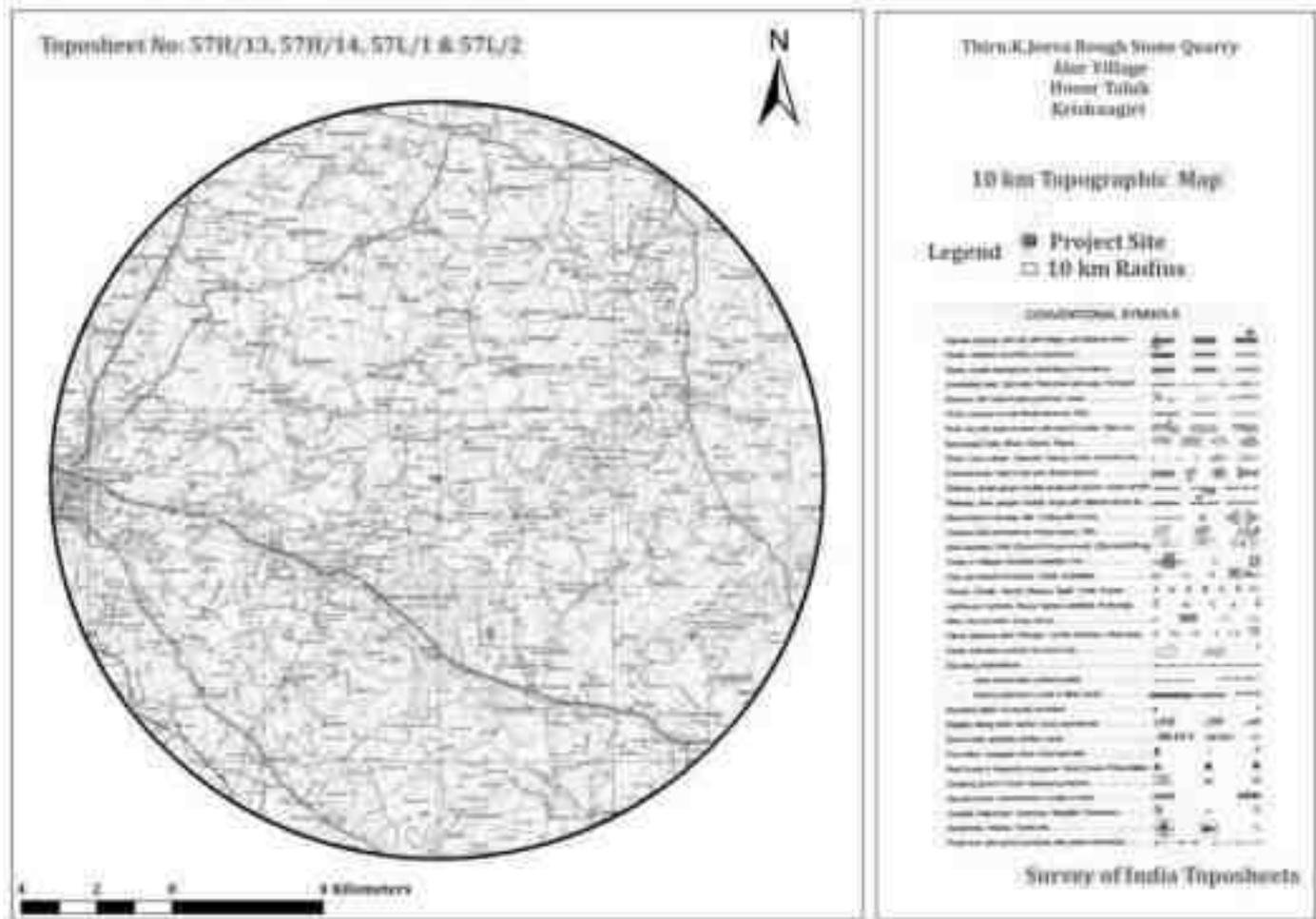


Figure 2.4: Topo Map of Project Site

Project	Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva	<i>Draft EIA Report</i>
Project Proponent	Thiru.K.Jeeva	
Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

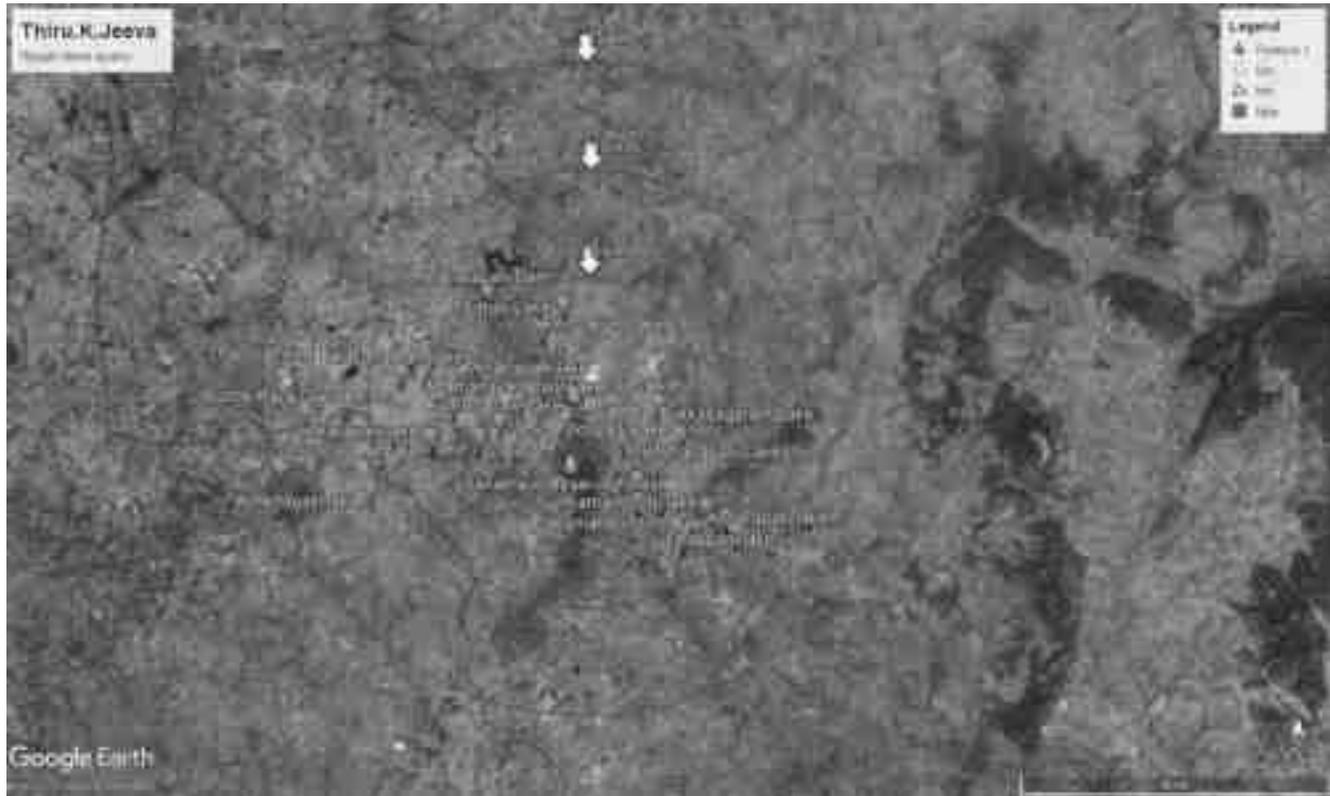


Figure 2.5: Environmental Sensitivity within 15km radius

Project	Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu	Draft EIA Report
Project Proponent	Thiru.S.Marimuthu	
Project Location	Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District	

2.3.1 Site Photographs

The site photographs of the project site are as follows



Figure 2.6: Site Photographs

2.3.2 Land Use Breakup of the Mine Lease Area

The Mine Lease area is hilly terrain. The land use pattern of the mine lease area as follows.

<i>Project</i>	<i>Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.S.Marimuthu</i>	
<i>Project Location</i>	<i>Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District</i>	

Table 2-4: Land use pattern

SL. NO.	LAND USE	PRESENT AREA (HECT)	AREA IN USE DURING THE QUARRYING PERIOD (HECT)
1.	Area under Quarrying	Nil	3.87.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	Nil	0.60.0
5.	Unutilized	4.49.0	Nil
	Total	4.50.0Ha	4.50.0Ha

2.3.3 Human Settlement

There are no habitations within the radius of 300m. The nearby habitations are as follows

Table 2-5: Habitation

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Attur	150	1.3
2	East	Bukkasagaram	700	2.0
3	South	Sundatti	450	1.2
4	West	Dasapalle	300	1.0

2.4 LEASEHOLD AREA

The Rough Stone Quarry mine of 4.50.0 Ha is a Government Poromboke land . The lease area falls in S.F No: 209(Part) of Alur Village, Hosur Taluk, krishnagiri District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 300m radius from the lease area.

2.5 GEOLOGY

<i>Project</i>	<i>Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.S.Marimuthu</i>	
<i>Project Location</i>	<i>Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District</i>	

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnet ferrous quartzofeldspathic gneiss and horn blends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzofeldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes.

The Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzofeldspathicgneiss, Granite gneiss and dolerite dykes. The North-East andNorthernpartof the District mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-horn blende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

Project	Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu	<i>Draft EIA Report</i>
Project Proponent	Thiru.S.Marimuthu	
Project Location	Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District	

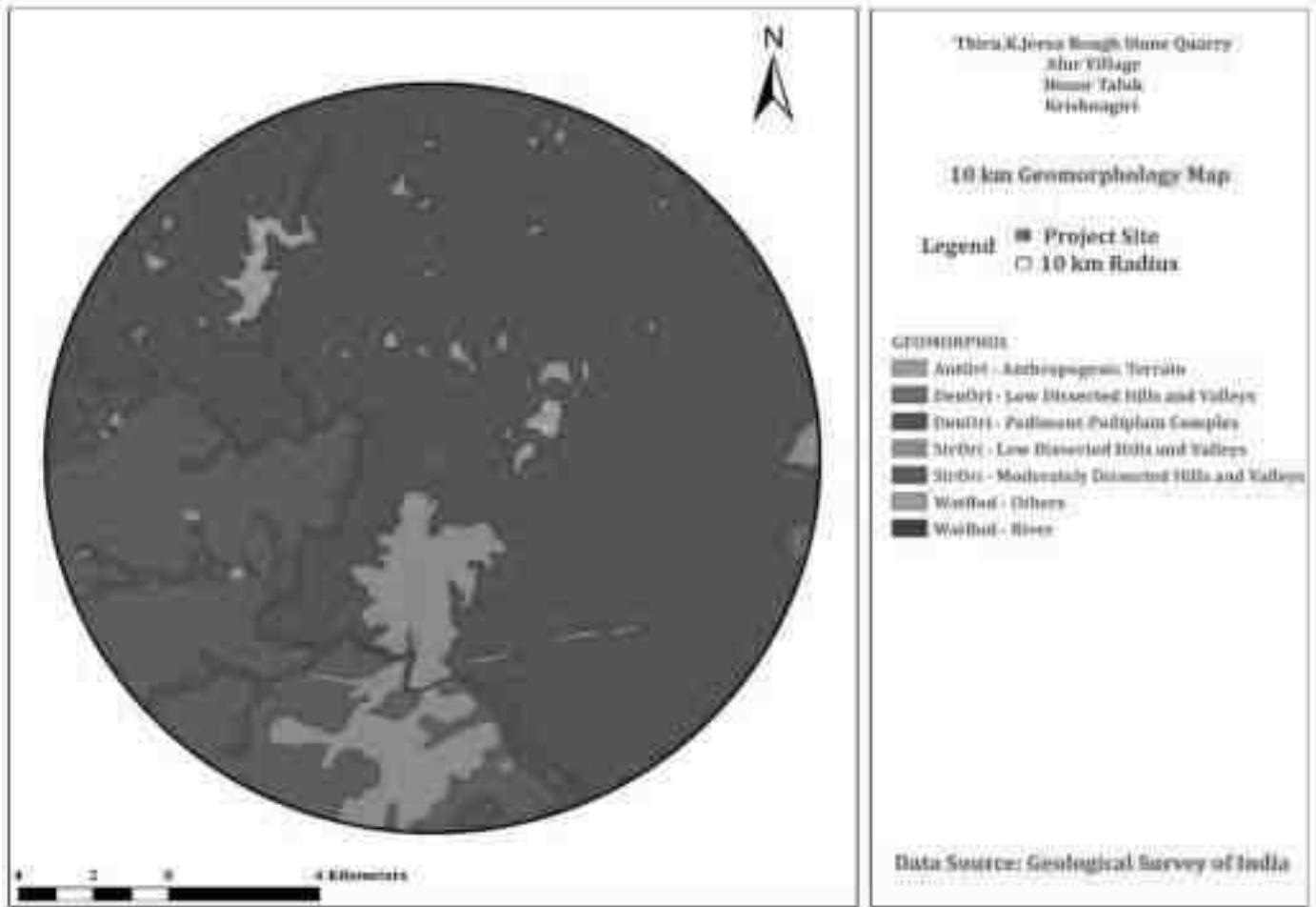


Figure 2.7: Geomorphology

Project	Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu	Draft EIA Report
Project Proponent	Thiru.S.Marimuthu	
Project Location	Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District	

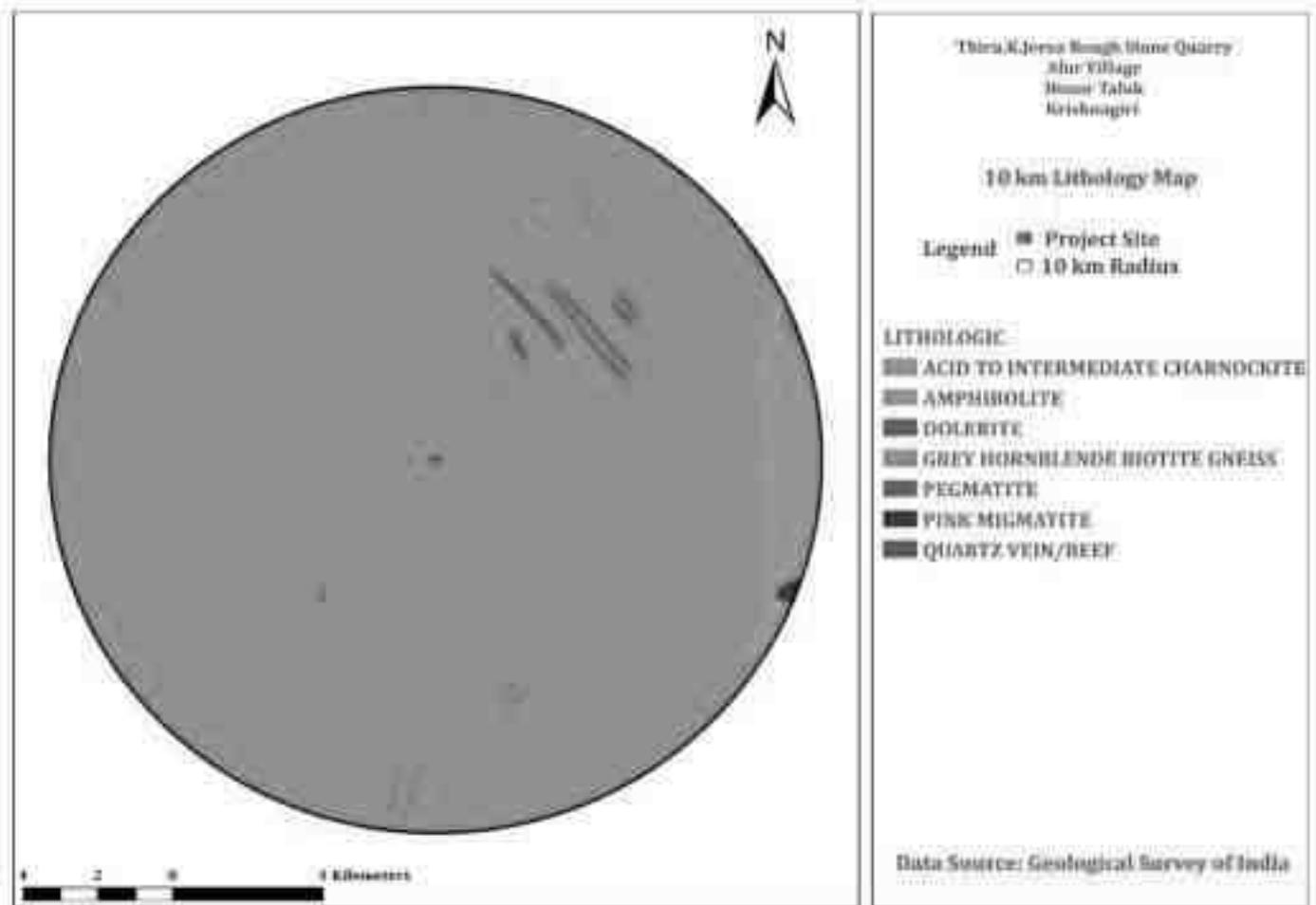


Figure 2.8 Lithology

2.6 QUALITY OF RESERVES:

The mining lease area is of 4.50.0 Ha, with production capacity of 1276320 m³ of Rough Stone. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone and gravel along with associated minor minerals is economically viable.

Table 2-6: Details of Mining

S. No	Particulars	Details
1	Method of Mining	Open Cast mechanized
2	Geological Reserves	2133096 m ³ of Rough stone
3	Recoverable Reserves	1276320 m ³ of Rough stone

<i>Project</i>	<i>Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.S.Marimuthu</i>	
<i>Project Location</i>	<i>Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District</i>	

4	Proposed Production	1276320 m ³ of Rough stone
5	Elevation Range of the Mine Site	847 m AMSL

2.6.1 Geological Reserves

Table 2-7: Geological Reserves

GEOLOGICAL RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Geological Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	203	123	1				24969
	II	203	123	7	174783	166044	8739	
	III	203	123	7	174783	166044	8739	
	IV	203	123	7	174783	166044	8739	
	V	203	123	7	174783	166044	8739	
	VI	203	123	7	174783	166044	8739	
	VII	203	123	7	174783	166044	8739	
TOTAL					1048698	996264	52434	24969
XY-CD	I	123	204	1				25092
	II	100	204	7	142800	135660	7140	
	III	123	204	7	175644	166862	8782	
	IV	123	204	7	175644	166862	8782	
	V	123	204	7	175644	166862	8782	
	VI	123	204	7	175644	166862	8782	
	VII	123	204	7	175644	166862	8782	
	VIII	123	204	7	175644	166862	8782	
TOTAL					1196664	1136832	59832	25092
GRAND TOTAL					2245362	2133096	112266	50061

<i>Project</i>	<i>Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.S.Marimuthu</i>	
<i>Project Location</i>	<i>Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District</i>	

2.6.2 Mineable Reserves

Table 2-8: Mineable Reserves

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Geological Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	196	119	1				23324
	II	195	118	7	161070	153017	8053	
	III	190	113	7	150290	142776	7514	
	IV	185	108	7	139860	132867	6993	
	V	180	103	7	129780	123291	6489	
	VI	175	98	7	120050	114048	6002	
	VII	170	93	7	110670	105137	5533	
TOTAL					811720	771136	40584	23324
XY-CD	I	116	193	1				22388
	II	92	192	7	123648	117466	6182	
	III	110	192	7	147840	140448	7392	
	IV	105	187	7	137445	130573	6872	
	V	100	182	7	127400	121030	6370	
	VI	95	177	7	117705	111820	5885	
	VII	90	172	7	108360	102942	5418	
	VIII	85	166	7	98770	93832	4938	
TOTAL					861168	818111	43057	22388
GRAND TOTAL					1672888	1589247	83641	45712

<i>Project</i>	<i>Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.S.Marimuthu</i>	
<i>Project Location</i>	<i>Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District</i>	

2.6.3 Yearwise Production

Table 2-9: Year wise Production Plan

YEARWISE RESERVES									
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I-Year	XY-AB	I	196	119	1				23324
		II	195	118	7	161070	153017	8053	
		III	190	113	7	150290	142776	7514	
	TOTAL					311360	295793	15567	23324
II-Year	XY-CD	I	116	193	1				22388
		II	92	192	7	123648	117466	6182	
		III	110	192	7	147840	140448	7392	
	TOTAL					271488	257914	13574	22388
III-Year	XY-AB	III	185	108	7	139860	132867	6993	
		IV	180	103	7	129780	123291	6489	
	TOTAL					269640	256158	13482	
IV-Year	XY-CD	IV	105	187	7	137445	130573	6872	
		V	100	184	7	127400	121030	6370	
	TOTAL					264845	251603	13242	
V-Year	XY-CD	VI	95	177	7	117705	111820	5885	
		VII	90	172	7	108360	102942	5418	
	TOTAL					226065	214762	11303	
	GRAND TOTAL					1343398	1276230	67168	45712

Project	Rough stone Quarry- 4.24.0 Ha by Thiru.S.Marimuthu	<i>Draft EIA Report</i>
Project Proponent	Thiru.S.Marimuthu	
Project Location	Kottaiyur Village, Virudhunagar Taluk, Virudhunagar District	

2.6.4 Year wise Production Plan

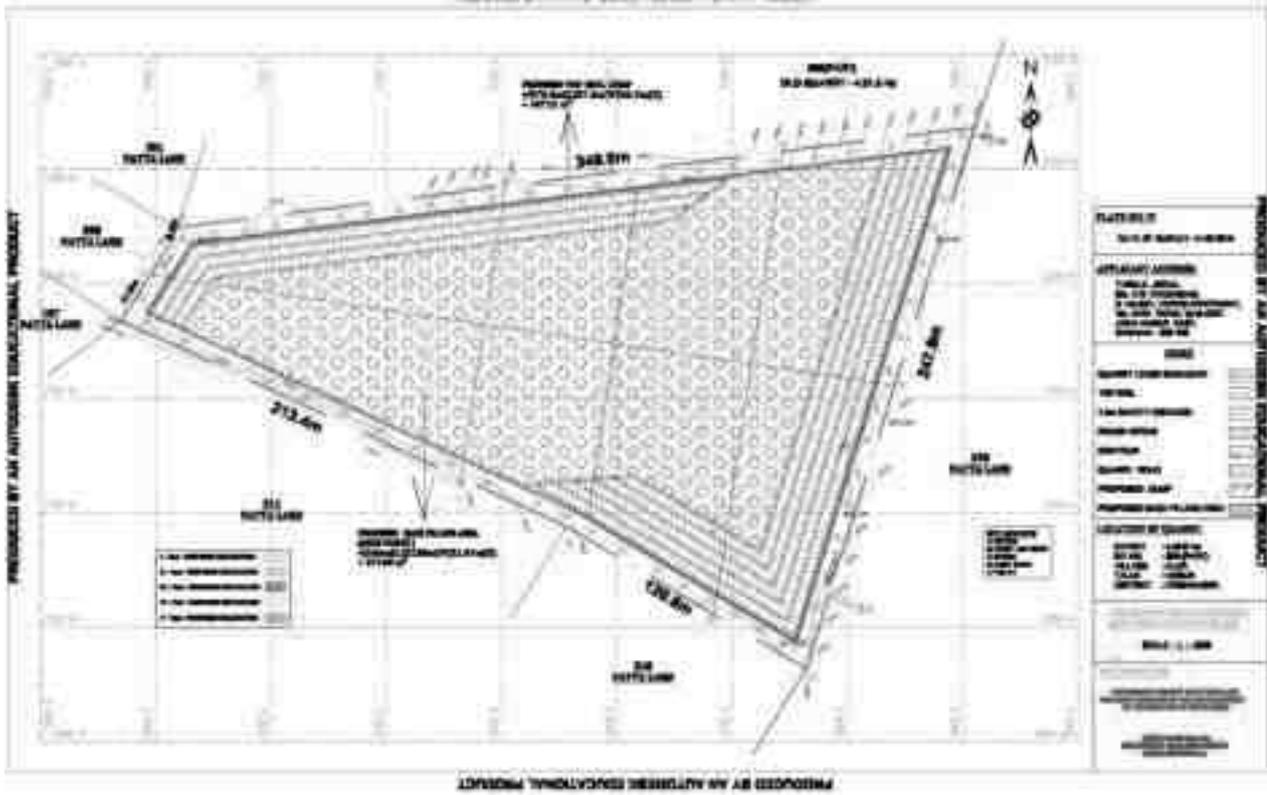


Figure 2.9 Year wise Production Plan

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

2.7 TYPE OF MINING

The proposed project is an open cast mechanized mining with one with 7.0 meter vertical bench with a bench width of 5.0 meter. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of regulations 106(2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

2.7.1 Method of Working:

The Rough stone is proposed to quarry at 7m bench height & 5m width with conventional Open cast mechanized method. The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

2.7.2 Overburden

The entire lease area is covered 2.0m of Top Soil(Gravel) and the estimated quantity of Top soil(Gravel) is 17316m³. Top Soil(Gravel) formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.

2.7.3 Machineries to be used

Type of machineries proposed for quarrying operation for the entire project is listed below.

Table 2-10: List of Machineries used

For Mining operation	Excavator of 0.9 Cu.m bucket capacity Jack Hammer (30-32 mm dia) Tractor mounted compressor
Loading Equipment	Excavator of 0.9 Cu.m bucket capacity
Transportation	Tipper 1No. of 10/20 M.T capacity

Blasting:

2.7.3.1 Blasting Pattern:

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

2.7.3.2 Drilling & Blasting:

Drilling and Blasting Parameters are as follows

Table 2-11: Drilling and Blasting Parameters

1	Diameter of the hole	32-36 mm
2	Spacing	60 Cms
3	Depth	1 to 1.5 m
4	Charge / Hole	D.Cord with water or 70gms of gun powder or Gelatine.
5	Pattern of hole	Zig Zag
6	Inclination of hole	70° from the horizontal.
7	Quantity of rock broken	0.45 MT x 2.6 = 1.17 MT
8	Quantity of rock broken per day	362.8m ³
9	Control Blasting efficiency @90%	1.17 x 90% = 1.05MT / hole
10	Charge per hole	140 gms of 25mm dia cartridge

2.7.3.3 Types of Explosives to be used:

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

2.7.3.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 1 km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and fly of rocks. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.

Table 2-12: Blasting Details

1	Diameter of the hole	32-36 mm
2	Spacing	60 Cms
3	Depth	1 to 1.5 m

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

4	Charge / Hole	D.Cord with water or 70gms of gun powder or Gelatine.
5	Pattern of hole	Zig Zag
6	Inclination of hole	70 ⁰ from the horizontal.
7	Quantity of rock broken	0.45 MT x 2.6 = 1.17 MT
8	Quantity of rock broken per day	362.8m ³
9	Control Blasting efficiency @90%	1.17 x 90% = 1.05MT / hole
10	Charge per hole	140 gms of 25mm dia cartridge

2.7.3.5 Storage & Safety measures taken during blasting:

The project proponent “Thiru K.Jeeva” will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by Permit Mines Manager. The copy of the explosive certificate is attached as *Annexure*.

2.8 MAN POWER REQUIREMENTS

The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

Table 2-13: Man Power Requirements

	Skilled	Operator	2
		Mechanic	1
		Blaster/Mat	1
2	Semi skilled	Driver	2
3	Unskilled	Musdoor/Labours	5
		Unskilled-helpers	4
4	Management and Supervisory staff		3
Total			18 Nos

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

2.8.1 *Water Requirement*

Total water requirement for the mining project is 2.0 KLD. Domestic water will be sourced from nearby Attur village and other water will be source from nearby road tankers supply.

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<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

Table 2-14: Water Requirement

Purpose	Quantity	Sources
Drinking Water	0.5 KLD	Packaged Drinking water vendors available in Attur which is about 1.3km N of the area
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
Total	1.5 KLD	

2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Thiru K.Jeeva (4.50.0 ha) is as follows.

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Feb -24	Feb-25	Feb-26	Feb-27	Feb-28
Site Clearance					
Excavation – Rough stone/Overburden					
I Year Production – Cum – 295793 Rough Stone					
II Year Production – Cum –257914 Rough Stone					
III Year Production – Cum – 256158 Rough Stone					
IV Year Production - Cum –251603 Rough Stone					
V Year Production – Cum – 214762 Rough Stone					

2.10 SOLID WASTE MANAGEMENT

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

Table 2-15: 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

2.11 MINE DRAINAGE

The quarry operation is proposed up to a depth of 43 m below ground level. The water table is below 60 m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

2.12 POWER REQUIREMENT

This 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 and **10 Litre** diesel per hour for excavation of Top soil needed.

2.13 PROJECT COST

Cost of the Project	
Fixed cost	Rs.4,86,80,000/-
Operational cost	Rs.30,00,000/-
Total	Rs.5,16,80,000

EMP cost	Rs.2,58,90,385/-
----------	------------------

2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.

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<i>Project Location</i>	<i>Alur village, Hosur tehsil, Krishnagiri district</i>	

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 Vaagai, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 700 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table. 2-17 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila maram, Poo Marudhu, Panai Maram, Marudha Maram, Thandri, Sengondrai, Poovarasu, Therthag kottai , Pungam	80%	2250
Total		2250

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<i>Project Proponent</i>	<i>Thiru.K.Jeeva</i>	
<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

3 Description of the Environment

3.1 GENERAL:

The method of mining for extracting rough stone quarry and gravel is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans and sustainable resource extraction.

To understand the existing environmental scenario, Baseline data helps in identification, prediction and evaluation of impacts in Environmental Impact assessment. Through field study, baseline data are collected considering various factors of the project. This includes-

- Physical- the area, the soil properties, the geological characteristics, the topography, etc
- Chemical- water, air, noise and soil pollution levels, etc.
- Biological- the biodiversity of the area, types of flora and fauna, species richness, species distribution, types of ecosystems, presence or absence of endangered species and/or sensitive ecosystems etc.
- Socioeconomic- demography, social structure, economic conditions, developmental capabilities, displacement of locals, etc.

3.1.1 *Study Area:*

The study area for the mining projects is as follows:

- Mine lease area as the “core zone”
- A study area of 10 km radius from the project boundary is designated as buffer Zone and for the study of Socio-economic status, 10 km radius from the boundary limits of the mine lease area has been selected.

We have obtained Terms of Reference from SEIAA vide Letter No. SEIAA-TN/ F. No. 9870/SEAC/ ToR-1449/2023 Dated: 09.05.2023. The baseline monitoring is carried out in March to May 2023 and

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the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

3.1.2 Instruments Used

The following instruments were used at the site for baseline data collection.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460, APM411.
2. Fine Particulate Matter (FPM) Sampler, APM 550
4. Sound Level Meter Model SL-4010
5. 2000 series watchdog automatic weathering monitoring station

3.1.3 Baseline Data Collection Period:

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from March to May 2023.

