DRAFT ENVIRONMENTAL IMPACT ASSESSMENT

&

ENVIRONMENT MANAGEMENT PLAN

"B1" CATEGORY – MINOR MINERAL – PATTA LAND – NON-FOREST LAND

THIRU. K. KUPPURAJ ROUGH STONE & GRAVEL QUARRY

IN CLUSTER OVER AN EXTENT OF 9.86.23 Ha

At

Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State

For Obtaining
Environmental Clearance under EIA Notification – 2006
Schedule Sl. No. 1 (a) (i): Mining Project

Project Proponent	Proposed Project	Extent
Thiru. K. Kuppuraj, S/o.Karuthirumagowder, No.16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N.Palayam, Erode District - 638506.	S.F. Nos: 49/1,55/2B (P) & 55/6(P), Kovundampalayam Village, Gobichettipalayam Taluk, Erode District.	**2.29.73 ha**
Production Details for Ten Years: 4,06,025 m^3 of Rough Stone 35,802 m^3 of Gravel Depth : 57m BGL (2m Gravel + 55m RoughStone)		
ToR obtained vide **File No. 13192 ToR Identification No.TO25B0108TN5156627N Dated.13.02.2026**		

Environmental Consultant
GEO EXPLORATION AND MINING SOLUTIONS
Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India
Accredited for sector 1 Category 'A', 31 Category 'B' & 38 Category 'B'
Certificate No : NABET/EIA/25-28/RA 0424 Dated: 25.08.2025
Valid Upto: 06.08.2028
Phone: 0427-2431989,
Email: ifthiahmed@gmail.com, geothangam@gmail.com
Web: www.gemssalem.com

Laboratory
ENVIRONMENTAL LAB
CHENNAI METTEX LAB PRIVATE LIMITED
(Approved by AAI, AGMARK, APEDA, BIS, EIC FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)
Certificate No : ISO/IEC 17025:2017 Dated: 16.06.2024
Valid Upto: 15.06.2026
Jothi Complex, 83,
M.K.N Road, Guindy,
Chennai – 600 032

Baseline Monitoring Season – March 2026 to May 2026

JUNE 2026

DECLARATION BY THE PROJECT PROPONENT

I, K. Kuppuraj – Project Proponent of **Thiru. K. Kuppuraj Rough Stone and Gravel Quarry** hereby declare that this EIA & EMP report prepared by **M/s. Geo Exploration and Mining Solutions** for our Rough Stone & Gravel Quarry situated in S.F.Nos. 49/1,55/2B (P) & 55/6(P) over an extent of 2.29.73 Ha in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide File No.13192 TOR Identification No. TO25B0108TN51566270N Dated: 13.02.2026.

I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge.

Signature of the Project Proponent

K.Kuppuraj

Place : Erode

Dated :

UNDERTAKING BY THE EIA COORDINATOR

I, Dr. M. Ifthikhar Ahmed, EIA Coordinator given undertaking that, this EIA & EMP report prepared for Thiru. K. Kuppuraj Rough Stone & Gravel Quarry situated in S.F.Nos. 49/1,55/2B (P) & 55/6(P) over an extent of 2.29.73 Ha in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide File No.13192 TOR Identification No. TO25B0108TN5156627N Dated: 13.02.2026

I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place : Erode
Dated :

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the below-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Thiru. K. Kuppuraj Rough Stone and Gravel Quarry over an Extent of 2.29.73 ha in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

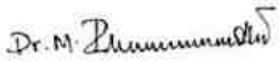
Signature & Date:	
Name:	**Dr. M. Ifthikhar Ahmed**
Designation:	**Managing Partner**
Name of the EIA Consultant Organization:	**M/s. Geo Exploration and Mining Solutions**
NABET Certificate No & Issue Date:	**NABET/EIA/25-28/RA0424 Dated: 25-08-2025**
Validity:	**Valid till 06.08.2028**

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Thiru. K. Kuppuraj Rough Stone and Gravel Quarry over an Extent of 2.29.73 ha in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge. I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA/EMP Report.

Name**:** **Dr. M. Ifthikhar Ahmed**

Designation**:** **EIA Coordinator**

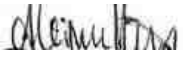
Date & Signature: 

Period of Involvement: **Feb 2026 to till date**

Associated Team Member with EIA Coordinator:

1. **Mr.A.Naveen**
2. **Mr. M. Shaik Nawas**

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures	Mr. A. Jagannathan	
2	WP	▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr. M. Ifthikhar Ahmed	
3	HG	▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics	Mr. L. Jayaraj	
4	GEO	▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Mr. B. Vengadagiri	
5	SE	▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility.	Mr. A. Allimuthu	

6	EB	▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development.	Mr. Panneer Selvam	
7	RH	▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety.	Mr. N. Senthilkumar	
8	LU	▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures.	Mr. A. Allimuthu	
9	NV	▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP.	Mr. A. Jagannathan	
10	AQ	▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP	Mr. N. Senthilkumar	
11	SC	▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. M. Ifthikhar Ahmed	
12	SHW	▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	Mr. A. Jagannathan	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. M. Shaik Nawas	AQ; NV; SC	▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	
2	Mr. A. Naveen	LU	▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps	

NABET CERTIFICATE

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL OF INDIA
Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration and Mining Solutions, Salem

No. 17, Advaitha Ashram Road, Fairlands, Salem, Tamil Nadu – 636 004

*Geo Exploration and Mining Solutions, Salem is Re-Accredited (RA3) **as Category-A organization** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Version 3), for the preparation of EIA/EMP reports in the sectors listed below, as per the specified categories*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
4.	Building and construction projects	38	8 (a)	B

Note: Names of approved experts and sectors are mentioned in RAAC minutes dated August 21, 2025, 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/25/3827 dated August 25, 2025. The accreditation needs to be renewed before the expiry date by Geo Exploration and Mining Solutions, Salem following due process of assessment.

Valid up to
August 06, 2028

Issue Date
August 25, 2025

Certificate No.
NABET/EIA/25-28/RA 0424

Varinder Kanwar
Prof (Dr) Varinder S Kanwar
(CEO – NABET)

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

For the easy representation the proposed quarry and existing quarry are designated as below –

Propsed Quarries				
Code	**Name of the Proponent and Address**	**S.F. Nos & Village**	**Area (Ha)**	**Status**
P1	K. Kuppuraj	49/1, 55/2B (P) & 55/6 (P) - Kovundampalayam	2.29.73	File No. 13192 ToR Identification No.TO25B0108TN5156627N Dated.13.02.2026
P2	T.M. Manoharan and 2 others	49/2, 3, 4A & Kovundampalayam	1.99.0	EC Granted EC Identification No: EC25B0108TN5644274N Dated:19.08.2025
		Total	**4.28.73**	
Existing Quarries				
CODE	**Name of the Proponent and Address**	**S.F. Nos**	**Extent in Ha**	**Lease Period**
E-1	K. Indirani	55/1A(P), 3(P) & 58	2.91.50	09.01.2024 – 08.01.2029
E-2	S. Kandasamy	63/1, 64/1A, 3A, 5A	2.66.00	15.09.2023 – 14.09.2028
		Total	**5.57.50**	
Expired/ Abandoned Quarries				
EX-1	K. Kuppuraj	52/2C	1.27.0	02.12.2014 – 01.12.2019
EX-2	Thiru. S. Kandasamy	70/9 Part	5.00.0	09.01.2011 – 08.01.2016
EX-3	Thiru. M. Seenivasan	70/9 South Part	2.00.0	26.04.2010 – 25.04.2020
EX-4	T.R. Velusamy	38 South Part	2.00.0	26.04.2010 – 25.04.2015
EX-5	R. Paulraj	38 North Part	2.06.0	26.04.2010 – 25.04.2015
		Total	**12.33.00**	
		Total Cluster Extent	**9.86.23 Ha**	

Note: -

- **Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016**

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI,- (ii) (5): The lease 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 Environment Management Plan and the Regional Environmental Management Plan"

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru. K. Kuppuraj Roughstone & Gravel Quarry

File.No.13192, TO25B0108TN5156627N Dated.13.02.2026

SPECIFIC CONDITIONS		
1	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.	**Noted and Agreed** Cluster Management committee has been detailed in the chapter - 7
2.SEAC STANDARD CONDITIONS		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Not Applicable It is a fresh quarry
2	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.	**Noted and agreed.** Letter obtained from the VAO regarding surface features within 300m radius and attached it in Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	**Noted and agreed** The structure study has been carried out within the radius of 300m. There is no habitation within the radius of 300m from the project site the details of the structures is given in the EIA report, Chapter No.III
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	**Noted and agreed.** The hydro-geological assessment was carried out to assess the potential effects on the groundwater table. It is expected that there will be no major impacts on the water bodies in the

		vicinity of the project site. Further information is given in Chapter 3.
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	**Noted and agreed** The Bio diversity study has been conducted by the Functional Area Expert approved by the NABET. The same has been detailed in the Chapter No. 3.
6	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.	Request to consider the secondary source data detailing the nearest reserve forest from Tamil Nadu Geographical Information System (TNGIS). The Nearest Reserve Forest Guttiyalaitur RF – 1.26 km – North
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 the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	**Noted and agreed**. It is a fresh quarry. The slope stability report will be submitted together with the half-yearly compliance report once the depth reaches 30 meters.
8	However, in case of the fresh/virgin quarries, 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 30 m below ground level.	**Noted and agreed**. It is a fresh quarry. The slope stability report will be submitted together with the half-yearly compliance report once the depth reaches 30 meters.
9	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.	**Noted and agreed** The Proponent will submit affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961 during Fina EIA Appraisal
10	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.	**Noted and agreed** The details of design for carrying out controlled blasting operation involving line drilling and muffle blasting to minimize blast-induced ground vibrations and controlled fly rock travel beyond 30 m from the blast site is detailed in Chapter 4.
11	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	**Noted and agreed.** No other quarries in the name of the proponent
12	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,	**Noted and agreed**

13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	It is a fresh quarry
14	Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is a fresh quarry
15	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).	**Noted and agreed** The project site has been superimposed on the high resolution imagery. The Satellite imagery of the project site is enclosed in Chapter II Geomorphology map of the area is enclosed in Chapter II. Lithology and Geology Map of the area is enclosed in Chapter II.
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	**Noted and agreed** The Drone Video of the project site is taken covering the Greenbelt and Fencing around the Project site.
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.	Noted and agreed As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1150 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads. As well the pp has provided wire fencing as recommended all along the boundary of the lease applied area.
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.	**Noted and agreed** Details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology justifications are provided in Chapter 2. The anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same are provided in Chapter 4.
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 the 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.	**Noted and agreed** 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, 196l 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 ofthe	**Noted and agreed**

	water table detailing the number of groundwater 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.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
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	**Noted and agreed** Baseline Data were collected for Summer season Mar 2026 – May 2026 The Details of the Baseline Monitoring is given in the Chapter No. 3.
22	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 and agreed** Cumulative impact study has been carried out covering proposed and existing quarries in the cluster and results related to air pollution, water pollution, & health impacts have been given in chapter No. 7, Based on the results, environmental management plan has been prepared and given in Chapter No. 10.
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	**Noted and agreed** The lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.
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.	Noted and Agreed Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 3, Table No 3.3
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.	Not applicable.
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.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
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.	**Noted and agreed** The lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.

28	Impact on local transport infrastructure due to the Project should be indicated.	**Noted and agreed** Traffic density survey was carried out to analyze the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Chapter No. 2.
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.	**Noted and agreed**
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific	**Noted & agreed.** Mine closure plan is detailed in Chapter No. 4.
31	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 and agreed**
32	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. 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.	**Noted and agreed** As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1150 Nos of trees were planted as a part of greenbelt development program all along the periphery of the lease applied area and approach roads and village roads.
33	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	**Noted and agreed** As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1150 Nos of trees were planted as a part of greenbelt development program all along the periphery of the lease applied area and approach roads and village roads.
34	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	Noted and agreed. Disaster management Plan is explicated in chapter 7.
35	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	Noted and agreed. Risk Assessment and management Plan is explicated in chapter 7.
36	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.	Noted and agreed Occupational Health impacts of the project elaborately discussed in chapter 10.
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial	Noted and agreed No Public Health Implications anticipated due to this project. The anticipated impact and effective

	measures should be detailed along with budgetary allocations.	mitigation measures are discussed in the Chapter No. 4
38	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 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.	**Noted and agreed** Socio-economic studies were conducted within a 5-kilometer radius of the quarry site. Details of report given in Chapter 3.
39	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 this project
40	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.	**Noted and agreed.** The details of the Project benefits are given in the Chapter No. 8.
41	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.	**Noted and agreed.** It is a Fresh Quarry
42	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 and agreed** The EMP has been prepared for the entire life of the mine i.e., up to the lease period.
43	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.	**Noted and agreed**

SEIAA SPECIFIC CONDITIONS		
1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant **Terms of Reference (ToR) along with Public Hearing for the quantity of 4,06,025 m^3 of Rough Stone and 35,802 m^3 of Gravel up to the depth of 57m BGL and the annual peak production should not exceed 53,550 m^3 of Rough Stone & 11,934 m^3 of Gravel** as per the approved mining plan, 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-I & normal conditions & SEIAA Specific & Standard conditions.	**Noted and agreed** Draft EIA report is preapared as per the recommendation of SEAC – I & SEIAA.

SEIAA STANDARD CONDITIONS		
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 agreed** The Cluster management committee has been formed covering the existing and proposed quarries in the cluster
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.,	**Noted and agreed** The information will be shared to the cluster management committee during the monthly meeting.
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.	**Noted and agreed** The list of members of the committee formed will be submitted to AD/Mines before resuming the mining operation.
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.	**Noted and agreed** It is a Fresh Quarry the blasting will be used for the removal of Rough Stone and Overburdern only the blasting frequency and usage of haul roads are discussed.
5	The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals 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.	**Noted and agreed** The risk management plan and disaster management plan has been prepared and enclosed in this EIA report, Chapter No. 7.
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 in the EIA Report.	**Noted and agreed** Environmental policy of the cluster management committee is detailed in the EIA Report Chapter No. 6
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.	**Noted and agreed** The Restoration strategy is discussed in the progressive mine closure plan and will be enclosed in the Scheme of Mining plan.
8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	**Noted and agreed** The information on the health of the workers and the local people will be updated periodically along with medical examination.
Agriculture & Agro-Biodiversity		

9	Impact on surrounding agricultural fields around the proposed mining Area.	As the proposed lease area is dominantly surrounded by mining land, barren land, and fallow land, the impact on the surrounding agricultural fields if present is considerably low. The Mining operation will be carried out to reduce the impact further to the level of negligence.
10	Impact on soil flora & vegetation around the project site.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
11	Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.	**Noted and agreed** There are no trees within the Fresh quarry site, and therefore, no proposal for tree felling or removal is anticipated during the quarrying operations.
12	The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	**Noted and agreed** The details of the soil analysis and the impacts are given in the Chapter No 3 & 4.
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	**Noted and agreed** The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock	**Noted and agreed** The project area is situated centre part of the quarry lands. The proposed Rough Stone quarrying operation will employ the wet drilling method, which is expected to have negligible impacts on nearby agricultural lands.
Forests		
15	The project proponent shall detail study on impact of mining on Reserve forests and free ranging wildlife	**Noted and agreed.** There is no Reserve Forest within 1km radius from the project area. The mining operation will not cause any significant impact to the Reserve Forest and Wild life Sanctuaries

16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Sathiyamangalam Tiger Reserve – 1.26km - North, chapter 3 Details of Ecology and Biodiversity, and 4 endemic vulnerable and endangered indigenous flora and fauna.
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection	Details are discussed in the Chapter No.3
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
Water Environment		
19	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	There are 09 open wells and 08 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method.
20	Erosion Control measures	Details discussed in the chapter No.4
21	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.	Details in Chapter 3
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir	Food webs describe who eats whom in an ecological community. Made of interconnected food chains, food webs help us understand how changes to ecosystems — say, removing a top predator or adding nutrients — affect many different species, both directly and indirectly. Whereas in this proposed project is for quarrying of Rough Stone and Gravel and is on a hard batholith formation where no diversion of any water bodies is proposed of there is no intersection of ground water table anticipated.
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Details are given in the Chapter No 4.
24	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	Details in Chapter 4 impact of bio diversity.

	caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components	Details of impact on soil environment is detailed in Chapter No.4
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites	Guttiyalaitur RF – 1.26 km – North There is, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area. Ecological Environment is discussed under Chapter 3
27	The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams.	Noted and Agreed
Energy		
28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Noted and agreed. Control measures of Noise, Air Water, Dust discussed in chapter 4
Climate Change		
29	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 agreed. Details discussed in chapter 4.
30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features	Noted and agreed. Details are discussed in chapter 3.
31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	A greenhouse gas (GHG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3)

		Carbon dioxide (CO_2): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane (CH_4): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills. Nitrous oxide (N_2O): Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.
Mine Closure Plan		
32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Progressive Mine closure plan has been prepared considering the entire lease period in the mining plan and the same has been approved.
EMP		
33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs	**Noted and agreed** Detailed EMP discussed in chapter 10.
34	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	**Noted and agreed.** Detailed EMP discussed in chapter 10.
Risk Assessment		
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Noted and agreed. Risk Assessment and management Plan explicated in chapter 7.
Disaster Management Plan		
36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & 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	Noted and agreed. Disaster management Plan details given in Chapter-7

	lease period as per precise area communication order issued.	
Others		
37	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.	Letter obtained from the VAO regarding surface features within 300m radius
38	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 agreed. It will be updated in final EIA/EMP report.
39	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported	Noted and agreed. Plastic waste management of the proposed project explicated in chapter 7.

STANDARD TERMS OF REFERENCE		
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.	**Not applicable.** The projects is Not a violation category. This proposal falls under B1 Category (Cluster situation)
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	Document is enclosed along with Approved Mining Plan as Annexure Volume 1 for the respective projects.
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.	**Noted & agreed.**
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, 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).	Satellite imagery of the project area along with boundary co-ordinates is given in the Chapter No 1 Geomorphology of the area is given in Chapter No 2 Land use pattern of the project area is tabulated in the Chapter No.2. Land use pattern of the Study area is tabulated in the Chapter No.3
5	Information should be provided in Survey of India Toposheet 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	**Map showing –** Geology map of the project area covering 10km radius - Geomorphology of the area is given in Chapter No 2.

	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.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
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 EC 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.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
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 opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90^0 bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
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.	**Noted & Agreed.** The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / 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.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2.
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	**Not Applicable.** There is no waste anticipated during this quarry operation. The entire quarried out Rough Stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	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. In the event of any contrary claim by the Project Proponent regarding the status of forests,	**Not Applicable.** There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land.

	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.	Approved Mining Plan is enclosed as Annexure Volume 1.
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.	**Not Applicable.** The proposed project area does not involve any 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.** The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
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.	**Not Applicable.** There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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	**Not Applicable.** There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
18	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, 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.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Detailed in Chapter No. 3.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so	**Not Applicable.** Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.

	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 w.r.t 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).	**Not Applicable.** The project doesn't attract The C. R. Z. Notification, 2018.
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.	**Not Applicable.** There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
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 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.	Baseline Data were collected for One Season Mar-May 2026 (Premonsoon Season) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	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 movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling 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	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4.

	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.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
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.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
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 Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
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.	The ground water table is at 130m below ground level. In these projects, ultimate depth is 57m Maximum from the general ground profile. It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table.
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.	Highest elevation of the project area is 264m AMSL Ultimate depth of the mine is 57m Bgl Water level in the area is 170m BGL
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4,
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 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.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in 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 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.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
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.	Details in Chapter 10.
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.	Occupational health impact and details of the medical examination to the workers given in the Details in Chapter 10.
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.	Details in Chapter No. 4
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.	Details of Socio Economic is given in the Chapter No 3.
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 Project.	Environment Management Plan Chapter 10.
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.	Public hearing points and commitment of the project proponent will be updated in the final EIA & EMP Report.
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 in any court against this project.
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.	Project Cost is given in the Chpater No 2,
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Detailed under Chapter 7

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.	Total Water Requirement for this project is given in the chapter No 2,
44	**Besides the above, the below mentioned general points are also to be followed: -**	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are 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.	List of Tables and source of the data collected are given properly.
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	Copy of Baseline monitoring reports are enclosed with this draft as annexure
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire of the project will be submitted in final EIA report after complying the public hearing points.
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.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are 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	There is no changes in Form-I, Mining plan and Pre-feasibility report for all the projects.
I	As per the circular no. J-11011/618/2010-IA. II(I) 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.	Not 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.	Satellite imagery of the project area along with boundary co ordinates is given in the Chapter No 1 Geomorphology of the area is given in Chapter No 2

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1. INTRODUCTION

1.0 PREAMBLE

The project proponent Thiru. K. Kuppuraj has applied for rough stone and gravel quarry over an extent of 2.29.73 Ha in S.F.Nos. 49/1, 55/2B(P) and 55/6 (Part) Kovundampalayam Village, Gobichettipalayam Taluk & Erode District.

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 04.10.2024
- Precise Area Communication Letter was issued by the Assistant Director, Erode R.C. No: 840/Mines/2024, Dated: 27.11.2025
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Erode District, vide R.C. No: 840/Mines/2024, Dated: 19.12.2025
- The proposed project falls under "B1" Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/562673/2025 Dated: 22.12.2025
- The proposal was placed in 665th SEAC meeting held on 19.01.2026 and the committee recommended for issue of ToR.
- The proposal was considered in 957th SEIAA meeting held on 05.02.2026 and issued ToR vide File No.13192 TOR Identification No. TO25B0108TN5156627N Dated:13.02.2026
- As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries – 2 proposals, 2 Existing quarry forming Cluster Category {Total Extent of the Cluster is 9.86.23 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

Based on the ToR Baseline Monitoring study has been carried out for one season (Pre Monsoon) i.e., **March – May 2026** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

1.1 PURPOSE OF THE REPORT

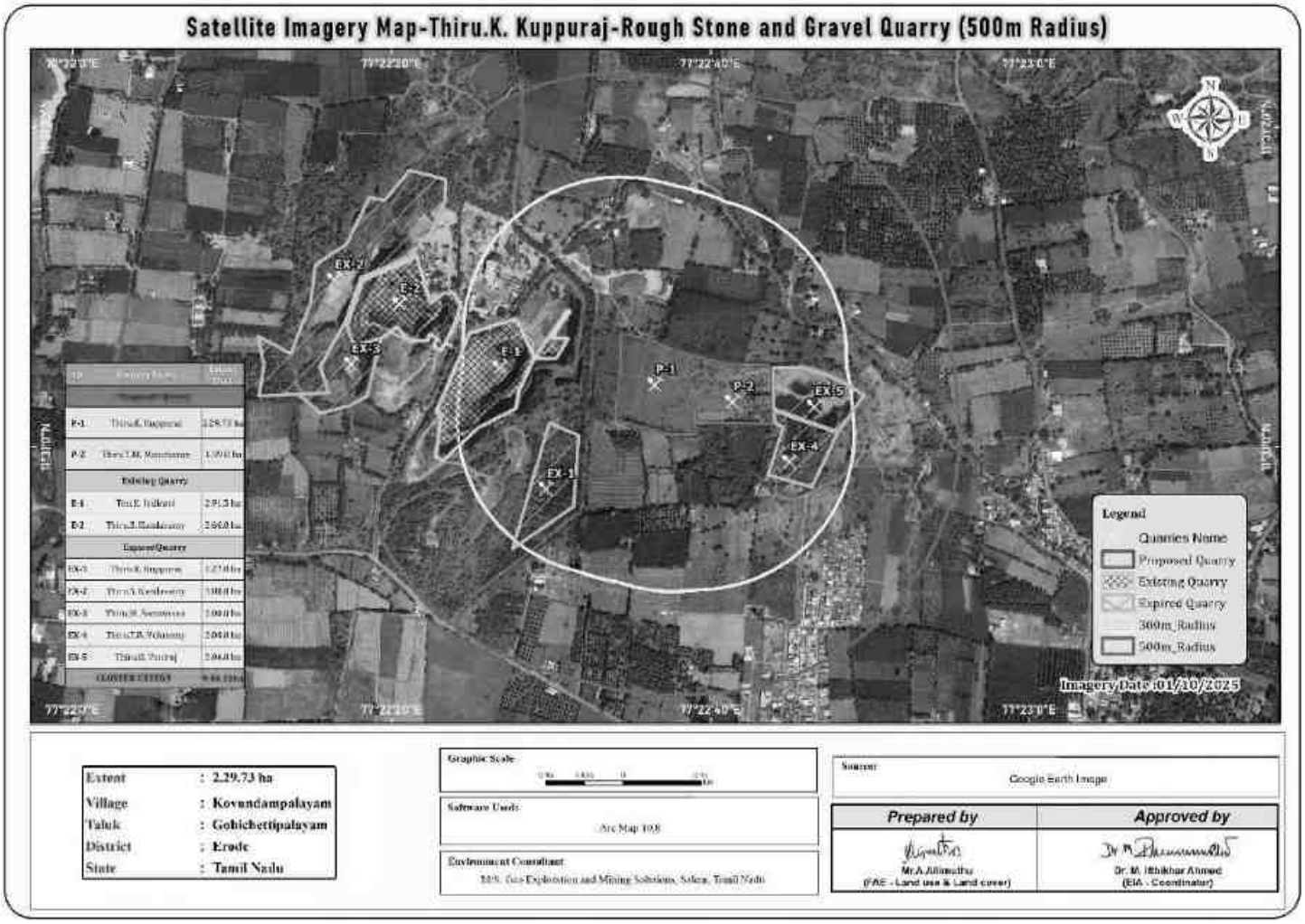
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14thSeptember 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14thAugust 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (≤ 100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B- 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed project is categorized under category "B1" Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance.

"Draft EIA report prepared on the basis of ToR Issued ToR for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu"

FIGURE.1.1SATELLITE IMAGERY CLUSTER QUARRY



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 Identification of Project

TABLE 1.1: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. K. Kuppuraj Rough Stone & Gravel Quarry
S.F. No.	49/1,55/2B (P) & 55/6(P)
Extent	2.29.73 ha
Land Type	Patta Land
Village Taluk and District	Kovundampalayam Village, Gobichettipalayam Taluk, Erode District

Source: Approved Mining Plan.

1.2.2 Identification of Project Proponent

TABLE 1.2: DETAILS OF PROJECT PROPONENT

Name of the Proponent	Thiru. K. Kuppuraj
Address	S/o.Karuthirumagowder, No.16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N.Palayam, Erode District - 638506
Mobile	94886 35456
Status	Individual

Source: Approved Mining Plan.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

The quarrying operation is to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Jack Hammer Drilling & Slurry Explosive during blasting. Hydraulic Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

TABLE 1.3: BRIEF DESCRIPTION OF THE PROJECT

Name of the Quarry	**Thiru. K. Kuppuraj Rough Stone & Gravel Quarry**	
Toposheet No	58E/06	
Land Classification	It is a Patta Land, Registered in the name of the proponent (Thiru.K. Kuppuraj) vide patta nos.7 and 235.	
Latitude between	11°31'00.66"N to 11°31'07.06"N	
Longitude between	77°22'34.01"E to 77°22'39.12"E	
Highest Elevation	264m AMSL	
Proposed Depth of Mining as per Tor	57m (2m Gravel + 55m Rough Stone)	
Geological Resources	Rough Stone in m^3	Gravel m^3
	12,63,515	45,946
Mineable Reserves	Rough Stone in m^3	Gravel m^3
	4,06,025	35,802
Yearwise production for first five years	Rough Stone in m^3	Gravel m^3
	2,09,225	35,802
Yearwise production for Second five years	Rough Stone in m^3	Gravel m^3

	1,96,800	-
Ultimate Pit Dimension	153m (L) x 117m (W) x 57m (D) Bgl	
Water Level in the surrounds area	130 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Eastern side and altitude of the area is 264m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the nearby quarry pits. The Water level in the area is 130m below general ground profile. Average annual rainfall is about 703 mm.	
Machinaries	Jack Hammer	**7 Nos**
	Compressor	**2 Nos**
	Excavator with bucket and rock breaker	**1 No**
	Truck	**2 Nos**
	Water Sprinkling Tanker	**1 No**
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	30 Nos	
Project Cost	Rs.1,23,78,000/-	
CER Cost	Rs 3,00,000/-	
Nearby Water Bodies	**Water bodies**	**Distance & Direction**
	Vaikkal	60m West
	Odai	220m NE
	Odai	1.1km West
	Bhavani River	3.8km SW
	Perumpalla River	8.2km West
	Perumpallam Dam	8.5km NW
Greenbelt Development Plan	Proposed to plant 1150 trees in the 7.5m Safety Zone, Village Road and panchayat roads.	
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	330m South East	

Source: Approved Mining Plan

1.3.2 Location of the Project

- The proposed quarry project falls in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District.
- Thiru. K. Kuppuraj Rough Stone and Gravel Quarry is located about 500m North Western side of Kovundampalayam Village
- The Kovundampalayam Village is located about 5.8km North western side of Gobichettipalayam Taluk.
- The area is marked in the Survey of India, Toposheet No. 58-E/06. The area lies between the Latitudes of 11°31'00.66"N to 11°31'07.06"N and Longitudes of 77°22'34.01"E to 77°22'39.12"E.