3.1.4 Frequency of Monitoring

Table 3-1: Frequency of Sampling and Analysis

Attributes	Sampling	Frequency
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO ₂ NO _x Lead in PM	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	7 locations	24 hourly Once in 7 locations
Water (Ground water)	7 locations	Once in 7 locations

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pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms		
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

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<i>Project Location</i>	<i>Alur Village, Hosur Taluk, Krishnagiri District</i>	

3.1.5 Secondary data Collection

Apart from the primary data, Secondary data is also used for the collection; collation; synthesis and interpretation

- Flora & Faunal Study
- Land use study
- Demography and socio-economic analysis
- Meteorological data, from Indian Meteorological Department (IMD)

3.1.6 Study area details

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	S.F.No. 209(Part) - 4.50.0 Ha, Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude : 12° 44' 05.64" to 12° 44' 03.03" N Longitude : 77° 55' 03.65" to 77° 54' 51.35" E	Topo Sheet
3.	Topo Sheet No.	57 H/14	Survey of India Toposheet
4.	Mine Lease Area	4.50.0 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	2764	Census Survey of India
6.	Total Number of Households	605	
7.	Maximum Temperature (°C)	36	IMD
8.	Minimum Temperature (°C)	21	

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9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	<ul style="list-style-type: none"> ❖ Peddakullu lake-2.74 km, NW ❖ Muthali lake-3.14 km, NNW ❖ Thamayanapalli lake-3.26 km, SW ❖ Thummanapalli lake-3.58 km,SSE ❖ Bukkasagaram lake-3.70 km, ESE ❖ Doripalli lake-5.26 km, SE ❖ Kamandoddi lake-5.56 km, SE ❖ Kamandoddi old lake-6.43 km,SE ❖ Konerapalli lake-8.41 km,SE ❖ Chappadi lake-9.40 km, SE ❖ Achettapalli lake-11.24 km,SW ❖ Karapalli lake-7.67 km, SW ❖ Tippalam lake-5.64 km, SW ❖ Kumudapalli lake-4.46 km, SW ❖ Bathlapalli lake-6.20 km, WSW ❖ Alasanatham lake-8.48 km, W ❖ Moranapalli lake-5.51 km, W ❖ Budde raya guntae pond-12.96 km, WSW ❖ Chandramkudi Eri-1066 km, W 	Google Earth/Field Study						
10.	Densely Populated area	Hosur - 11.66 Km -N							
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S. No</th> <th style="width: 50%;">Places</th> <th style="width: 40%;">Dist. From Project Site</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">.</td> <td colspan="2" style="text-align: center;">Schools & Colleges</td> </tr> </tbody> </table>	S. No	Places	Dist. From Project Site	.	Schools & Colleges		Google Earth/Field Study
S. No	Places	Dist. From Project Site							
.	Schools & Colleges								

<i>Project</i>	<i>Rough stone Quarry- 4.50.00 Ha by Thiru. K.Jeeva</i>	<i>Draft EIA Report</i>
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worship, community facilities)	1	Koladasapuram PUP school	1.22 kms, NW
	2	Dasarapalli Dinna School	1.40 kms, NE
	3	NTR International School	2.40 kms, SE
	Hospitals		
	1	Sri Chandra sekara Hospital	8.99 kms, W
	2	Vijay Hospital	9.82 kms, W

3.1.7 Site Connectivity:

The site is connected to ODR Bukkasandiram road



Figure 3.1: Site Connectivity

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3.2 LAND USE ANALYSIS

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with following objectives. The main objective of the study is to classify the different land use within 10 km from the project boundary.

3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below.

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Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

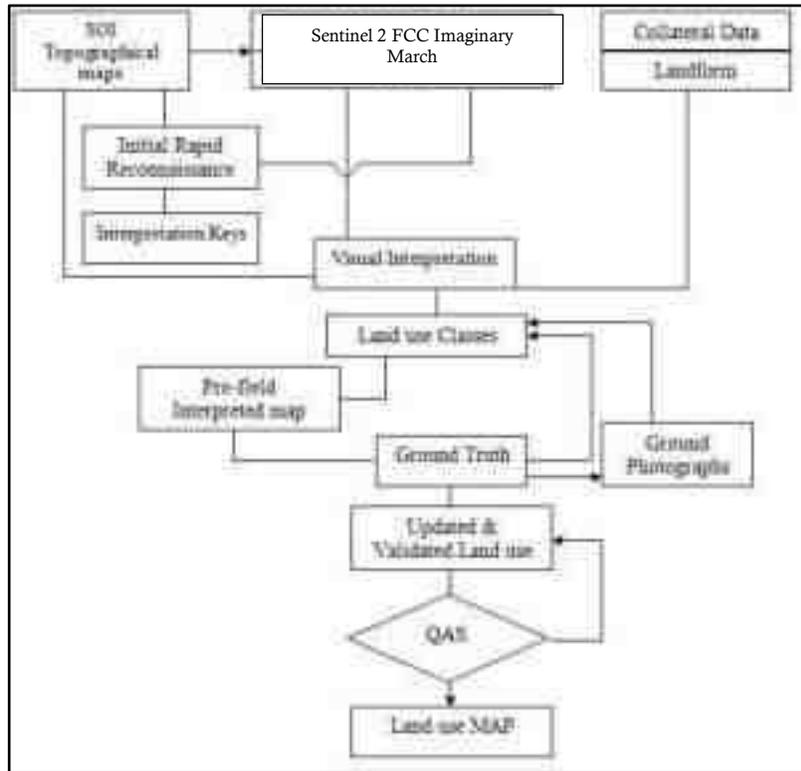


Figure 3.2 Flow Chart showing Methodology of Land use mapping

3.2.3 Satellite Data

Sentinal 2 multispectral satellite data of 2020 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

3.2.4 Scale of mapping

Considering the user defined scale of mapping, 1:50000 Sentinal 2 data was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

3.2.5 Interpretation Technique

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the

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study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

June 2016 FCC imagery (Digital data) of the study area was interpreted for the relevant land use classes. On screen visual interpretation coupled with supervised image classification techniques are used to prepare the land use classification.

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the sentinel satellite image and SOI topo sheets of 58J/10, 58J/11, 58J/14, 58J/15 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -I being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

3.2.6 Field Verification

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were

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planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure

3.2.7 Description of the Land Use / land cover classes

3.2.7.1 Water

Areas where water was predominantly present throughout the year; may not cover areas with sporadic or ephemeral water; contains little to no sparse vegetation, no rock outcrop nor built up features like docks; examples: rivers, ponds, lakes, oceans, flooded salt plains.

3.2.7.2 Trees

Any significant clustering of tall (~15-m or higher) dense vegetation, typically with a closed or dense canopy; examples: wooded vegetation, clusters of dense tall vegetation within savannas, plantations, swamp or mangroves (dense/tall vegetation with ephemeral water or canopy too thick to detect water underneath).

3.2.7.3 Grass

Open areas covered in homogenous grasses with little to no taller vegetation; wild cereals and grasses with no obvious human plotting (i.e., not a plotted field); examples: natural meadows and fields with sparse to no tree cover, open savanna with few to no trees, parks/golf courses/lawns, pastures.

3.2.7.4 Flooded vegetation

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to

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sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

3.2.7.5 Crops

Human planted/plotted cereals, grasses, and crops not at tree height; examples: corn, wheat, soy, fallow plots of structured land.

3.2.7.6 Scrub/Shrub

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants

3.2.7.7 Built Area

Human made structures; major road and rail networks; large homogenous impervious surfaces including parking structures, office buildings and residential housing; examples: houses, dense villages / towns / cities, paved roads, asphalt.

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Figure 3.3 Land use classes around 10 km radius from the project site

3.2.7.8 Different Land use classes around 10 km radius from the project site

Table 3-3 Land use pattern

Sl.No	Categories	Area in Sq.m
1	Water Body	3.24
2	Trees	8.47
3	Grass	0.3
4	Crops	148.49
5	Scrub/Shrub	78.16
6	Built-up Area	76.45
7	Barren Land	0.55

3.3 WATER ENVIRONMENT

3.3.1 *Contour & Drainage*

The project site is 847 m AMSL.

3.3.2 *Geomorphology*

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

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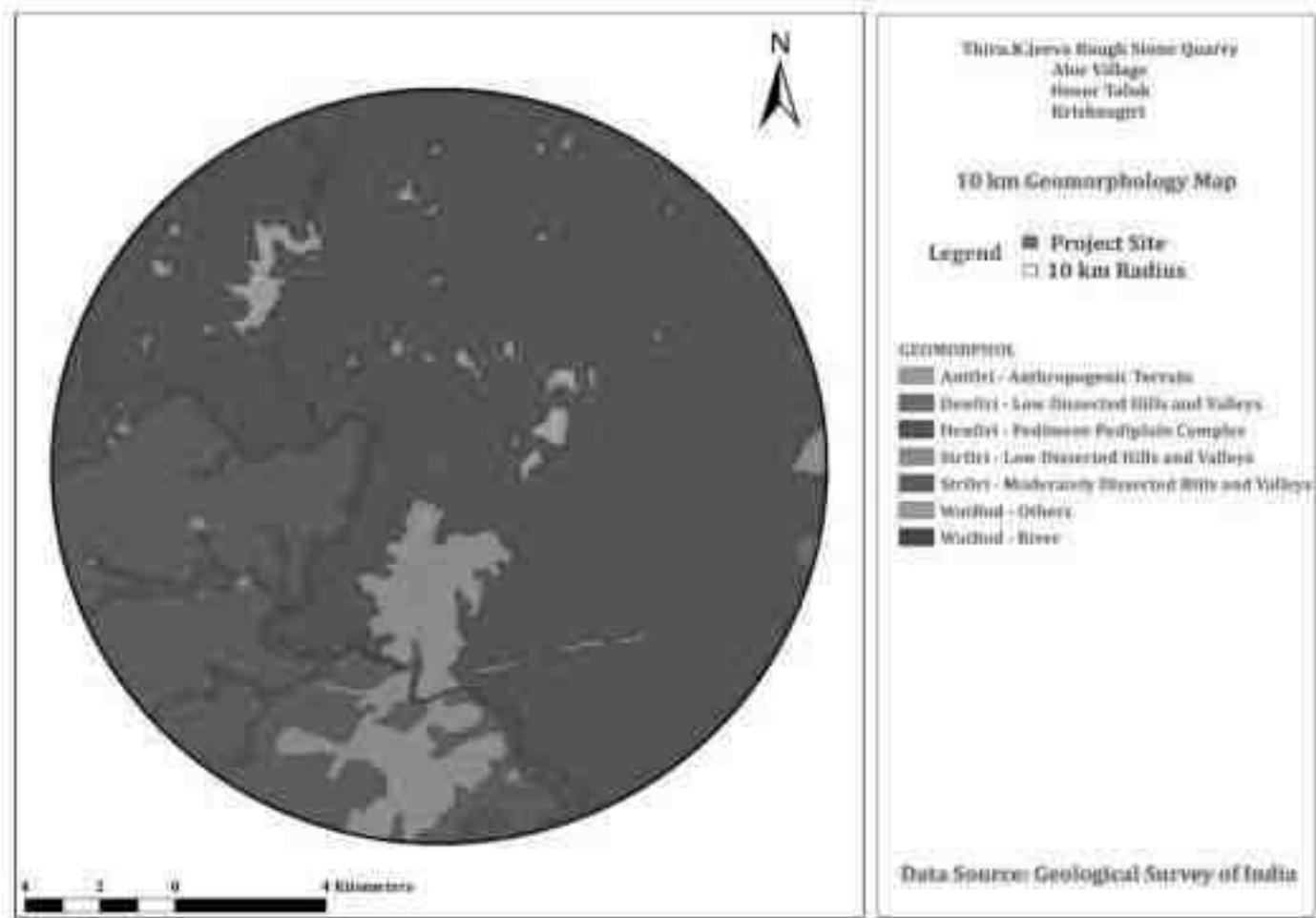


Figure 3.4 Geomorphology within 10km from the project site

3.3.3 Geology:

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnet ferrous quartzofeldspathic gneiss and horn blends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous

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quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes. The Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzo-feldspathicgneiss, Granite gneiss and dolerite dykes. The North-East and Northernpartof the District mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-horn blende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

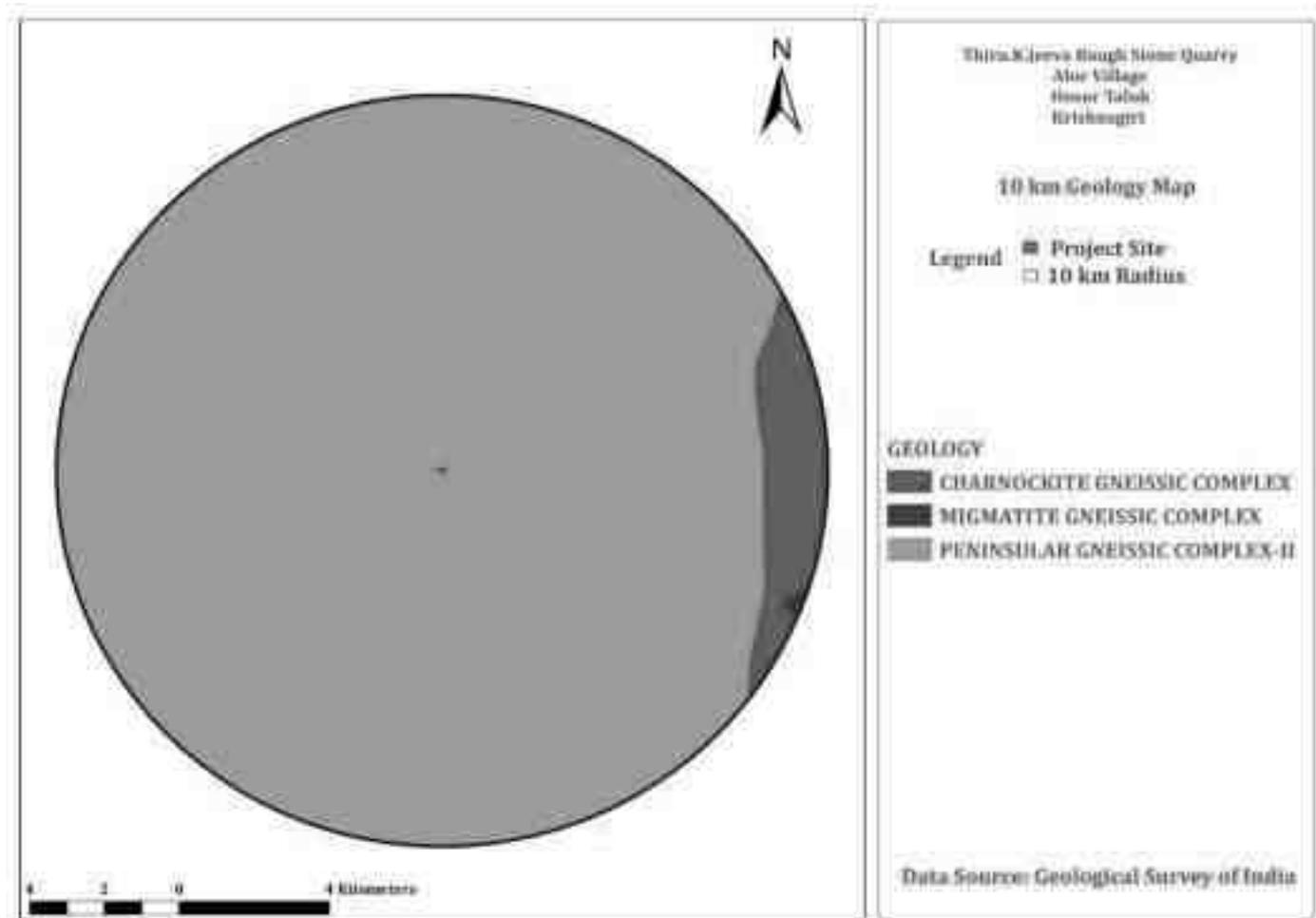


Figure 3.5 Geology within 10km from the project site

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3.3.4 Hydrogeology

Krishnagiri district is underlain by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers (Plate-II). The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district.

Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m. The yield of large diameter dug wells in the district, tapping the weathered mantle of crystalline rocks ranges from 100 to 500 lpm. These wells normally sustain in pumping for 2 to 6 hours per day, depending upon the local topography and characteristics of the weathered mantle.

The depth to water level (DTW) during pre monsoon (May 2006) ranged between 0.5 and 9.9 m bgl (Plate-III) in the district. In major part of the district the DTW is more than 5mbgl. Whereas it ranged between 2 and 9.9 m bgl (Plate-IV) during post monsoon, in the district and the DTW is in the range of 5 – 10 m bgl in the entire district except a few isolated pockets.

The yield of successful exploratory wells drilled in the district ranged from 0.78 lps to 26 lps. As per the studies the wells drilled in granitic gneiss have higher yields than the wells drilled in charnockites. The specific capacity of the wells ranged from 1.2 to 118.0 lpm/m/dd. The piezometric head of fracture zones varied between 0.50 and 18.45 m bgl.

Aquifer Parameters:

The transmissivity values of fracture zones ranged from 1 to 188 m² /day with low to very low permeability values.

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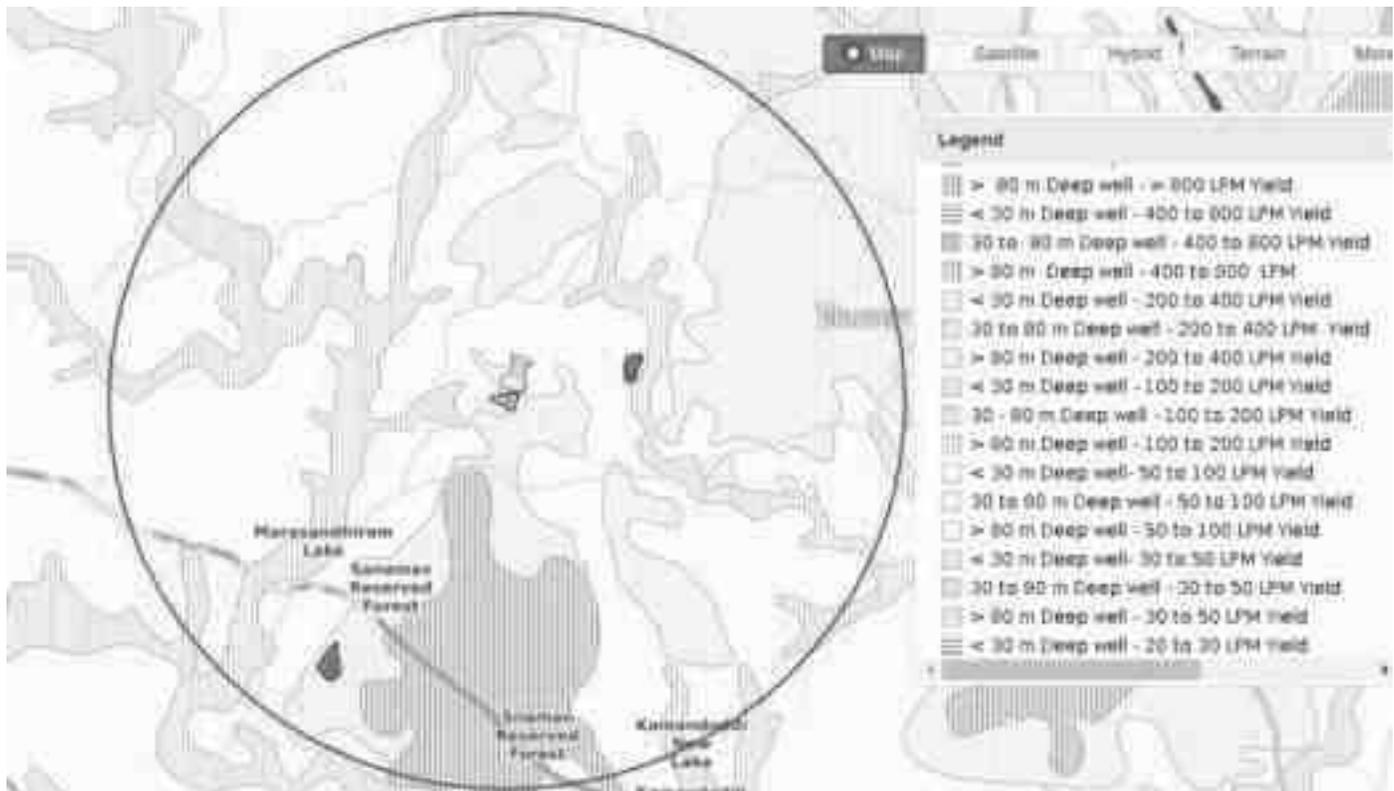


Figure 3.6 Ground water prospects within 5 km radius of the project site

3.3.5 Ground water quality monitoring

Ground water quality monitoring is done in the following locations and analysis will be done for physical, chemical & Biological parameters.

Table 3-4 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	March to May 2023
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site -GW 1 Government higher secondary school, Bukkasagaram -GW2 Anganwadi centre - GW 3 Pup school Palavanapalli - GW 4 Varadharaja Swamy temple - GW 5 Sri kalabhairaveshwara Temple-GW 6 Venkraft Paper mills-GW 7

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Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.5.1 Sampling Procedure

Quality of ground water was compared with IS: 10500: 1991 (Reaffirmed 1993 With Amendment NO -3 July 2010) for drinking purposes. Water samples were collected as Grab sample from five sampling locations in a 5-liter plastic jerry can and 250 ml sterilized clean glass/pet bottle for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed. 21st, published jointly by APHA.

Table 3-5: Standard Procedure

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22 nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO ₃	APHA 22 nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22 nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO ₄	APHA 22 nd Edn.2012-4500 SO ₄ ⁻ -E
12	Total Alkalinity as CaCO ₃	APHA 22 nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO ₂	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 nd Edn.2012-4500-F-D
16	Nitrate as NO ₃	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014
19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

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Table 3-6 Ground water sampling results

S . N o	Param eters	Uni ts	Project Site GW 1	Gov ern ment high er sec ond ar y sch ool, B ukk asa g aram - G W 2	Ang an w adi c ent re - G W 3	P up s ch ool P al ava n a p alli - G W 4	V ar ad ha r aja S w amy t em ple - G W 5	S ri k al ab h air av e sh w ara T em ple - G W 6	V en k ra ft P a per m ill s - G W 7
1	pH (at 25°C)	-	7.54	7.36	7.34	8.1	8.01	7.59	7.47
2	Electric Condu ctivity	µS/ cm	1845	1385	1442	1154	1128	1530	918
3	Colour	Ha zen Uni t	3	2	2	4	4	3	2
4	Turbidi ty	NT U	BQL(LO Q:1)	BQL(LO Q:1)	BQL(LO Q:1)	BQL(LO Q:1)	BQL(LO Q:1)	BQL(LOQ: 1)	BQL(LO Q:1)
5	Total Dissolv ed Solids	mg /L	1015	775	793	635	620	852	505
6	Total Suspend ed Solids	mg /L	BQL(LO Q:2)	BQL(LO Q:2)	BQL(LO Q:2)	BQL(LO Q:2)	BQL(LO Q:2)	BQL(LOQ: 2)	BQL(LO Q:2)
7	Total Hardne ss as CaCO ₃	mg /L	582	364	717	442	252	388	271
8	Calciu m as Ca	mg /L	144	119	175	96.4	68.4	123	72.3
9	Magne sium as Mg	mg /L	54.2	16.2	68.4	49.1	19.8	19.8	22.1
10	Chlorid e as Cl	mg /L	164	135	125	100	131	223	71.3

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11	Sulphate as SO ₄	mg /L	163	141	68.7	80.8	122	54.8	62.9
12	Total Alkalinity as CaCO ₃	mg /L	339	310	208	224	199	308	191
13	Iron as Fe	mg /L	BQL(LOQ:0.1)						
14	Silica as SiO ₂	mg /L	34.2	31.4	33.2	21.9	19.5	27.4	16.5
15	Potassium as K	mg /L	9.8	6.14	5.6	4.1	7.8	12.2	2.68
16	Sodium as Na	mg /L	145	115	114	94.1	111	197	71.5

3.3.6 Interpretation of results:

3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Project Site (True/Apparent Color): 3 Hazen unit.

Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as “Standards” from herein).

pH:

Value observed in the Project Site: 7.54

Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is slightly neutral in nature.

Turbidity:

Value observed in the Project Site: <1

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Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is slightly turbid.

Total Dissolved Solids:

Value observed in the Project Site: 1015 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively.

The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. The value in the project site indicates the water is less turbid.

3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the Project Site: 144 mg/L.

Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.

Calcium is the essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

Value observed in the Project Site: 54.2 mg/L.

Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.

The value of Magnesium in the project site is higher than acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

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Chloride

Value observed in the project site: 164 mg/L.

Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.

The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as CaCO₃:

Value observed in the project site: 339 mg/L.

Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.

Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides. The value of the total alkalinity is slightly greater in the project site, which will impart soda taste to the water.

Hardness:

Value observed in the Project Site: 582 mg/L.

Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.

The value of Hardness in the project site is higher than acceptable limit but within the permissible limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.7 Surface Water Analysis

Surface water samples were taken from **Bukkasagaram Lake** . The results are summarized below.

Table 3-7 Surface Water Sample Results

S. No	Parameters	Units	Bukkasagaram Lake
1	pH (at 25°C)	-	7.94
2	Electrical Conductivity	µS/cm	894
3	Colour	Hazen Unit	5
4	Turbidity	NTU	4.4

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5	Total Dissolved Solids	mg/L	491
6	Total Suspended Solids	mg/L	8.8
7	Total Hardness as CaCO ₃	mg/L	190
8	Calcium as Ca	mg/L	120
9	Magnesium as Mg	mg/L	69.8
10	Chloride as Cl	mg/L	87.7
11	Sulphate as SO ₄	mg/L	101
12	Total Alkalinity as CaCO ₃	mg/L	202
13	Iron as Fe	mg/L	BQL(LOQ:0.1)
14	Silica as SiO ₂	mg/L	16.5
15	Potassium as K	mg/L	3.2
16	BOD	mg/L	18.6
17	COD	mg/L	72.2
18	DO	mg/L	4.8

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that the both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water.

3.3.7.1 Climatology & Meteorology:

Climate and meteorology of a place can play an important role in the implementation of any developmental project. Meteorology is also the key to understand local air quality as there is an essential relationship between meteorology and atmospheric dispersion involving wind in the broadest sense of the term.

The year may broadly be divided into four seasons:

Winter season	:	December to February
Pre-monsoon season	:	March to May
Monsoon season	:	June to September
Post-monsoon season	:	October to November

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i) Climate

Eastern part of the district experiences hot climate and Western part has a contrasting pleasant cold climate. The district is hot and dry in summer i.e., from March to June. From July to November is rainy season and between December to February winter prevails with very cold and misty.

ii) Temperature

The maximum temperature is around 36⁰C and minimum temperature is 28⁰C.

iii) Rainfall

Krishnagiri receives rainfall from both the northeast and the southwest monsoons. Monsoon season is from the months of July to November. During this time, temperature is mild and pleasant. Heavy rainfall is expected in short intervals during this period. December to February are winter months.

This district gets maximum rainfall in November (274.7mm).

KRISHNAGIRI DISTRICT -NORMAL AND ACTUAL RAINFALL

Unit in mm.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2017	5.7	0	48.7	37.9	198.6	19.1	24.6	189.7	291.7	219	54.5	56.2
2018	0	1.3	34.9	14.4	114.5	41.1	10.5	18.5	152.1	85.2	33.2	4.8
2019	13.2	1.2	4.5	47.2	96.5	33.6	34.6	94.7	138.6	177.7	48.7	39.5
2020	0.3	0	6.9	61.7	57.9	59	147.2	66.8	142.1	142	77	42.6
2021	40.1	5.8	0	46.6	75.7	32.4	137.7	70.2	134.9	140.4	282.6	19.1

Source: District survey report

Meteorological Data

The meteorological data – Temperature, rainfall, Wind Speed, Wind direction are recorded through AWS by setting it up in the site.

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vi) Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot.

The wind speed & wind direction data are taken and wind rose is plotted for March to May 2023.

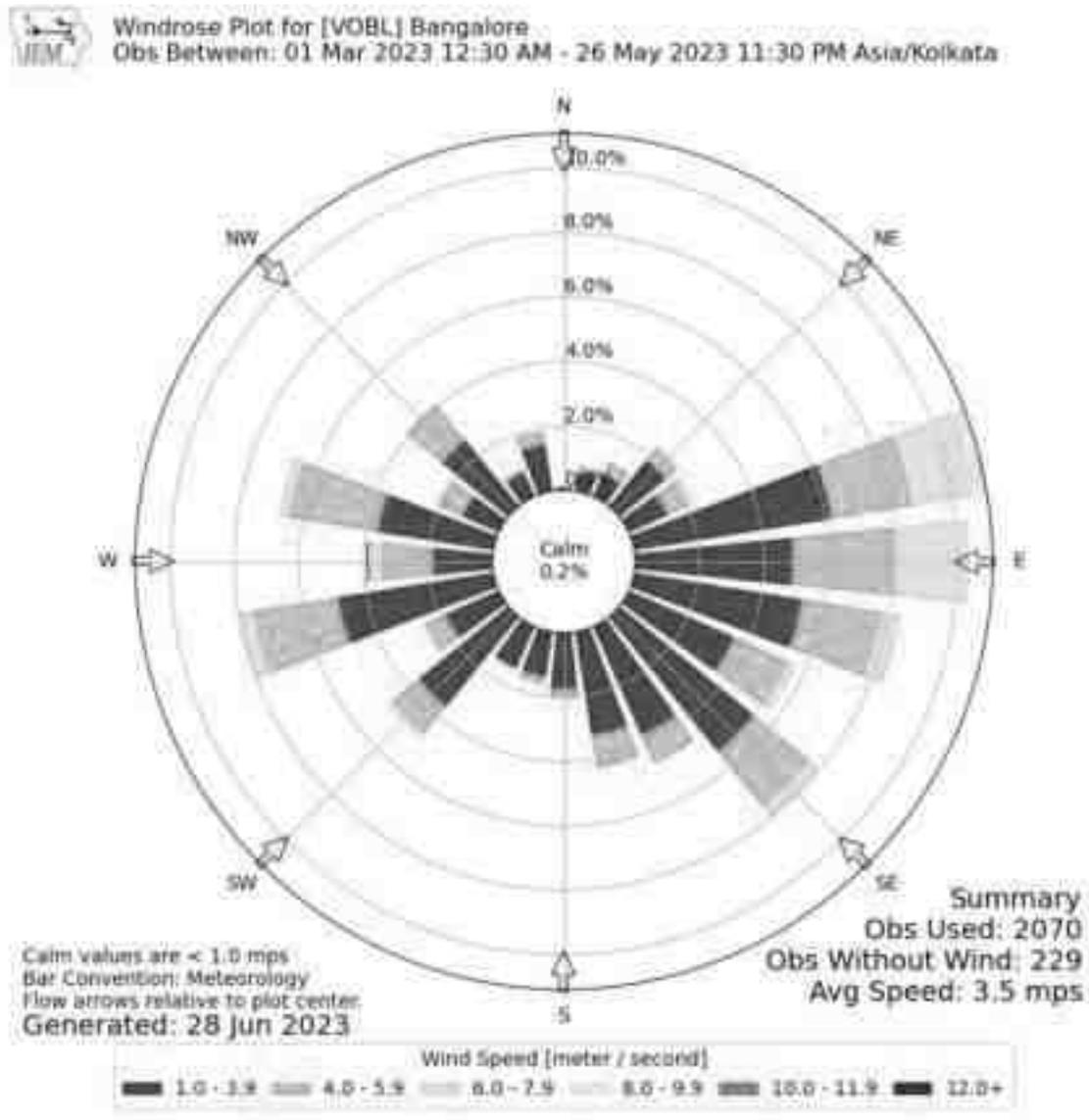


Figure 3.7 Wind rose

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3.3.8 Selection of Sampling Locations:

Four Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed. All the monitoring locations are chosen in the downwind direction.

3.4 AMBIENT AIR QUALITY

Table 3-8: Selection of Sampling Location

Environmental Parameters: <i>Ambient Air</i>			
Monitoring Period	March 2023 to May 2023		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (March 2023 to May 2023), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 7 air sampling station were selected in the area as shown below.		
Monitoring Locations	Location & Code	Distance (km)	Direction
	Project Site	--	--
	Government higher secondary school, Bukkasagaram	2.60Km	Upwind E
	Anganwadi centre	2.58 Km	Downwind WNW
	Pup School Palavanapalli	4.35 Km	Crosswind N
	Varadharaja Swamyy temple	2.78 Km	Crosswind SE
	Sri Kalabhairaveshwara Temple	8.18 Km	Crosswind N
	Venkraft Paper mills	5.50 Km	Crosswind S
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)		
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.		

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3.4.1 Ambient Air Quality: Results & Discussion

The test results of the ambient air quality monitored in project site and other six locations is summarized below.

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Table 3-9 Ambient Air Quality

Code	Location	PM 10 ($\mu\text{g}/\text{m}^3$)				PM 2.5 ($\mu\text{g}/\text{m}^3$)				SO2 ($\mu\text{g}/\text{m}^3$)				NOx ($\mu\text{g}/\text{m}^3$)			
		Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile
AAQ 1	Project Site	54	64	58	63	22	32	26	31	12	19	15	19	23	34	27	33
AAQ 2	Government higher secondary school, Bukkasagaram	56	67	62	66	26	34	29	33	16	22	19	22	27	43	34	43
AAQ 3	Anganwadi centre	41	55	48	55	15	24	21	24	6	11	9	11	11	23	17	23
AAQ 4	Pup School Palavanapalli	45	55	51	55	15	26	21	25	8	15	11	15	14	26	20	26
AAQ 5	Varadharaja Swamy temple	35	57	46	56	12	27	20	27	5	14	9	14	10	22	16	22
AAQ 6	Sri Kalabhairaveshwara Temple	41	54	47	53	12	24	18	23	5	12	9	12	10	22	16	21
AAQ 7	Venkraft Paper mills	48	58	54	58	20	28	25	28	6	16	11	15	14	31	21	30
NAAQ Standards - Residential Area		100 ($\mu\text{g}/\text{m}^3$)				60($\mu\text{g}/\text{m}^3$)				80 ($\mu\text{g}/\text{m}^3$)				80 ($\mu\text{g}/\text{m}^3$)			

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3.4.2 Interpretation of ambient air quality:

To assess the impact, AAQ were monitored in project site and four locations.

Observation:

The Maximum value of PM10 (67($\mu\text{g}/\text{m}^3$), PM 2.5 (34 ($\mu\text{g}/\text{m}^3$), SOx (22($\mu\text{g}/\text{m}^3$), NOx (43($\mu\text{g}/\text{m}^3$) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Government higher secondary school, Bukkasagaram which is due to the movement of vehicles .

The observed values are all well within the Standards prescribed by NAAQ.

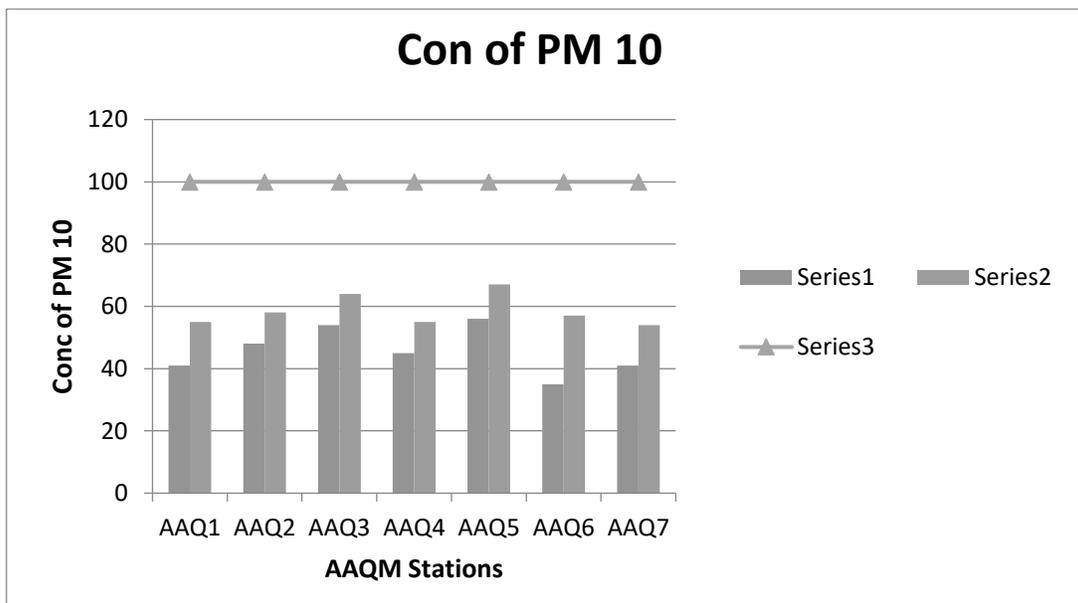


Figure 3.8 Concentration of PM10 ($\mu\text{g}/\text{m}^3$) in Study Area

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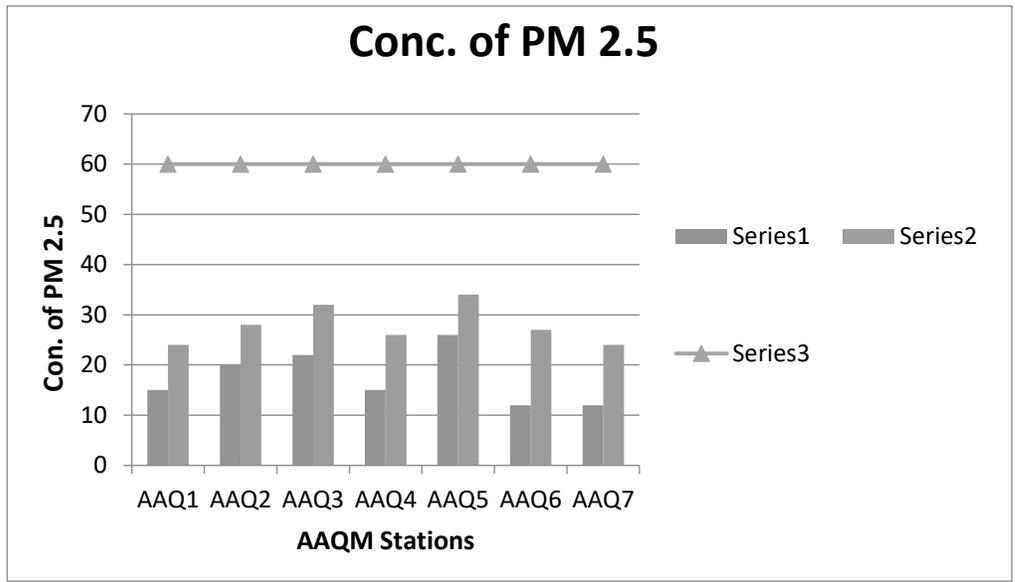


Figure 3.9 Concentration of PM_{2.5} (µg/m³) in Study Area

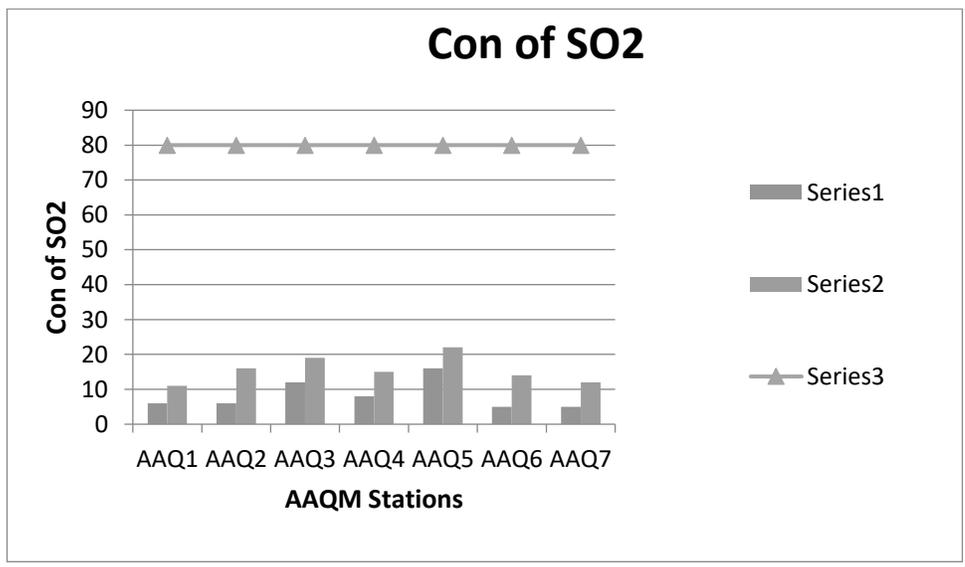


Figure 3.10 Concentration of SO_x (µg/m³) in Study Area

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Project Location	Alur Village, Hosur Taluk, Krishnagiri District	

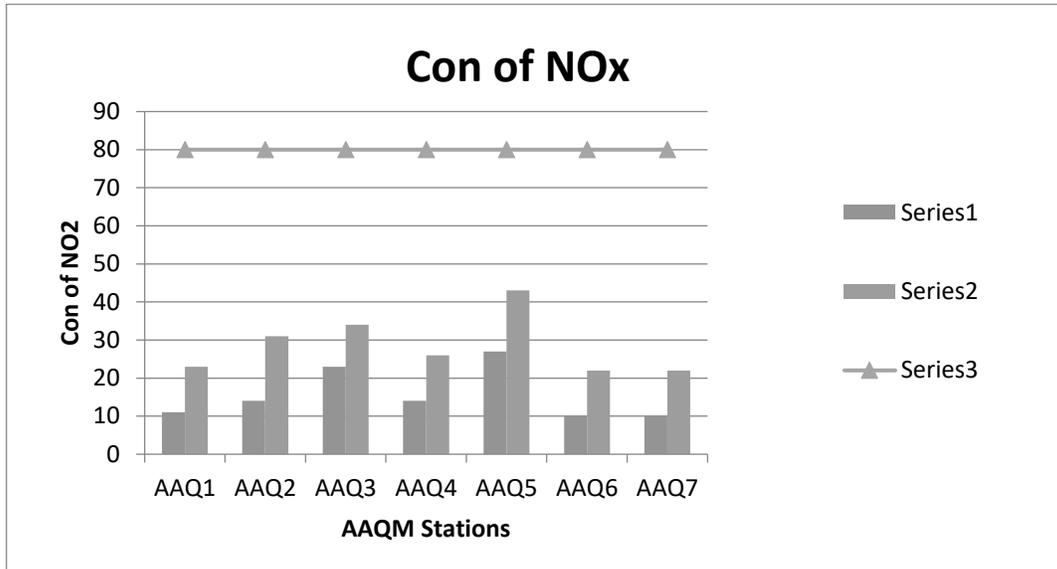


Figure 3.11 Concentration of NO_x (µg/m³) in Study Area

3.5 NOISE ENVIRONMENT:

Table 3-10 Noise Analysis

Environmental Parameters: <i>Noise Analysis</i>	
Monitoring Period	March to May 2023
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Government higher secondary school, Bukkasagaram-N2 Anganwadi centre-N3 Pup School Palavanapalli-N4 Varadharaja Swamyy temple-N5 Sri Kalabhairaveshwara Temple-N6 Venkraft Paper mills-N7

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Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 7 locations - Once in a season

Ambient Noise Levels are monitored in the chosen 7 Locations including the project Site and the monitoring results are summarized below

3.5.1 Day Noise Level (Leq day)

Table 3-11 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	65	54	59
Government higher secondary school, Bukkasagaram	56	47	52
Anganwadi centre	59	48	54
Pup School Palavanapalli	58	45	52
Varadharaja Swamyy temple	61	50	56
Sri Kalabhairaveshwara Temple	59	48	53
Venkraft Paper mills	59	45	51

3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	55	45	50
Government higher secondary school, Bukkasagaram	47	35	41

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Anganwadi centre	49	40	45
Pup School Palavanapalli	50	38	43
Varadharaja Swamy temple	51	43	48
Sri Kalabhairaveshwara Temple	49	36	42
Venkraft Paper mills	44	35	40

Observation:

The maximum Day noise and Night noise were found to be 65 dB(A) and 55 dB(A) respectively in Project site. The minimum Day Noise and Night noise were 45 dB (A) and 35 dB(A) respectively which was observed in Pup school Palavanapalli. The observed values are all well within the Standards prescribed by CPCB.

3.6 SOIL ENVIRONMENT

Soil environment is studied for 10 km radius from the project site. The 5 km radius image shows that the soil is not affected by any kind of erosion.

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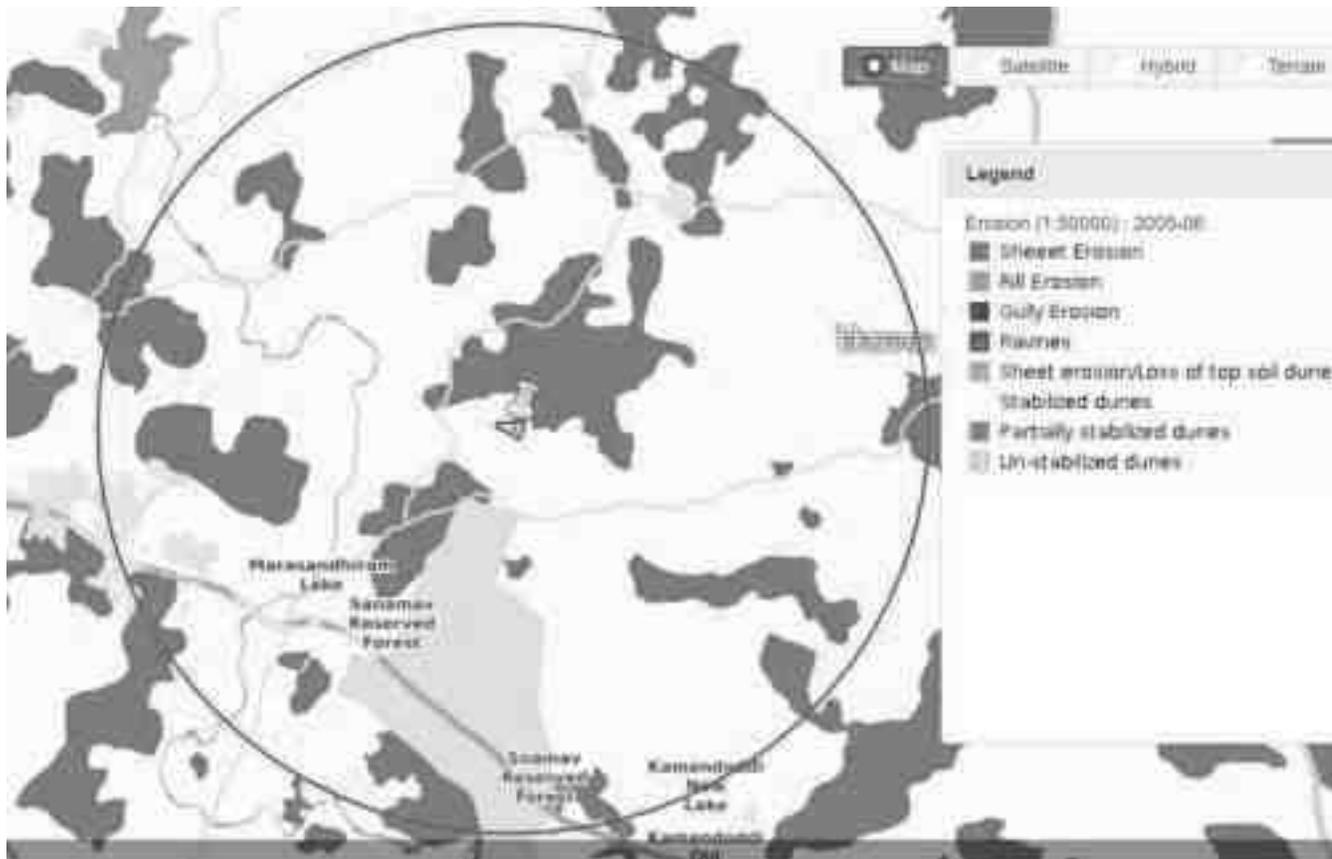


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site

3.6.1 *Baseline Data:*

The present study of the soil quality establishes the baseline characteristics which will help in future in identifying the incremental concentrations if any, due to the operation Phase of the proposed project. The sampling locations have been identified with the following objectives:

- To determine the impact of proposed project on soil characteristics and
- To determine the impact on soils more importantly from agricultural productivity point of view.

Table 3-13 Soil Quality Analysis

Environmental Parameters: <i>Soil Quality Analysis</i>	
Monitoring Period	March to May 2023

<i>Project</i>	<i>Rough stone Quarry- 4.50.0 Ha by Thiru.K.Jeeva</i>	<i>Draft EIA Report</i>
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Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1 Government higher secondary school, Bukkasagaram-SQ 2 Anganwadi centre-SQ 3 Pup School Palavanapalli-SQ 4 Varadharaja Swamy temple-SQ 5 Sri Kalabhairaveshwara Temple-SQ 6 Venkraft Paper mills-SQ 7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season

To assess the soil quality of the study area, 7 monitoring stations were selected and the results are summarized below.

Table 3-14 Soil Quality Analysis

Parameters	Unit	Project Site SQ 1	Government higher secondary school, Bukkasagaram SQ 2	Anganwadi centre SQ3	Pup School Palavana palli SQ 4	Varadh araja Swamy temple SQ 5	Sri Kalabhairave shwara Temple SQ 6	Venk raft Paper mills SQ 7
pH (at 25°C)	-	9.26	8.01	6.21	8.16	8.26	7.96	7.86
Specific Electrical	mS/cm	0.27	0.240	0.26	0.39	0.17	0.890	0.12

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Conductivity								
Water Holding Capacity	ml/l	4.6	4.00	3.80	5.00	5.4	4.80	3.20
Chloride	g/cm ³	63.4	30.3	45	172	33	471	44.8
Soluble Calcium	mg/kg	85.8	39.4	48.0	46	52.0	134	33.5
Soluble Sodium	mg/kg	470	340	320	420	387	584	320.0
Soluble Potassium	mg/kg	440	310	305	390	350	565	312
Organic matter	%	0.19	0.68	0.12	0.42	0.72	0.83	0.12
Soluble Magnesium	mg/kg	42.9	12.60	12.50	14	15.0	30.5	15
Total Soluble Sulphates	%	47.4	274	15.5	151	30.2	206	51.9
Cation Exchange Capacity	mg/kg	10.3	9.8	12.1	13.1	11.5	14.5	8.5
Total Nitrogen	%	9.26	0.06	0.15	0.18	0.14	0.14	0.07
Bulk Density	meq/l 00g	0.14	1.41	1.35	1.19	1.17	1.23	1.49

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Phosphorous	meq/kg	1.31	1.76	27.8	22.9	26.7	5.56	55.9
Sand	%	5.98	64.3	71.4	66.7	66.7	68.8	57.1
Clay	mg/kg	73.3	14.3	14.3	20.0	11.1	18.8	28.6
Silt	mg/kg	6.66	21.4	14.3	13.3	22.2	12.5	14.3
SAR	mg/kg	20	12.1	10.6	13.9	12.2	11.8	11.5
Silicon	%	10.3	0.099	0.094	0.085	0.092	0.091	0.087

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.17 to 1.49 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 3.20 ml/l to 5.40 ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.21 to 9.26, which it indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.12 to 0.83 %, which indicates the soil is slightly unfertile.

3.7 ECOLOGY AND BIODIVERSITY

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site and 2 km around the project site is considered as core zone and from 2 km to 10 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna in the core zone

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- Secondary data from Journals/Literature were studied and compiled to understand the species present in the buffer zone

3.7.1 *Methods available for floral analysis:*

3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit
- Transect
 - Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.
 - Belt transects have a width as well as length.
 - Pace-transects are established when the observer strides along an imaginary line across the sample site and uses their foot placement to determine specific sampling points.

3.7.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.
- Nearest neighbour method - Distance is measured from an individual to its nearest neighbour.
- Random pairs method - Distance is measured from one individual to another on the opposite side of the sample point.
- Point-centered quarter (PCQ) method - Distance is measured from the sampling point to the nearest individual in each quadrat.

3.7.2 *Field study & Methodology adopted:*

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

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3.7.3 Study outcome:

Phyto-sociological parameters, such as *Density, Frequency, Basal Area, Abundance and Importance Value Index* of individual species (Trees) were determined in randomly placed quadrates of different sizes in the study area. Relative frequency, relative basal area and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, *Density, Frequency, Relative Density & Relative Frequency were found.*

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied) * 100
Dominance	Total Basal Area /Total area sampled
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Relative Dominance	Dominance of a given species/Total Dominance of all species
Important Value Index	Relative Density + Relative Frequency + Relative Dominance

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Table 3-16 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
3	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
4	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
5	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
6	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
7	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
8	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
9	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
10	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
11	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
12	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
13	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
14	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
15	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed

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16	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
17	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
18	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
19	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
20	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
21	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
22	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
23	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
24	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
25	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
26	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
27	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
Total			110	83					5.02					

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Table 3-17 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	32	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Calotropis gigantea	Erukam	16	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
3	Tabernaemontanadivaricata	Crepe Jasmine	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
4	Catharanthus roseus	Nithyakalyani	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
5	Datura metal	Ummattangani	7	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
6	Robiniapseudoacacia	Black locust	15	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
7	Acalypha indica	Kuppaimeni	18	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
8	Stachytarpeaurticifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruiticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichedi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoond	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

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Table 3-18 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Helicteresisora	Valampuri	4	2	30	0.07	0.07	1	0.79	2.15	Not assessed
2	Tridax procumbens	Vettukaayathalai	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
3	Heraculem spondylium	Hog Weed	19	10	30	0.67	0.33	2	7.94	10.75	Not assessed
4	Tridax procumbens	Cuminipachai	18	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
5	Senna occidentalis	Nattamsakarai	30	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
6	Plumbago zeylanica	Chittiramoolam	12	3	30	0.10	0.10	1	1.19	3.23	Not assessed
7	Scrophularia nodosa	Sarakkothini	18	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
8	Viburnum dentatum	Viburnum	7	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Cynodondactylon	Arugu	15	6	30	0.40	0.20	2	4.76	6.45	Not assessed
10	Euphorbia hirta	Amman Pacharisi	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
11	Sida cordifolia	Maanikham	50	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
12	Sida acuta	Malaidangi	12	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
13	Laportea canadensis	Peruganchori	28	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
14	Sporobolus fertilis	Giant Parramatta Grass	10	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
15	Tephrosia purpurea	Kavali	23	4	30	0.67	0.13	5	7.94	4.30	Not assessed

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3.7.4 Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef:

Biodiversity index is a quantitative measure that reflects how many different type of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species are equally abundant. Interpretation of Vegetation results in the study area is given below.

Table 3-19 Calculation of species diversity

Description	Formula
Species diversity – Shannon – Wiener Index	$H = \sum [(p_i) * \ln(p_i)]$ Where p_i : Proportion of total sample represented by species i : number of individuals of species i / total number of samples
Evenness	H/H_{max} $H_{max} = \ln(s) =$ maximum diversity possible $S =$ No. of species
Species Richness by Margalef	$RI = S - 1 / \ln N$ Where $S =$ Total Number of species in the community $N =$ Total Number of individuals of all species in the community

3.7.5 Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef for trees

i. Species Diversity

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286
Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799

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Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799
Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052
Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarpheaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381
Woodfordiafruticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001

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Lantana camara	Unnichi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoonda	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) =2.22

Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Helicteresisora	Valampuri	4	0.015385	-4.17439	-0.06422
Tridax procumbens	Vettukaayathalai	7	0.026923	-3.61477	-0.09732
Heraculem spondylium	Hog Weed	19	0.073077	-2.61624	-0.19119
Tridax procumbens	Cuminipachai	18	0.069231	-2.67031	-0.18487
Senna occidentalis	Nattamsakarai	30	0.115385	-2.15948	-0.24917
Plumbago zeylanica	Chittiramoolam	12	0.046154	-3.07577	-0.14196
Scrophularia nodosa	Sarakkothini	18	0.069231	-2.67031	-0.18487
Viburnum dentatum	Viburnum	7	0.026923	-3.61477	-0.09732
Cynodondactylon	Arugu	15	0.057692	-2.85263	-0.16457
Euphorbia hirta	Amman Pacharisi	7	0.026923	-3.61477	-0.09732
Sida cordifolia	Maanikham	50	0.192308	-1.64866	-0.31705
Sida acuta	Malaidangi	12	0.046154	-3.07577	-0.14196
Laportea canadensis	Peruganchori	28	0.107692	-2.22848	-0.23999
Sporobolus fertilis	Giant Parramatta Grass	10	0.038462	-3.2581	-0.12531
Tephrosia purpurea	Kavali	23	0.088462	-2.42519	-0.21454
Total		260			-2.51

H (Shannon Diversity Index) =2.51

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i. Species diversity calculation

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.02	3.36	0.89	5.95
Shrubs	2.22	2.56	0.86	2.32
Herbs	2.51	2.70	0.92	2.51

From the above, it can be interpreted that herb community has higher diversity. While the tree community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher herb species diversity can be interpreted as a greater number of successful species and a more stable ecosystem where more ecological niches are available, environmental change is less likely to be damaging to the ecosystem. Species richness is high for herb community when compared with tree and shrubs.

3.7.6 Floral study in the Buffer Zone:

Economically important Flora of the study area

Agricultural crops: The important crops of this district are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers also grown by the local people.

Medicinal species: The nearby area is also endowed with the several medicinal species which are commonly available in the shrub forest and waste lands. The common medicinal species of the region are Asparagus racemosus (satamulli), Azadirachta indica (Neem) etc.

Rare and endangered floral species: There are no rare or endangered or threatened (RET) species of in the study area. During the vegetation survey, there are no any species which are endangered or threatened under IUCN (International Union for Conservation of Nature and Natural resources) guidelines.

3.7.7 Faunal Communities

Both direct and indirect observation methods were used to survey the fauna.

- Point Survey Method: Observations were made in each site for 15 minutes duration.

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Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.

Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

Additionally, survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

Based on the Wildlife Protection Act, 1972 (WPA 1972, Anonymous. 1991, Upadhyay 1995, Chaturvedi and Chaturvedi 1996) species were short-listed as Schedule II or I and considered herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 15 minutes duration (10 times).

Study in the core zone:

Point Survey method was adopted for the study within 2 km radius and the following species were observed.

Mammals: No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three striped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

Avifauna: Since birds are considered to be the indicators for monitoring and understanding human impacts on ecological systems (Lawton, 1996) attempt was made to gather quantitative data on the avifauna by walk through survey within the entire study area and surrounding areas. From the primary survey, a total of 26 species of avifauna were identified and recorded in the study area. The diversity of avifauna from this region was found to be quite high and encouraging.

The list of fauna species found in the study area is mentioned in Table below.

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Table 3-20 List of fauna species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mongoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern
Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopaceus	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern

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Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.8 DEMOGRAPHY AND SOCIO ECONOMICS

The demography survey study is done within 10km radius from the project site.

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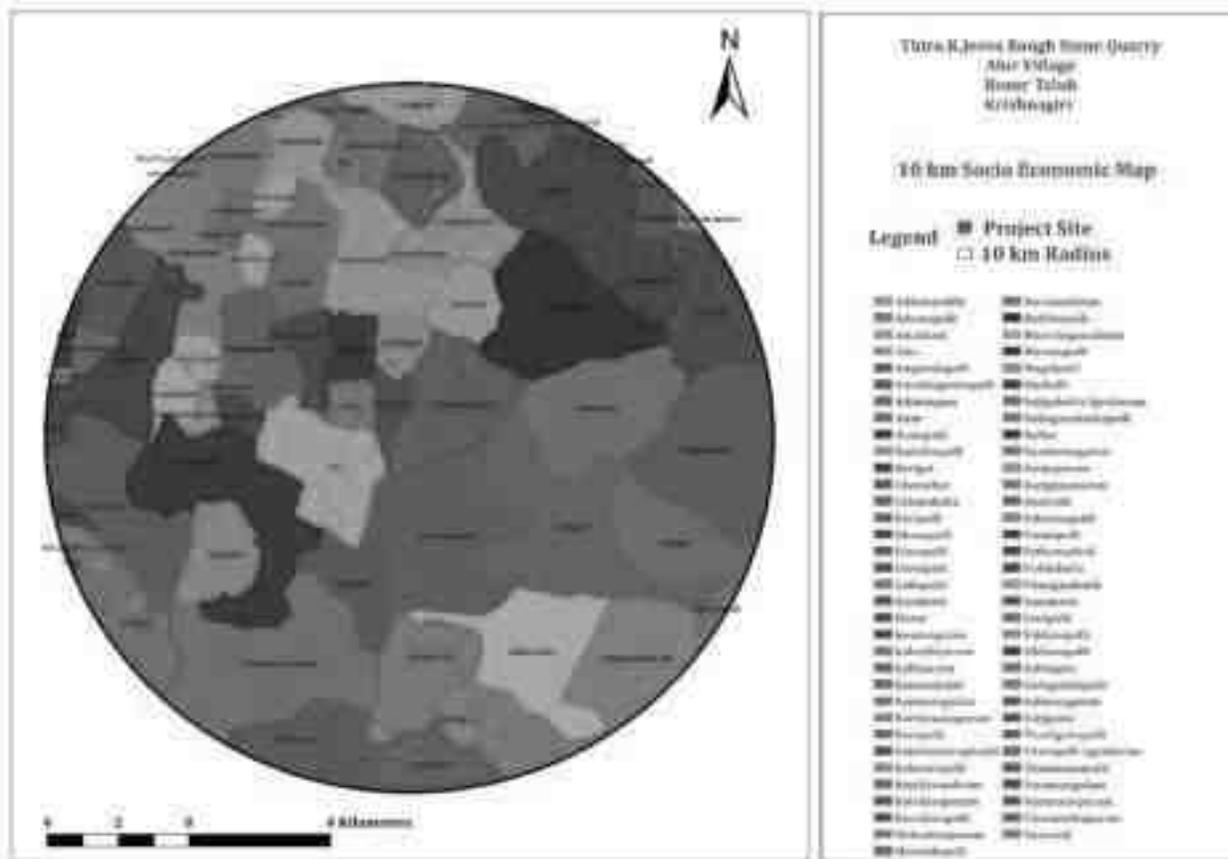


Figure 3.13 Socio Economic map surrounding the project site.