FIGURE 1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

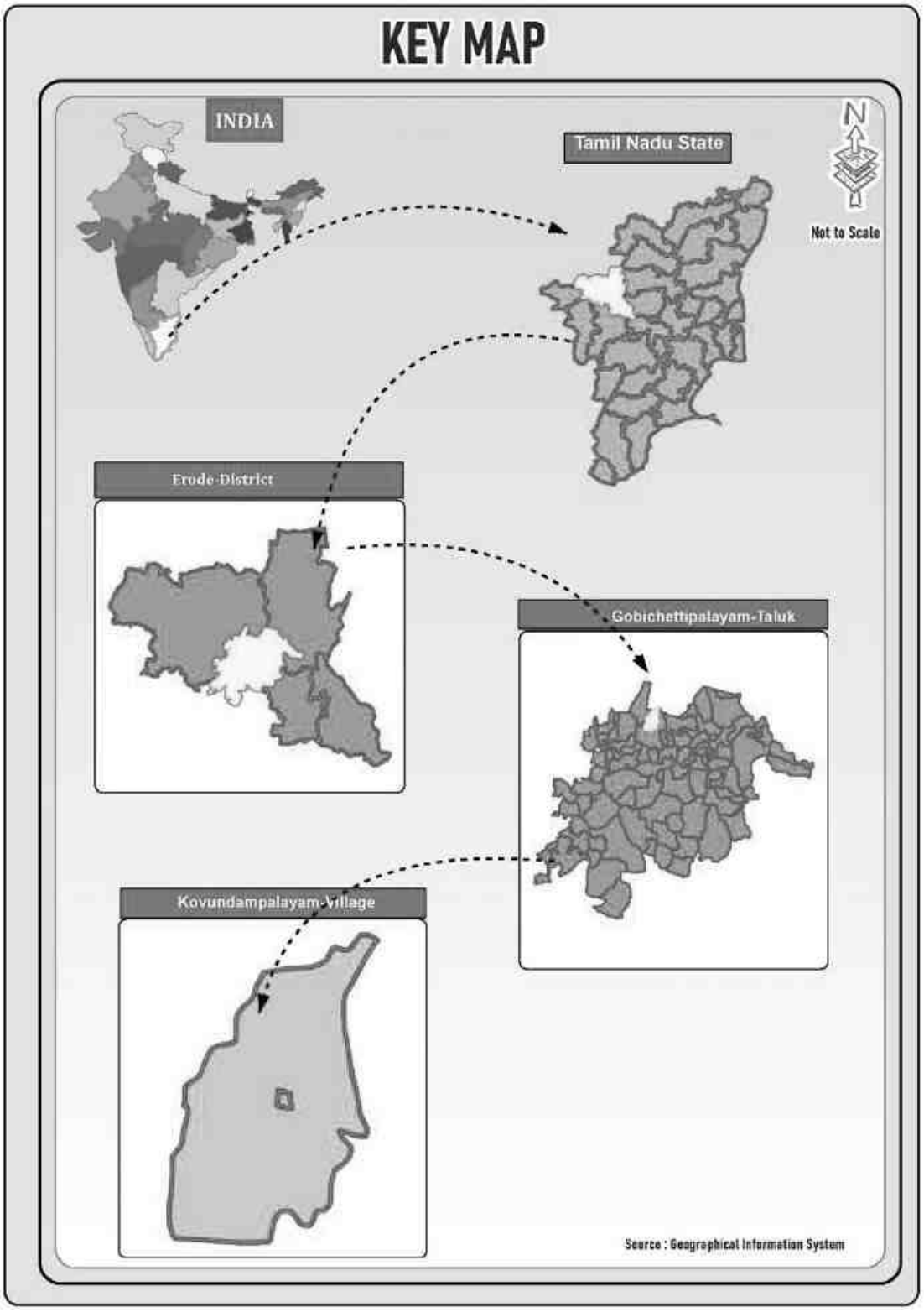
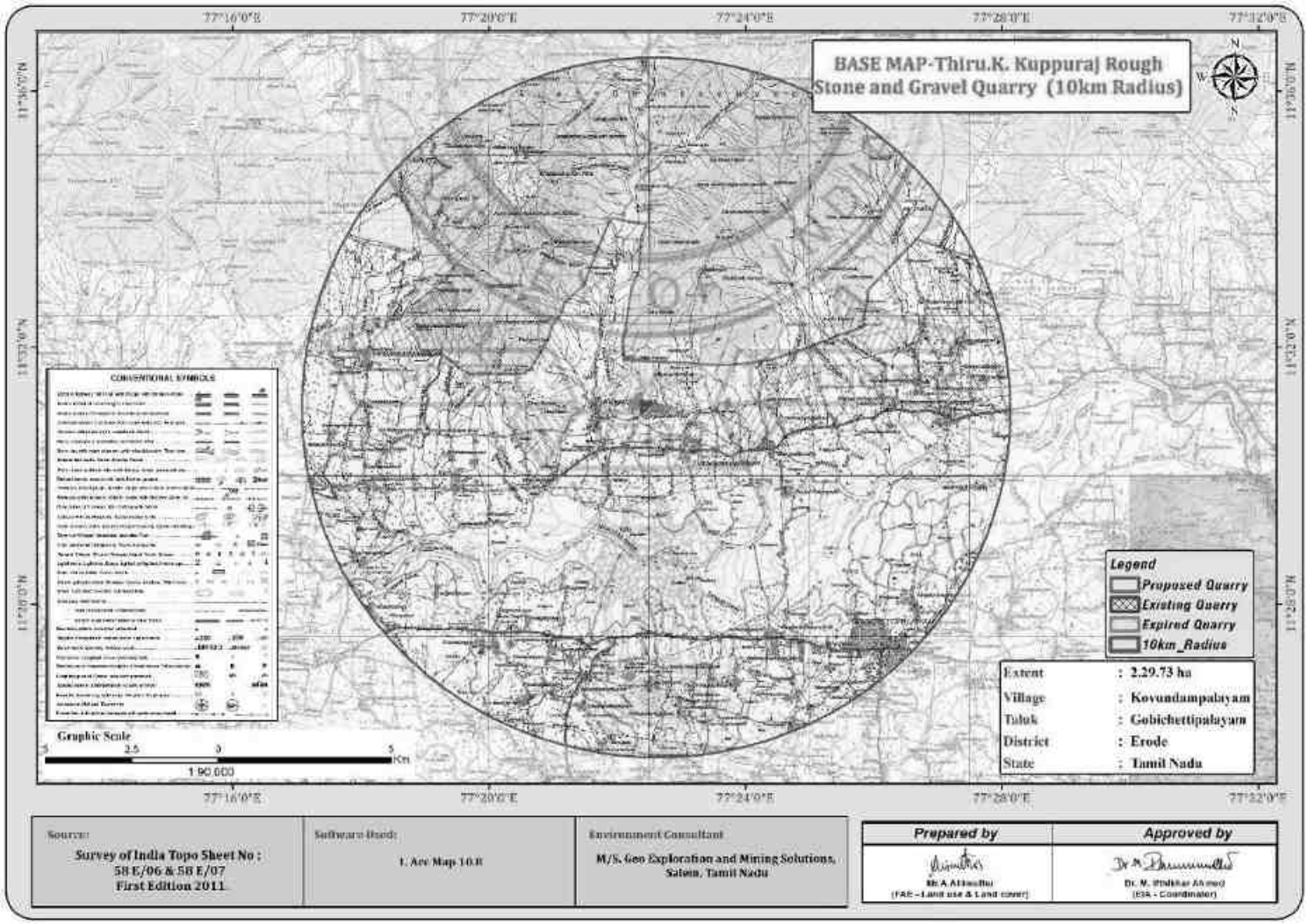


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS



1.4 Environmental Clearance

The Environmental Clearance process for the project will comprise of four stages. These stages in sequential order are given below: -

1. Screening
2. Scoping
3. Public consultation &
4. Appraisal

SCREENING

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 04.10.2024.
- Precise Area Communication was issued by the Assistant Director, Department of Geology and Mining, Erode District vide Rc.No. 840/Mines/2024, Dated: 27.11.2025
- The mining plan was approved by the Assistant Director, Department of Geology and Mining, Erode District vide Rc.No. 840/Mines/2024, Dated: 19.12.2025.
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/562673/2025, Dated: 22.10.2025.

SCOPING

- The proposal was placed in 665th SEAC meeting held on 19.01.2026 and the committee recommended for issue of ToR.
- The proposal was considered in 957th SEIAA meeting held on 05.02.20206 and issued ToR Identification No. File.No.13192 ToR Identification No. TO25B0108TN515662N Dated. 163.02.2026.

PUBLIC CONSULTATION –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

APPRAISAL –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance. The report has been prepared using the following references.

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14thSeptember, 2006
  - File.No.13192 ToR Identification No. TO25B0108TN515662N Dated. 13.02.2026.
  - Approved Mining Plan.

1.5 TERMS OF REFERENCE (ToR)

ToR issued vide –

- ToR No. File.No.13192 ToR Identification No. TO25B0108TN515662N Dated. 13.02.2026 Area detailed in Page No. I – XXVI.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The proposed project proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

1.7 GENERIC STRUCTURE OF EIA DOCUMENT

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the "Environmental Impact Assessment Guidance Manual for Mining of Minerals" published by MoEF & CC.

1.8 THE SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster Quarry and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Pre Monsoon season (Mar 2026 to May 2026) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.4: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM_{10}, $PM_{2.5}$, SO_2, NO_2	Continuous 24-hourly samples twice a week for three months at 7 locations (2 Core & 5 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 6 locations – 5 ground water and 1 surface water samples; once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	7 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Field Monitoring Data
The data has been collected as per the requirement of the ToR issued by SEIAA – TN.

1.8.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- File.No. 13192 ToR Identification No. TO25B0108TN5156627N Dated. 13.02.2026.

CHAPTER – 2: PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone and Gravel Quarry requires Environmental Clearance. Two proposed and Two existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is **9.86.23 ha.**

As the extent of cluster are more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed Quarry.

Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 LOCATION OF THE PROJECT

- The Project falls in Kovundampalayam Village, Gobichettipalayam Taluk and Erode District.
- Thiru. K. Kuppuraj Rough Stone and Gravel Quarry is located about 500m North Western side of Kovundampalayam Village
- The Kovundampalayam Village is located about 5.8km North western side of Gobichettipalayam Taluk.
- The area is marked in the Survey of India, Toposheet No. 58-E/06. The area lies between the Latitudes of 11°31'00.66"N to 11°31'07.06"N and Longitudes of 77°22'34.01"E to 77°22'39.12"E.

The project does not fall within 10 km radius of any Eco – sensitive zone, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH-948 Sathyamangalam - Coimbatore - 16km -South West side SH-82 Athani - Sathyamangalam – 1.08km -South Side
Nearest Village	Thuckanaickenpalayam – 330m South East
Nearest Town	Kovundampalayam – 1.3 km – South West
Nearest Railway	Tiruppur Railway station – 45Km – South
Nearest Airport	Coimbatore –65.0 km – South West
Seaport	Kochi- 210 km – South West

Source: Prefeasibility Report and Approved Mining Plan.

TABLE 2.2: BOUNDARY CO-ORDINATES OF PROPOSED PROJECT

Boundary Pillar No.	Latitude	Longitude
1	$11^0$31’01.63” N	$77^0$22’34.01” E
2	$11^0$31’04.38” N	$77^0$22’34.31” E
3	$11^0$31’07.06” N	$77^0$22’34.39” E
4	$11^0$31’06.51” N	$77^0$22’36.56” E
5	$11^0$31’05.93” N	$77^0$22’37.74” E
6	$11^0$31’05.81” N	$77^0$22’38.51” E
7	$11^0$31’05.72” N	$77^0$22’38.61” E
8	$11^0$31’03.43” N	$77^0$22’38.65” E
9	$11^0$31’02.63” N	$77^0$22’38.88” E
10	$11^0$31’02.26” N	$77^0$22’38.99” E
11	$11^0$31’01.48” N	$77^0$22’38.99” E
12	$11^0$31’00.75” N	$77^0$22’39.12” E
13	$11^0$31’00.66” N	$77^0$22’37.58” E
14	$11^0$31’00.94” N	$77^0$22’36.67” E
15	$11^0$31’01.19” N	$77^0$22’35.48” E
16	$11^0$31’01.37” N	$77^0$22’34.93” E

Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE





FIGURE 2.2A: GREEN BELT AND FENCING PHOTOS








FIGURE 2.2: GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS



FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN

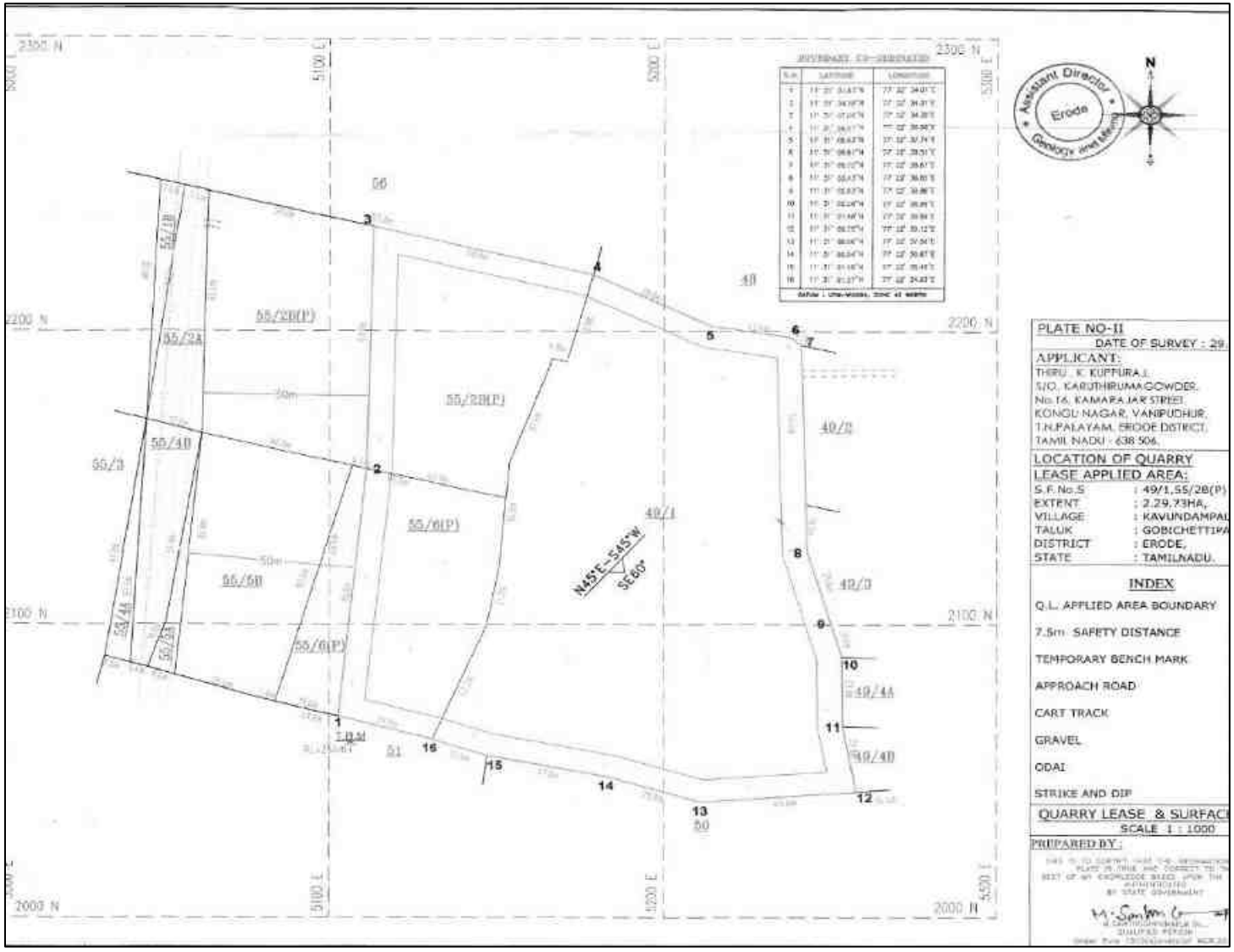


FIGURE 2.4: SATELLITE IMAGERY OF CLUSTER QUARRY

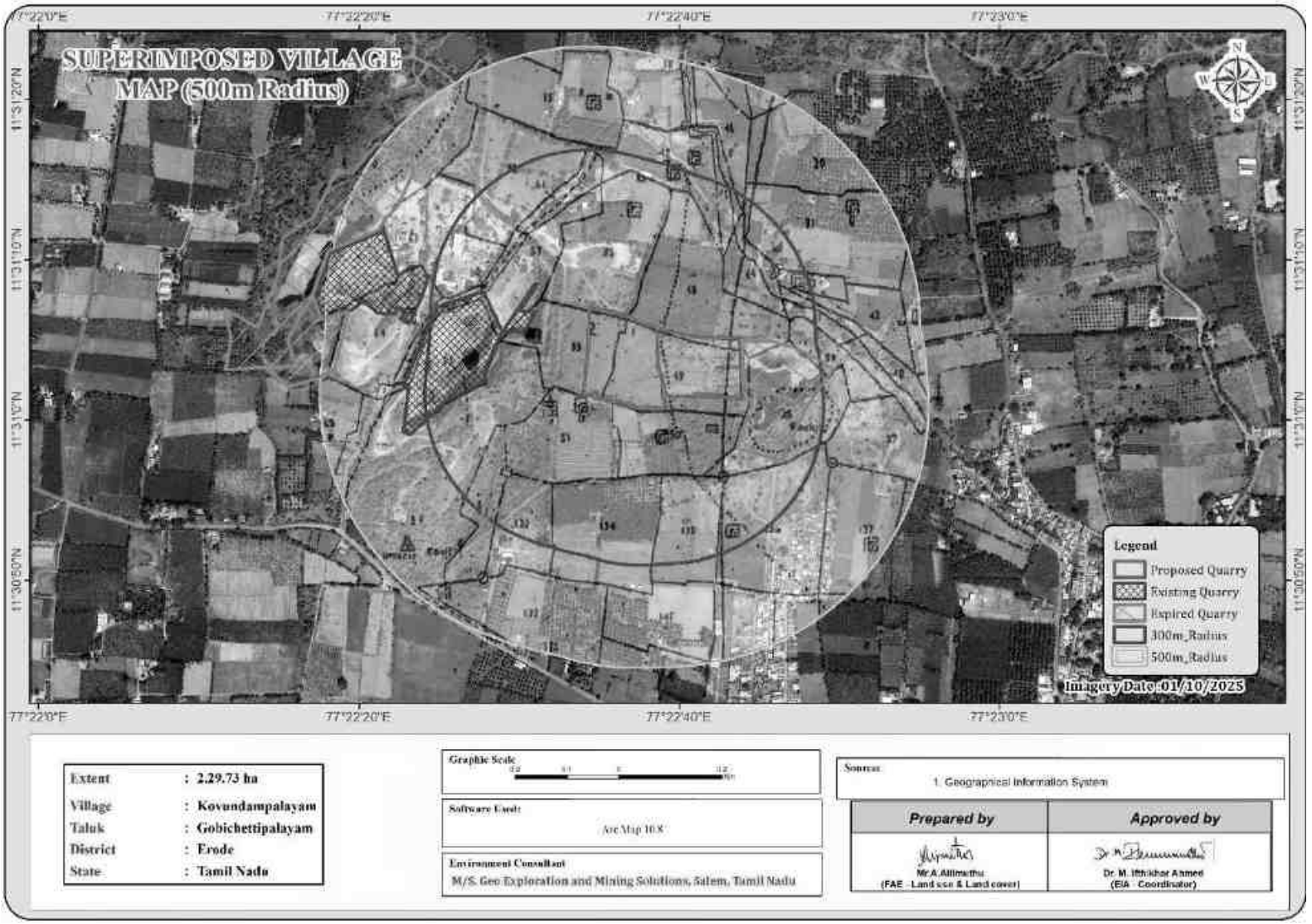


FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

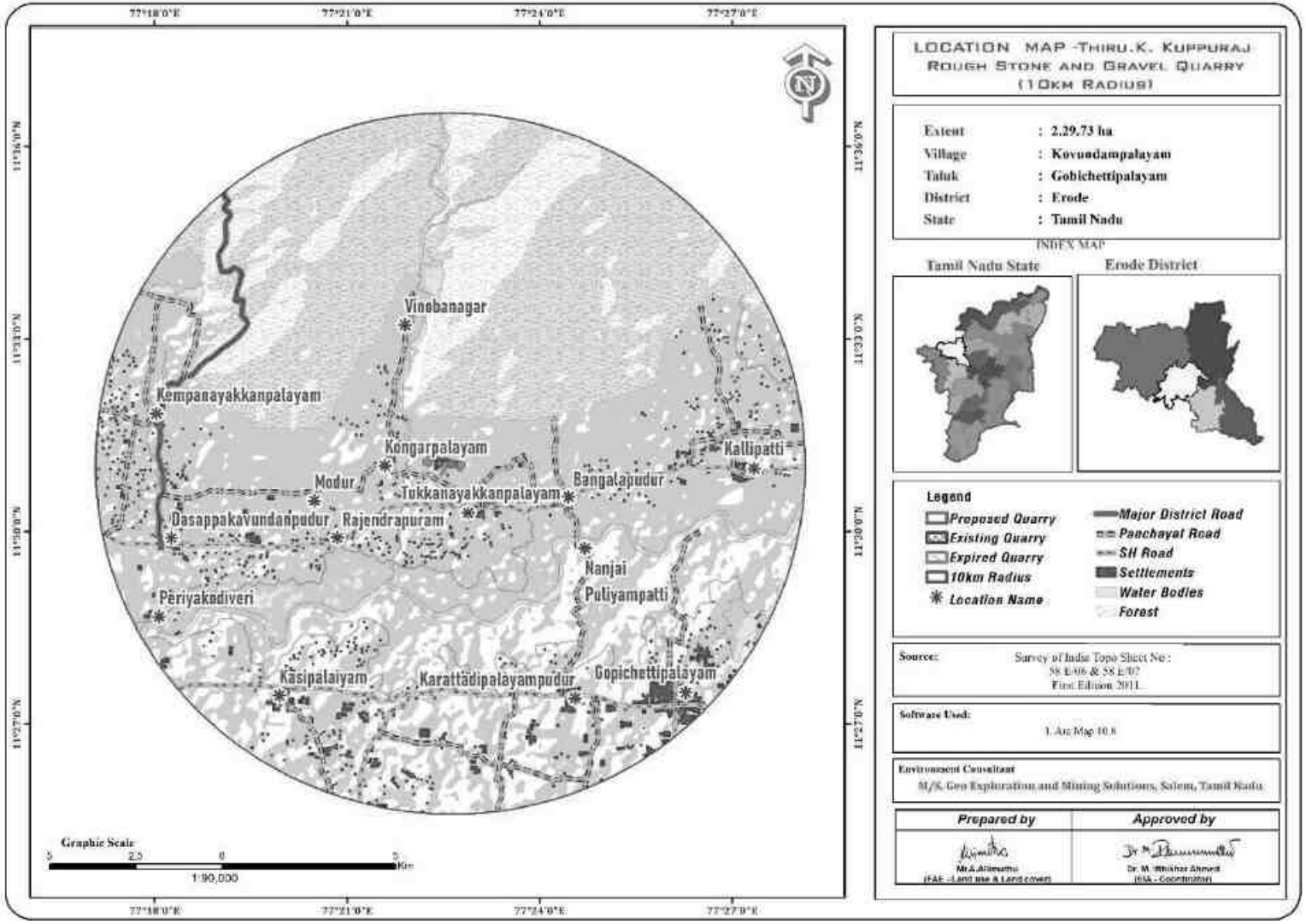


FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

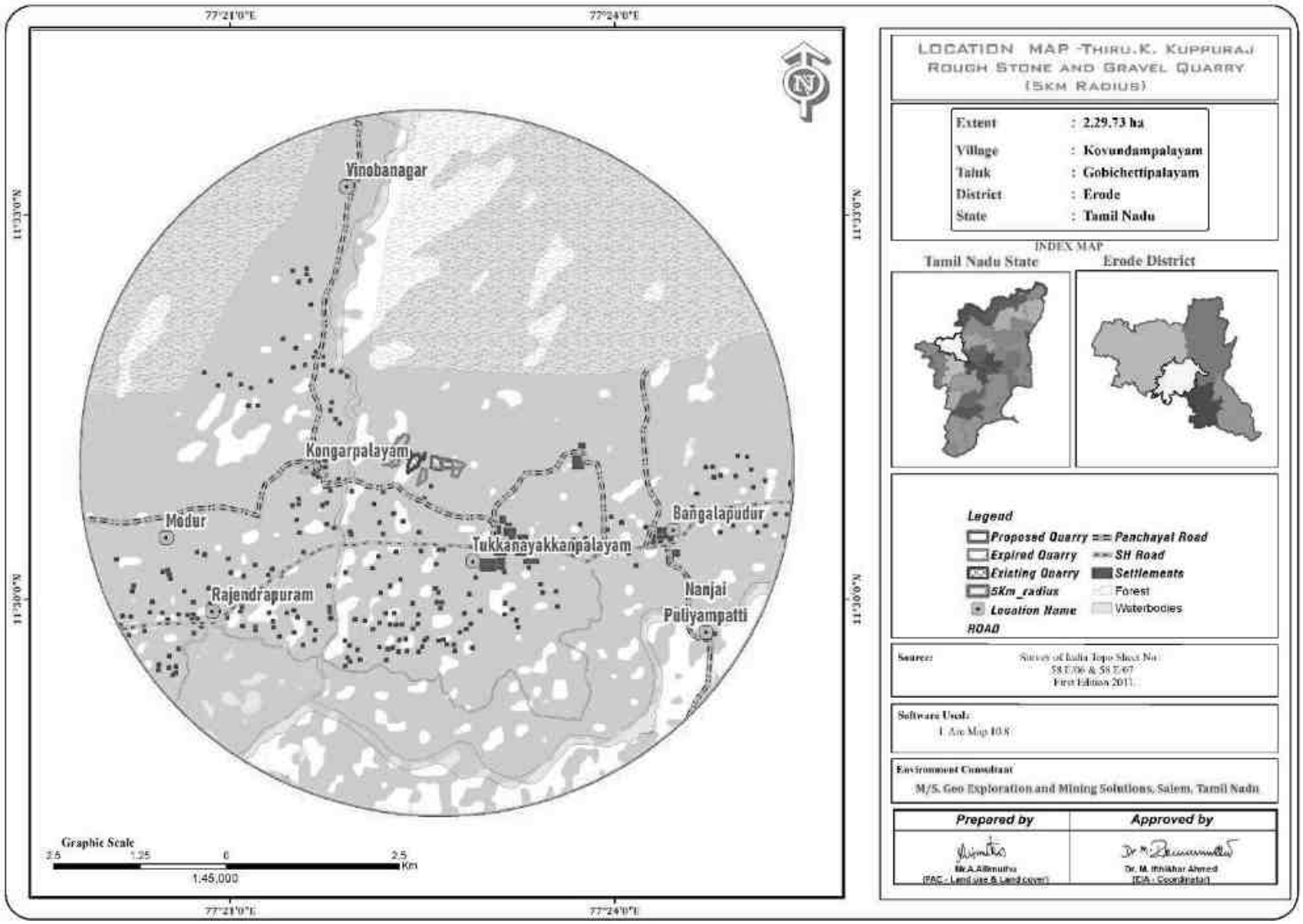
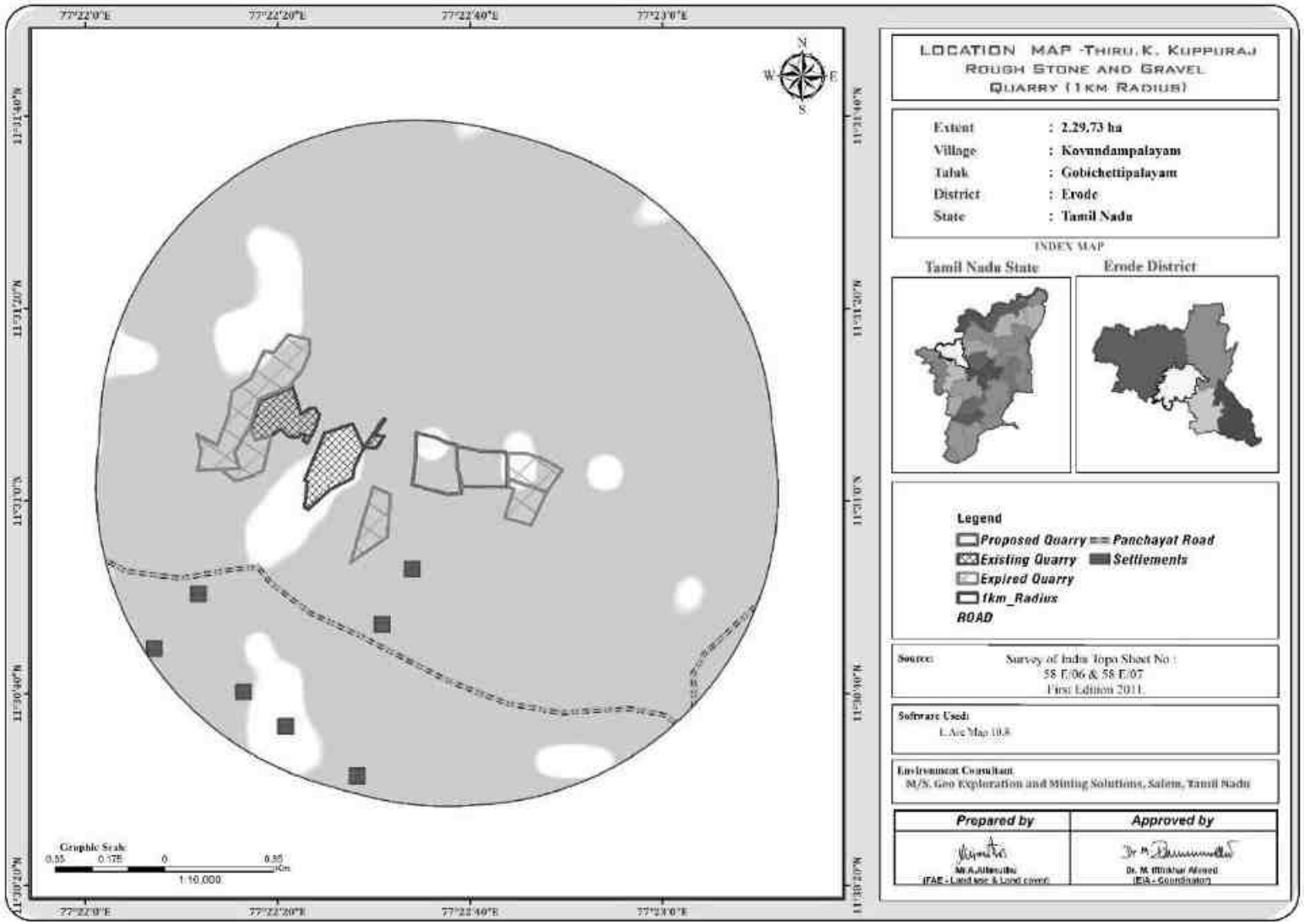


FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)



2.2.1 Project Area

(i) The project under cluster are site specific, there is No beneficiation or processing proposed inside the project area.

(ii) There is no forest land involved in the proposed project area and is devoid of major vegetation and trees.

TABLE 2.3 – LAND USE PATTERN

Description	Present area in (ha)	Area required during the first five years of plan period (ha)	Area at the end of lease period (ha)
Quarrying Pit	Nil	1.85.90	1.85.90
Infrastructure	Nil	0.01.00	0.01.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.21.67	0.40.83
Unutilized Area	2.29.73	0.19.16	Nil
Grand Total	**2.29.73**	**2.29.73**	**2.29.73**

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECT

PARTICULARS	DETAILS	
	Rough Stone (10 Year Plan period)	**Gravel (3 Year Plan period)**
Geological Resources in m^3	12,63,515	45,946
Mineable Reserves in m^3	4.06,025	35,802
First Five Yearwise Production in m^3	2,09,225	35,802
Second Five Yearwise Production in m^3	1,96,800	-
Mining Plan Period	10 Years	3 Years
Number of Working Days	300 Days	
Production per day in m^3	135	40
No of Lorry loads ($12m^3$ per load)	11	3
Total Depth of Mining as per ToR	57m (2m Gravel + 55m Rough Stone)	

Source: Approved mining plan

2.3 Geology

2.3.1 Regional Geology

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N45°E to S45°W with dipping towards SE60°.

Stratigraphy of the area –

AGE FORMATION

Recent - Quaternary formation (Gravel)

---------Unconformity----------

Archaean - Charnockite

Peninsular Gneiss complex

Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent to Late Plestocene rocks of Cainozoic age.

The Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The rocks are restricted to the central and southern portions of the district, especially around Sulur, Madukkarai and Pollachi taluks.

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliyampatti Granites respectively. The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore. Source: District Survey Report for Minor Minerals Coimbatore District – May 2019

2.3.2 Local Geology:-

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. The project area is plain terrain, all the project areas is covered with Gravel 2m of thickness; Massive Charnockite formation is found after 2 m of gravel which is clearly inferred from the existing quarry pit.

2.3.3 Geology of Erode District:

The rock types exposed in the district can be broadly grouped as 1) Granulite group of rocks 2) Migmatite Complex 3) Sathyamangalam Schist Complex 4) Peninsular Gneissic Complex 5) Alkali Complex 6) Acid Intrusives and 7) Quaternary Alluvium. The Granulite group of rocks comprise of Calc Granulite, Quartzite of Khondalite group, Charnockite, Pyroxene Granulite, Pyroxenite of Charnockite group, Migmatite gneiss, and Metagabbro. Charnockite occurs as a major rock type in the northern part and as thin bands and enclaves in the southern part of the district. Quartzite and Calc Granulite, Pyroxene Granulite, Migmatite Gneiss occurs as thin bands and enclaves. Hornblende gneiss, Gametiferous - Quartzo Feldspathic gneiss and granite are the important rock types of Migmatite Complex, of which, hornblende gneiss occupies the major part of the district, particularly in southern part and northwesten part. Garnetiferous quartzofeldspathic gneiss is located near Bhavani Sagar reservoir and north of Anthiyur. The Sathyamangalam Group includes fuchsite Quartzite, schistose-quartzite, sillimanite-quartzite, ferruginous Quanrtzite, talc-tremolite / Actinolite schist / hornblende schist, Amphibolite and Gabbroanorthosite and Pyroxenite. Schistose rocks occur as enclaves near Sathyamangalam, west of Chennimalai. Quartzite occurs as thin beds near Kavilanattam, west of Chennimalai, Amphibolite occurs as enclaves near Sathyamangalam, Gobi and around Perudnurai. A north site, Pyroxenite occurs as WSW-ENE trending bands in fissile hornblende gneiss of PGC (Bhavani Group) which occupies the ventral part of the district. Granite bodies are located in the central part of the district around Punjai Puliyampatti and west of Erode. Quaternary fluvial deposits are restricted to the river beds of Cauveri, Noyyil, Amaravathi and Bhavani rivers.

The plains show a large number of Ultramafic bodies along the E-W Bhavani lineament. WNW-ESE to NW-SE trending dykes is a common feature. The Cauveri River which has a NNE-SSW trending straight course between Mettur and Bhavani is considered to represent a major lineament, probably a deep seated fault zone. The general E-W to ENE-WSW course of the Bhavani River flowing at the foot of the hills indicates a major lineament, probably a deep-seated fault zone. The Moyyar - Bhavani, Noyyil - Cauveri lineaments belong to the NNW-SSE to E-W system.

The Mettur fault is an NNE-SSW system. The N-S to NNE-SSW trending dykes show clear truncation against the E-W Bhavani lineament.

STRATIGRAPHY OF THE AREA

Lithology	Group	Age
Soil Alluvium		Holocene
Laterite		
Kankar		
Granite	Acid intrusives	Proterozoic
Dolerite dyke / Meta dolerite / Basic intrusives		
Nephelene syenite Corrundum syenite	Alkaline complex	Proterozoic to Archaen
Pink migmatite	Penninsular gneissic complex (Bhavani)	
Fisshile Hornblende biotite gneiss		
Gabbro, anorthosite, pyroxenite	Sathyamangalam Group	
Amphibolite		
Talc - tremolite / Acitionite schist / Hornblende schist		
Fuchsite quartzite, schistose quartzite, Sillimanite quartzite, ferruginous quartzite		
Hornblende biotite gneiss	Migmatite Complex	Archaean
Gametiferous - Quartzofedspathic gneiss		

Source: District Mineral survey Report, Erode district

FIGURE 2.9: REGIONAL GEOLOGY MAP

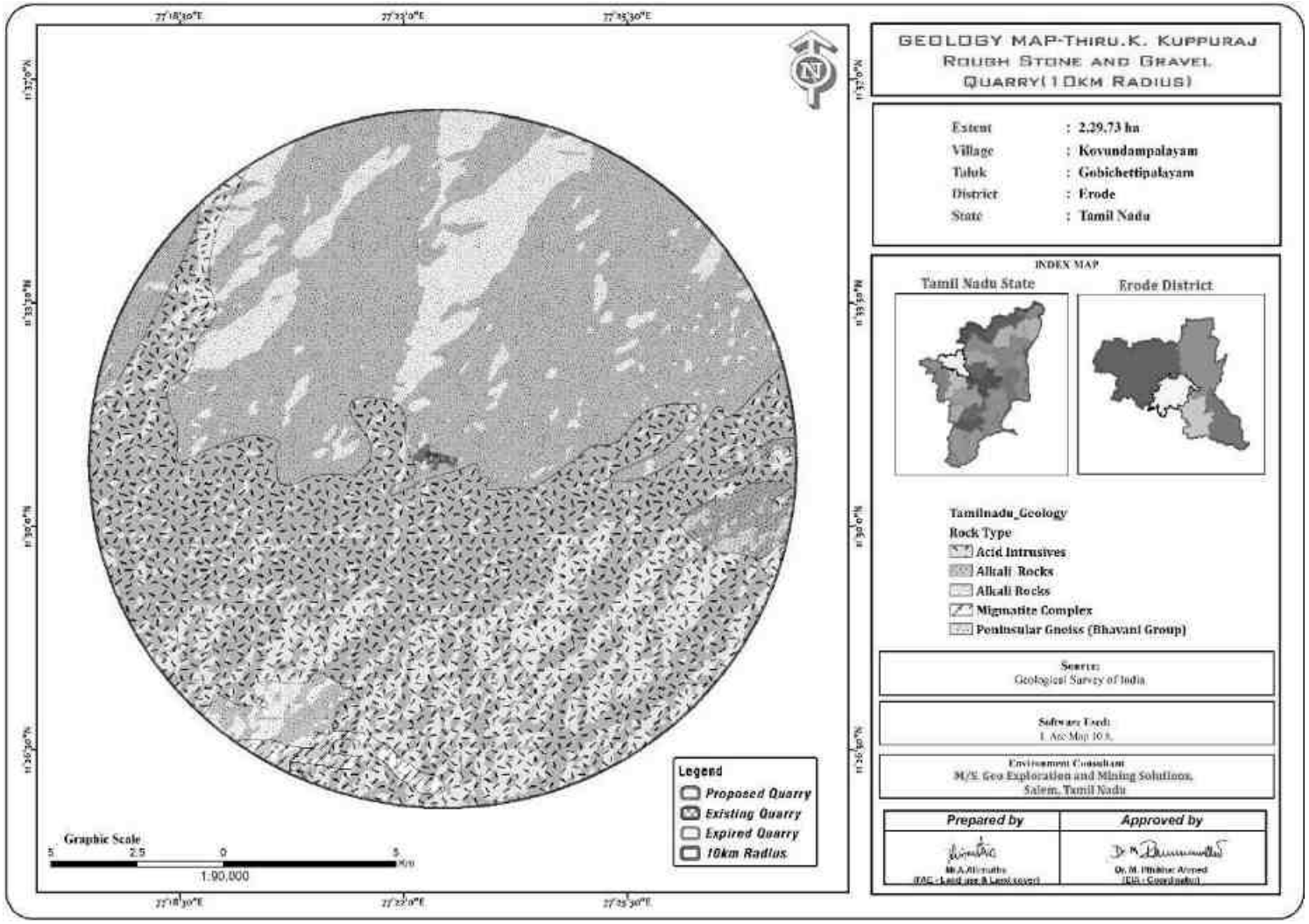


FIGURE 2.10: GEOMORPHOLOGY MAP

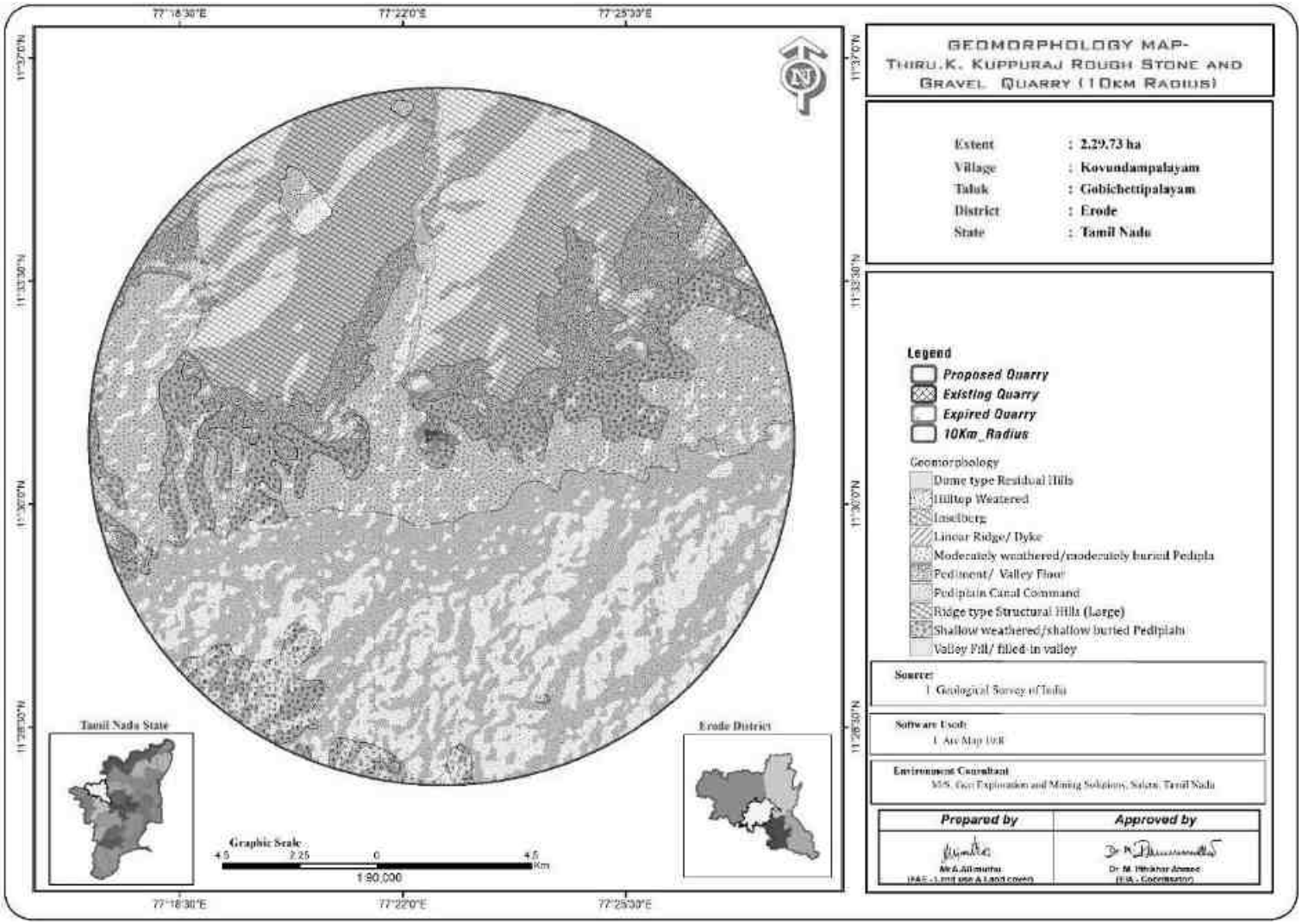


FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION FIRST FIVE YEARS

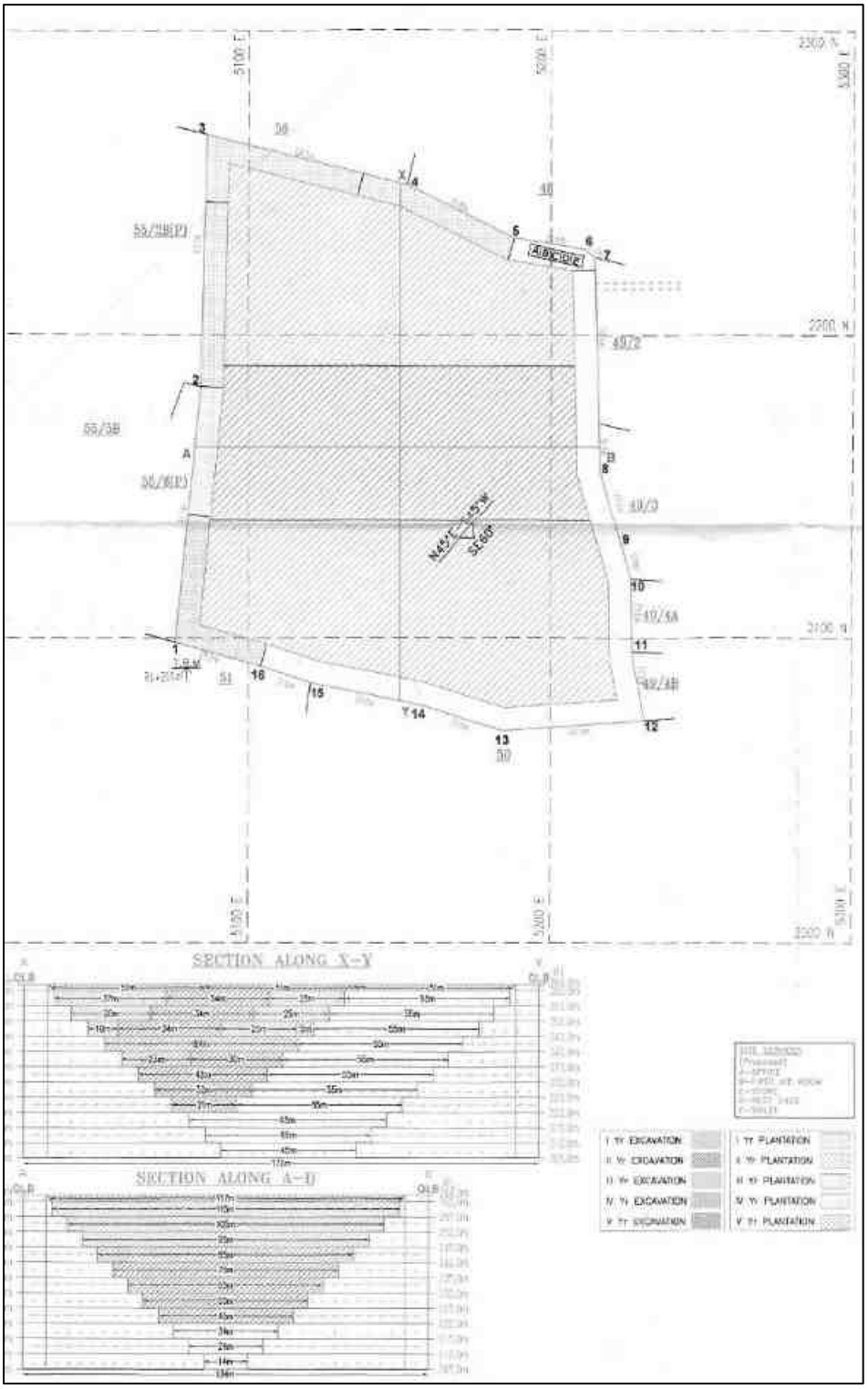
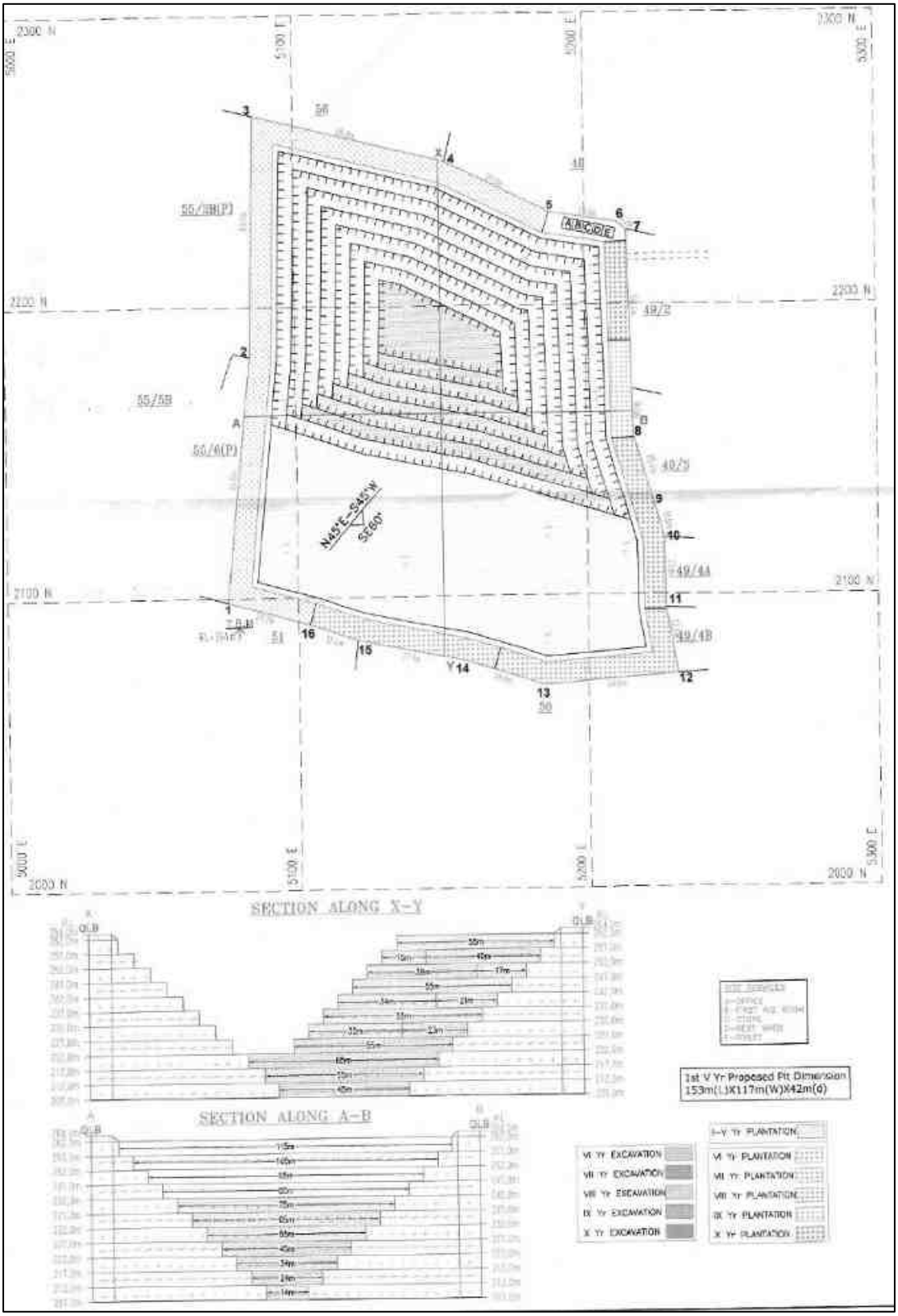