The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

Table 3-21: Demography Survey Study

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Moranapalli	2174	9160	4855	4305	3403	2439	1503	13
Hosur (M)	29255	116821	59351	57470	47353	42240	9438	200
Chenathur	3458	15826	8925	6901	6809	4381	1154	110
Moranapalli	2174	9160	4855	4305	3403	2439	1503	13

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Onalvadi	1607	6656	3411	3245	2475	1968	1360	0
Elucapalli	93	420	210	210	141	96	322	0
Kurubarapalli	339	1571	820	751	437	320	713	0
Venkatesapuram	650	2873	1484	1389	960	695	583	0
Kanimangalam	107	463	232	231	166	135	117	0
Nallur	1319	5327	2739	2588	1952	1501	889	41
Viswanathapuram	439	1818	943	875	741	646	346	0
Subbagiri	158	656	333	323	194	166	0	0
Halekotta	707	2990	1535	1455	1071	760	209	83
Zuzuvadi (CT)	8728	32474	17295	15179	13852	10573	3289	156
Avalapalli (CT)	4478	17859	9135	8724	7262	6498	1838	90
Suligunta	1203	5353	2816	2537	1495	929	72	0
Settipalli	401	1696	879	817	602	381	533	3

3.9 TRAFFIC IMPACT ASSESSMENT

Traffic data collected continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.

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Figure 3.14: Site Connectivity

Table 3-22: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		ODR	-	ODR
1	Cars	223	1	223
2	Buses	147	3	441
3	Trucks	117	3	351
4	Two wheelers	283	0.5	142
5	Three wheelers	145	1.5	218
Total		915	-	1375

Table 3-23: Existing Traffic Scenario and LOS

Road	V (Volume in	C (Capacity in	Existing V/C	LOS
	in	PCU/hr)	Ratio	

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	PCU/hr)			
ODR	2164/24=57	150	0.38	B

Note: The existing level may be "Very Good" for SH17A=237.

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

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4 Anticipated Environmental Impacts & Mitigation Measures

This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modeling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

4.1 INTRODUCTION

An environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. The anticipation of the possible & potential Environmental impact due to the proposed project is a key step in EIA. Based on the impacts assessed, appropriate mitigation measures should be adopted to maintain the environment with less or no damage.

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

Secondary Impacts: These are those which are induced by primary impacts and include the associated investments and changed patterns of the social and economic activities by the action.

Assessment of impacts is done for the following Environmental Parameters:

- Land Environment
- Water Environment
- Air Environment
- Noise Environment
- Biological Environment
- Socio Economic Environment

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4.2 LAND ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Mining of rough stone and Gravel</i>	<p>The proposed 4.50.0 Ha mine located in Alur Village having 1276230 m³ of Rough stone. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 7.0 meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.</p> <p>The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p>	<p>The proposed project site is not prone to any kind of soil erosion (Source: Bhuvan).</p> <p>In addition, garland drainage of 1m x 1m will be provided to avoid storm water run-off.</p> <p>It is proposed to plant 2250 No's of local tree species (Neem, Vilvam Vaagai, Pungam, Magizha maram, Eachai, etc.) along the roads, outer periphery of the mining area which enhances the binding property of the soil.</p> <p>It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.</p> <p>The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.</p>

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	<p>Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.</p>	<p>The proposed mining activity is carried out in hilly terrain.</p> <p>After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance.</p> <p>The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.</p>
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4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited upto 43 m (below ground level), whereas the ground water table is at 60 m below the ground level. The municipal wastewater will be disposed into

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	<p>The ground water depletion may occur due to mining activity</p> <p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p> <p>Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.</p>	<p>septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.</p> <p>The ground water table is at a depth of 60 m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.</p> <p>Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression.</p> <p>Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.</p>
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4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<p><i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i></p>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 10 Nos of Tipper will be used for loading and unloading, 4 Nos of Excavator (0.90 m³ bucket capacity, and 4 Nos Jack Hammer will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust.</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 2250 Nos of local species along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species.</p> <p>Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to ODR Bukkasandiram .</p> <p>Alternatively, gravelled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust.</p>

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	<p><u><i>Effect on Human</i></u></p> <ul style="list-style-type: none"> • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. <p><u><i>Effect on Plants</i></u></p> <ul style="list-style-type: none"> • Stomatal index may be minimized due to dust deposit on leaf. 	<p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p> <p>0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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Air Quality Modeling:

The AERMOD is actually a modeling system with three separate components:

- AERMOD (AERMIC Dispersion Model),
- AERMAP (AERMOD Terrain Preprocessor)
- AERMET (AERMOD Meteorological Preprocessor)

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4.4.1 Source Characterization

A detailed listing of all emission sources and their corresponding modelling input release parameters and emission rates is listed in this report. A general description of how each source type was treated is presented below.

The emission Sources from the proposed operation are

Point Sources:

Point sources for mining operations typically include dust collectors, hot water heaters, and emergency generator(s). Since at the present project the following sources are anticipated.

1. Hydraulic excavator – 0.90 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

Road Sources:

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of March to May 2023 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled as volume sources. The model volume source parameter for the haul roads initially utilized USEPA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3 m were used as an input to replicated a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following,

- size of haul trucks commonly used
- degree of dust control/compaction of permanent haul roads

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Other fugitive particulate emission sources:

Other fugitive particulate emission sources that were modelled as volume sources include the following:

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If an wind erosion is anticipated to occur, it would be localized.
- Fugitive emissions from transfer points were represented by single volume sources. The release heights for these sources were set to the actual height of the truck transfer process.

Post Project Scenario

Emissions from operations will result from process equipment and mining operations. Process equipment was modeled at maximum capacity. Emissions from mining were based upon the mining rate and haul truck travel necessary to transport the stones and waste from the pit to the storage area.

Predicted maximum ground level concentrations considering micro meteorological data of March to May 2023 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

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Table 4-1 Emission Factors for uncontrolled mining

Activity	Emission Factor		References	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	USEPA (2008)	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.
	Bulldozing	15.048 kg PM10/ Hr excavation	USEPA (2008)	
	Loading	2.3237E-04 kg PM10/ average time between spray application	USEPA (2006a)	
	Haulage	0.69718 kg PM10/VKT	USEPA (2006a) Cowherd (1988)	
Rough stone mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	EPA. August, 2004. Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.	
	Loading	1.00E-4 lbs PM10/ Ton produce		

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4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise.</p> <p>Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.</p> <p>Number of vehicles will be increased due to the proposed mining activity hence vehicle may collide which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.</p>	<ul style="list-style-type: none"> • The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p> <ul style="list-style-type: none"> • It is proposed to plant 2250 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the

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		<p>impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise.</p> <ul style="list-style-type: none"> • The trucks will be diverted on two roads viz. SH 17A and a District Road to avoid traffic congestion. • Health check-up camps will be organized once in six month. • Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.
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4.6 BIOLOGICAL ENVIRONMENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.

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Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.60.0 Ha of land is utilized for greenbelt development (2250 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
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4.7 SOCIO ECONOMIC ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a Government poromboke land of Thiru.K.Jeeva and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Attur village which is 1.3 km, N from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.

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Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e, 5 Lakhs will be allocated. Developing sports facilities, providing hygienic toilet, R.O Water facilities to Panchayat Union Middle School, Alur.

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4.8 **OTHER IMPACTS:**

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 5 P.M to 6 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site.
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labors will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

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5 Analysis Of Alternatives

5.1 GENERAL

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan Mining Plan was approved by The Assistant Director , Geology & Mining, Krishnagiri District prior to submission of the Form-1 and PFR. ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/ F. No. 9870/ ToR-1449/2023 Dated: 09.05.2023. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 *Analysis for Alternative Sites and Mining Technology*

5.1.1.1 **Alternative Site**

The proposed project is the mining of Rough Stone Quarry and is proposed after prospecting the area. In other words, these can be implemented in the mineral available zone. Since the mining block has been allotted in principal by the State Government, there is no case for studying and exploring any other site as an alternative.

5.1.1.2 **Alternative Technology**

The open cast mining could be manual/mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production.

Table 5-1: Alternative for Technology and other Parameters

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks

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1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Goolisandram village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Attur village which is 0.3 km, N from site.

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6 Environmental Monitoring Program

6.1 GENERAL:

This chapter covers the planned environmental monitoring program. It also includes the technical aspects of monitoring the effectiveness of mitigation measures.

Monitoring is important to measure the efficiency of control measures. Post project monitoring of environmental parameters is of key importance to assess the status of environment. The monitoring program will serve as an indicator for identifying environmental degradation due to operation of the project and help in selection of appropriate mitigation measures to safeguard the environment.

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent has awarded **M/s. Ecotech Labs Pvt Ltd** for carrying out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

Table 6-1: Environmental Monitoring Programme

Parameters	Sampling	Frequency	Location
Air environment – Pollutants PM 10 PM 2.5 SO ₂	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season	Project site Government higher secondary school, Bukkasagaram Anganwadi centre Pup School Palavanapalli

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NO _x		8 hourly, twice a week 24 hourly, twice a week	Varadharaja Swamyy temple Sri Kalabhairaveshwara Temple Venkraft Paper mills
Noise	5 locations	24 hourly Once in 5 locations	Project site Government higher secondary school, Bukkasagaram Anganwadi centre Pup School Palavanapalli Varadharaja Swamyy temple Sri Kalabhairaveshwara Temple Venkraft Paper mills
Water (Ground water) <ul style="list-style-type: none"> • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms 	5 locations	Once in 5 locations	Project site Government higher secondary school, Bukkasagaram Anganwadi centre Pup School Palavanapalli Varadharaja Swamyy temple Sri Kalabhairaveshwara Temple Venkraft Paper mills

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Water (surface water) <ul style="list-style-type: none"> • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms 	Sample from nearby lakes/river	One time Sampling	Bukkasigam Lake
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	Project site Government higher secondary school, Bukkasagaram Anganwadi centre Pup School Palavanapalli Varadharaja Swamy temple Sri Kalabhairaveshwara Temple Venkraft Paper mills
Ecology and biodiversity Study	Study area covering 5 km radius	One time Sampling	

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Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 5 km radius	One time Sampling	
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Table 6-2: Monitoring Schedule during Mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO ₂ NO _x	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site
5.	Noise Level Monitoring	Noise level in dB(A) Quarterly/half yearly	Half yearly	Project Site

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7 Additional Studies

7.1 GENERAL

This chapter covers the details of the additional studies viz. Risk assessment, Disaster Management, Public Hearing, Rehabilitation and Resettlement.

7.1.1 Public Hearing:

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes **Existing Quarries-** Tvl.Chennai Mines-2.02.5 Ha, Tmt.B.G.Manjula-3.03.5 Ha **Abandoned /Old Quarries** – Tvl.Chennai Mines-3.46.5 Ha, Prasannakumar -4.21.5 Ha, Thiru.M.Durai-0.81.0 Ha **Proposed Quarries** – Thiru.K.Jeeva -4.50.0 Ha

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar District. The proceedings of the same will be incorporated in the Final EIA Report.

7.1.2 Risk assessment:

For mining projects to be successful, it should meet not only the production requirements, but also maintain the highest safety standards for all the workers. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level regularly. Mining has considerable safety risk to miners. Unsafe conditions and practices in mines lead to a number of accidents and causes loss and injury to human lives, damages the property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

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7.1.3 Identification of Hazard

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

1	Diameter of the hole	32-36 mm
2	Spacing	60 Cms
3	Depth	1 to 1.5 m
4	Charge / Hole	D.Cord with water or 70gms of gun powder or Gelatine.
5	Pattern of hole	Zig Zag
6	Inclination of hole	70 ⁰ from the horizontal.
7	Quantity of rock broken	0.45 MT x 2.6 = 1.17 MT
8	Quantity of rock broken per day	362.8m ³
9	Control Blasting efficiency @90%	1.17 x 90% = 1.05MT / hole
10	Charge per hole	140 gms of 25mm dia cartridge

a. Types of explosives to be used:

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or Primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

b. Measures proposed to minimize ground vibration due to Blasting:

The quarry is situated more than 1.0 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive

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mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes = 30-32mm
Depth = 1.2 to 1.5 m

Storage and safety measures to be taken while blasting: The proponent will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager.

Heavy Machineries: The following heavy machineries will be used in the proposed area:

- For Mining – Excavator of 0.90 Cum Bucket capacity , Jack Hammers (30-32 mm Dia) of 4 Nos.
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity
- Transportation (includes within the mine and mine to destination) – Tipper 10 No of 10 M.T capacity (from quarry to needy peoples and local crushers)

a. Risk:

Most of the accidents during transport of mined out mineral using other heavy vehicles are often attributed to mechanical failures and human errors.

b. Mitigation measures to minimize the risk

- At the time of loading no person will be allowed within the swing radius of the excavation.
- The dumpers/ trucks will stand near the loading equipment and fully braked when the muck is filled in it.
- The truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with helmets, gloves and safety boots; loading and unloading operations will be carried out only during daylight
- All the mining machineries will be regularly maintained and checked such as brakes, lights and horns to keep in the efficient working order.

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7.1.4 General Precautionary measures for the Risk involved in the proposed mine:

- In order to take care of above hazard/disaster, the following control measures will be adopted:
- All safety precautions and provisions of Mine Act,1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety officer in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952;
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, “No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in”. The workers will be provided with protective foot wear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled labors only;
- Regular maintenance and testing of all mining equipment as per manufacturer’s guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.5 Safety Team:

The effective implementation of compliance of Safety Rules/ Statutory Provisions will be ensured. The safety officer will be engaged, meeting the requirement of Mines Act and their duties and responsibilities. The safety officer will be responsible for identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor labors periodically.

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7.1.6 *Emergency Control Centre*

The emergency control center will be provided to handle the emergency. The site main controller, key personnel and the senior officers of the fire and police services will attend it. The center will be equipped to receive and transmit information and directions from and to the incident controller and other areas of the works, as well as outside. The emergency control center will be sited in an area of minimum risk. This common Emergency control centre will be used for the mines around the 500m radius

7.2 **DISASTER MANAGEMENT**

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

7.2.1 *Emergency Management Plan For Proposed Mines On Site- Offsite Emergency Preparedness Plan:*

The emergency plan delineates the procedures for dealing with accidents or unexpected events and natural calamities arising from mining activity. An experience of any accidents that have occurred in other manufacturing/mining projects is considered to prepare this plan. This Emergency plan should be periodically reviewed and modified. It should also be changed based on the observations of emergency mock drills and experience of handling actual emergencies.

Major objectives of this onsite – offsite emergency plan are:

- To take necessary proactive and preventive actions to avoid the emergency.

The main aim of any emergency plan should be to prevent emergency situations.

To train the manpower to handle the emergencies of the following nature:

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- Onsite (Within ML boundary)
- Offsite (Outside ML boundary)

7.2.1 Onsite off-site emergency Plan:

1- Emergency on account of:

- Fire
- Explosion
- Major accidents involving man-made collapse of the mining edges.
- Snake bites, attack by honey bees or attack by wild animals.

2- Disaster due to natural calamities like:

- Flood/ heavy rains which can involve natural landslides.
- Earth quake
- Cyclone
- Lightening

7.2.2 Emergency Plan:

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.
- An emergency assembly point will be created and all the workers will guide visitors or contractors to approach assembly point.
- Emergency vehicle (Ambulance) will be available in the nearby place, in proximity to the three mines and will rush to the emergency control centre at the blowing of emergency siren. The driver of emergency vehicle will follow the instructions of Incident Controller/Site Main Controller.
- Workers will be trained for the precautions to be taken during natural disasters like heavy rain, floods, earthquake and cyclone.
- All escape routes from mines to the assembly point or any other safe location will be made and the escape plan will be displayed in many places in the mine area

7.2.3 Emergency Control:

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.

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- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

7.3 NATURAL RESOURCE CONSERVATION

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 5 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearest water bodies.

7.4 RESETTLEMENT AND REHABILITATION:

The proposed Mine lease area is a patta land. There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable.

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8 Project Benefits

8.1 GENERAL

This chapter covers the benefits accruing to the locality, neighborhood, region and nation as a whole. It brings out the details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

8.1.1 *Physical Benefits*

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

Market: Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Rough stone) will sold in the market in the affordable price.

Infrastructure: The excavated rough stone will be used for *Laying Roads, Building & Construction Projects, Bridges.*

Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 650 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 SOCIAL BENEFITS

The mining in the area will create rural employment. During site visit, it has been observed that the economic conditions of the villages in the study area is quite normal. After the development of the proposed mine, it will improve the livelihood of local people and also provide the indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, i.e., 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programmes are as follows:

Construction of Infrastructure, additional class room, Environmental books for library (in Tamil language), Greenbelt facilities and basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture to Panchayat Union Middle School, Alur.

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8.3 PROJECT COST / INVESTMENT DETAILS

Fixed cost	Rs.4,86,80,000/-
Operational cost	Rs.30,00,000/-
Total	Rs.5,16,80,000/-

EMP

EMP cost	Rs.2,58,90,385/-
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EMP BREAKUP DETAILS

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	45000	45000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	10000 0	25000
	Air Quality will be regularly monitored as per norms within ML area & nearby Reserve forest with necessary permission	Yearly Compliance as per CPCB norms	0	40000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	0
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000

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	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	5000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	90000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	40000	10000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Ambient Noise will be regularly monitored as per norms within ML area & near Reserve forest with necessary permission	Yearly Compliance as per CPCB norms	0	20000
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0

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	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	1146640
Water Environment	Water management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	45000	5000
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	1000	5000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	7000	1000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	72000	18000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	9000
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	500000	10000

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	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	22500 0	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	2000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	300000
Green Belt Development	Green belt development - 500 trees per one hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	18000 0	27000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	40500 0	40500
			17170 00	185364 0

Total EMP Cost: Rs. 2,58,90,385/- (Two crore fifty eight lakhs ninety thousand and three hundred and eighty five only)

Total EMP Cost= 2,58,90,385= 259 (Lakhs)

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9 Environmental Management Plan

9.1 INTRODUCTION

This chapter comprehensively presents the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, during various Mining activities and provisions made towards the same in the cost estimates of project. This chapter describes the proposed monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

9.2 SUBSIDENCE

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Krishnagiri. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be 7m. The individual bench slope has been proposed to be kept at 60° from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 MINE DRAINAGE

9.3.1 *Storm water Management*

The following measures will be taken with respect to the prevailing site conditions.

- Storm water drains with silt traps of size 1m x 1m will be suitably constructed all along the periphery of the pit area to collect the run-off from the mine area and divert into the pit.
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area.
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,

9.3.2 *Drainage*

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic

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waste will be deposited into the nearby area. Regular checking will be carried out to find any blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

9.3.3 Administrative and Technical Setup

The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during mining operation to minimize adverse environmental impacts resulting from the activities of the project.

To carry out the above activities, Thiru K.Jeeva will work in association with M/s. Ecotech Labs Pvt Ltd.

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Table 9-1: Impacts and mitigation measures

S. No	Impacts on Environment	Activity / Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water runoff.
5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site

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				<ul style="list-style-type: none"> ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots ✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	<ul style="list-style-type: none"> • Use of locally available construction materials.

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10 Summary & Conclusion

This chapter summarizes the overall justification for implementation of the project and explains how the potential impacts are mitigated.

10.1 INTRODUCTION

Thiru S.Raghu site is a cluster of four mining project. The individual mine lease area is 4.50.0 Ha of Rough Stone Quarry located at S.F.Nos. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District.

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Thiru. K.Jeeva Rough Stone Quarry
2	Proponent	Thiru.K.Jeeva
3	Mining Lease Area Extent	4.50.0 Ha
4	Location	209(Part)
5	Latitude	12° 44' 05.64" N to 12° 44' 03.03" N
6	Longitude	77° 55' 03.65" E to 77° 54' 51.35" E
7	Topography	Hilly terrain
8	Site Elevation above MSL	847 m from MSL
9	Topo sheet No.	57-H/14 of Survey of India
10	Minerals of Mine	Rough Stone Quarry
11	Proposed production of Mine	Proposed Capacity of reserves – Rough stone :1276230 m ³
12	Ultimate depth of Mining	43 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	18Nos.

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17	Mining Plan Approval	Mining Plan was approved by The Assistant Director, Department of Geology and Mining, Krishnagiri District vide letter Rc.No.216/2019/Mines dated 09.03.2021.
18	Production details	Proposed Capacity of reserves – Rough stone :1276230 m ³
19	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
20	Disposal of overburden	Top soil formation will be removed and transported to the needy end user only after obtaining permission and paying necessary seigniorage fees to the Government.
21	Ground water	The ground water table is reported as 60m BGL in nearby open wells and bore wells of this area. Mining depth taken as 43m . Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
22	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
23	Drinking water	Water will be supplied through tankers from Attur village which is 1.3 Km N of the area

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10.3 JUSTIFICATION OF THE PROPOSED PROJECT

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Krishnagiri District is covered with wide range of metamorphic rocks of peninsular gnessic complex. These rock formations occur as massive hillocks all over the district in government lands and patta lands, and extensively weathered formations are overlain by soil / alluvium deposits with an average thickness of 1 to 5mts. Rough stone deposits suitable for the production of Jelly, Cut stones and Pillar Stones are available throughout the Krishnagiri District. Rough stones are widely used in this district as building stones, boulders, cut stones and for the production of Jelly, M.Sand, Crusher Dust. The rock products which are produced not only used in the Krishnagiri District alone but also transported to the neighboring districts. These products enter into the market in different parts of the country.

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

S. No.	Potential Impact	Mitigation Measure
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.

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	emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.

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4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

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11 Disclosure of Consultant

11.1 INTRODUCTION

This chapter presents the details of the environmental consultants engaged, their background and the brief description of the key personnel involved in the project. Specific studies on the mining project have been carried out by engaging engineers/experts of Ecotech Labs Pvt. Ltd, Chennai. Ecotech Labs Pvt. Ltd (ETL), Chennai is NABET accredited consultancy organization. ETL is equipped with in-house, spacious laboratory, accredited by NABL (National Accreditation Board for Testing & Calibration Laboratories), Department of Science & Technology, Government of India and MoEF & CC.

11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT

Eco Tech Labs Pvt. Ltd is a multi-disciplinary testing and research laboratory in India. Eco Tech labs provides high quality services in environmental consultancy, engineering solution, chemical and microbiological laboratory analysis of food, water and environment (Air, Water, Soil) with highest accuracy.

The Quality policy

- We at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements & expectations, applicable legal requirements & stakeholders expectations.
- We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services
- We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.
- We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.
- Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

ANNEXURE-I
STANDARD TOR CONDITIONS WITH
ADDITIONAL TOR POINTS



**THIRU. DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY**

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**

3rd Floor, Panagal Maaligai,
No. 1, Jeensis Road, Saidapet,
Chennai - 600 015

Phone No. 044-24359973

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TERMS OF REFERENCE (ToR)

Lr No. SEIAA-TN/F.No.9870/SEAC/ToR-1449/2023 Dated: 09.05.2023

To

Thiru. K. Jeeva,
S/o. K.R. Karulasami,
D.No.20/1, Viveks Apartment,
1st Main Road, 1st Block,
Anna Nagar East,
Chennai - 600 102.

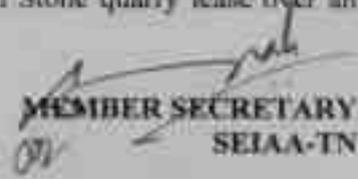
Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 4.50.0 Ha at S.F.No. 209(PART) of Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu by Thiru. K. Jeeva - under project category – “B1” and Schedule S.No.1(a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No. SIA/TN/MIN/416736/2023, dated 20.02.2023
 2. Your application submitted for Terms of Reference dated: 03.03.2023
 3. Minutes of the 368th SEAC meeting held on 19.04.2023
 4. Minutes of the 615th SEIAA meeting held on 08.05.2023 & 09.05.2023

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, Thiru. K. Jeeva has submitted application for Terms of Reference (ToR) on 03.03.2023, in Form-I, Pre- Feasibility report for the Proposed Rough Stone quarry lease over an


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extent of 4.50.0 Ha at S.F.No. 209(PART) of Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough stone quarry lease over an extent of 4.50.0 Ha in S.F.No. 209(PART), Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu by Thiru. K. Jeeva – For Terms of Reference

The proposal was earlier placed in 368th meeting of SEAC held on 19.04.2023. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.K.Jeeva has applied seeking Terms of Reference for proposed Rough stone quarry lease over an Extent of 4.50.0 Ha in SF.No. 209(PART), Alur village, Hosur Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under category "B1" of Item 1 (a) "Mining of Minerals Projects" of the schedule to the EIA Notification,2006, as amended.
3. As per the precise area communication the lease period is for 10 years. The mining plan is for 5years. The production for 5 years shall not to exceed 1276230 m³ of Rough Stone & 45712 m³ of Top soil with the ultimate depth of 43m BGL.

Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (TOR) with Public Hearing** subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

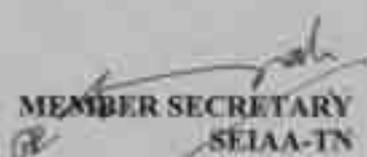
1. The PP shall include the mitigation measures for the RF located in the vicinity of the project site, in the EIA report.
2. The PP shall submit photographs of fencing, greenbelt and garland drain.
3. AD mines letter for the existing pit with details of earlier lease period and pit dimension.
4. The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.
5. The Proponent shall furnish photographs of greenbelt, fencing and garland drain around the boundary of the proposed quarry.
6. The proponent shall furnish a revised EMP budget for entire life of proposed mining.


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7. The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctly in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).
8. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease during the time of appraisal for obtaining the EC.
9. The Proponent shall submit a conceptual 'Slope Stability Plan' indicating the mitigating measures for the proposed quarry during the appraisal while obtaining the EC, as the depth of the proposed quarry working is extended beyond 30 m below ground level.
10. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
11. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
12. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
13. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD mines,
 - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.


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- h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
14. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 15. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
 16. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the prosed quarry based on the volume of rock handled & area of excavation.
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried


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- out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land-use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 28. Impact on local transport infrastructure due to the Project should be indicated.
 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 31. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.


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32. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
33. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
34. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
35. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
36. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
37. A Disaster Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
38. A Risk Assessment and Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
39. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
40. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
41. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community


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- proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
42. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 43. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 44. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
 45. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
 46. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* - Vilvam
2. *Adenanthera pavonina* - Manjadi
3. *Albizia lebbek* - Vangai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* - Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Patai
10. *Butea monosperma* - Murukka marani
11. *Bobax ceiba* - Ilavu, Sevilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sazkundrai
14. *Cassia raxburghii* - Sengondrai
15. *Chloroxylon sweitenia* - Putasa marani


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16. *Cochlospermum religiosum* – Kongu, Marjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odham
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* – Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsipium* - Vengai
45. *Pterospermum canescens* – Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Pathranjiva roxburghii* – Pathranjivi


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48. *Salvadora persica* – Uguu Marum
49. *Sapindus emarginatus* - Manipungan, Soapa kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* – Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliata* – Sandhana vembu
58. *Thespesia populnea* - Puvurasu
59. *Walsuratrifoliata* – valsura
60. *Wrightia tinctoria* – Veppalai
61. *Pithecellobium dulce* – Kodukkapuli

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 615th Authority meeting held on 08.05.2023 & 09.05.2023. The authority noted that this proposal was placed for appraisal in 368th SEAC meeting held on 19.04.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minutes.

1. The project proponent shall prepare mine closure plan considering mineable quantity of Topsoil, Weathered rock & mineral reject/waste. If any.
2. Copy of valid mining lease approval obtained from the competent Authority.
3. Copy of approved review of scheme of mining plan by the competent authority (Dept. of Geology and Mining / IBM).
4. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
5. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.


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6. A letter from local Director, Agriculture Department stating that the area is not suitable for Agriculture.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following


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- a) Soil health & soil biological, physical and chemical features .
- b) Climate change leading to Droughts, Floods etc.
- c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
- d) Possibilities of water contamination and impact on aquatic ecosystem health.
- e) Agriculture, Forestry & Traditional practices.
- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and, if so, transplantation of such vegetations all along the boundary of the proposed mining area shall be committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.


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Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.


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Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unforeward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production


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achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.

- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the FC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine /


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- lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 - 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
 - 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
 - 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
 - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area (core zone and buffer zone (10 km radius of the


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- periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
 - 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
 - 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified


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keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form


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(indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed


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Project.

- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report.
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.


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- i) As per the circular no. J-11011/818/2010-IA, II (3) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.


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14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt/ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through institutions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC-2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.


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Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J-11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 26th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SELAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

- I. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.

2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Krishnagiri District.
7. Stock File.



TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F. No. 9870/SEAC/ToR-1499/2023 Dated: 09.05.2023 for Mining of Minor Minerals in the Mine of “Rough stone Quarry” Lease Over an Extent of 4.50.0 Ha at S.F.No. 209 (Part) of Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State.