FIGURE 2.11A: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION SECOND FIVE YEARS



2.4 Resources and Reserves of the proposed Quarry

The available mineable reserves are calculated after leaving necessary safety distances, reduced depth considering bench width.

TABLE 2.7: YEARWISE PRODUCTION FROM THE PROPOSAL FOR FIRST FIVE YEARS

YEARWISE Reserves	Rough Stone in m^3	Gravel in m^3
I	39,675	11,934
II	53,550	11,934
III	39,375	11,934
IV	38,200	-
V	38,425	-
Total	**2,09,225**	**35,802**

TABLE 2.8: YEARWISE PRODUCTION FROM THE PROPOSAL FOR SECOND FIVE YEARS

YEARWISE Reserves	Rough Stone in m^3
VI	39,500
VII	39,050
VIII	39,325
IX	39,425
X	39,500
Total	**1,96,800**

Source: Approved Mining Plan

Disposal of Waste

In the entire cluster Quarry no waste is anticipated, quarried out materials (Rough stone and Gravel) will be utilized (100%).

2.5 Method of Mining

The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. 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.

The top layer of overburden (Gravel) will be excavate directly by Hydraulic Excavators and loaded into tippers directly and sold to needy customers. The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting.

Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

2.5.1 Drilling

Drilling will be carried out as per parameters given below: -

Spacing – 1.2m, Burden –1.0, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -

  Spacing – 1.2m

  Burden – 1.0 m

  Depth of hole – 1.5 m

  Charge per hole – 0.5Kg

  Powder factor – 6 tonnes/kg

  Dia of hole – 32 mm

  Details of blasting design and parameters are discussed in approved mining plan.

No of Holes to be drilled per day: -

Volume of Rough Stone will be excavated from one Kg of explosive = 6 Tonnes

Total Volume from one proposed quarry = 4,06,025 m^3

= 4,06,025/10

= 40,602/300

= 135* 2.75

= 371 Tonnes per day

Therefore, Number of Holes per day = 371 /6

= 62 Holes per day

Type of Explosives to be used –

Slurry explosives (An explosive material containing substantial portions of a liquid, oxidizers, and fuel, plus a thickener), NONEL / Electric Detonator & Detonating Fuse

2.5.3 Extent of Mechanization

TABLE 2.9 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	7	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker	1	300 HP	Diesel Drive
4	Tippers	2	20 Tonnes	Diesel Drive
5	Water Sprinkling Tanker	1	10,000 litres	Diesel Drive

Source: Approved Mining Plan of the project.

2.6 General Features

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities are under construction in the nearby own lands and the same infrastructure as per the Mine Rule will be arranged after the grant of quarry lease in the proposed Quarry.

2.6.1 Drainage Pattern

The general drainage pattern of the area is dendritic. There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion in the near future.

2.6.2 Traffic Density

Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. The monitoring was carried out on 26-12-2022.Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor

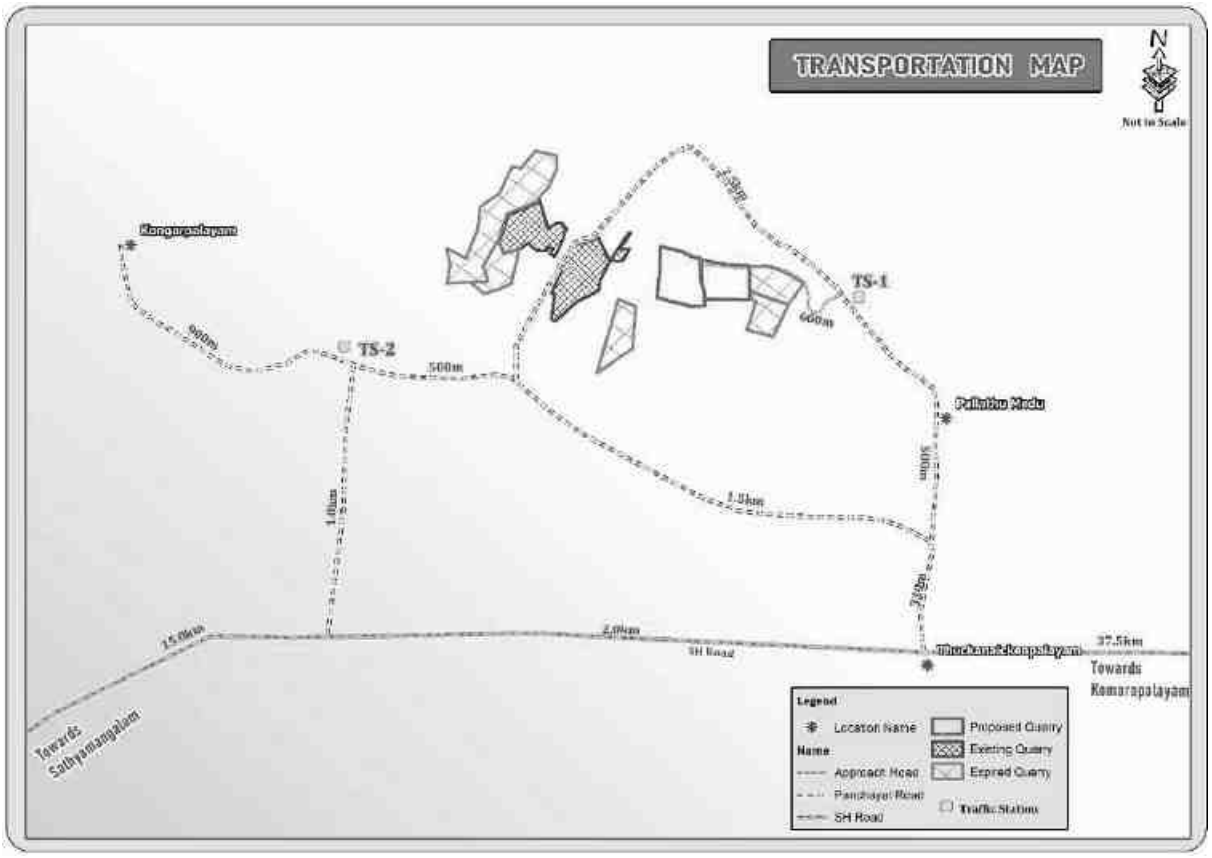
vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

TABLE 2.10 – TRAFFIC SURVEY LOCATION'S

Station code	Station location	Distance and Direction	Type of Road
TS1	Pallathumedu Panchayat Road	200m- NE	Panchayat Road
TS2	Kongarpalayam Panchayat Road	520m-SW	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM.

FIGURE 2.12: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP



(Source: Survey of India Toposheet)

TABLE 2.10A – EXISTING TRAFFIC VOLUME

Station code	HMV (Hourly Average)		LMV hourly average		2/3 Hourly average		Total PCU per hour
	No	PCU	No	PCU	No	PCU	
TS1	41	123	59	59	32	16	198
TS2	46	138	75	75	40	20	233

Source: On-site monitoring by GEMS FAE & TM

- PCU conversion factor for HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 0.5 for Motor Vehicles (2/3 Wheelers)

TABLE 2.11 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT

Transportation of Rough stone per day		
Capacity of trucks	Cumulative Trips	Volume in PCU
10/20 tonnes	12 per day	36

Source: Anticipated based on Approved Mining Plan Production

TABLE 2.12 – SUMMARY OF TRAFFIC VOLUME

Route	Existing traffic value in PCU	Incremental traffic from the quarry in PCU	Total traffic volume	Hourly Capacity in PCU as per IRC guidelines
Panchayat Road	198	36	234	1200
Panchayat Road	233	36	269	1200

Source: On-site monitoring analysis summary by GEMS FAE & TM

Rough stone from the project site mainly will be supplied to the needy crushers located within the radius of 2 km from the project site.

- No villages in the proposed mineral transportation route
- Mineral loaded Vehicles will not allow during school hours (Morning 8AM to 10AM & Evening 4.30PM to 5.30PM)

As per the IRC 1960 this existing road can handle 1,200 PCU in hour and Major district road can handle 1500 PCU in hour hence there will not be any conjunction due to this transportation.

2.6.3 Mineral Beneficiation and Processing

There is no mineral beneficiation processing or ore beneficiation in this project within the lease area.

2.6.4 Existing Infrastructure

The project area is new and Existing Quarry for the existing Quarry infrastructures are already available within the project area. The infrastructural facilities to be made after the start of the quarrying operations will be prepared outside limit as per the rules and safe distance to be adopted.

2.6.2 Drainage Pattern

The drainage pattern of the area is dendritic – sub dendritic.

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

TABLE 2.13 – WATER REQUIREMENT FOR THE INDIVIDUAL PROJECT

***Purpose**	**Quantity**	**Source**
Dust Suppression	1.3 KLD	From Nearby Existing bore well
Green Belt development	1.0 KLD	From Nearby Existing bore well
Domestic purpose	1.2 KLD	Water Tankers
Total	**3.5 KLD**	

Source: Prefeasibility Report

For the water conservation point of view about 50% water will be required for the suspension of the dust, Water shall be obtained from accumulated rainwater/seepage water in quarry pits. Packaged Drinking Water is available from the nearby approved water vendors.

2.7.2 Power and Other Infrastructure Requirement

The project's does not require power supply for the quarry operation. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB. For the quarrying operation like compressor for drilling Diesel will be utilized.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project area hence there will not be any process effluent generation from the project area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment.

2.7.3 Fuel Requirement

Gravel:

Per hour Excavator will consume = 10 liters / hour

Per hour Excavator will excavate = 60$m^3$of Gravel

Gravel quantity = 71,604/60 = 1,193 hours

Diesel consume = 1,193 hours x 10 liters

Total diesel consumption = 11,930 Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume = 16 liters / hour

Per hour Excavator will excavate = 20m^3 of Rough Stone

Rough stone quantity = 11,16,569/20 = 55,828 hours

Diesel consume = 55,828 hours x 16 liters

Total diesel consumption = **8,93,248** Liters of HSD will be utilized for Rough Stone

Total diesel consumption = **9,05,178 Liters** of HSD will be utilized for entire life of the mine

2.7.4 Employment Requirement:

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

TABLE 2.14: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY

Mines Manager/	1
Geologist	1
Mines Foreman	1
Mate/Blaster	1
Excavator operator	1
Truck Drivers	2
Water Srprinkler Driver	1
Jack Hammer Drillers	14
Security	1
Labour Helper	3
Co-Operator and Cleaner	4
Total	**30**

A total of 39 people will get employment due to these proposal Quarry.

2.7.5 Project Cost

TABLE 2.15 – PROJECT COST OF PROPOSED PROJECT

Project Cost	Rs.1,23,78,000/-

Source: Approved Mining Plan &Prefeasibility Report of the project

2.8 Project Implementation Schedule

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

TABLE 2.16 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY

S. No	Particulars lease execution	Time schedule (in month)					Remarks if any
		1st	2nd	3rd	4th	5th	
1	Environmental Clearance						
2	Consent to operate						Production start period

Source: Anticipated based on Timelines framed in EIA Notification & CPCB Guidelines.

CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering March, April and May 2026 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by CHENNAI METTEX LAB PRIVATE LIMITED Approved by AAI, AGMARK, APEDA, BIS, EIC FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD Notified Laboratory, for the below attributes –

- Land
- Water
- Air
- Noise
- Biological
- Socio-economic status

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz **core zone** and **buffer zone** where core zone is considered as cluster and buffer zone taken as 10km radius from the periphery of the Cluster. Both Core zone and Buffer zone is taken as the study area.

Study Period

The baseline study was conducted during the Summer Season i.e., March 2026 – May 2026.

Study Methodology

- The project area was surveyed in detail with the help of Total Station and the boundary pillars were picked up with the help of GPS. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO)
- Soil samples were collected and analysed for relevant physio-chemical characteristics, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from ponds in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM_{10} and SO_2, NO_X with gaseous attachments & Fine Dust Samplers (FDS) for $PM_{2.5}$ and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM_{10} $PM_{2.5}$ SO_2 NO_X Fugitive Dust	24 hourly twice a week (March 2026 – May 2026)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (2 core & 5 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

* All monitoring and testing have been carried out as per the Guidelines of CPCB and MoEF & CC.