STANDARD TERMS OF REFERENCE

ToR Ref.	Description	Response	Page Ref. in EIA Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	<p>This is a fresh mining project of Proposed Rough stone quarry</p> <p>Precise Area Communication Letter received from The District Collectorate, Department of Geology and Mining, Krishnagiri District vide letter Na. Ka. En. 216/2019/Kanimam dated 13.06.2019</p> <p>Mining Plan was approved by The Deputy Director, Geology & Mining, Krishnagiri vide Rc.No.216/2019/Mines dated :09.03.2021</p> <p>Proposed Production of Rough Stone for five years is proposed in the EIA/EMP in chapter no-2.</p>	<p>Chapter-2</p> <p>Table No.2.2</p> <p>Page No.44</p>

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 4.50.0 hectare in Alur Village for Rough stone quarry approved by The District Collector, Krishnagiri District vide letter Na.Ka.En. 216/2019/Kanimam dated 13.06.2019	Annexure III
3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	All the documents i.e., Mining Plan, EIA and public hearing are compatible with each other in terms of ML area production levels, waste generation and its management and mining technology are compatible with one another. The mining plan of the project site has been submitted to The Deputy Director, Dept. of Geology & Mining, Krishnagiri District	Annexure-VI Chapter- II
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.2 Page. no. 47
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.4 Page. no. 49

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	bodies, streams and rivers and soil characteristics		
6.	Details about the land proposed for mining activities should be given with information as to whether conforms to the land use policy of the state; land diversion for mining should have approval from State land use board or the concerned authority	Details about the land proposed for mining activities should be given Chapter 2.	Chapter-2 Page 52
7	<p>It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions?</p> <p>The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of</p>	Noted.	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.		
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in chapter 2	Chapter-2, Page no.62
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.	Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2 Fig no. 2.5 Page no.50
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies, human settlements and other ecological features has been prepared and incorporated in Chapter-2 of EIA/ EMP Report. There is no wildlife sanctuary and	Chapter-2, Table no. 2.4 Page no.52

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	phases and submitted. Impact, if any, of change of land use should be given.	national park, migratory routes of fauna in the study area.	
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	Earth formation will be removed and transported to the needy end user, only after obtaining permission and paying necessary seigniorage fees to the Government.	Chapter-2, Page no.61
12	<p>A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area.</p> <p>In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.</p>	<p>Complied.</p> <p>The proposed mining lease area is not falling under forest land.</p>	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	The proposed mining lease area is not falling under forest land.	
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. There is no involvement of forest land in the project area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Details of flora have been discussed in Chapter-3 of the EIA/EMP Report.	Chapter-3 Pg No. 104
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease. No significant impact is anticipated	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

17	<p>Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/ (existing as well as proposed), if any, within 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.</p>	<p>There are two reserve forest located at a distance of 5.70 kms, SSW and 4.08 kms, S from the project site.</p>	<p>Executive Summary</p> <p>Page No: 12</p>
18	<p>A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be</p>	<p>Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>No flora & fauna listed in scheduled I have been found in study area so there is no need of conservation plan. However, all care will be taken for protection of flora & fauna, if any in the lease hold area.</p>	<p>Chapter – 3</p> <p>Pg No. 104</p>

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	<p>prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>		
19	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	<p>The proposed mining lease area is not falling under critically polluted area.</p>	
20	<p>Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would</p>	<p>There is no Coastal Zone within 15km radius of the project site.</p>	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	<p>also need to obtain approval of the concerned Coastal Zone Management Authority)</p>		
<p>21</p>	<p>R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.</p>	<p>There is no Rehabilitation and resettlement is involved. Land classified as Patta land</p>	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

22	<p>One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality CPCB Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report.</p> <p>Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre- dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>	<p>Baseline data collected during Summer Season (March to May 2023) has been incorporated in EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter-3 Locations of the monitoring stations have been selected keeping in view the pre- dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p>	Chapter 3
23	<p>Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of</p>	<p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report</p> <p>Transportation of mineral during</p>	<p>Chapter-4</p> <p>Page No.124</p>

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	<p>movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided.</p> <p>The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.</p>	<p>operation of mines will be done by road & ODR Bukkasandiram through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report.</p> <p>Air quality modelling & Impact of Air quality will be furnished in Final EIA report</p>	
24	<p>The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.</p>	<p>Total water requirement: 1.5 KLD Dust Suppression: 0.5 KLD Domestic Purpose: 0.5 KLD Plantation :0.5 KLD Domestic Water will be sourced from nearby village Attur which is about 1.3 Km-N of the area.</p>	<p>Chapter-2 Page no.64</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not Applicable Water will be taken from nearby villages</p>	
26	<p>Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be</p>	<p>At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir.</p>	

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	provided.		
27	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality & its mitigation measures has been incorporated in Chapter-4 of EIA/EMP report.	Chapter-4 Page No.120
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Maximum working depth: 43 m (1 m Topsoil + 42 m BGL) The ground water table is reported as 60 m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2 Page no. 44 Table No. 2.2
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no any stream crossing in the proposed quarry	Executive Summary
30	Information on site elevation, working depth, groundwater table etc. Should be	Highest elevation: 847 m from MSL Depth: 43 m (1 m Top soil + 42 m Below Ground Level)	Chapter-2 Table no. 2.2 Page no. 44

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	provided both in AMSL and bgl. A schematic diagram may also be provided for the same.		
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant pollution	Green Belt Development plan is proved given in Chapter 2.	Chapter-2
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-3 Page No.117

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	<p>out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines</p>		
33	<p>Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.</p>	<p>Adequate infrastructure & other facilities shall be provided to the mine workers. Details are given in chapter-2 of EIA/EMP</p>	Chapter-2
34	<p>Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.</p>	<p>Conceptual post mining land use and Reclamation and restoration sectional plates are given in Mining Plan followed by Scheme of mining.</p>	Mining plates Annexure VI
35	<p>Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project in the mining area may be detailed</p>	<p>Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-10 of EIA/EMP.</p>	Chapter-10 Pg No. 161

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36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-10 Pg No. 161
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Suitable measures has been discussed in Chapter 4	Chapter-4 Pg No. 131
38	Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environment Management Plan has been described in detail in Chapter-9 of the EIA/EMP Report.	Chapter-9 Pg No. 154
39	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and incorporated in the final EIA/EMP Report of the	Public Hearing proceedings will be furnished in Final EIA report	

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	Project.																	
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	Not applicable No. litigation is pending against the project in any court.																
41	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	<table border="1"> <thead> <tr> <th>S. No</th> <th>Description</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Fixed Asset Cost</td> <td>4,86,80,000 /-</td> </tr> <tr> <td>2</td> <td>Operational Cost</td> <td>30,00,000 /-</td> </tr> <tr> <td>3</td> <td>EMP Cost (10 Years)</td> <td>2,58,90,385 /-</td> </tr> <tr> <td></td> <td>Total</td> <td>7,75,70,385 /-</td> </tr> </tbody> </table>	S. No	Description	Cost	1	Fixed Asset Cost	4,86,80,000 /-	2	Operational Cost	30,00,000 /-	3	EMP Cost (10 Years)	2,58,90,385 /-		Total	7,75,70,385 /-	Chapter-8 Pg No. 149
S. No	Description	Cost																
1	Fixed Asset Cost	4,86,80,000 /-																
2	Operational Cost	30,00,000 /-																
3	EMP Cost (10 Years)	2,58,90,385 /-																
	Total	7,75,70,385 /-																
42	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.	Disaster Management and Risk Assessment has been incorporated in Chapter-7	Chapter-7 Pg No. 145															
43	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic, employment potential etc.	Benefits of the project has incorporated	Chapter-8 Pg No. 148															
44	Besides the above, the below mentioned general points are also to be followed:																	
(a)	Executive Summary of the EIA/EMP report	Complied	Executive Summary of															

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			EIA Report is given from page No.10-25
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied	
(c)	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied	
(d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	Complied	
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied	
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been prepared	
(g)	While preparing the EIA report, the instructions for the	The EIA report has been prepared and complying with the	

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	<p>proponents and instructions for the consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August 2009, which are available on the website of this Ministry, should also be followed.</p>	<p>circular issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August 2009.</p>	
(h)	<p>Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation</p>	<p>There are no changes in prepared EIA as per submitted Form-1 & PFR</p>	
(i)	<p>As per the circular no. J-11011/618/2010-IA. II(I) dated 30.5.2012, report on the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if</p>	<p>Will be complied after grant environment clearance from SEIAA, Tamilnadu</p>	

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	applicable.		
(j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.	All Sectional Plates of Quarry is enclosed in Mining Plan.	

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Additional ToR Compliance - SEAC

S.No.	Condition	Compliance
1.	The PP shall include the mitigation measures for the RF located in the vicinity of the project site, in the EIA report.	Noted Agreed to comply.
2.	The proponent shall furnish the photographs of fencing, green belt and garland drain	Complied. The photographs of fencing and green belt attached as per SEAC recommendation.
3.	AD mines letter for the existing pit with details of earlier lease period and pit dimension.	Complied. AD mines letter is attached.
4.	The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.	Noted. Agreed to comply.
5.	The Proponent shall furnish photographs of greenbelt, fencing and garland drain around the boundary of the proposed quarry.	The Proponent will furnish photographs of greenbelt, fencing and garland drain around the boundary of the proposed quarry.
6.	The proponent shall furnish a revised EMP budget for entire life of proposed mining.	The proponent will furnish a revised EMP budget for entire life of proposed mining.

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	The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctly in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).	
7.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease during the time of appraisal for obtaining the EC.	Noted. Agree to comply.
8.	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30m below ground level.	Noted. Agree to comply.
9.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	Noted. Agree to comply.
10.	The EIA Coordinator shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and Photographic evidence.	Complied. The photographs are attached in EIA report.

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11.	<p>If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,</p> <ol style="list-style-type: none"> a. What was the period of the operation and stoppage of the earlier mines with the last work permit issued by the AD/DD mines? b. Quantity of minerals mines out. c. Highest production achieved in any one year. d. Details of approved depth of mining. e. Actual depth of the mining achieved earlier. f. Name of the person already mined in that leases area. g. If EC and CTO already obtained, the copy of the same shall be submitted. h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 	<p>It is a fresh quarry (Government Poramboke Land) Agreed to comply</p>
12.	<p>All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological feature of the study area (core and buffer zone)</p>	<p>Complied. All corners with coordinates of the mine lease area has attached with EIA report in chapter 2</p>
13.	<p>The Project Proponent shall carry out Drone video survey covering survey covering the cluster, green belt, fencing etc.,</p>	<p>Drone video survey will be submitted in final EIA report.</p>
14.	<p>The PP shall furnish the revised manpower</p>	<p>Complied.</p>

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	including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.	
15	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted. Agreed to comply
16.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	The details of Geological reserves, Mineable reserves and Yearwise production reserves are tabulated in Chapter 2. The mining methodology and impacts are follow as on prescribed norms by Government.
17	The PP shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Complied. Manpower requirements table attached in EIA report chapter 2
18	The PP shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface Water bodies such as rivers, tanks, canals, ponds etc., within 1km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from	Hydro geological study report will be submitted along final EIA report.

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	the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	
19.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The proponent has furnished the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study details attached in EIA report chapter 3
20.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Noted. Agree to comply.
21	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted. Agree to comply.
22	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the	Current land use of the study area has attached in EIA report chapter 3. Operational and post operational land use will be submitted.

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	mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given	
23.	Details of the land for storage of Overburden/Waste dump (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	There is no overburden formed.
24.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered	Noted
25	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
26	Impact on local transport infrastructure due to the Project should be indicated.	Traffic impact assessment has given in EIA report chapter 3.
27	A tree survey study shall be carried out (nos., name of the species, diameter, etc.,) both within the mining lease applied area & 300m buffer zone and	No tree species were found inside the project site. only few shrubs and thorny bushes were present. Tree

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	its management during mining activity.	survey study details given in EIA report chapter 3.
28	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Noted. The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Krishhnagiri District
29.	Public hearing points raised and commitments of the PP on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.	Noted and will be complied in Final EIA report.
30.	The Public hearing advertisement shall be published in on major National daily and one most circulated vernacular daily	Noted. Agree to comply.
31	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing Tamil Language also.	Noted
32.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted. Agree to comply
33	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated,	Noted. Agree to comply

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	<p>in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.</p>	
34	<p>Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/ botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meter wide and in between blocks in an organized manner.</p>	<p>The green belt plan enclosed with mining plates in Annexure VI</p>
35	<p>A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.</p>	<p>Disaster management plan has prepared and enclosed in Chapter 7.</p>
36	<p>A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.</p>	<p>Risk assessment and management plan has prepared and enclosed in chapter 7.</p>
37	<p>Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be</p>	<p>Occupational Health impacts of the project has prepared and incorporated in Environmental management plan.</p>

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	incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
38	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.
39	The Socio-economic studies should be carried out within a 5km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The socio-economic study has been discussed in chapter 3.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	No. litigation is pending against the project in any court.
41.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.,	Benefits of the project has incorporated in EIA report chapter 8
42	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB	It is a fresh quarry. So, certified compliance report is no needed.

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43	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted. Agree to comply.
44	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the Condition mentioned above may result in withdrawal of this Terms of conditions besides attracting penal provisions in the Environment (Protection) Act, 1986	Noted.

Additional ToR Compliance – SEIAA

S.No.	Condition	Compliance
Cluster Management Committee		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry	Noted and Complied. All the proponents in the cluster is discussed in Chapter-2, Page number-35
2.	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Green belt development, water sprinkling, tree plantation is discussed in chapter-2, Page number-58
3.	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed to comply.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in	Agreed to comply. It will be furnished in final EIA report.

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	the form of route map and network.	
5.	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Risk management plan is discussed in Chapter-7, page number-135
6.	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Agreed to comply. It will be furnished in final EIA report.
7.	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed to comply. It will be furnished in final EIA report.
8.	The committee shall furnish the Emergency Management plan within the cluster.	Emergency management plan is discussed in Chapter-7, page number-139
9.	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Health of workers and staff is discussed in Chapter-9 Page number-153
10.	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation and safety.	Agreed to comply. It will be furnished in final EIA report
11.	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents	Fire safety and evacuation plan is discussed in chapter-7

Impact Study of Mining

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12	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following.</p> <ol style="list-style-type: none"> a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc., c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature & Livelihood of the local people. d) Possibilities of water containment and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effects due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress h) Sediment geochemistry in the surface streams <p>Sediment geochemistry in the surface streams.</p>	<p>The biodiversity has been studied and discussed in chapter 3.</p> <p>The soil erosion map 5km surrounding the project site has been given in chapter 3.</p> <p>The detailed study will be carried out and will be enclosed in the Draft EIA Report.</p>
Agriculture & Agro-Biodiversity		
13.	Impact on surrounding agricultural fields around the proposed mining area.	There is no agricultural fields around the proposed mining area
14.	Impact on soil flora & vegetation around the project site	Impact on soil flora & vegetation around the project site discussed in Chapter-4 page number-110
15	Details of type of vegetation no.of trees & shrubs within the proposed mining area and. If so,	Type of vegetation no.of trees & shrubs is discussed in Chapter-3

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	transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	page number-100
16.	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The biodiversity has been studied and discussed in chapter 3 – Pg No. 113.
17.	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted. Agree to comply.
18.	The PP shall study and furnish the impact on plantations in adjoining Patta lands, Horticulture, Agriculture and livestock.	There is no plantation surrounding 500m from project site. Hence there won't be any impact in adjoining patta lands, Horticulture, Agriculture and livestock.
Forests		
19.	The PP shall detailed study on impact of mining on Reserve forests free ranging wildlife.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures.
20.	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The biological environment impacts, and its mitigation measures has been given in Chapter 4

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21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
22.	The EIA should study impact on protected areas, Reserve forests, National parks, Corridors and Wildlife pathways, near project site.	<p>There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures.</p> <p>There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.</p>
Water Environment		
23.	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc., within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro-geological study will be conducted and submitted in final EIA report.
24.	Erosion Control Measures	<p>Complied.</p> <p>Erosion details has been attached in Chapter 3. Greenbelt will be</p>

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		planted to avoid and control erosion.
25.	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby villages, Water-bodies/Rivers, & any ecological fragile areas.	The detailed study will be carried out and will be furnished in the Final EIA Report.
26.	The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and reservoir.	There is no water bodies within 1km radius, The seasonal pond located 50m south from the project site. Water gets stagnant only during rainy season. Hence there won't be much impact on fish habitats and the food WEB/food chain in the water body and Reservoir.
27.	The PP shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Noted and will be complied in Final EIA report.
28.	The PP shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site and archaeological sites possible landform changes visual and aesthetic impacts	Noted. Agree to comply.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The soil erosion map 5km surrounding the project site has been given in chapter 3. The soil samples have been collected surrounding the project site and physical, chemical

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

		components and microbial components study has been carried out and the results are tabulated in chapter 3
30	The Environmental Impact Assessment should study on wetlands, water bodies, river streams, lakes and farmer sites.	The water environment impacts and its mitigation measures has been given in Chapter 4
Energy		
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the energy shall be furnished	Agreed to Comply.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks, and temperature reduction including control of other emission and climate mitigation activities.	Noted and will be complied in Final EIA report.
33.	The EIA should study impact on climate change, temperature rise, pollution and above soil carbon stock.	Noted and will be complied in Final EIA report.
Mine Closure Plan		
34.	Detailed mine closure plan covering the entire mine lease period as per precise area communication order issued.	Mine closure plan has been attached along with mining plates as Annexure VI.
EMP		
35	Detailed Environment Management plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Environment Management Plan has been described in detail in Chapter-10 of the Draft EIA/EMP Report.

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

36	The EIA should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The EMP details has been given in Chapter 8
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazard & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster Management and Risk Assessment has be incorporated in Chapter-7
39. Others		
40.	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.	Obtained and same has been attached as Annexure.
41.	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and public hearing details will be included along with final EIA report.
42	The PP shall study and furnish the possible pollution due to plastic and microplastic on the	There will not be any plastic and microplastic pollution due to

TOR Reply of Proposed Rough Stone Quarry Over an Extent of 4.50.0 Ha

	environment. The ecological risks and impact of plastic & microplastic on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	mining activity. Also, we ensure that we won't use any single use plastics in the project site.
--	---	---

ANNEXURE-II
PRECISE AREA COMMUNICATION LETTER



2. சாரவே அருங்காட்சியகி பாவட்டம் ஒரூர் வட்டம், ஆதாள் கிராமம் பகுதியில் 200 (பகுதி) ல் 450.0 செ.அடிகள் பரப்பளவில் புல வணிகத்தில் ஈடுபட்டுள்ள பகுதியில் குவாரி குத்தகை வழங்கும் திட்டம் தீர்மானம் போட்டுக் கொடுக்க ஆவணம் தயாரிப்பதற்கும் தானியக்குத்து பத்து ஆண்டுகளுக்கு காலதாமதம் செய்யக் கொடுக்கக் குவாரி குத்தகை வழங்கும் தொடக்க நம்பிநாடு சிறுவாயிப் சட்டம் கீழ்க் 1956-ம் ஆண்டு விதி 41 மற்றும் 42-ம் ஆகியவற்றில் உள்ளுள்ள காலவரம்பற்றக்குள் அங்கீகரிக்கப்பட்ட அளவீட்டின்படி, தமிழ்நாடு கற்றுக் குழுப் பாதியு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு பாசுக்கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றை சம்பந்திக்க வேண்டும் என திரு. கோஜன் என்பவருக்கு தெரிவிக்கப்படுகிறது.

3. உரிய வாயத்தின் பெற்றவன் ஆவணங்களை சம்பந்த தவறினால் விதிவிரிப்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

4. பெற்குறிய ஆவணங்களை சம்பந்தித்த விடம்; குவாரி குத்தகை வழங்கும் குவாரி குத்தகை ஒப்பந்த ஆவணம் தயாரிப்பதற்கும் பின்பு பெற்றவை புத்திச குவாரிப்பணிகளை தொடக்கவேண்டும் தவறினால் தமிழ்நாடு சிறுவாயிப் சட்டம் கீழ்க் 1956-ம் ஆண்டு விதி 36 (அ)ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இவ்வாறு : புல வணிகம்

ஒய்/எம். பிரபாகர்,
பாவட்ட அட்சியர்,
கிருஷ்ணகிரி.

/உ.அன்சல நாயர்/

பாவட்ட அட்சியருக்காக,
கிருஷ்ணகிரி.

செ.ஜி.
திரு. கோ. ஜீவா
20/1 வினாய அட்சியர், 102 வினாய கோடி,
102 வினாய, திருச்சி ஆணையரின் கீழ்க் 102

S. DHANASEKAR
R/P/1145/225/2011/A

ANNEXURE-III
MINING PLAN APPROVED LETTER

From

Thiru.L.Suresh,M.Sc.,
Assistant Director (Addl. Charge),
Dept. of Geology and Mining,
Collectorate,
Krishnagiri.

To

Thiru.K.Jeeva,
S/o.K.R.Kandasamy,
No.20/1 Vivkeks Apartment,
1st Main Road, 1st Block,
Anna Nagar East, Chennai 600 102.

Rc.No.216/2019/Mines

Dated: 09-02-2021.

Sir,

Sub: Mines and Minerals – Rough Stone - Krishnagiri District-
Hosur Taluk – Alur Village -S.F.No.209 (Part) over an extent
of 4.50.0 Hects of Government Land- Quarry Lease for
Rough Stone Application preferred by Thiru.K.Jeeva
S/o.K.R.Kandasamy, No.20/1 Viveks Apartment, 1st Main
Road, 1st Block, Anna Nagar East, Chennai 600 102-
Precise area communicated - Draft Mining Plan submitted-
Approved - reg.

Ref: 1) The Krishnagiri District Gazette (Extraordinary) No.07
dated: 21.02.2019.
2) The District Collector, Krishnagiri memorandum in
Roc.No.216/2019/Mines dated: 13.06.2019.
3) Thiru.K.Jeeva S/o.K.R.Kandasamy, No.20/1 Vivkeks
Apartment, 1st Main Road, 1st Block, Anna Nagar East,
Chennai 600 102 Letter dated: 27.01.2020.

Kind attention is invited to the reference cited,

Thiru.K.Jeeva S/o.K.R.Kandasamy, No.20/1 Vivkeks Apartment, 1st
Main Road, 1st Block, Anna Nagar East, Chennai 600 102 have been
issued precise area over an extent of 4.50.0 Hects of Government land in
S.F.No. 209 (Part) in Alur Village of Hosur Taluk of Krishnagiri District for
the proposed grant of rough stone quarry lease for a period of 10 years
from the date of execution of lease deed, under the Tender Cum Auction
system under provisions of Tamil Nadu Minor Mineral Concession Rules,
1959 and they had been directed to submit approved mining plan and
Environment Clearance vide the reference 2nd cited.

2. In this regard, Thiru.K.Jeeva S/o.K.R.Kandasamy, had submitted
03 copies of draft Mining Plan vide the reference 3rd cited for approval for the
said quarry lease.

3. The draft Mining Plan submitted by Thiru.K.Jeeva S/o. K.R.Kandasamy has been scrutinized as per the guide lines/Instructions issued by the Commissioner of Geology and Mining, Chennai-32. The mining plan is prepared in accordance with the guidelines/instructions issued and tallies with the field conditions. The conditions imposed in the precise area letter had been incorporated in the Mining Plan.

4. Further, The following special condition is imposed for the proposed quarry lease.

i) The Eb Line and Transformer found in the Northern part of the proposed area shall be the shifted beyond the safety distance of 50mtrs before the execution of lease deed.

4. Hence, as per the guidelines/instructions issued by the Commissioner of Geology and Mining, Chennai, the said mining plan is hereby approved subject to the following conditions.

i). That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

The applicant should get prior Environmental clearance from the appropriate authority and should submit it to the District Collector, Krishnagiri.

Assistant Director (Addl. Charge),
Dept of Geology and Mining,
Krishnagiri.

Copy submitted to : 1. The Chairman,
State Level Environment Impact
Assessment Authority,
Saidapet, Chennai.
2. The Commissioner,
Dept of Geology and Mining,
Guindy, Chennai -32.

ANNEXURE-IV
500M Radius letter

From
Thiru L.Suresh, M.Sc.,
Assistant Director,
Additional Charge,
Geology and Mining,
Collectorate, Krishnagiri.

To
The Chairman,
Tamil Nadu State Environment
Impact Assessment Authority,
3rd Floor, Panagal Maligai,
No. 1 Jeenes Road, Saidapet,
Chennai -15.

Roc. 216/2019 /Mines dated 17.03.2021

Sir,

Sub: Mines and Minerals - Krishnagiri District - Rough Stone -
Krishnagiri District - Hosur Taluk - Alur Village - Government
land S.F Nos. 209 (Part) - over an extent of 4.50. Hect Rough
Stone quarry lease application preferred by Thiru K. Jeeva S/o
K.R. Kandasami, D.No. 20/1, Viveks Apartments, 1st Main
Road, 1st Block, Anna Nagar East, Chennai 600 102 - Details of
quarries situated within 500 mts radial distance - requested by
the applicant to obtain Environmental Clearance - Details
furnished - reg.

- Ref: 1 The Gazette of India, Ministry of Environment Forest and
Climate change Notification, New Delhi dt:01.07.2016.
2 Quarry lease application for rough stone preferred by Thiru
K. Jeeva S/o K.R. Kandasami, D.No. 20/1, Viveks
Apartments, 1st Main Road, 1st Block, Anna Nagar East,
Chennai 600 102 letter dt:08.03.2019.
3. The District Collector Krishnagiri letter Roc.
216/2019/Mines dated 13.06.2019.
4. The Assistant Director of Geology and Mining, Krishnagiri
letter Roc.No. 213/2019/mines Dt: 09.3.2021.
5. Thiru K. Jeeva S/o K.R. Kandasami, D.No. 20/1, Viveks
Apartments, 1st Main Road, 1st Block, Anna Nagar East,
Chennai 600 102 dated: 09.2.2021.

I am to invite kind attention to the reference cited.

Thiru K. Jeeva S/o K.R. Kandasami, D.No. 20/1, Viveks Apartments, 1st Main
Road, 1st Block, Anna Nagar East, Chennai 600 102 had preferred a quarry lease
application for the Rough Stone over an extent of 4.50.0 Hect. in Government land S.F
Nos. 209 (Part) in Alur Village Hosur Taluk Krishnagiri District for a period of 10
years under the provisions of Rule 8 of Tamil Nadu Minor Mineral Concession Rule
1959.

In the reference 3rd cited, the District Collector in his proceedings have
communicated precise area over an extent of 4.50.0 Hect. in Government S.F Nos.
209 (Part) in Alur Village Hosur Taluk Krishnagiri District and requested the applicant
to furnish the approved Mining Plan and Environmental Clearance from the
Competent Authority for the above said area.

The Mining Plan submitted by the applicant has been approved by the Assistant Director of Geology and Mining, Krishnagiri vide the reference 4th cited.

In the reference 5th cited the applicant has requested to furnish the details of quarries situated within 500 mts radial distance from the said quarry in order to obtain Environmental Clearance.

As per the notification issued by the Ministry of Environment Forest and Climate Change Notification, New Delhi dt. 01.07.2016, vide the reference 1st cited, the following instructions was given.

The leases not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environmental Management plan and the Regional Environmental Management plan.

As requested by the applicant and based on the above said MoEF notification the details of quarries situated within 500 mts Radial distance from the said quarry is furnished as follows:

(i) Details of Existing quarries.

Sl No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
1	Tvl. Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Thambaram, Chennai 600 045	Alur Hosur Taluk	212/1	2.02.5	Roc. 346/2015/ Mines dated 29.12.2018.	29.12.2018 to 28.12.2023
2	Tmt. B.G. Marjula W/o Late Baskar, No. 77 E Indira Nagar, Bagalur Road, Hosur 635 109	Alur Hosur Taluk	208/1	3.03.5	680/2013/ Mines dated 19.06.2019	19.06.2019 to 18.06.2024
			Total	5.06.0		

(ii) Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
1	Tvl. Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Thambaram,	Alur	211	3.46.5	Roc. 276/2013 (M-2) Dt.11.3.2015	20.3.2015 to 19.3.2020.

	Chennai 600 045					
2	R. Prasannakumar, S/o Thiru Ramyan 122 Thinnur Village, Perandapalli Post, Hosur Taluk	Alur	209 (part)	4.21.5	Roc. 641/2009 (Mines-2) Dt. 27.10.2009	19.11.2010 to 18.11.2015
3	Thiru M.Durai, S/o Mallagounder, 13/12B Santhi Nagar, Opp Ragavendra Teater, Hosur	Alur	207/1B	0.81.0	Roc. 324/08 Dt. 27.11.2008 (Mines-2) Dt. 27.11.2008	23.11.2009 to 22.11.2014

(iii) Details of Proposed quarries

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No. & Date	Lease period.
1	Thiru K. Jeeva S/o K.R. Kandasami. D.No. 20/1, Viveks Apartments, 1 st Main Road, 1 st Block, Anna Nagar East, Chennai 600 102	Alur Hosur Tk	209 (Part)	4.50.0	Instant Proposal	precise area communicated Vide District Collector letter Roc. No. 216/2016/Mines dt. 13.06.2019.
			Total	4.50.0		

(iv) Details of applied area.

Sl.No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No. & Date	Remarks
- Nil -						

Assistant Director,
Additional Charge
Geology and Mining,
Krishangiri.