3.1 LAND ENVIRONMENT

The main objective of this section is to provide a baseline status of the study area covering 10km radius around the proposed mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.1.1 Land Use/ Land Cover

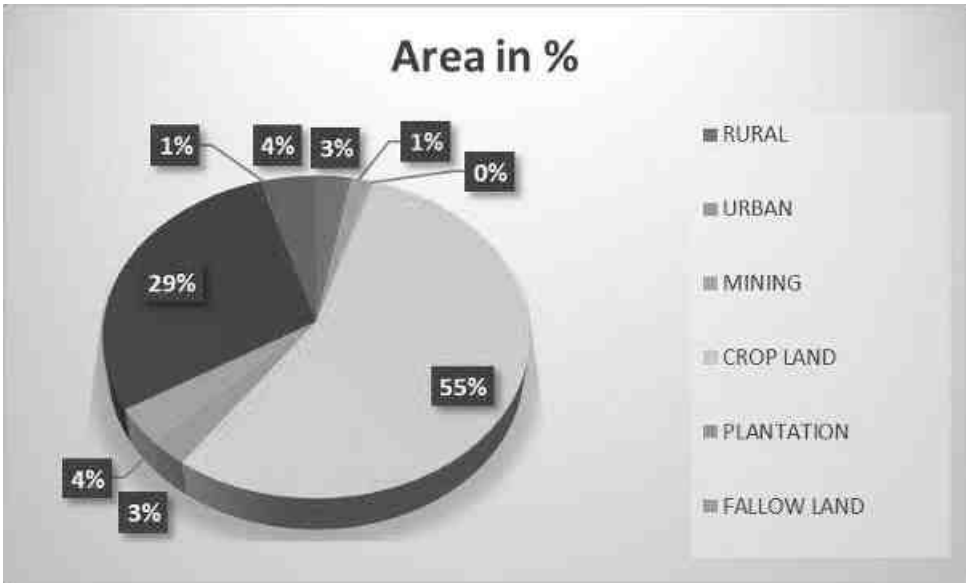
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover.

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS

S.No	CLASSIFICATION	AREA_HA	AREA_%	AREA_HA	AREA_%
	BUILTUP				
1	RURAL	922.40	2.88	117.57	8.50
2	URBAN	451.95	1.41	0.00	0.00
3	MINING	160.67	0.50	103.91	7.51
	AGRICULTURAL LAND				
4	CROP LAND	17656.20	55.08	789.41	57.09
5	PLANTATION	829.34	2.59	64.35	4.65
6	FALLOW LAND	1219.23	3.80	18.09	1.31
	FOREST				
7	FOREST LAND	9314.21	29.05	148.89	10.77
	BARREN/WASTE LANDS				
8	SCRUB LAND	209.58	0.65	76.16	5.51
	WETLANDS/ WATER BODIES				
9	WATER BODIES/LAKE/ RIVER	1294.66	4.04	64.31	4.65
TOTAL		32058.25	100.00	1382.68	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND IN STUDY AREA



Source: Table 3.2

From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 61.47% followed by Built-up Lands – 4.79%, Scrub & Forest land – 29.71%, and Water bodies 4.04%.

The total mining area within the study area is 160.67 ha i.e., 0.50%. The cluster area of 9.86.23 ha contributes about 6.13% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The proposed project area is flat terrain, covered with gravel formation of 2m thickness; Massive Charnockite formation is found after 2 m gravel ed formation which is clearly inferred from the quarry pits.

3.1.3 Drainage Pattern of the Area

Drainage pattern are created by stream erosion over time that reveals characteristics of the kind of rocks and geological structures in a landscape region drained by streams.

Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land.

Dendritic patterns, which are by far the most common, develop in areas where the rock (or unconsolidated material) beneath the stream has no particular fabric or structure and can be eroded equally easily in all directions.

There are no streams, canals or water bodies crossing within the project area. The drainage pattern of the area is dendritic – sub dendritic.

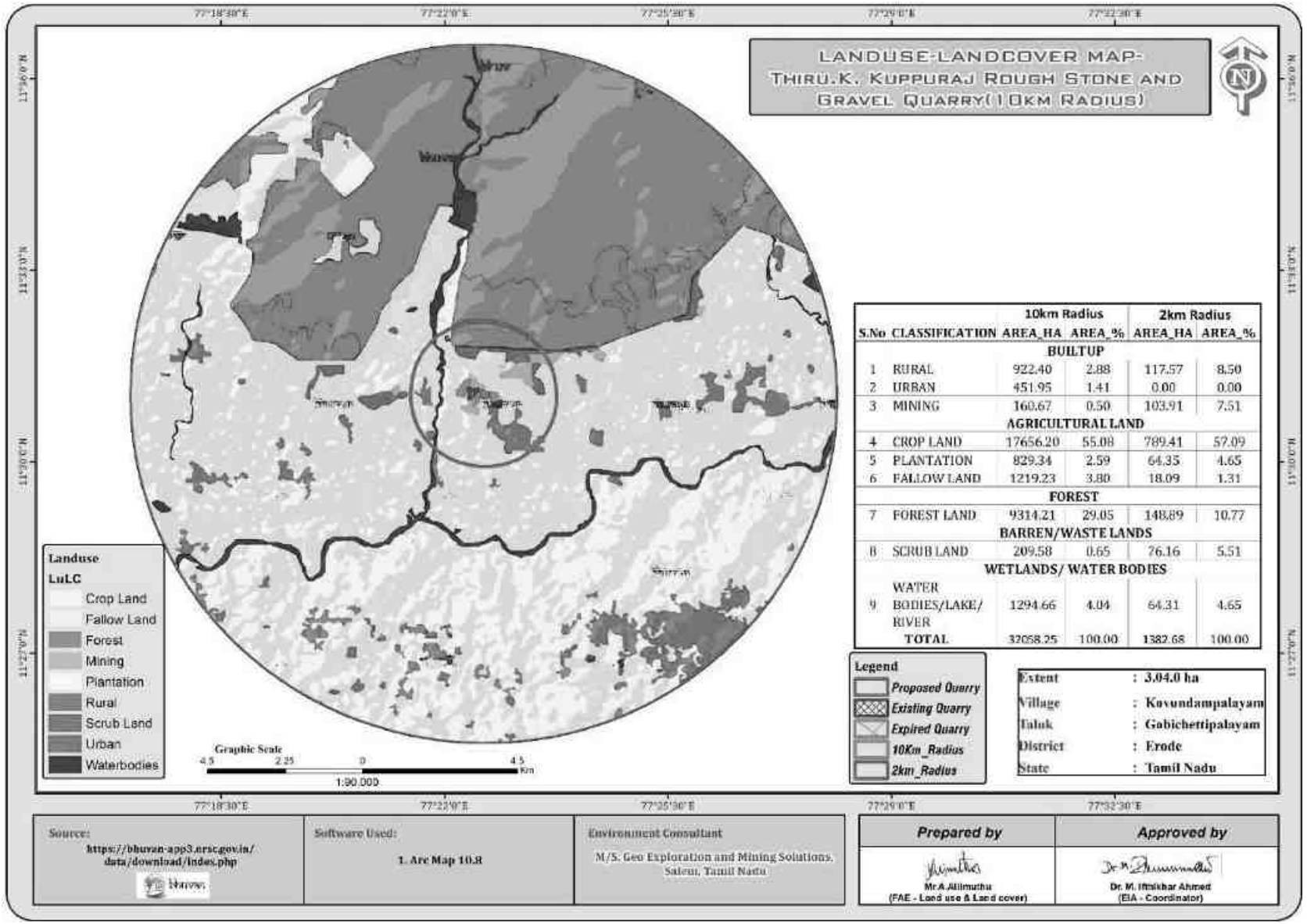
3.1.4 Seismic Sensitivity

The proposed project site falls in the seismic Zone II, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.
(Source: https://moes.gov.in/writereaddata/files/LS_EN_20032020_385.pdf)

3.1.5 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project area. No Protected and Reserved Forest area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e. 10 km radius, are given in the below Table 3.3.

FIGURE 3.2: LAND USE LAND COVER MAP 10KM RADIUS



S.No	CLASSIFICATION	10km Radius AREA_HA	10km Radius AREA_%	2km Radius AREA_HA	2km Radius AREA_%
	BUILTUP				
1	RURAL	922.40	2.88	117.57	8.50
2	URBAN	451.95	1.41	0.00	0.00
3	MINING	160.67	0.50	103.91	7.51
	AGRICULTURAL LAND				
4	CROP LAND	17656.20	55.08	789.41	57.09
5	PLANTATION	829.34	2.59	64.35	4.65
6	FALLOW LAND	1219.23	3.80	18.09	1.31
	FOREST				
7	FOREST LAND	9314.21	29.05	148.89	10.77
	BARREN/WASTE LANDS				
8	SCRUB LAND	209.58	0.65	76.16	5.51
	WETLANDS/ WATER BODIES				
9	WATER BODIES/LAKE/ RIVER	1294.66	4.04	64.31	4.65
	TOTAL	32058.25	100.00	1382.68	100.00

TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Sathyamangalam Tiger Reserve	1.26 km – North
2	Reserve Forest	Guttiyalaithur R. F	1.26 Km - North
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10km Radius
5	Mangroves	None	Nil within 10km Radius
6	Mountains/Hills	None	Nil within 10km Radius
7	Notified Archaeological Sites	None	Nil within 10km Radius
8	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE

Sl.No	NAME	DISTANCE & DIRECTION
1	Vaikkal	60m West
2	Odai	220m NE
3	Odai	1.1km West
4	Bhavani River	3.8km SW
5	Perumpallam River	8.2km West
6	Perumpallam Dam	8.5km NW

Source: Village Cadastral Map and Field Survey

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.5 and Figure 3.3.

The objective of the soil sampling is -

To determine the baseline soil characteristics of the study area; study the impact of proposed activity on soil characteristics and study the impact on soil more importantly agriculture production point of view.

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Project Area	Core Zone	11°31'3.74"N 77°22'37.21"E
2	S-2	Kumarankovil	410m SE	11°30'47.98"N 77°22'44.28"E
3	S-3	Kongarampalayam (Barren Land)	1.9km West	11°31'12.11"N 77°21'30.27"E
4	S-4	Erumaikaranputhur (Residential Land)	2.8km East	11°31'6.97"N 77°24'11.64"E
5	S-5	Podichinnampalayam (Residential Land)	6km South	11°27'44.57"N 77°22'43.67"E
6	S – 6	Vinobanagar (Residential Land)	4.2km NW	11°33'10.50"N 77°21'57.13"E

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Five (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.6.

TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION

Particulars	Details
Frequency	One grab sample from each station-once during the study period
Methodology	Composite grab samples of the topsoil were collected from 3 depths, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analysed at the laboratory.

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in "Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India". The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classifications of soil is presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.3: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