Copy to
Thiru K. Jeeva
S/o K.R. Kandasami,
D.No. 20/1, Viveks Apartments,
1st Main Road, 1st Block,
Anna Nagar East, Chennai 600 102

17/3/21

ANNEXURE-V
FMB, A REGISTER, VILLAGE MAP AND
DEED OF AGREEMENT



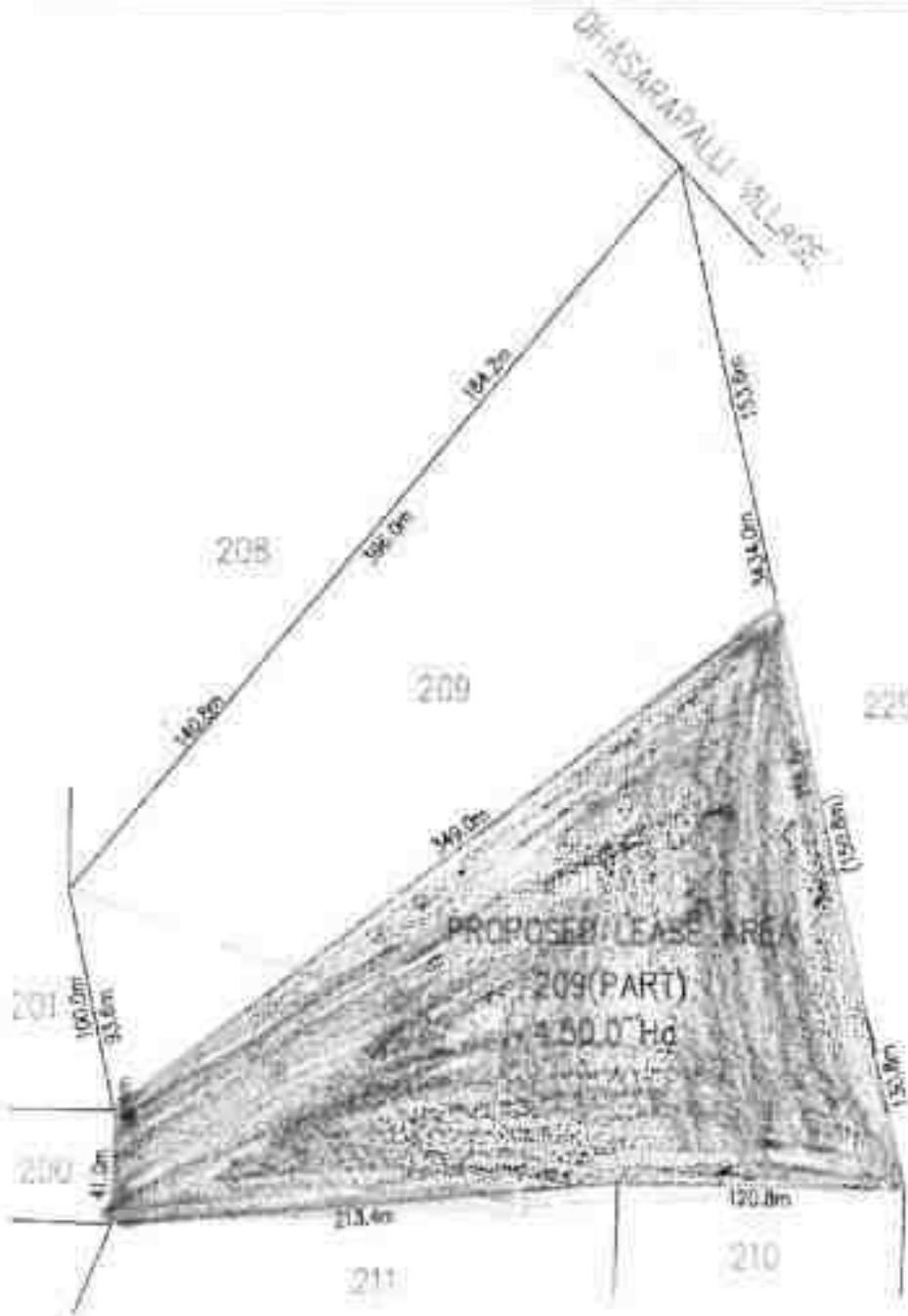
DISTRICT : KRISHNAGIRI

TALUK : HOSUR

VILLAGE : ALUR

SURVEY NO: 209

EXTENT : 4.50 Hect



Proposed Lease Area
4.50.0 Ha

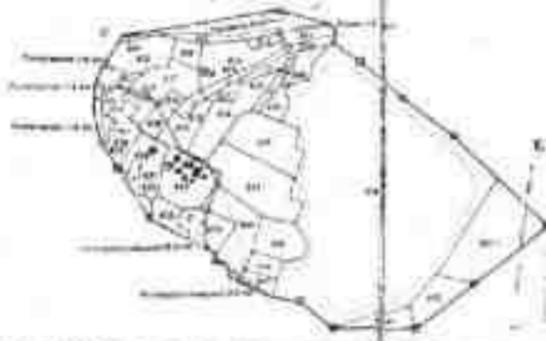
S. Dhanasekara
S. DHANASEKAR
 Surveyor

Scale: 1:2000

ANNEXURE - V

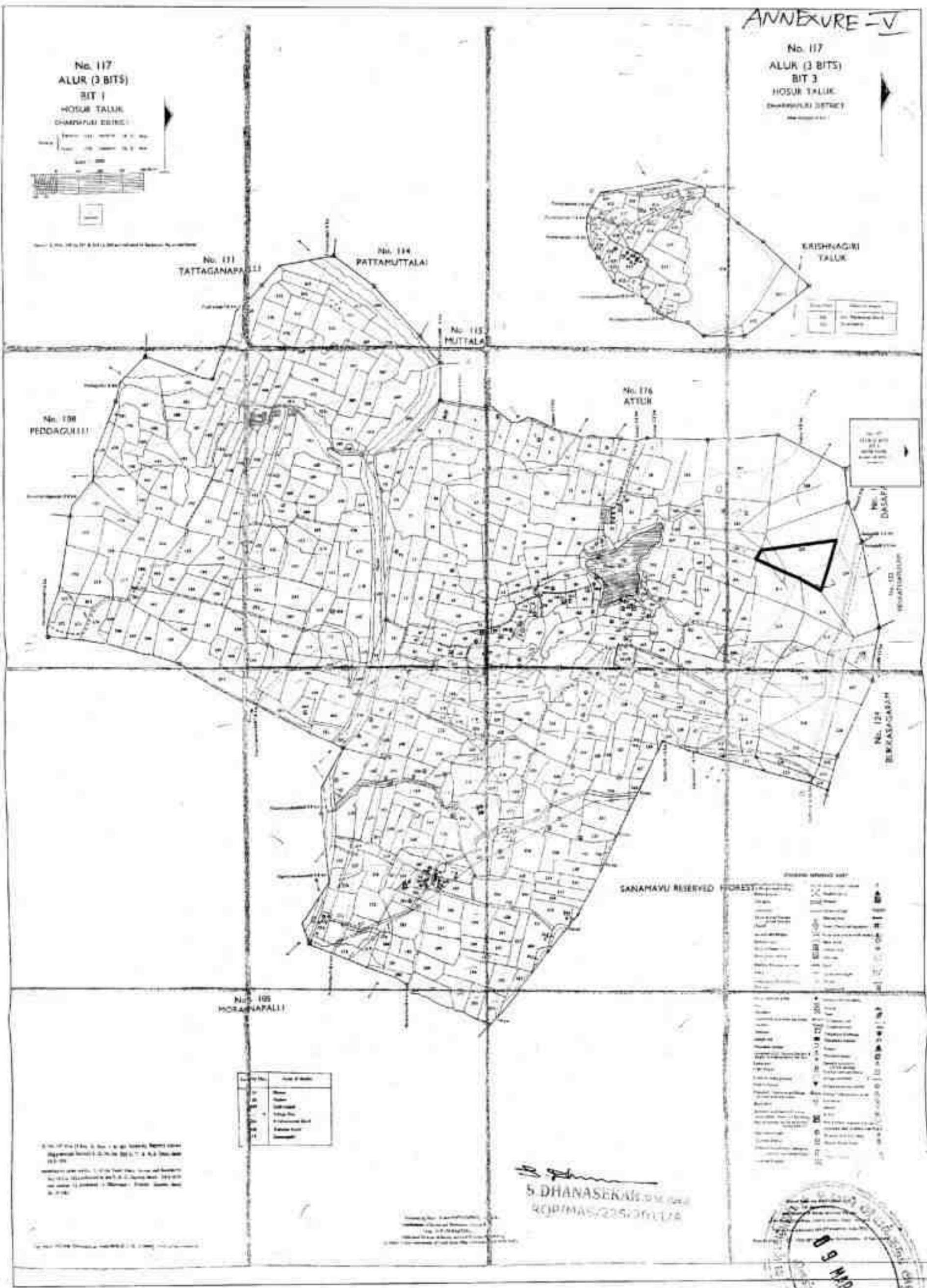
No. 117
ALUR (3 BITS)
BIT 1
HOSUR TALUK
CHANNarayana DISTRICT

No. 117
ALUR (3 BITS)
BIT 3
HOSUR TALUK
CHANNarayana DISTRICT



ERISHNAGIRI TALUK

...	...
...	...



No. 128
PEDDAGUHALI

No. 111
TATTAGANAPALLE

No. 114
PATTAMUTTALA

No. 115
MUTTALA

No. 116
ATTUR

No. 121
DASAP

No. 122
BENKANTURUP

No. 124
BEKKANAGAH

No. 105
MORANAPALLE

SANAMAYU RESERVED FOREST

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...	...
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S. DHANASEKAR
ROBINSON





1	2	3	4	5	6	7	8	9	10	11	12
208	2	208-2	2	40				4 45 0			
	3	208-3	3	6	8-3	8	2 15	2 79 0	3 04	249 ம. சேலம்	
								10 27 5	6 24		
209		209	2	40				8 82 5			
210	1	210-1	1	12	8-5	12	0 62	2 12 5	1 32	556 சா. சேலம் (1), ம. சேலம் (2)	
	2	210-2	2	4	8-5	12	0 62	0 06 5	0 06	556 சா. சேலம் (1), ம. சேலம் (2)	
	3	210-3	3	4	8-5	12	0 62	0 16 5	0 10	556 சா. சேலம் (1), ம. சேலம் (2)	
								3 35 5	1 48		
		211	1	4	8-5	12	0 62	3 46 5	2 14	556 சா. சேலம் (1), ம. சேலம் (2)	
		212	1	4	8-5	12	0 62	4 40 5	2 72	196 சா. சேலம் (1), ம. சேலம் (2)	
	1	213-1	1	12	8-5	12	0 62	2 53 0	1 57	449 ம. சேலம் (1), ம. சேலம் (2)	
	2	213-2	2	12	8-5	12	0 62	0 53 5	0 10	449 ம. சேலம் (1), ம. சேலம் (2)	
	3	213-3	3	4	8-5	12	0 62	0 81 0	0 50	449 ம. சேலம் (1), ம. சேலம் (2)	
								3 47 5	2 15		
214		214	1	12	8-5	12	0 62	2 54 5	1 57	299 ம. சேலம் (1), ம. சேலம் (2)	
215	1	215-1	1	12	8-5	12	0 62	6 12 0	3 77	690 ம. சேலம் (1), ம. சேலம் (2), ம. சேலம் (3), ம. சேலம் (4)	
	2	215-2	2	4	8-5	12	0 62	0 22 0	0 14	690 ம. சேலம் (1), ம. சேலம் (2), ம. சேலம் (3), ம. சேலம் (4)	

Handwritten notes:
 1. சேலம்
 2. சேலம்

S. DHANASEKAR
 REGISTRAR

**ANNEXURE-VI MINING PLAN REPORT &
PLATES**

MINING PLAN

FOR

GRANT OF ROUGH STONE QUARRY LEASE IN
GOVERNMENT PORAMBROKE LAND

TOTAL LEASE GRANTED PERIOD 10 YEARS

PROPOSED PERIOD OF MINING 5 YEARS

(Prepared Under Rule 2(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As
Per Amendment Under Rule 41 & 42)

LOCATION OF THE APPLIED AREA

EXTENT : 4.50.0HA.
S. F. NO : 209(PART)
VILLAGE : ALUR.
TALUK : HOSUR.
DISTRICT : KRISHNAGIRI.
STATE : TAMIL NADU.

APPLICANT

THIRU.K. JEEVA,
S/o. K.R. KANDASAMI,
D. No.20/1,VIVEKS APARTMENT, 1ST MAIN ROAD,
1ST BLOCK, ANNA NAGAR EAST,
CHENNAI - 600 102.

PREPARED BY

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
8/3, KULLAPPAN STREET,
OPP,INDIAN BANK LINE,
OMALUR POST & TALUK - 636 455
SALEM DISTRICT.

Email: geodhana@yahoo.co.in
CELL : 98946-28970 & 79733-74702.





CONTENTS

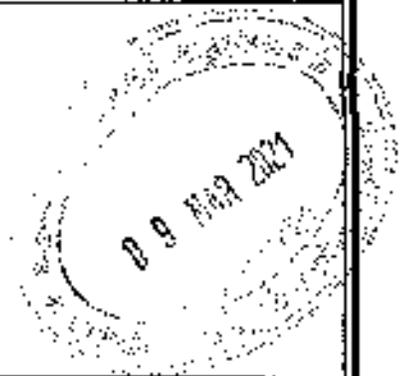
Sl. No.	Description	Page No.
1.0	Introduction	8
2.0	Executive Summary	10
3.0	General Information	11
4.0	Location	11
5.0	Geology and Mineral Reserves	12
6.0	Mining	15
7.0	Blasting	19
8.0	Mine Drainage	22
9.0	Other Permanent Structures	22
10.0	Employment Potentials & Welfare Measures	23
11.0	Environment Management Plan	25
12.0	Mine Closure Plan	28
13.0	Any Other Details Intend to furnish by the Applicant	29

ANNEXURES



Sl. No.	Description	Annexure No.
1.	Precise Area Communication letter	I
2.	Copy of Krishnagiri District Gazette	II
3.	Copy of DFO Clearance letter	III
4.	Copy of FMB	IV
5.	Copy of Combined Sketch	V
6.	Copy of Land Documents	VI
7.	Copy of Applicant ID Proof	VII
8.	Copy of RQP Certificate	VIII
9.	Copy of Applied Area Photos	IX

LIST OF PLATES



Sl. No.	Description	Plate No.	Scale
1.	Location Plan	I	Not To Scale
2.	Route Map	IA	Not To Scale
3.	Topo Sheet Map	IB	1:50,000
4.	Satellite Imaginary Map	IC	1:5000
5.	Mine Lease Plan	II	1:1000
6.	Surface & Geological Plan	II	1:1000
7.	Geological Sections	II A	1:2000
8.	Year Wise Development And Production Plan	IV	1:1000
9.	Year Wise Development And Production Sections	IV-A	1:1000
10.	Mine Layout, Land Use Pattern and Afforestation Plan	V	1:1000
11.	Conceptual/Final Mine Closure Plan	VI	1:1000
12.	Conceptual/Final Mine Closure Sections	VI A	1:1000
13.	Environmental Plan	VII	1:5000
14.	Progressive Mine Closure Plan	VII	1:1000

K. JEEVA,

S/o. K.R. KANDASAMI,

D. No.20/1, TVEKS APARTMENT, 1st MAIN ROAD,

1st BLOCK, ANNA NAGAR EAST,

CHENNAI - 600 102.



CONSENT LETTER FROM THE APPLICANT

I hereby give my consent for preparing the Mining Plan in respect of **Rough Stone** quarry over an extent of **4.50.0 Hectores** of **Government Poramboke Land** in **S.F.No. 209(Part)** of **Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State** has been prepared by **Shri. S. Dhanasekar, M.Sc., Rega.No. RQP/MAS/225/2011/A.**

I request the Deputy Director, Department of Geology and Mining, **KRISHNAGIRI District** to make further correspondence regarding the Mining Plan with the said Recognized Qualified Person on this following address.

S.DHANASEKAR, M.Sc.,

RQP/MAS/225/2011/A

8/3, Kallappan Street,

Opposite India Bank Line,

Omahur Post & Taluk - 626 035

Salem District,

E-Mail: geodh@rediffmail.com

Cell: 98946-78970

I hereby undertake that all modifications so made in the Mining Plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.


(K. JEEVA)

Signature of the Applicant

Place: Chennai

Date:

K. JEEVA.

S/o. K.R. KANDASAMI,

D. No.20/1, VIVEKS APARTMENT, 1st MAIN ROAD,

1st BLOCK, ANNA NAGAR EAST,

CHENNAI - 600 102.



DECLARATION

I hereby declare that the Mining Plan in respect of Rough Stone quarry over an extent 4.50.0 Hectares of Government Poramboke Land in S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

A handwritten signature in black ink, appearing to read "K. JEEVA".

(K. JEEVA)
Signature of the Applicant

Place: Chennai

Date:



KRK MEMORIAL MINING SERVICES

S. JAYANATHAN
Geologist
Recognized Qualified Person



86680 20217

No.5/30-78, Arival Nagar,
Pondicherry District, Tamil Nadu.

GST: 33A JFD6733A1Z0

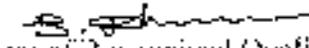


CERTIFICATE

This is to certify that the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDDR) have been observed in the Mining Plan for the grant of **Rough Stone** quarry lease over an extent of 4.50 Hectares of **Government Poramboke Land** in S.F.No. 209(Part) of **Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State** obtained by **Thiru. K. JEEVA** for Applied quarry lease.

Whenever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

Certified


Signature of Recognized Qualified Person.

S. JAYANATHAN
Geologist
Recognized Qualified Person

Place: Salem

Date:

11°41'29.45" N
78°07'13.58" E

98946 28970
73733 74702

krkmemorialminingservices@gmail.com
geodhana@yahoo.co.in

Branch
8/3, Kullappan Street,
Opp. Indian Bank Line,
Omair, Salem - 636 455.



KRK MEMORIAL MINING SERVICES

S.DHARASEKAR
1981-1982-83

Recognized Qualified Person



86680 20217

GST: 33ALPD6783A1Z0

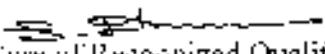
No.5787 72, Salem Nagar,
Poramboke Mill Road,
Alur, Hosur Taluk,
Krishnagiri District,
Tamil Nadu State - 636 302.

09 MAY 2023

CERTIFICATE

This is to certify that during preparation of Mining Plan for **Rough Stone** quarry over an extent of **4.50.00** hectares of **Government Poramboke Land** in S.O.No.209(Part) of **Alur** Village, **Hosur Taluk, Krishnagiri District, Tamil Nadu State** for **Thiru. K. JEEVA** covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified


Signature of Recognized Qualified Person,
S. DHARASEKAR
Recognized Qualified Person

Place: Salem

Date:

11°41'29.45" N
8°07'13.58" E

98946 28970
73733 74702

krkmemorialminingservices@gmail.com
geodhana@yahoo.co.in

Branch:
8/3, Kullappan Street,
Opp. Indian Bank Line,
Omalur, Salem - 636 455.

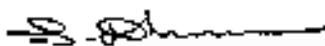
MINING PLAN FOR MINOR MINERALS
ROUGHSTONE QUARRY
TOTAL LEASE GRANTED PERIOD 10 YEARS
PROPOSED PERIOD OF MINING 5 YEARS

Over an extent of 4.50.0 Hectares of Government Poramboke Land in S.F.No. 209(Part) of
Alur Village, Hosur Taluk, Krishnagiri District, Tamilnadu State.

(Prepared Under Rule 5(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 &
As Per Amendment Under Rule 41 & 42)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY:

1. Thiru. K. JEEVA, S/o. K.R. Kandasami, residing at D.No.20/1, Viveks Apartments, 1st Main Road, 1st Block, Anna Nagar East, Chennai- 600 102 has applied for the grant of quarry lease to quarry Rough Stone over an extent of 4.50.0 Hectares. of Government Poramboke Land in S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District of Tamil Nadu State for a period of Ten Years.
2. The Applicant has been the Successful HIGHEST BIDDER for an Amount Rs.4,82,00,000/- (Four Crores and Eighty Two Lakhs only) in a tender cum public auction conducted by the Government of Tamilnadu and Precise area had been given for the proposed grant of Rough Stone quarry lease to THIRU. K. JEEVA over an extent of 4.50.0 hectares in Government Poramboke land in S.F.No. 209(Part) of Alur Village, Hosur Taluk, Krishnagiri District of Tamil Nadu State for a period of Ten Years Vide Letter No. Rc. No. 216/2019/Mines dated 13.06.2019 and directed to submit the approved Mining Plan and Environmental Clearance certificate from the State Environment Impact Assessment Authority (SEIAA) for the grant of quarry lease for the applied area.
3. Accordingly, Mining Plan is prepared under Rule 5(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Environment Impact Assessment Authority.
4. In the above circumstances Thiru. K. JEEVA is here by preparing the Mining Plan for approval and subsequent submission of Form-I and pre Feasibility report to obtain environmental clearance from the SEIAA of Tamil Nadu.
5. This Mining Plan is prepared for the applied Rough Stone Quarry for the period of Five years by considering the TNMMCR 1959 and as per the EIA Notification 2006 and subsequent amendments and judgements.


S. DHANASANKAR, Secy

6. The Geological Reserves is estimated as 2245362M³ and Mineable Reserves is estimated as 1672888M³ and recoverable reserves is estimated as 1589247M³ of Rough Stone after leaving necessary safety distance from the lease boundary as indicated in the project area communication letter and relevant mining laws in force.
7. The proposed production scheduled for the five years about 1276230M³ of Rough Stone. Proposed average annual production of Rough stone 255246M³.
8. Environmental parameters,
- There is no interstate boundary around 10Kms radius.
 - There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972. Therefore the project seeks clearance only from State Environmental Impact Assessment Authority (SEIAA) under B2 Category.
9. Environmental measures to be adopted shall be,
- Dust Control at source while drilling and Proposed Control Blasting,
 - Dust suppression at loading point and transport haul roads.
 - Noise Control in Proposed Control Blasting, control of fly rock missiles and vibration by doing peak particle velocity within standard as prescribed by the DGMS and MoEF.
 - Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
 - Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
 - Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
 - Emission test of vehicles should be in stack to maintain minimum emission level of flue gases.
 - Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.
 - Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhered to.
 - And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

2.0 EXECUTIVE SUMMARY:

a.	Name of the Village	:	Area
----	---------------------	---	------

b.	Name of the Panchayat / Union	: Alur / Hosur
c.	The proposed total Miscible Reserves	: 1672888M ³
d.	The proposed quantity of reserves (level of production) for Five Years to be mined as (Recoverable reserves)	: 1276230M ³ (Total Depth of 43m : Top Soil 1m : Rough stone 42m).
e.	Total extent of the area	: 4.50.01ha
f.	Proposed Period of mining	: Five years
g.	Proposed Depth of mining	: 43m (Total Depth of 43m : Top Soil 1m : Rough stone 42m). Surface Ground level above 10m and Surface Ground level below 33m.
h.	Existing Pit Dimension	: Nil
i.	Average production per year	: 255346M ³
j.	Method of mining / level of mechanization	: Opencast, Semi-mechanized Mining with a bench height of 7m and bench width of 5m is proposed.
k.	Types of Machineries used in the quarry	: i) Compressor with jack hammer. ii) Excavator of 0.90Cbm bucket Capacity.
l.	Cost of the Project	
	a. Fixed Cost	: Rs.4,86,80,000/-
	b. Operational Cost	: Rs.30,00,000/-
	c. EMP Cost	: Rs.3,60,000/-
m.	The area applied for lease is bounded by four corners and the coordinates are:	: Toposheet No. 57 - H/14
	Latitude	: 12° 44' 05.61"N to 12° 44' 03.03"N
	Longitude	: 77° 55' 03.65"E to 77° 54' 51.35"E
	North East	: 12° 44' 05.64" N 77° 55' 03.65"E
	South East	: 12° 43' 57.98" N 77° 55' 01.13"E
	North West	: 12° 44' 04.34" N 77° 54' 52.17"E
	South West	: 12° 44' 03.03" N 77° 54' 51.35"E

3.0 GENERAL INFORMATION:

3.1 a. Name of the Applicant : Thiru. K. JEEVA.

b.	Address of the Applicant with phone No and e-mail id if any	: S/o. K.R. Kandasami D. No.20/1, Vivek's Apartment 1 st Main Road, 1 st Block, Anna Nagar East, Chennai - 600 002.
c.	Status of the Applicant	: Individual
3.2 a.	Mineral Which the applicant intends to mine	: Rough Stone
b.	Precise area communication letter No.	: Rc. No. 216/2019-MINES dated 13.06.2019
c.	Period of permission	: 5 Years
d.	Name and Address of the RQP preparing Mining Plan	: S.Dhanasekar, M.Sc., RQP/MAS/225/2011/A 8/3, Kullappan Street, Opposite Indian bank Lane, Omalar Post & Taluk -636455, Salem District. Email: geodhana@yahoo.co.in
e.	RQP Regn. No.	: RQP/MAS/225/2011/A Valid up to 12.01.2021.

4.0 LOCATION:

a. Details of the Area:

State	District	Panchat / Union	Taluk	Village	S.F.No.	Extent in Ha.
Tamilnadu	Krishnagiri	Alur / Hosur	Hosur	Alur	209(Part)	4.50.0
TOTAL -						4.50.0Ha.

b.	Classification of the Area (Ryotwari / poramboke / others)	: It is a Government Poramboke Land, which is not fit for vegetation/cultivation.
c.	Ownership / Occupancy of the Applied Lease area (Surface rights)	: It is a Government Poramboke land. The applicant had been given precise area for the proposed grant of Rough Stone Quarry Lease.
d.	Toposheet No. with Latitude and Longitude	: Toposheet No. 57 - 11/14 12° 44' 05.64"N to 12° 44' 03.03"N 77° 55' 03.65"E to 77° 54' 51.35"E

e. Existence of Public Road /
Railway line if any nearby the
area and approximate distance

Krishnagiri - Shoalagiri = 27.0 km
Shoalagiri - Perundapalli = 14.0 km
Perundapalli - Ahur = 2.8 km
Quarry site is located in Northeastern side at a distance
of 1.0 km from Ahur.



PART - A

5.0 GEOLOGY AND MINERAL RESERVES:

5.1 a. Topography:

1. The area applied for quarry lease is hilly terrain sloping towards western covered with Rough Stone which does not sustain any type of vegetation. The altitude of the area is 855m above MSL.
2. No major river is found nearby the lease area.
3. Water table is noticed at a depth of 60m from the below surface in the adjacent open wells and bore wells of the area.
4. Temperature of the area is reported to be 18°C to a maximum of 38°C during summer.
5. Rainfall of this area is about 800mm to 900 mm during the monsoons in a year.

b. Infrastructures
nearby the applied
Lease area.

- | | | |
|--------------------|---|------------------------|
| 1. Post Office | : | Kurudhapalli - 4.5 Kms |
| 2. Police Station | : | Hosur - 10.0Kms |
| 3. G.H | : | Hosur - 10.0 Kms |
| 4. Fire service | : | Hosur - 10.0 Kms |
| 5. Railway Station | : | Hosur - 10.0 Kms |
| 6. School | : | Bukkasagaram - 2.5 Kms |
| 7. Airport | : | Bangalore - 40.0 Kms |
| 8. Seaport | : | Chennai - 270.0 Kms |

c. Regional Geology

KRISHNAGIRI District is underlined by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the District are Archaean rocks like Gneisses, Granites, Charnockite basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The generalized stratigraphic succession of the geological formations met within this District is as follows.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

d. Geology of the Lease Area

1. The area is mainly composed of Archaean crystalline metamorphic complex.
2. The rock type noticed in the area for lease is Granite Gneiss which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Granite Gneiss is part of peninsular Gneisses, a high grade metamorphic rock.
3. The general trend of formation is E-W and dip towards south 60°.

The general geological succession of the area is given as under.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Charnockites
3.	Archaean	Peninsular Gneiss, and Calc Gneiss

5.2 Details of Exploration already carried out if any

Since the Rough Stone is seen from the Surface itself, no exploration is needed. However, the area was personally examined by the Geologist who prepared the Mining Plan.

5.3 a. Already excavated pit dimensions

Nil

b. GEOLOGICAL RESERVES:

Top Soil:

The Thickness of Top soil in this area is 1.0m and the total volume of topsoil will be 50061m³.

Rough Stone :

The Geological Reserve is estimated as 2245362m³ by area cross sectional method.

The Geological reserve of Rough stone and Top soil is calculated upto a depth of 50m(1m top soil + 49m Rough Stone). Surface Ground level above-10m & Surface Ground level below-40m.

GEOLOGICAL RESERVES								
Section	Block	L (m)	W (m)	D (m)	Volume in m ³	Rough Stone Reserves in m ³ @ 35%	Mine Waste in m ³ @ 5%	Top Soil in m ³
XY-A-F	I	203	123	1				24969
	II	203	123	7	174783	166044	8739	
	III	203	123	7	174783	166044	8739	
	IV	203	123	7	174783	166044	8739	
	V	203	123	7	174783	166044	8739	
	VI	203	123	7	174783	166044	8739	
	VII	203	123	7	174783	166044	8739	
TOTAL					1148698	98264	52434	24969
XY-CD	I	123	204	1				25092
	II	123	204	7	175644	166862	8782	
	III	123	204	7	175644	166862	8782	
	IV	123	204	7	175644	166862	8782	
	V	123	204	7	175644	166862	8782	
	VI	123	204	7	175644	166862	8782	
	VII	123	204	7	175644	166862	8782	
TOTAL					1136654	1136832	59832	25092
GRAND TOTAL					2285352	2133096	112266	50061

c. **MINEABLE RESERVES:**

The Mineable reserves are calculated by deducting 7.5m Safety Distance to the Patta Land and Bench Loss.

Top Soil: The Thickness of Top soil in this area is 1.0m and the total volume of topsoil will be 45712m³.

Rough Stone :

The mineable reserves and the recoverable reserves are 1672888m³ and 1589247m³ respectively. The Mineable reserve of Rough stone and Top soil is calculated upto a depth of 50m(1m top soil + 49m Rough Stone). Surface Ground level above 10m and Surface Ground level below 40m.

MINEABLE RESERVES								
Section	Bench	L (m)	W (m)	D (m)	Volume in M3	Mineable Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	196	119	1				23324
	II	195	118	7	161070	153017	8053	
	III	190	113	7	150290	142776	7514	
	IV	185	108	7	139860	132867	6993	
	V	180	103	7	129780	123291	6489	
	VI	175	98	7	120050	114048	6002	
	VII	170	93	7	110670	105137	5533	
TOTAL					811720	771136	40584	23324
XY-CD	I	116	193	1				22388
	II	92	192	7	123648	117466	6182	
	III	110	192	7	147840	140448	7392	
	IV	105	187	7	137445	130573	6872	
	V	100	182	7	127400	121030	6370	
	VI	95	177	7	117705	111820	5885	
	VII	90	172	7	108360	102942	5418	
	VIII	85	166	7	98770	93837	4938	
TOTAL					861168	818111	43057	22388
GRAND TOTAL					1672888	1589247	83641	45712

6.0 **MINING:**

6.1 Method of Mining

1. Opencast method of semi mechanized mining is adopted to extract Rough Stone.
2. Machinery like Tractor mounted compressor attached with Jack hammers is being used to drilling and Proposed Control Blasting. Excavators are operated for quarrying of Rough Stone and Tippers / Lorries are used for transportation of Rough Stone to the destination.

6.2 Mode of Working : It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers. Smooth blasting. Rough Stone are removed using Hydraulic excavator and loaded directly to the tippers and transported to the nearby buyers.

6.3 Proposed bench height & Width : Bench height = 7mts.
Bench width = 5mts.

6.4 Details of Overburden / Mineral Production proposal for Five year : Top Soil/ Overburden production details follows:
This area is covered 1.0m Top Soil in this mine area 45712m³
Topsoil formation will be removed and Jumped in all sides 7.5m Boundary Barrier of the lease area.

Year wise reserves calculations :
Rough stone production details as follows:

The proposed rate of production of Rough Stone is about 1276230m³ for five years
The average proposed rate of production of Rough Stone is about 255246m³ per year at the rate of 95% recovery upto the permissible depth. Total Depth: 43m. (1m top soil - 42m Rough Stone). Surface Ground level above 10m and Surface Ground level below 33m.
Proposed Production of five Years.

YEARWISE DEVELOPMENT AND PRODUCTION

Year	Section	Bench	L (m)	W (m)	D (m)	Volume in M3	Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I YEAR	XY-AB	I	196	119	1				23324
		II	195	118	7	161070	153017	8053	
		III	190	113	7	150290	142776	7514	
	TOTAL						311360	295793	15567
II YEAR	XY-CD	I	116	193	1				22388
		II	92	192	7	123648	117466	6182	
		III	110	192	7	147840	140448	7392	
	TOTAL						271488	257914	13574
III YEAR	XY-AB	III	185	108	7	139860	132867	6993	
		IV	180	103	7	129780	123291	6489	
		TOTAL						269640	256158
IV YEAR	XY-CD	IV	105	187	7	137445	130573	6872	
		V	100	182	7	127400	121030	6370	
		TOTAL						264845	251603
V YEAR	XY-CD	VI	95	177	7	117705	111820	5885	
		VII	90	172	7	108360	102942	5418	
		TOTAL						226065	214762
GRAND TOTAL						1343398	1276230	67168	45712

6.5

s. Mining

Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1.10 2m bench height and spacing shall be 0.75m and burden shall be 2.60m from the preface. Details of drilling equipments are given below.

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	8	25.5 mm	Hand held	Atlas copco	Diesel	60

b. Loading

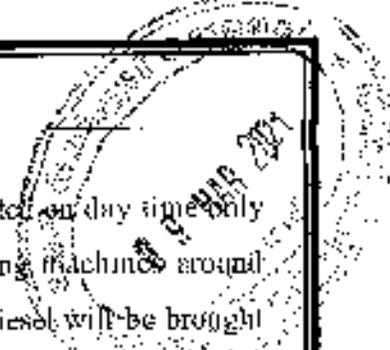
Loading of waste and rough stone shall be carried out by 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Type	Nos	Bucket Capacity (MT)	Make	Motive power	H.P.
Hydraulic excavator	2	2.2 M ³	L&L or Ex200	Diesel	120

c. Transportation

Transport of raw materials and waste shall be done by Tipper of 10 M.T. capacity

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	5	10 M.T	Ashak Leyland	Diesel	110



d, Energy:

Electricity for mines and lights only at nights (working is restricted on day time only between 9Am to 5Pm). Diesel (HSD) will be used for quarrying machines around 1028611 litres of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night will be taken from nearby electric poles after obtaining permission from concerned authorities.

For Top soil:

Per hour excavator will consume = 10 litres / hour
 Per hour excavator will excavate = 60m³ of Top soil
 For 45712m³ = 45712/60
 = 761.86 hours
 Diesel consumption 761.86 working hours = 761.86 x 10 litres

Total diesel consumption = 7619 litres of HSD will be utilized for Top Soil

For Rough stone:

Per hour excavator will consume = 16 litres / hour
 Per hour excavator will excavate = 20m³ of rough stone
 For 1276230m³ = 1276230/20
 = 63811.5 hours
 Diesel consume 63812 working hours = 63812 hours x 16 litres

Total diesel consumption = 1020992 litres of HSD will be utilized for Rough Stone.

Total diesel consumption is around = 1028611 litres of HSD for the entire period of life

6.6 Disposal of Overburden : The top soil of the lease area is 45712m³. Topsoil formation will be removed and dumped in all sides 7.5m boundary barrier of the lease area used for road low lying area and Plantation Purposes.

Proposed Dump Dimensions: (978.2m(L)X7.5m(W)X6.2m(H) = 45712m ³)

6.7 Brief Note on Conceptual Mining Plan for the entire lease period : Conceptual Mining Plan is prepared with an object of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, etc., Average Ultimate Pit dimension is given as Under,

ULTIMATE PIT DIMENSION

Bench	Length in (m)	Width in (m)	Depth in (m)
I	212	156	7
II	287	155	7
III	300	152	7
IV	280	148	7
V	280	143	7
VI	270	138	7
VII	260	134	7
VIII	65	83	7



Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.

Afforestation has been proposed on the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

7.0 BLASTING:

7.1 Proposed Control Blasting Pattern

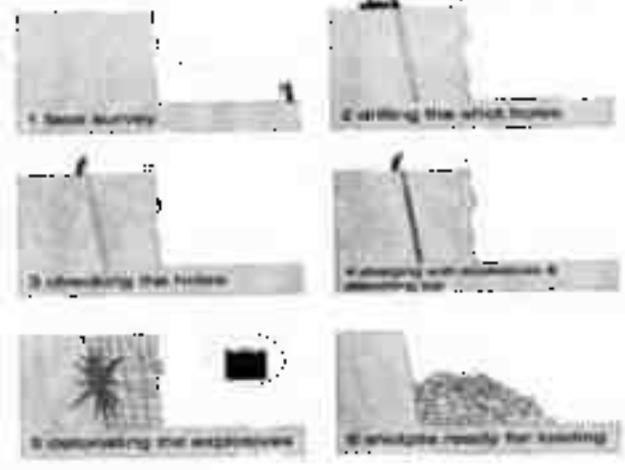
The massive formation shall be broken into pieces of portable size by drilling and Proposed Control Blasting using jack hammers and shot hole Blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 tonnes per K.g of explosives.

09 MAR 2021

Proposed Control Blasting parameters are as follows

Diameter of the hole	: 32-36 mm
Spacing	: 60 Cms
Depth	: 1 to 1.5m
Charge / Hole	: D.Cord with 140 gm of gun powder or Gelatine.
Pattern of hole	: Zig Zag
Inclination of hole	: 70° from the horizontal.
Quantity of rock broken	: 0.45 MT x 2.6 = 1.17 MT
Control Blasting efficiency @ 90%	: 1.17 x 90% = 1.05 MT / hole
Charge per hole	: 140 gms of 25mm dia cartridge
Quantity of rock broken per day	: 850.82M ³ .

ROCK BLASTING



7.2 Types of Explosives

Following explosives are recommended for efficient Proposed Control Blasting with safe practice.

S. No	Description	Class / Division	Type	Size
1.	Slurry	Class 3	Nitro Compound	25 x 200
2.	Detonators	Class 3	Ordinary and elec (OD & ED)	6.5 x 32
3.	Safety fuse	Class 6	Blue stump fuse coils of 10mts each	

7.3 Measures proposed to minimize ground vibration due to Proposed Control Blasting

The following steps shall be adapted to control ground vibration due to Proposed Control Blasting.

1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude.
2. In case of electronic detonators, which are inherently much more accurate delays (± 0.2 milliseconds delay) to minimize the ground vibration.
3. Use of Ammonium nitrate fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge.
4. Charge per hole should exceed the powder factor designed for each hole based on the quantum of Proposed Control Blasting, strength of rocks, fracture pattern etc.

7.4 Storage of Explosives and safety measures to be taken while Proposed Control Blasting.

1. The Applicant stores the explosives as per the Indian Explosives Act, 1958.
2. The explosives to be used in mines being a small quantity, the District collector may be approached to keep the stocks not exceeding 5kgs at a time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types.
3. An authorized explosive agency is engaged to carry out blasting.
4. The blasting time in a day is between 5 PM to 6 PM.
5. First Aid Box is kept ready at all the time.
6. Necessary precautionary announcement is being carried out before the blasting operation.

8.0 MINE DRAINAGE:

8.1	Depth of Water table	: The ground water table is reported as 60m below ground level in nearby open wells and bore wells of this area. Mining depth taken as 13m (Surface Ground level above-10m and Surface Ground level below - 33m). Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
8.2	Arrangement and Places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.

9.0 OTHER PERMANENT STRUCTURES:

9.1	Habitations / Village	: There are no villages within a radius of 500m. The nearest habitations with the population is given as under. <table border="1"> <thead> <tr> <th>Direction</th> <th>Village</th> <th>Distance in Kms</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Attur</td> <td>1.3Kms</td> <td>150</td> </tr> <tr> <td>East</td> <td>Bulkasagaram</td> <td>2.0 Kms</td> <td>700</td> </tr> <tr> <td>South</td> <td>Sundatti</td> <td>1.2kms</td> <td>450</td> </tr> <tr> <td>West</td> <td>Dasapalle</td> <td>1.0Kms</td> <td>300</td> </tr> </tbody> </table>	Direction	Village	Distance in Kms	Population	North	Attur	1.3Kms	150	East	Bulkasagaram	2.0 Kms	700	South	Sundatti	1.2kms	450	West	Dasapalle	1.0Kms	300
Direction	Village	Distance in Kms	Population																			
North	Attur	1.3Kms	150																			
East	Bulkasagaram	2.0 Kms	700																			
South	Sundatti	1.2kms	450																			
West	Dasapalle	1.0Kms	300																			
9.2	Power lines (HT/LT)	: No power line is located in the lease area.																				
9.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is No Water bodies (River, Pond, Lake, Odai, Channel etc) located within a radius of 500m.																				
9.4	Archeological / Historical Monuments	: There are no Archeological / Historical Monuments within a radius of 500m.																				

9.5	Road (NH, ST, Village Road etc)	<p>Krishnagiri - Shoologiri = 27.0 km</p> <p>Shoologiri - Perandapalli = 14.0 km</p> <p>Perandapalli - Alur = 2.8 km</p> <p>Quarry site is located in Northeastern side at a distance of 2.2 km from Alur.</p>
9.6	Places of Worship	There are no Places of Worship within a radius of 500m.
9.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	There are no Social Forest / Wild Life Sanctuary etc within a radius of 10km.
9.8	Any Interstate Border. Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	<p>There are No inter State border within a radius of 10 kms.</p> <p>North Cauvery Wild life Sanctuary located within the distance of about 21.54 Kms from the lease area.</p> <p>Wildlife Boundary GPS (12°32'17.95"N - 77°54'25.08"E)</p> <p>Quarry Boundary GPS (12°43'57.99"N - 77°55'01.14"E)</p>
9.9	Any Other Structures	Nil

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES:

10.1	Employment Potential (Management & Supervisory personal)	<ol style="list-style-type: none"> 1. As per Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the workers directly under his control and supervision. 2. The following man power is proposed for quarrying Rough Stone during the five years period to achieve the proposed production to the provisions of the Government norms.
------	--	--

1. Skilled	Operator	2 No.
	Mechanic	1 No.
	Blaster/Mat	1 No.
2. Semi skilled	Driver	2 Nos
3. Unskilled	Musdoor	5 Nos
	Labourers	10 Nos
	Cleaners	3 Nos
	Office Boy	1 No
4. Management & Supervisory staff		3 No.
Total =		18 Nos



10.2	Welfare Measures	
a.	Drinking Water	Drinking water at the rate of 2Ltrs per person shall be provided as per the Mines Rules, 1960. It is proposed to make a borehole for providing uninterrupted supply of drinking water and other utilities.
b.	Sanitary facilities	Semi permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities are also arranged as per rule (36) of the Mines Rules, 1960.
c.	First Aid Facility	Being a small mine First Aid station as per provisions under Rule (44) of the Mines Rules 1960 will be provided with facilities as per the third schedule as prescribed. Qualified First Aid personnel should be appointed or nominated to attend emergency first aid treatment.
d.	Labour Health	As per Mines Rule, Periodic medical examination has been arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45 (A), MR, 1960.
e.	Precautionary safety measures to the Laborers	Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have been provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a semi-mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and

experienced officers to train about the safe and system at quarrying operation.

PART B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

11.1 Existing Land Use

The existing land use pattern is given as under.

Pattern

Sl. No.	Land Use	Present Area (Hect)	Area to be during the quarrying period (Hect)
1.	Area under quarrying	Nil	3.87.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	Nil	0.00.0
5.	Utilized	4.49.0	Nil
Total -		4.50.0Ha	4.50.0Ha

11.2 Water Regime

Water table in this area is noticed at a depth of 60m and presently, the quarrying of Rough Stone is proposed up to a depth of 43m (Top Soil 1m + Rough stone 42m) (Surface Ground level above 10m and Surface Ground level below 33m), and hence, it will not affect the ground water depletion of this area.

11.3 Flora and Fauna

Except acacia bushes, no other valuable trees are noticed in the applied lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.

11.4 Climatic conditions

Generally sub tropical climatic condition prevails throughout the year and this District receives rain both in South west and North east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 38°C during the summer.

11.5 Human Settlement

The nearest habitations with the population is given.

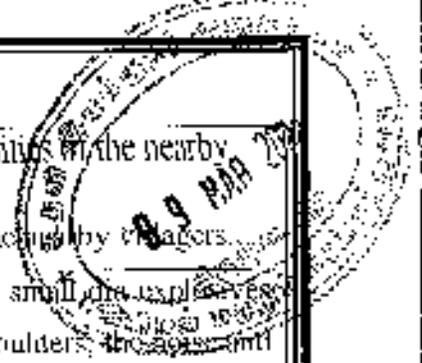
Direction	Village	Distance in Kms	Population
North	Attur	1.3Kms	150
East	Bukkasagaram	2.0 Kms	700
South	Sundatti	1.2kms	450
West	Dasapalle	1.0Kms	300

11.6 Plan for Air. Dust. Suppression

Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying.

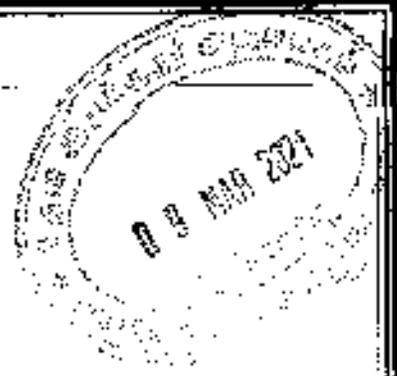


		<p>For the sampling of air, high volume air sampler (Model VFA-100) was used (10 meter above and 5 meter away from road) and the particulates were collected on Whatman GFA glass fiber filters dried in a hot air oven at 105°C for 1hr and weighed. The average flow rate was about 1.1 cubic meters.</p>
11.7	Plan for Noise Control	<p>Quarrying of Rough Stone will be carried out by drilling and Proposed Control Blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. In order to assess the extent of noise pollution due to vehicular traffic different zones viz., Silence zone, Residential Zone, Commercial zone, Traffic signals and Industrial zones were identified in urban and suburban areas of Krishnagiri. Adequate Number of observations were made in all the selected sites by using the sound level meter (J.T Lutron SL-1001).</p>
11.8	Environmental Impact Assessment Statement Describing Impact on mining on the next five years	<p>Factors to be considered for EIA are,</p> <ol style="list-style-type: none"> 1. Dust generation, 2. Land degradation 3. Stabilization and vegetation of dumps 4. Adverse effect on water regime 5. Socio economic benefits arising out of Mining. 6. Noise and Vibration.
	a. Dust	<p>Dust is expected to be generated from drilling, hauling roads; place of excavation etc and it will be suppressed by periodical wetting of lands.</p>
	b. Land degradation	<p>Land degradation is by means of cutting the trees and removal of fertile soil does not arise. Afforestation will be started during the first year of mining operation itself.</p>
	c. Stabilization and vegetation of dumps	<p>The topsoil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons.</p>



	d. Socio economic benefits arising out of mining	<ol style="list-style-type: none"> To provide Employment opportunities to the nearby villagers. For the cultural development of the nearby villagers.
	e. Noise and vibration	<p>Since, no deep hole blasting is proposed, small diameter explosives are used for breaking the hard rock and boulders, the generated vibration will be very minimum and are within the permissible limits.</p>
11.9	Proposed for Waste Management	<p>The wastes are generated during the mining period is 67168m³ will be proposed to backfilled in the mined out pit of the lease area.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">Proposed Mineral Reject backfilling area.</p> <p style="text-align: center;">266.0m(L) X 128.0m(W) X 1.97m(H) = 67168 m³</p> </div>
11.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	<p>The present mining is proposed to an average depth is 43m. The mined out area will be fenced on top of open cast working with 51 fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the rough stone persist still at deeper level.</p>
11.11	Program for Afforestation	<p>Trees like lamarind, casuarinas etc will be planted along North, East and Southern side of 7.5m boundary barrier of the lease area and avenues as well as over non active dumps at a rate 50 trees per annum with an interval of 5m. The rate of survival expected to be 80% in this area.</p>

11.12	<p>Proposed Financial Estimate / Budget for (EMP) Environment Management</p> <p>A. Fixed Asset Cost:</p> <p>Land Cost</p> <p>Labour Shed</p> <p>Sanitary Facility</p> <p>Fencing cost</p> <p>Total=</p> <p>B. Operational Cost:</p> <p>Machinery cost</p>	<p>Rs. 4,82,00,000/- (Leased tender amount for Government Poramboke Land)</p> <p>Rs. 2,00,000/-</p> <p>Rs. 80,000/-</p> <p>Rs. 2,00,000/-</p> <p>Rs. 4,86,80,000/-</p> <p>Rs. 30,00,000/-</p>
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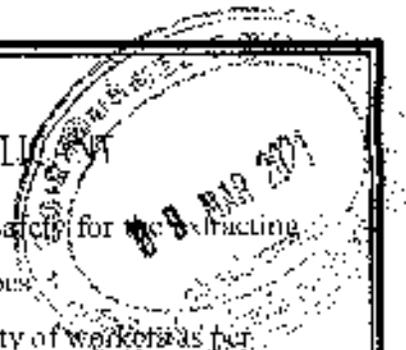


C. EWP Cost:	
1. Drinking water facility	Rs. 1,20,000/-
2. Safety kits	Rs. 75,000/-
3. Water sprinkling	Rs. 50,000/-
4. Afforestation	Rs. 25,000/-
5. Water quality test	Rs. 30,000/-
6. Air quality test	Rs. 30,000/-
7. Noise/vibration test	Rs. 30,000/-
Total	Rs. 3,60,000/-
Total Project cost(A+B+C)	Rs. 5,20,40,000/-

12.0 MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	The present mining is proposed to an average depth of 43m (Surface Ground level above 10m and Surface Ground level below - 33m). The mined out area will be fenced on top of open cast working with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing. Green belt development at the rate of 50 trees per year will be proposed.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	It is a fresh Rough stone quarry with a depth 43m only for the first five years and hence, no need of mitigation and restoration / reclamation of the applied lease area.

13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT



- (i) Permission will be obtained from the Director of Mines Safety for extracting the Rough Stone from the Boundary barriers and from slopes.
- (ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- (iv) Accordingly, Mining Plan is prepared under Rule 8(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1969 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Level Environmental Impact Assessment Authority.
- (v) This Mining Plan is prepared for the Applied Rough Stone Quarry for a period of Five Years.
- (vi) The proposed production of Rough stone for Five Years is 1276230m³ and average production per year is 255246m³.

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars, specified in the letter, Rec. No. _____ Dated _____ of the Deputy Director of Geology and Mining, Krishnagiri and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1969 and Minor Mineral Conservation and Development Rule 2010.

Handwritten signature and stamp of the Deputy Director of Geology and Mining, Krishnagiri.

**Assistant Director
(Additional Charge)
Geology & Mining Dept.
Collectorate, Krishnagiri.**

Handwritten initials or signature.

This Mining Plan is approved subject to the conditions / stipulation included in the Mining Plan Approval

Letter Rec. No. _____ Dated 3/2/19



பி
தமிழ்நாடு அரசு
2011



கிருஷ்ணகிரி மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு
ஆணையின்படி வெளியிடப்பட்டது

கிருஷ்ணகிரி, மார்ச்சு 21, 2011 [பக்கம் 7
[வெளியீடு, பக்கம் 3 - திருவாரூர் ஆணை 2011]

மாவட்ட ஆட்சியர் அறிவிக்கை

(அ.அ.அ. 1003/2018/க.சி.பி. தாள்: 21-02-2011)

மாவட்ட ஆட்சியர் அறிவிக்கை (பெண்-1), மற்றும் கனம் தலைவர் அறிவிக்கை (பெண்-1) விண்ணப்பங்கள் தொடர்பாக
 07-03-2011
 09-03-2011

கிருஷ்ணகிரி மாவட்டத்தில் அரசு அலுவலகங்களில் பணியில் உள்ளவர்கள் மாவட்ட ஆட்சியர் அறிவிக்கை (பெண்-1) கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும். மேலும் கனம் தலைவர் அறிவிக்கை (பெண்-1) கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும்.

1. 1996 ஆம் ஆண்டு கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும். மேலும் கனம் தலைவர் அறிவிக்கை (பெண்-1) கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும்.

2. இந்த அறிவிக்கையின் கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும். மேலும் கனம் தலைவர் அறிவிக்கை (பெண்-1) கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும்.

3. இந்த அறிவிக்கையின் கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும். மேலும் கனம் தலைவர் அறிவிக்கை (பெண்-1) கீழ்க்கண்ட விதிகளின்படி விண்ணப்பிக்க வேண்டும்.

மாவட்ட ஆட்சியர்

(1)

அட்டவணை

வாழ்வுக் கட்டுப்பாட்டு அமைச்சு.

(1) கட்டுப்பாட்டின் கீழ் உள்ளவை:

பரிசீலனை வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த மதிப்பு	குடியாதிக்க வாரியத்தின் மதிப்பு	வாங்கிய பணம் (ரூ.)	குடிசைகள் எண்ணிக்கை (அட்டவணை)
(1)	(2)	(3)	(4) (ரூ.கட்டிகள்)	(5) (ரூ.கட்டிகள்)	(6)	(7)
1	பரிசீலனை	3372 (சுற்று)	3,35,500	3,35,500	தீ.க. கட்டுப்பாட்டு அமைச்சு	5
2	பரிசீலனை	264 (பகுதி-1)	7,59,000	2,52,000	தீ.க. கட்டுப்பாட்டு அமைச்சு	10

மாற்றுவகை வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த மதிப்பு	குடியாதிக்க வாரியத்தின் மதிப்பு	வாங்கிய பணம் (ரூ.)	குடிசைகள் எண்ணிக்கை (அட்டவணை)
(1)	(2)	(3)	(4) (ரூ.கட்டிகள்)	(5) (ரூ.கட்டிகள்)	(6)	(7)
3	பரிசீலனை	771 (பகுதி), 774 (மற்றும் 8/3)	3,120	3,120	தீ.க. கட்டுப்பாட்டு அமைச்சு	10

(ii) ஒதுக்கீடு செய்யப்பட்டவை:

ஒதுக்கீடு வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த மதிப்பு	குடியாதிக்க வாரியத்தின் மதிப்பு	வாங்கிய பணம் (ரூ.)	குடிசைகள் எண்ணிக்கை (அட்டவணை)
(1)	(2)	(3)	(4) (ரூ.கட்டிகள்)	(5) (ரூ.கட்டிகள்)	(6)	(7)
4	பரிசீலனை	785 (பகுதி)	3,00,000	2,00,000	தீ.க. கட்டுப்பாட்டு அமைச்சு	10
5	பரிசீலனை	583/1	2,15,500	2,15,500	தீ.க. கட்டுப்பாட்டு அமைச்சு	10
6	பரிசீலனை	209 (பகுதி)	3,82,500	3,82,500	தீ.க. கட்டுப்பாட்டு அமைச்சு	7
7	பரிசீலனை	662	2,40,000	2,20,000	தீ.க. கட்டுப்பாட்டு அமைச்சு	9
8	பரிசீலனை	418/1 (பகுதி)	1,14,000	1,00,000	தீ.க. கட்டுப்பாட்டு அமைச்சு	10
9	பரிசீலனை	886 & 887 (பகுதி)	5,78,000	3,50,000	தீ.க. கட்டுப்பாட்டு அமைச்சு	10

... ..



மனம் சம்பந்தம்

சுபரிபாட்டுவனக்குறை

அனுப்புகை

திரு. தீபக. எஸ். பிஸ்கி, இ.வ.ப.,
 வல்லாரிபாளையம்,
 ஓசூர் கணநகரப்பள்ளை அஞ்சல்,
 மத்தியி, ஓசூர் - 635 110.
 தொலைபேசி எண். 04344-262259.

பெறுதல்

மாவட்ட ஆட்சித் தலைவர்,
 கிருஷ்ணகிரியாவட்டி,
 கிருஷ்ணகிரி.

ந.க.எண்.153/2019-எல், நாள், 30.01.2019.
 (தமிழ்நாடு சட்டமன்றம், 16, திருவள்ளூர் ஆங்கா 2019)

அபிப்ப.

பொருள் : வனிமங்கலம் குவள்களும் - கிருஷ்ணகிரி - சாதாரண கற்கள் கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் உள்ள சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர்/பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை தோக்கியான கருத்து குவாரிப் பகுதிகளுக்கு சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்கு விட கீழ்க்கண்டவாறு வனத்துறையின் கருத்து தெரிவிக்கப்படுகிறது.

- பார்வை :**
1. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.1609/2018(கனம்) நாள்.29.12.2018 மற்றும் 04.01.2019.
 2. வனச்சரக அலுவலர், ஓசூர் சரகம்.ந.க.எண்.02/2019 நாள்.23.01.2019.

(Handwritten signature)

பார்வை 1-ல் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் அளித்த கடிதத்தில், கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை தோக்கியான கருத்து மற்றும் வனத்துறையின் தடையின்றி சான்று வழங்கவேண்டி கோரப்பட்டுள்ளது.

மேற்படி மனு பிது நடவடிக்கை எடுக்கும் பொருட்டு, ஓசூர் சரக வனச்சரக அலுவலர் மற்றும் சரக பணியாளர்களுடன் 21.01.2019 அன்று துணிக்ளா மேற்கொண்டு ஆலோசனை மேற்கொள்ளப்பட்டது.

ஓசூர் வனச்சரக அலுவலர் அறிக்கையின் அடிப்படையில், வன உரிபாளை காப்பாளர், ஓசூர் சரக பணியாளர்களுடன் துணிக்ளா செய்யப்பட்டதில், கீழ்க்கண்ட அட்டவணைகளில் உள்ள குவாரிப் பகுதிகளுக்கு சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்கு விட கீழ்க்கண்டவாறு வனத்துறையின் கருத்து தெரிவிக்கப்படுகிறது.

சா.த.பா.ப.ப. சட்டம், 1956-ம் ஆண்டு, சட்டம் 36-ன் கீழ்க்கண்ட விதிகளின் கீழ், கீழ்க்கண்ட விவரம்



Shoolagiri Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
1	Shoolagiri / Athimugam	303 (Part-1)	8.58.0	2.00.0	Parai	10	12° 45' 15.55" N	77° 59' 39.87" E
2	Shoolagiri / Athimugam	303 (Part-2)	8.58.0	2.30.0	Parai	10	12° 45' 17.23" N	77° 59' 43.19" E
3	Shoolagiri / Pannapalli	306 (Part)	3.56.0	1.56.0	UAW-Parai	10	12° 45' 22.49" N	77° 59' 47.26" E
4	Shoolagiri / Pannapalli	306 (Part)	3.56.0	2.00.0	UAW-Parai	10	12° 45' 22.49" N	77° 59' 47.26" E
5	Shoolagiri / Kamanodeffi	653 (Part)	7.56.0	3.35.0	Tharisu	5	12° 39' 53.00" N	77° 56' 59.54" E
6	Hosur / Alur	209 (Part)	8.82.5	4.30.0	Vari-UAW	10	12° 44' 04.34" N	77° 54' 52.17" E
7	Shoolagiri / Venkatesa puram	288 (Part)	5.00.0	3.00.0	Malai	5	12° 45' 23.34" N	77° 57' 33.01" E
8	Shoolagiri / Thuppuganapalli	420 (Part)	46.61.0	4.90.0	Malai	5	12° 37' 20.99" N	77° 57' 03.89" E
9	Shoolagiri / Thuppuganapalli & Agaram Agraharam	657 (Part) & 4 (Part)	25.27.0 & 2.55.0	2.00.0 & 0.95.0	Porami / UAW / UAW / Parai	10	12° 37' 35.14" N	77° 57' 24.25" E
10	Shoolagiri / Bengai	316/1 (Part)	3.35.5	2.25.0	UAW-Parai	10	12° 47' 24.01" N	77° 57' 36.06" E

Krishnagiri Taluk

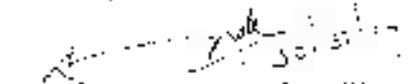
Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
11	Krishnagiri / Appinayakkankuttai	54/2	2.68.5	1.70.0	UAW - Kunduru	10	12° 41' 40.07" N	78° 07' 56.33" E
12	Krishnagiri / Appinayakkankottai	32/1 (Part)	2.27.5	1.10.0	UAW - Parai	10	12° 41' 56.73" N	78° 07' 57.39" E
13	Krishnagiri / Kothapetta	56/1 (Part)	26.94.0	1.66.0	Malai	5	12° 32' 45.80" N	78° 11' 32.50" E

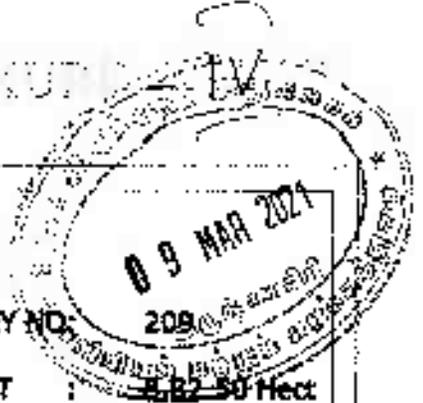
Bargur Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
14	Bargur / Bargur	63/2 (Part)	0.35.50	3.35.0	UAW - Kallankuthu	5	12° 33' 21.83"N	78° 21' 47.32"E
15	Bargur / Sigaralapalli	284 (Part-1)	7.59.0	2.50.0	Govt Poram - Karadu	10	12° 30' 02.15"N	78° 24' 19.98"E
16	Bargur / Pallepalli	126/2A2 (Part-I)	4.21.0	2.00.0	UAW- Tharisu	10	12° 33' 32.39"N	78° 20' 35.08"E
17	Bargur / Pallepalli	126/2A2 (Part-II)	4.21.0	2.00.0	UAW- Tharisu	10	12° 34' 20.45"N	78° 18' 01.01"E
18	Bargur / Pallepalli	890 (Part-I)	7.62.5	2.00.0	UAW- Tharisu	10	12° 32' 51.25"N	78° 16' 43.21"E
19	Bargur / Pallepalli	890 (Part-II)	7.62.5	3.00.0	UAW- Tharisu	10	12° 32' 48.45"N	78° 16' 38.74"E
20	Bargur / Pallepalli	896 (Part)	3.94.5	2.00.0	Govt. Poram - Kallankuthu	10	12° 33' 06.35"N	78° 16' 40.29"E
21	Bargur / Chinnathimminayanapalli	505/1 (Part)	11.61.0	2.00.0	UAW- Tharisu	30	12° 35' 51.58"N	78° 16' 23.55"E
22	Uthangarai / Veppalampatti	7/1 (Part)	2.84.5	0.84.0	UAW - Kallankuthu	10	12° 12' 43.73"N	78° 32' 10.38"E
		7/4	0.03.0	0.03.0				
		8/3	0.24.0	0.24.5				
		TOTAL		1.11.5				

மேற்கண்ட இடங்களுக்கு டெண்டர் / போது ஏலத்தில் குத்தகைக்கு விடப்பட்டுப் பணத்துறையின் தலையில்லாச் சான்று தற்போது அளிக்கப்படுகிறது. ஒவ்வொரு குவாரிப் பகுதிகளுக்கும் வனத்துறையின் மூலம் தனித்தனியாக தணிக்கை மேற்கொண்டு, அதற்கேற்ப கூட திட்டங்களுக்கு உட்பட்டு, மசூரியிடு உச்சநீதி மன்ற ஆணைகளை கடைபிடிக்க (Compensatory planting), மனித - வன விலங்கு மேதல்கள் மற்றும் மாக கட்டுப்பாடு போன்றவற்றை கருத்தில் கொண்டு வனத்துறையின் கருத்துகள் மற்றும் நிபந்தனைகளை பேர ஒவ்வொரு குத்தகைக்கும் தனித்தனியாக விண்ணப்பிக்க வேண்டும் என்பதை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

நங்கள் அன்புள்ள,


 மாண்புமிகு வன அலுவலர் (கூட்டு),
 கிருஷ்ணகிரி வனக்காட்டம்.



DISTRICT : KRISHNAGIRI

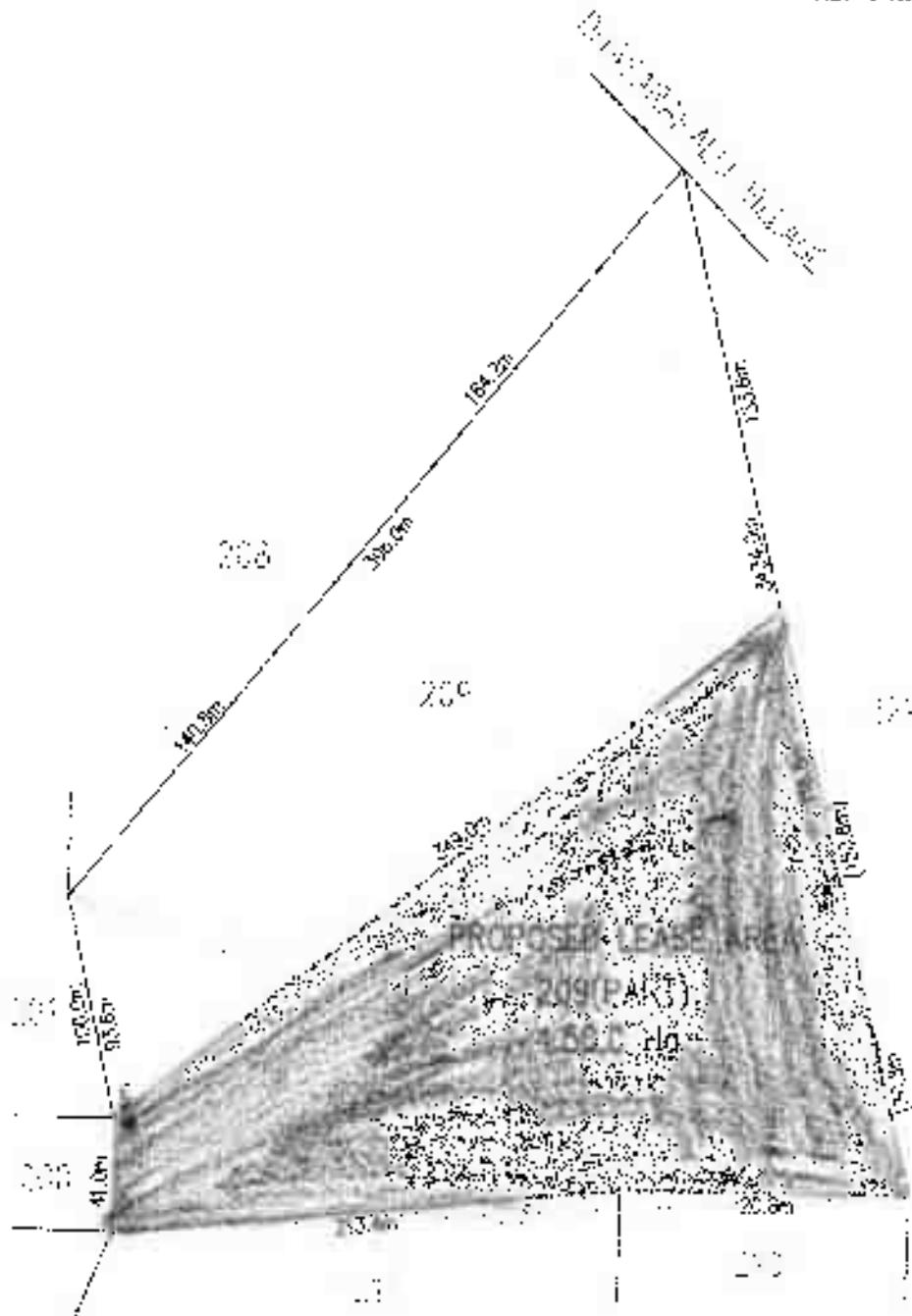
TALUK : HOSUR

VILLAGE : ALUR

SURVEY NO: 209

EXTENT :

4.52 50 Hect



Proposed Lease Area
4.50.0 Ha

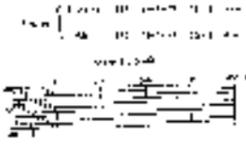
[Signature]
S. DIANASEKAR
20/03/2021

Scale: 1:2000

ANNEXURE - V

No. 17
 ALLUR (3 BITS)
 BIT 3
 POSUP TALUK
 DISTRICT OF MADHURAI

No. 117
 ALLUR (3 BITS)
 BIT 1
 POSUP TALUK
 DISTRICT OF MADHURAI



KRISHNAGIRI
 TALUK

No. 111
 TATTAGANAPATTI

No. 114
 PATTAMJITALAI

No. 115
 MUTTAI

No. 116
 ATTUR

No. 100
 PEDDAGELLU

No. 123
 BINKKARAPPA

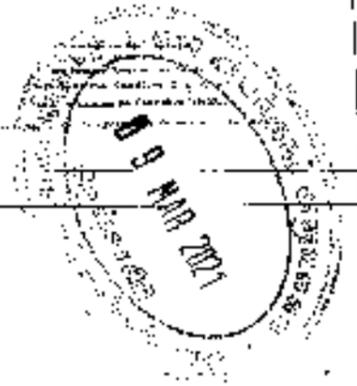
SANAMAVU RESERVE FOREST

No. 105
 MOORAPALLI

No.	Description
1	...
2	...
3	...
4	...
5	...
6	...
7	...
8	...
9	...
10	...

No.	Description	Area
1
2
3
4
5
6
7
8
9
10

[Signature]
 S. DEVA SETHUPATHI
 SUPERVISOR





2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
208	208	4	49				4	45	0										பேர்தேர்தல்கள்			
	3				8-3	8	2	15	2	79	0	3	04	749	0	3	04	749	0	3	04	
										10	27	5	6	24								
209	209		49							8	82	5										
210	210				8-5	12	0	62	2	52	5	1	32	556	0	0	0	0	556	0	0	0
														556	0	0	0	0	556	0	0	0
	2				8-5	12	0	62	0	06	5	0	06	556	0	0	0	0	556	0	0	0
	3				8-5	12	0	62	0	16		0	0	556	0	0	0	0	556	0	0	0
										2	35	5	1	48								
	211				8-5	12	0	62	5	46	5	2	2	556	0	0	0	0	556	0	0	0
	212				8-5	12	0	62	4	40	5	2	72	19	0	0	0	0	19	0	0	0
	213				8-5	12	0	62	2	53	0	3	59	209	0	0	0	0	209	0	0	0
	2				8-5	12	0	62	0	33	5	0	04	249	0	0	0	0	249	0	0	0
	3				8-5	12	0	62	0	81	0	0	50	218	0	0	0	0	218	0	0	0
										3	47	5	2	15								
	214				8-5	12	0	62	2	54	5	1	97	299	0	0	0	0	299	0	0	0
235	215				8-5	12	0	62	6	12	0	3	77	690	0	0	0	0	690	0	0	0
	2				8-5	12	0	62	0	22	0	0	14	690	0	0	0	0	690	0	0	0

S. DHANASEKAR

UNRECORDED
09 MAR 2011

பெண்
K. Ieeya
பிழைப்பு எண் (DOB): 09/06/1957
பாலம்: MALE

3260 7074 2199
VRI: 9366 9816 087 0704

செய்தல் கட்டுப்பாட்டு, கட்டுப்பாட்டு அமைப்பு, மதுரை

பெண்
20/11 வீடுகள் அபிவிருத்தி, 157 மைன்
ரோடு, 1 ப்ளாக் அன்னாக்கா, கிழக்கு
நகர், சென்னை - 600102

Address:
20/11 VIVEKS APARTMENTS, 157 MAIN
ROAD, 1 BLOCK ANNANAGAN EAST, Anna
Nagar East S.O, Chennai,
Tamil Nadu - 600102

3260 7074 2199
VRI: 9366 9816 087 0704

செய்தல் கட்டுப்பாட்டு, கட்டுப்பாட்டு அமைப்பு, மதுரை

S. DHANASEKARAN
KORUMBUKOTTAI, 2011, TA



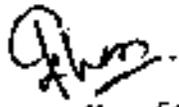
**CERTIFICATE OF RECOGNITION AS
QUALIFIED PERSON TO PREPARE MINING PLANS**
(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR, resident of Old No.6, New No.8/3, Kullappan Street, Opp. Indian Bank Line, Omalur (P.O), Salem - 636 455, son of Shri R. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

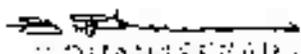
His registration number is

RQP/MAS/225/2011/A

Recognition is valid for a period of ten years ending 12.01.2021.


 Regional Controller of Mines
 Indian Bureau of Mines
 Chennai Region

*Place : Chennai
Date : 13.01.2011*


 S. DHANASEKAR, ES, JMW
 RQP/MAS/225/2011/A

ANV...
09 MAR 2021

PHOTO SHOWN PROPOSED LEASE AREA VIEW-1



PHOTO SHOWN PROPOSED LEASE AREA VIEW-2



S. Dhanasekar
S. DHANASEKAR, M.Sc. (Agr.)
RQP/MAR/225/2013/A

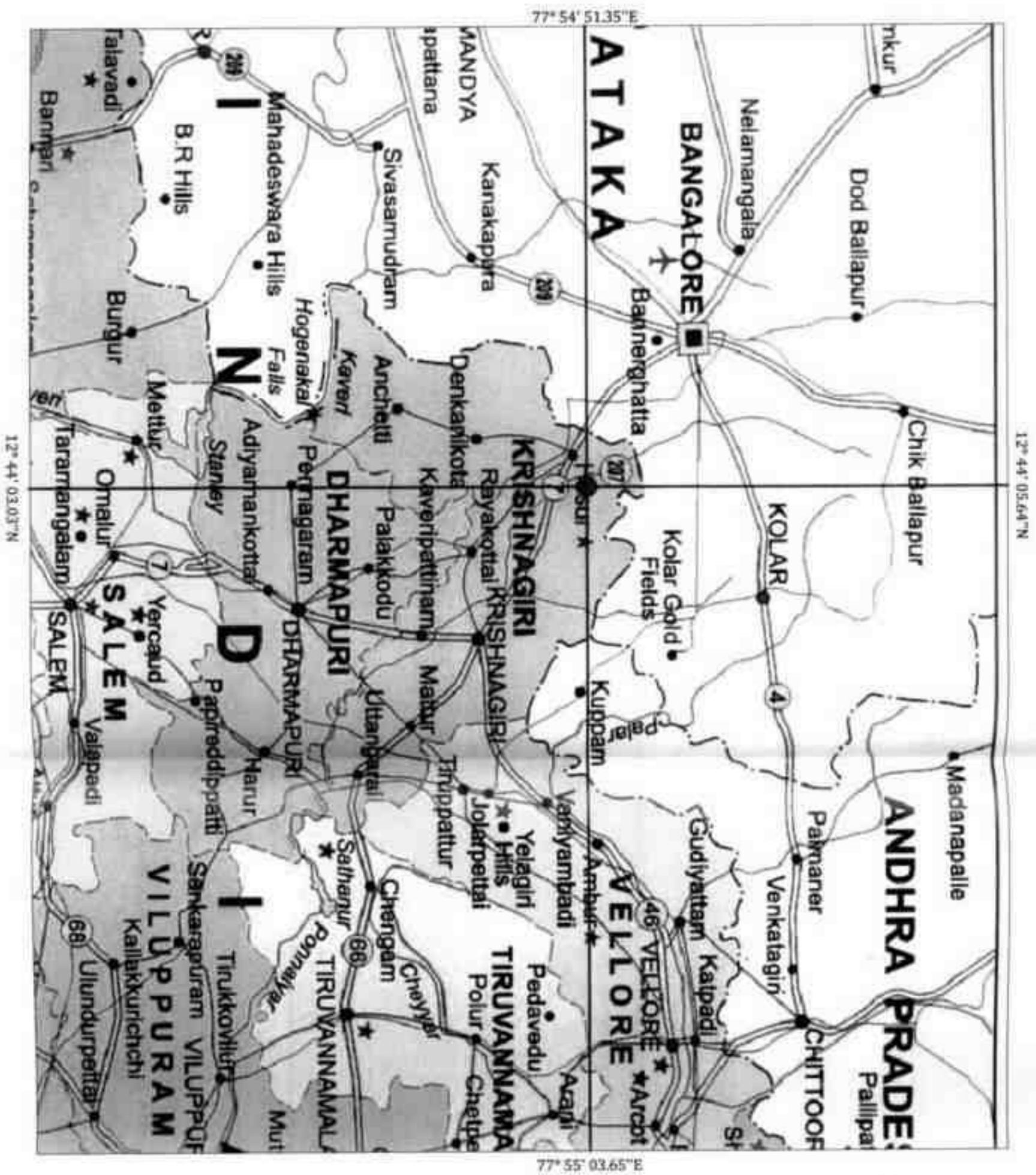


PLATE NO: 1

DATE OF SURVEY: 14-05-2019

APPLICANT ADDRESS:

THIRU K. JEEVA,
S/O. K.R. KANDASAMI,
D. No 20/1, VIVEK'S APARTMENT,
1st, MAIN ROAD, 1st BLOCK,
ANNA NAGAR EAST,
CHENNAI - 600 102.

INDEX



QUARRY LEASE AREA

TOPO SHEET NO: 57-N/14

LATITUDE: 12° 44' 03.64\"/>

LONGITUDE: 77° 55' 03.65\"/>

LOCATION OF QUARRY:

EXTENT: 4.50.0 Ha
S.F. NO: 209 (PART)
VILLAGE: ALUR
TALUK: HOSUR
DISTRICT: KRISHNAGIRI

LOCATION PLAN

NOT TO SCALE

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE.

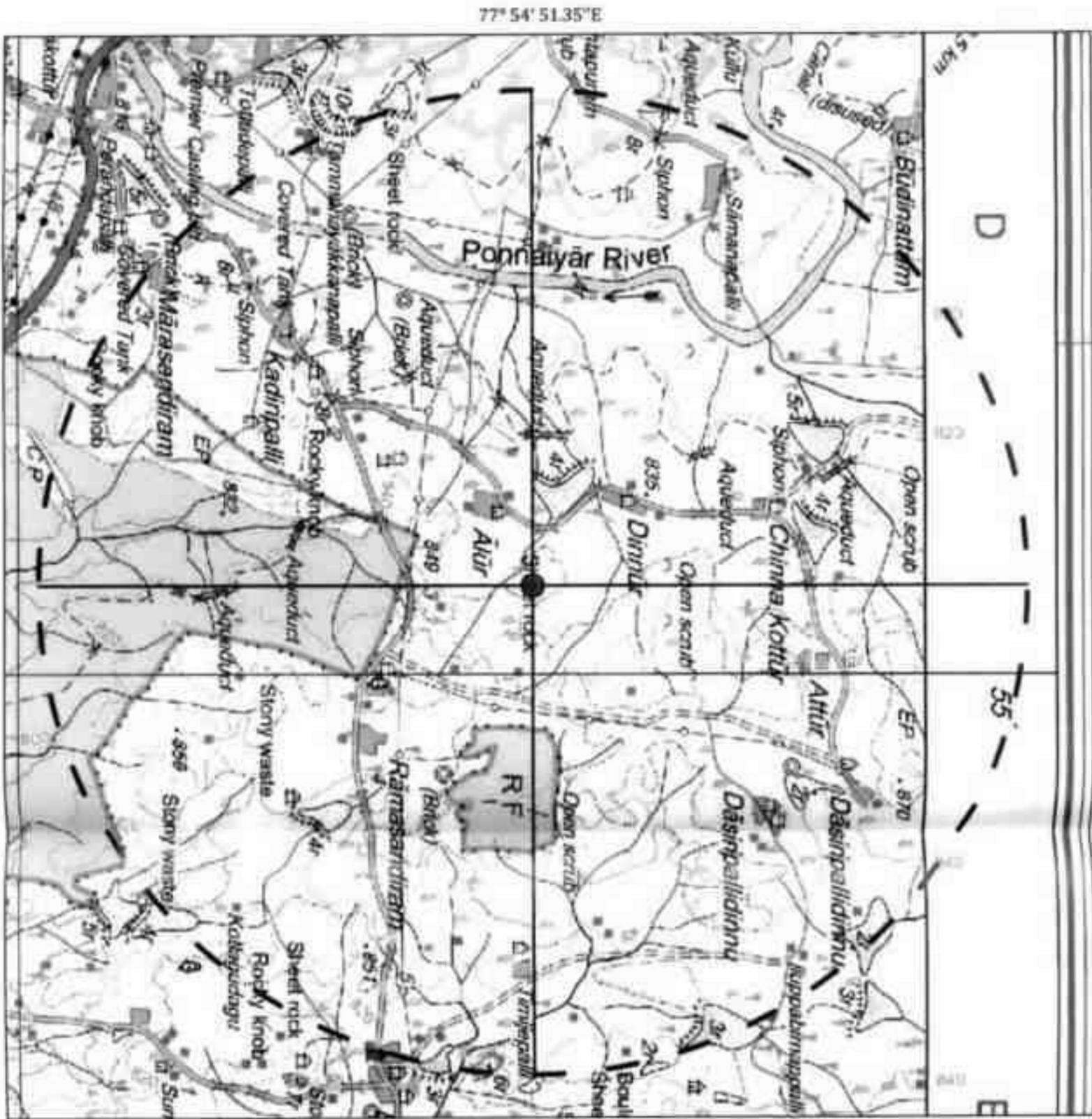
S. DHANASEKAR, M.Sc.
RECOGNIZED QUALIFIED PERSON
BOP/MA/522/SRI/1/A

ROUTE MAP



Not to Scale

Prepared By:
SUNANASERAM.S.
LECTURER/AGRIET P
MADRAS VETINARY
COLLEGE
MAR 2021



12° 44' 05.64" N

77° 54' 51.35" E

77° 55' 03.65" E

12° 44' 03.03" N



PLATE NO: I-B

DATE OF SURVEY: 14-03-2011

APPLICANT ADDRESS:

THIRUK. JEEVA,
S/o. K.R. KANDASAMI,
D. No. 20/1, VIVEKS ARMYMEN,
1st MAIN ROAD, 1st BLOCK,
ANNA NAGAR EAST,
CHENNAI - 600 102.

LOCATION OF QUARRY:

EXTENT : 4.50.0 Hrs
S.F. NO. : 209 (PART)
VILLAGE : ALUR
TALUK : HOSUR
DISTRICT : KRISHNAGIRI.

INDEX

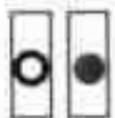
TOPO SHEET NO.: 57-H/14

LATITUDE : 12° 44' 05.64" N to 12° 44' 03.03" N

LONGITUDE : 77° 55' 03.65" E to 77° 54' 51.35" E

QUARRY LEASE AREA

5KM RADIOUS



CONVENTIONAL SYMBOLS

Open scrub	Stony waste
Stony waste	Sheet rock
Sheet rock	Rocky knob
Rocky knob	Kolapudavu
Kolapudavu	Sur
Sur	Water
Water	...

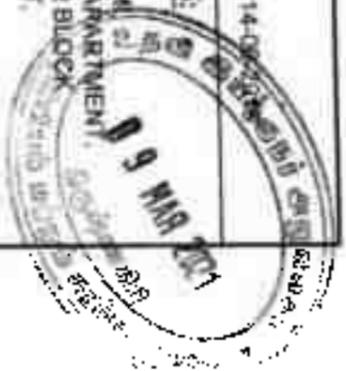
TOPO SHEET MAP

SCALE - 1:50,000

Prepared by:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE.

S. DHANASEKAR, M.S.
RECOGNIZED QUALIFIED PERSON
R09DMAK225/2011/A



12° 44' 03.03"N
77° 54' 51.35"E



12° 44' 04.34"N
77° 54' 52.12"E

12° 44' 05.64"N
77° 55' 03.65"E

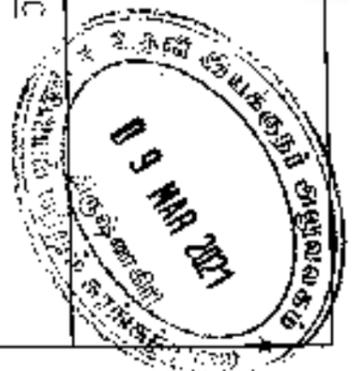


PLATE NO: I-C

DATE OF SURVEY: 14-06-2019

APPLICANT ADDRESS:

THIRUK JEEVA,
S/o. K.R. KANDASAMI,
D. No 20/1, VIVEKS APARTMENT
1st MAIN ROAD, 1st BLOCK
ANNA NAGAR EAST,
CHENNAI - 600 102.

INDEX

- QUARRY LEASE AREA
- 500m RADIUS
- 300M RADIUS

TOPO SHEET NO.: 57-H/14

LATITUDE : 12° 44' 05.64" N to 12° 44' 03.03" N

LONGITUDE : 77° 55' 03.65" E to 77° 54' 51.35" E

LOCATION OF QUARRY:

EXTENT : 4.50.0 Ha
S.F.NO : 209 (PART)
VILLAGE : ALUR
TALUK : HOSUR
DISTRICT : KRISHNAGIRI.

SATELLITE IMAGINARY MAP

SCALE - 1 : 5000

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWN FACTS

S. Jeyaraj
REGISTERED QUALIFIED PERSON
RUPMANZINGIUA

12° 43' 57.98"N
77° 55' 01.13"E

ANNEXURE-VII
VAO CERTIFICATE

THIRU. K.JEEVA Rough stone Quarry in the S.F.No.209(Part) over an extent of 4.50.0 ha. in ALUR Village, HOSUR Taluk, KRISHNAGIRI District.

GENERAL VIEW OF THE LEASE APPLIED AREA




K. JEEVA
(Deponent)


Village AMO
No:72, Alur, Hosur - Taluk
Krishnagiri - Dist.

ANNEXURE-VIII BLASTING AGREEMENT

SHRI S.RATHINAVEL EXPLOSIVES

Mallapuram
Somanahalli -P.O., Indur (Via),
Nallampalli-Tk., Dharmapuri-Dt. PIN : 636 803

Mobile : 99654 94172
Office : 04342 - 242626
E-mail : srathinevel145@gmail.com

Date-06/02/20201

To:

Thiru.K.Jeeva ,
20/1 Vivek Apart 1st Main Road,
1st Block, East Annanagar,
Chennai 102,

Sub: Willingness to do Explosives Blasting Works Regarding/-

Dear Sir,

I have Respect To The Above Subject, We Would Like To Introduce Our Self As The
EXPLOSIVES BLASTING CONTRACTORS, For Which Our Form 22 (LE-3) Magazine Is Situated
In SF.No: 119/1B Of Nekkundhi Village, Nallampalli Taluk Dharmapuri District Of
Tamilnadu.

Details of our Explosives Licences are as below.

1. E/HQ/TN/22/230 (E43468)

We are engaged in Professional Blasting Contract works with all all facilities and Licence Holders to
carry out blasting works in specified time and period covered under Explosives Rules, 2008.

We kindly request yourself to engage us to do Explosives Blasting works in Your Quarry Situated
at SF.Nos: 209 (Part) (Comprising 4.50.0 Hectares) Alur Village, Hosur Taluk, Krishnagiri District.

SERVING BEST AT ALL TIMES

Thanking you

For S.RATHINAVEL EXPLOSIVES.


Authorized Signatory

Enclosure

1. Explosive License Copy.

अनुमति परप एन ई-3 | LICENCE FORM I.E-3

(विस्फोटक विधम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) में (ग) श्रेणी।)
(See article 3(k) to (l) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपरोक्त के लिए एक समय या वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मिसाइल में वर्ग 4 के
अनुमति

License to possess: (g) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुमति सं. (License No.): EHQ/TN/22230(E43448)
वार्षिक फीस राशि (Annual Fee Rs): 9800/-



1. License is hereby granted to
Shri S. Rathinavel S/o. Subramani Makkapuram (श्रीश्रीवती / Occupier: Shri S. Rathinavel S/o. Subramani), Somasubali P.O., Indur Village, Chitt. Dharmapuri - 636 803 (Tamil Nadu),
Town/Village - Pennagarum, District-DHARMAPURI, State-Tamil Nadu, Pincode - 636803

को अनुमति अनुदान की जाती है।
2. अनुमतिधारी की श्रेणियाँ | Status of license: Individual

3. अनुमति निम्नलिखित उपयोगों के लिए विधिमन्व है। | License is valid only for the following purpose:
purpose for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators. - (क) श्रेणी।

4. अनुमति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमन्व है।
License is valid for the following kinds and quantity of explosives: - (क) (4)

क्र. सं.	नाम और विवरण	वर्ग और विभाग	उप-विवरण	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1	Nitrate Mixture	2, 0	0	4500 Kg.
2	Safety Fuse	6, 1	0	2000 Mtrs
3	Detonating Fuse	6, 2	0	17500 Mtrs
4	Electric and/or Ordinary Detonators	6, 3	0	44000 Nos.

(ग) किसी एक बर्तन एक में अधिकतम वर्ग 4 के विस्फोटक की मात्रा (अनुच्छेद 3(क) और (ग) के अधीन अनुमति के लिए) 20 times at above.
(h) Quantity of explosives to be purchased in a calendar month (applicable for license under subrule 3(k) and (g)).

5. निम्नलिखित रेखाचित्र (रेखाचित्र) में अनुमति परिसर की रूपरेखा होगी।
The licensed premises shall conform to the following drawing(s).
रेखाचित्र क्र. (Drawing No.) EHQ/TN/22230(E43448)
दिनांक (Date) 10/02/2011

6. अनुमति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s), Survey No. 119/1B, ग्राम (Town/Village) - Nekkandla Village, (Village) - Nekkandla Village, Pennagarum
जिला (District) DHARMAPURI राज्य (State) Tamil Nadu पिनकोड (Pincode)
दूरभाष (Phone) 9996549472 ई. मेल (E-Mail) पिनस (Fax)

7. अनुमति परिसर में निम्नलिखित सुविधाएँ उपलब्ध हैं।
The licensed premises consist of following facilities:
a wide high explosives storage room, a lobby and a detonators storage room

8. अनुमति राज्य - समय पर समायोजित विस्फोटक अधिनियम, 1884 और उसके अधीन विद्यमान विस्फोटक विधम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदान की जाती है।
The license is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexure.

1. उपरोक्त एन सं. 5 में दया बर्तन रेखाचित्र (रचना, समीक्षण संबंधी और अन्य विवरण शामिल करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
2. अनुमति धारिता बंदरहा हस्ताक्षरित इस अनुमति की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this license signed by the licensing authority.
3. दूरी फॉर्म DE-2 | Distance Form DE-2.

9. यह अनुमति तारीख 31 मार्च 2015 तक विधिमन्व होगी। This license shall remain valid till 31st day of March 2015.

यह अनुमति, अधिनियम या उसके अधीन विद्यमान नियमों या अनुसूची V के भाग 4 के प्रति निहित गेट-VII के अधीन उपरोक्त उपबंधित इस अनुमति की शर्तों का उल्लंघन करने या यदि अनुमति परिसर योजना या उससे संगत उपबंध में दक्षिण विवरण के अनुसार नहीं पर जाने पर निहित या प्रतिबंधित की जा सकती है, जहां वह लागू हो।
This license is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this license as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 10/02/2011

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments:

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 23/11/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 23/03/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 14/08/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 09/10/2013

अधिकारण के पुनःकरण के लिए स्थान
Space for Endorsement of Renewal

अधिकारण की तारीख Date of Renewal	अवधि की तारीख Date of Expiry	अनुमोदन अधिकारी के हस्ताक्षर और मुद्रा Signature of licensing authority and stamp
22/01/2020	31/01/2023	<p>अनुमोदन अधिकारी</p> <p>निष्ठासिंह निवाक, बरगढ़</p> <p>Controller of Explosives, Baran</p>

सावधानी चेतावनी : विस्फोटकों को गलत ढंग से प्रयोग या उनका दुरुप्रयोग कृपि क अतीत दंडनीय दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

**ANNEXURE-IX AFFIDAVIT AND CER
DETAILS**



தமிழ்நாடு தமில்நாடு TAMILNADU Rs.100/-
20.03.2021
K. Jeeva, Chennai

CE 066136
S. Thanigainathan
STA...
L.No. : 3891/B1/2000

AFFIDAVIT TO SEIAA, TAMIL NADU

Thiru. K. Jeeva, S/o. K.R. Kandasami residing at D. No.20/1, Viveks Apartments, 1st Main Road, 1st Block, Anna Nagar East, Chennai - 600 102 do hereby solemnly declare and sincerely affirm that, we have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Rough Stone quarry over an extent of 4.50.0Ha. of Government Poramboke land in S.F.No.209(Part), of Alur Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State,

1. I swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, none of the following is situated
 - a. Protected areas notified under the wild life (Protection) Act, 1972 (NBWL).
 - b. **Wild Life Sanctuary:** Nil within 10km Radius
 - c. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974.
 - d. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site.



S. Thanigainathan
S. THANIGAINATHAN, B.COM., L.L.B.,
ADVOCATE & NOTARY PUBLIC GOVT. OF INDIA
No: 154, Ground Floor, Opp Court Complex
HOSUR-635 109, Krishnagiri-Dt.
Ph: 9443480697

2. we will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities:

CER Activity	Project cost (Rs)	CER cost 2.0% of Project cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs. 5,20,40,000/-	Rs. 10,40,800 /-
Total cost Allocation	Rs. 5, 20,40,000/-	Rs. 10,40,800 /-

3. Details of quarry within 500m radius from the applied area:

(i) Details of Existing quarries:

Sl. No.	Name of the lessee	Village	S.F. No.	Extent in Ha.	GO No. & Date	Lease period
1.	Tvl, Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Tambaram, Chennai - 600 045.	Alur, Hosur Taluk	212/1	2.02.5	Roc.346/2015/Mines dated:29.12.2018.	29.12.2018 to 28.12.2023
2.	Tmt.B. G. Manjula, W/o. Late Baskar, No.77 E Indira Nagar, Begalur Road, Hosur - 835 109.	Alur, Hosur Taluk	208/1	3.03.5	680/2013/Mines dated:19.06.2019.	19.06.2019 to 18.06.2024



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Ph:9443480697

(ii) Details of abandoned / Old quarries:

Sl. No.	Name of the lessee	Village	S.F. No.	Extent in Ha.	GO No. & Date	Lease period
1.	Tvl. Chennai Mines, 29 Ramesh Nagar, Thiruneermalai Road, West Thambaram, Chennai - 600 045.	Alur	211	3.46.5	Roc.276/2013 (M-2) dated:11.03.2015	20.3.2015 to 19.3.2020
2.	R. Prasannakumar, S/o.Thiru Ramiyan 122 Thinnur village, Perandapalli Post, Hosur Taluk	Alur	209(Part)	4.21.5	Roc.641/2009 (Mines-2) dated:27.10.2009	19.11.2010 to 18.11.2015
3.	Thiru. M. Durai, S/o. Mallagounder, 13/12B Santhi Nagar, Opp Ragavendra Teater, Hosur	Alur	207/1B	0.81.0	Roc.324/08 dated:27.11.2008(Mines-2) dated:27.11.2008	23.11.2009 to 22.11.2014

(III) Details of Proposed quarries:

Sl. No.	Name of the lessee	Village	S.F. No.	Extent in Ha.	GO No. & Date	Lease Period
1.	Thiru. K. Jeeva, S/o. K.R. Kandasami, D. No.20/1, Viveks Apartments, 1 st Main Road, 1 st Block, Anna Nagar East, Chennai - 600 102	Alur, Hosur Taluk	209(Part)	4.50.0	Instant Proposal	Precise area commmicated vide District Collector letter Roc.No.216/2016/Mine dated:13.06.2019.

(iv) Details of applied area:

Sl. No.	Name of the lessee	Village	S.F. No.	Extent in Ha.	GO No. & Date	Remarks



S. Thanigainathan
B. THANIGAINATHAN, B.COM, LL.B.
 ADVOCATE & NOTARY PUBLIC, HOSUR DISTRICT
 No:154, Ground Floor, Opp Court Complex
 HOSUR-635 109, Krishnagiri-Dt.
 Ph:9443480697

The total lease within the 500m radius works out to 13.02.5Ha including this lease area.

4. There will not be hindrance or disturbance to the people living in the vicinity/ nearby our quarry site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. We swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in our quarry site.
8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone, weathered rock and Gravel.
9. We will not engage any child labor in our quarry site and I am aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temple etc., are located within 500m radius from the periphery of our quarry.

We ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.



(Deponent)




S. THANIGAINATHAN, B.COM., L.L.B.,
ADVOCATE & NOTARY PUBLIC GOVT OF INDIA
No:154, Ground Floor, Opp Court Campus
HOSUR-635 109, Krishnagiri-Dt.
Ph:9443480697

ANNEXURE-X NABET CERTIFICATE



National Accreditation Board for Education and Training



Certificate of Accreditation

Eco Tech Labs Pvt Ltd.,

48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals - including Open cast only	1	1 (a) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
6	Airports	29	7 (a)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 posted on QCI-NABET website

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2217 dated Jan. 19, 2022. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.



Sr. Director, NABET
Dated: Jan. 19, 2022

Certificate No.
NABET/EIA/2124/SA 0147

Valid up to
Sep. 15, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.