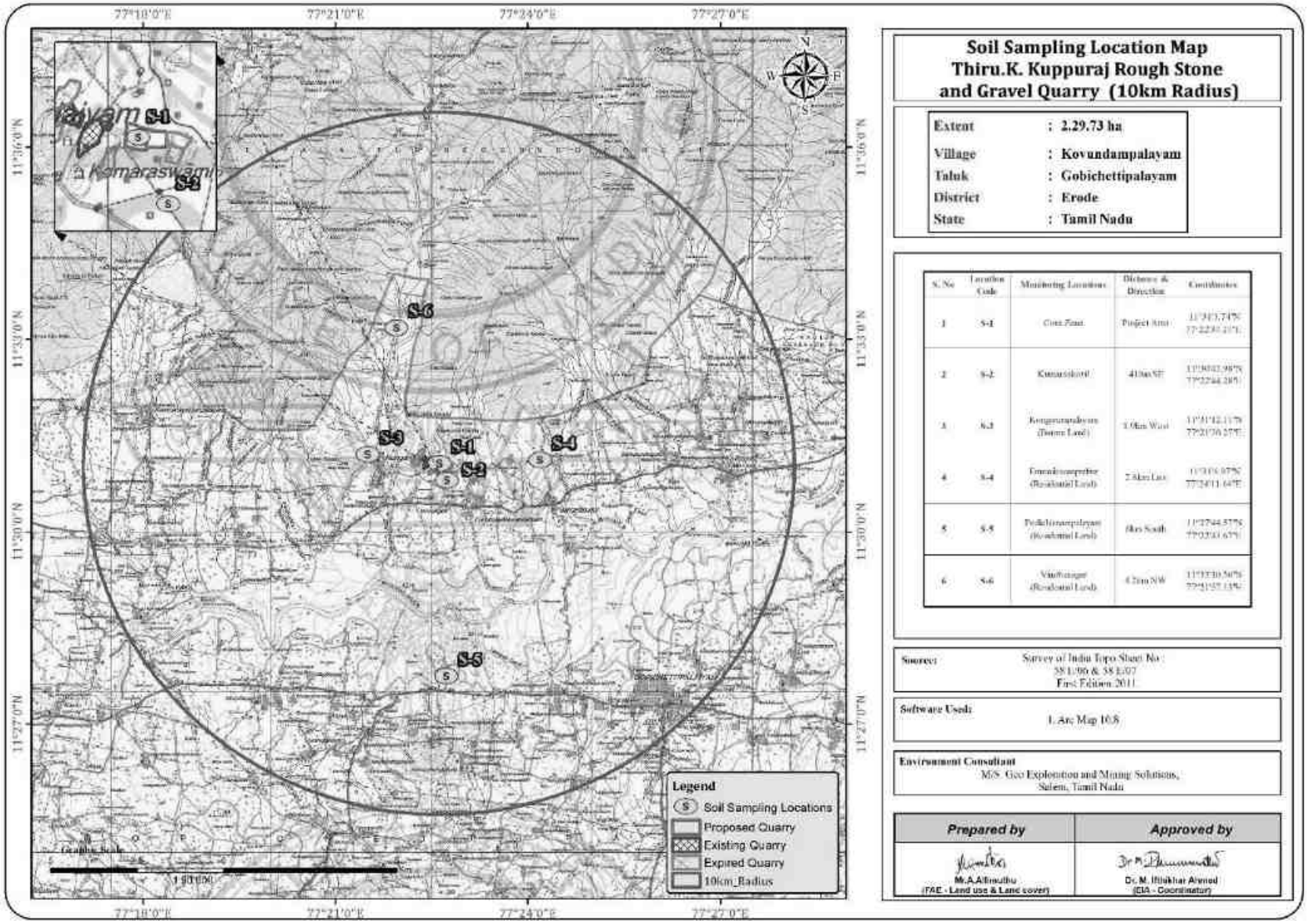


FIGURE 3.4: SOIL MAP

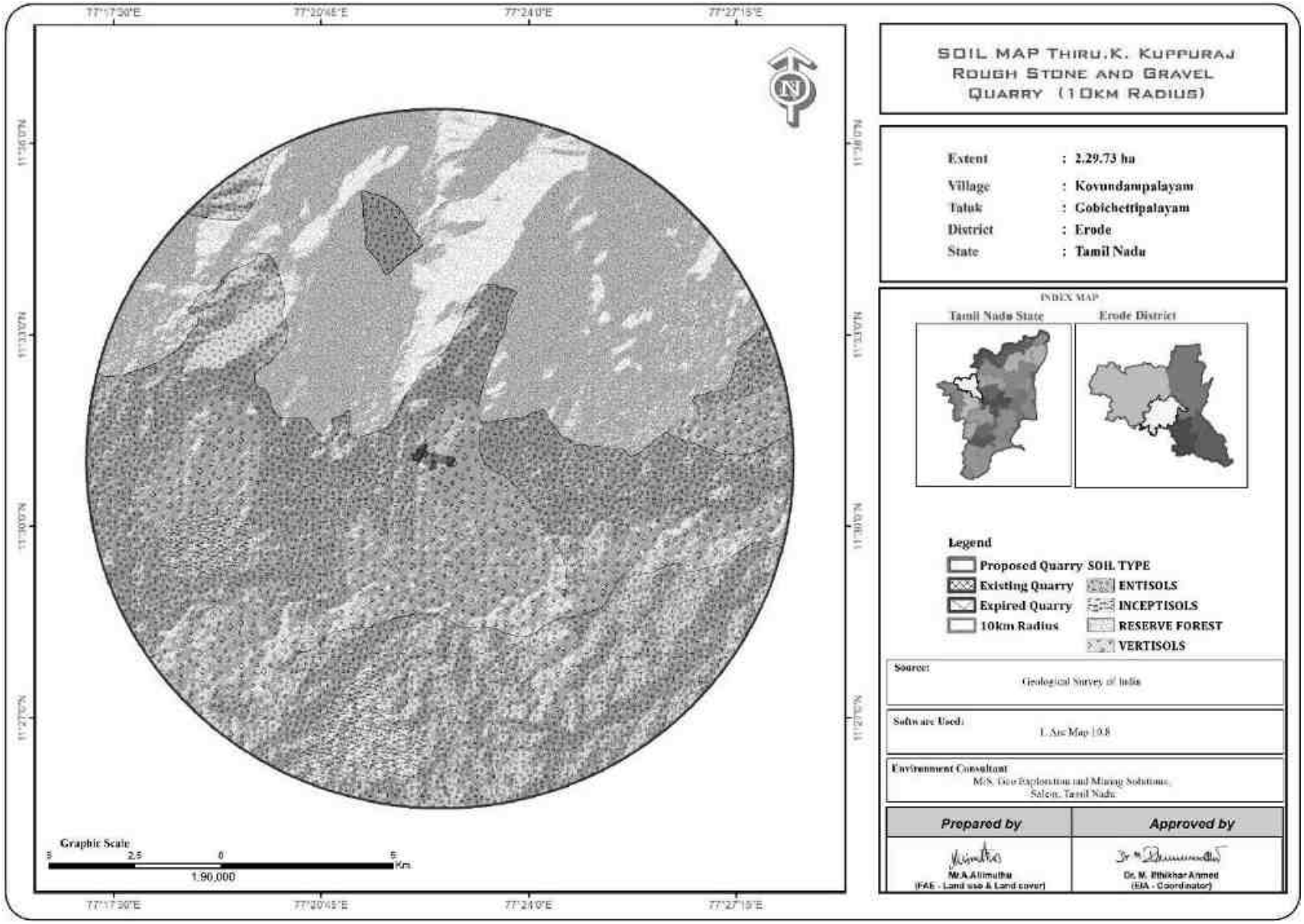


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

	Parameter	Units	S-1 (Project Area)	S-2 (Kumarankovil)	S-3 (Kongarampalayam)	S-4 (Erumaikaranputhur)	S-5 (Podichinnampalayam)	S-6 (Vinobanagar)
1	pH @ 25°C	-	6.64	5.94	6.21	5.32	5.31	6.36
2	Conductivity @ 25°C	µmhos/cm	251	292.4	336	326.5	298.4	286.5
3	Clay	%	30.1	29.7	29.3	30.6	29.0	31.8
4	Sand	%	36.8	38.5	39.3	32.5	32.8	33.5
5	Silt	%	33.1	31.8	31.4	36.9	38.2	34.7
6	Water Holding Capacity	%	41.3	39.3	36.3	42.8	40.6	41.9
7	Bulk Density	g/cm^3	1.02	0.96	1.03	1.01	1.08	1.05
8	Porosity	%	39.5	36.9	32.8	32.3	36.2	38.8
9	Calcium as Ca	mg/kg	58.5	61.5	73.5	76.5	62.9	66.6
10	Magnesium as Mg	mg/kg	21.4	32.4	32.3	31.6	26.6	25.8
11	Manganese as Mn	mg/kg	21.6	25.5	21.6	27.7	25.8	17.9
12	Zinc as Zn	mg/kg	1.57	4.12	3./2	4.18	1.98	3.25
13	Boron as B	mg/kg	1.02	3.01	1.09	1.22	1.13	1.74
14	Chloride as Cl	mg/kg	56.5	63.5	75.5	61.1	68.6	68.5
15	Total Soluble Sulphate as SO4	%	0.01	0.024	0.022	0.019	0.019	0.019
16	Potassium as K	mg/kg	20.1	22.6	23.8	23.3	25.7	22.6
17	Total Phosphorus as P	mg/kg	2.51	2.12	4.69	1.24	2.28	2.05
18	Total Nitrogen as N	mg/kg	286	320.8	284.5	325.8	245.5	284.5
19	Cadmium as Cd	mg/kg	BDL (DL:1.0)					
20	Total Chromium as Cr	mg/kg	BDL (DL:1.0)					
21	Copper as Cu	mg/kg	BDL (DL:1.0)					
22	Lead as Pb	mg/kg	1.01	1.12	2.96	1.23	1.98	1.05
23	Iron as Fe	mg/kg	3.34	3.18	3.29	1.56	2.03	3.08
24	Organic Matter	%	1.7	3.75	2.03	2.0	2.06	2.15
25	Organic Carbon	%	1.01	2.18	1.18	1.19	1.20	1.25
26	Cation Exchange Capacity	meq/100g of soil	24.5	27.8	26.6	21.9	23.1	24.1

Source: Sampling Results by Chennai Mettex Laboratories

Interpretation & Conclusion

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay, Sandy Clay to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 0.9 – 1.08 g/cm^3. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 36.3 – 42.8 %. and 32.3 – 39.5 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.36 to 8.14
- The available Nitrogen content range between 188 to 358 mg/kg
- The available Phosphorus content range between 30.1 to 41.4 mg/kg
- The available Potassium range between 28.8 to 41.3 mg/kg

3.2 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

3.2.1 Surface Water Resources:

Bhavani River is the major surface water body in the study area and the rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of drinking water for few months after rainy season.

3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaeans and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc.

Ground water occurring in pheratic conditions in weathered and fractured gneiss rock formation. The weathering is controlled by the intensity of weathering and fracturing. Dug wells as wells as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 7.2 to 13 m bgl. The dug wells yield up to 1 lps in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage pattern;
- Location of Residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

One (1) surface water and Five (5) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.8: WATER SAMPLING LOCATIONS

S.NO	CODE	LOCATIONS	DISTANCE & DIRECTION	COORDINATES
SURFACE WATER				
1	SW-1	Bhavani River	4km SE	11°29'50.83"N 77°24'33.00"E
GROUND WATER				
2	OW-1	Near Project Area	270m NE	11°31'14.21"N 77°22'40.74"E
3	OW-2	Vinobanagar	4.2km NW	11°33'9.16"N 77°22'1.80"E
4	BW-1	Near Project Area	300m SE	11°30'58.93"N 77°22'53.22"E
5	BW-2	Kongarampalayam	1.9km West	11°31'14.97"N 77°21'28.92"E
6	BW-3	Podichinnampalayam	6km South	11°27'44.09"N 77°22'45.92"E

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

FIGURE 3.5: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

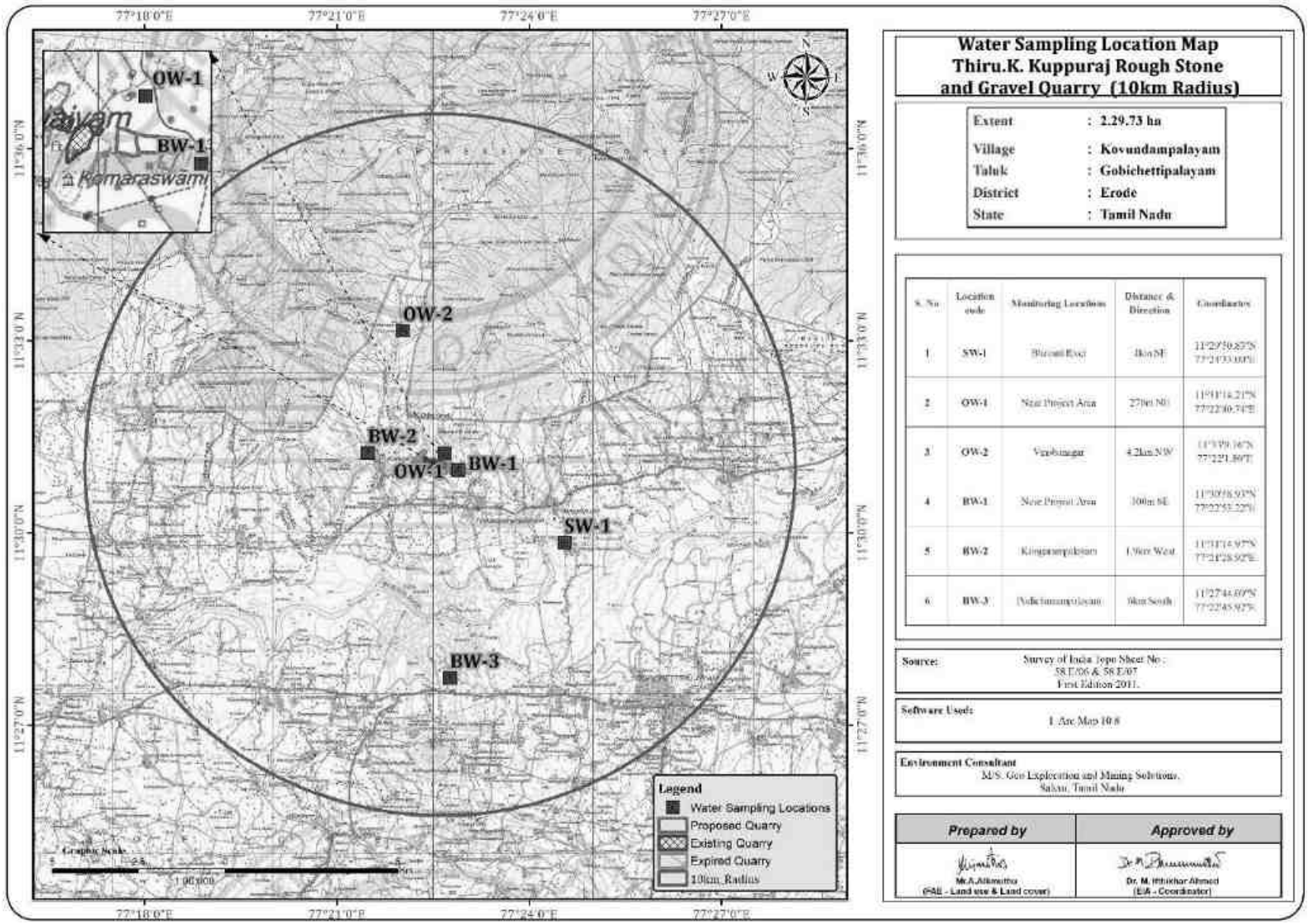


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	OW-1 (Near Project Area)	OW-2 (Vadavalli)	BW-1 (Near Project Area)	BW-2 (Kongarampalayam)	BW-3 (Podichinnampalayam)
1	Color	< 5	< 5	< 5	< 5	< 5
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25ºC	7.56	7.41	7.31	7.10	7.21
4	Electrical Conductivity @ 25ºC	1180	1067	933.5	785	872.5
5	Turbidity	1	1	1	1	1
6	Total Dissolved Solids	685	69	545	457	509
7	Total Hardness as $CaCO_3$	200	184	152	124	144
8	Calcium as Ca	57.7	46.4	33.6	30.4	35.2
9	Magnesium as Mg	17.5	16.5	16.5	11.6	13.6
10	Total Alkalinity	189	165.8	132.4	108.9	121
11	Chloride as Cl^-	223.36	205.6	188.9	136.5	168.7
12	Sulphate as SO_4^-	45.39	38.7	37.6	32.8	32.8
13	Iron as Fe	0.40	0.33	0.30	0.25	0.31
14	Free Residual Chlorine	BDL (DL: 0.1)	BDL(DL: 0.1)	BDL(DL: 0.1)	BDL(DL: 0.1)	BDL(DL: 0.1)
15	Fluoride as F	0.37	0.24	0.26	0.21	0.21
16	Nitrates as NO_3	3.6	3.5	2.9	2.8	2.6
17	Copper as Cu	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
18	Manganese as Mn	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
19	Mercury as Hg	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)
20	Cadmium as Cd	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)	BDL (DL:0.001)
21	Selenium as Se	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)
22	Aluminium as Al	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)
23	Lead as Pb	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
24	Zinc as Zn	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
25	Total Chromium	BDL (DL: 0.02)	BDL (DL: 0.02)	BDL (DL: 0.02)	BDL (DL: 0.02)	BDL (DL: 0.02)
26	Boron as B	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
27	Mineral Oil	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
28	Phenolic Compunds as C_6H_5OH	BDL (DL:0.0005)	BDL (DL:0.0005)	BDL (DL:0.0005)	BDL (DL:0.0005)	BDL (DL:0.0005)
29	Anionic Detergents as	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
30	Cynaide as CN	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
31	Total Coliform	165	172	124	131	124
32	E-Coli	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
33	Barium as Ba	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
34	Ammonia (as Total	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
35	Sulphide as H_2S	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
36	Molybdenum as Mo	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
37	Total Arsenic as As	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
38	Total Suspended Solids	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)

* IS: 10500:2012-Drinking Water Standards; # within the permissible limit as per the WHO Standard. The water can be used for drinking purpose in the absence of alternate sources. Note: SW- Surface water, GW – Ground water

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	RESULT	CPCB Designated Best Use
			SW1	
1	Colour	Hazen	1	300
2	Odour	-	Agreeable	Not specified
3	pH@ 25ºC	-	7.91	6.5 – 8.5
4	Electrical Conductivity @ 25°C	µs/cm	1295	
5	Turbidity	NTU	4	Not specified
6	Total Dissolved Solids	mg /l	752	1500
7	Total Hardness as $CaCO_3$	mg/l	216	Not specified
8	Calcium as Ca	mg/l	62.5	Not specified
9	Magnesium as Mg	mg/l	14.6	Not specified
10	Total Alkalinity as $CaCO_3$	mg/l	202.5	Not specified
11	Chloride as Cl^-	mg/l	256.2	600
12	Sulphate as SO_4^-	mg/l	49.2	400
13	Iron as Fe	mg/l	0.46	50
14	Free Residual Chlorine	mg/l	BDL(DL: 0.1)	400
15	Fluoride as F	mg/l	0.38	1.5
16	Nitrates as NO_3	mg/l	13.3	50
17	Copper as Cu	mg/l	BDL (DL:0.01)	1.5
18	Manganese as Mn	mg/l	BDL (DL:0.02)	Not specified
19	Mercury as Hg	mg/l	(BDL (DL: 0.0005)	Not specified
20	Cadmium as Cd	mg/l	BDL (DL:0.001)	0.01
21	Selenium as Se	mg/l	BDL (DL: 0.005)	Not specified
22	Aluminium as Al	mg/l	BDL (DL: 0.005)	Not specified
23	Lead as Pb	mg/l	BDL (DL:0.005)	0.1
24	Zinc as Zn	mg/l	BDL (DL:0.05)	15
25	Total Chromium	mg/l	BDL (DL: 0.02)	0.05
26	Boron as B	mg/l	BDL (DL:0.05)	Not specified
27	Mineral Oil	mg/l	BDL (DL:01)	Not specified
28	Phenolic Compounds as C_6H_5OH	mg/l	(BDL (DL: 0.0005)	0.005
29	Anionic Detergents as MBAS	mg/l	BDL (DL:0.01)	Not specified
30	Cyanide as CN	mg/l	BDL (DL:0.01)	0.05
31	Biological Oxygen Demand, 3 days @ 27°C		12.4	3
32	Chemical Oxygen Demand		10.8	Not specified
33	Dissolved Oxygen		5.3	4
34	Total Coliform	MPN/ 100ml	1224	5000
35	E-Coli		231	Not specified
36	Barium as Ba	mg/l	BDL (DL:0.05)	300
37	Ammonia (as Total Ammonia-N)	mg/l	BDL (DL:0.01)	Not specified
38	Sulphide as H_2S	mg/l	BDL (DL:0.01)	Not specified
39	Molybdenum as Mo	mg/l	BDL (DL:0.02)	Not specified
40	Total Arsenic as As	mg/l	BDL (DL:0.005)	0.2
41	Total Suspended Solids	mg/l	15.9	-

3.2.4 Interpretation& Conclusion

Surface Water

Ph:

The pH varied from 7.91 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids is 752 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 256.2 mg/l. Nitrates is 13.3 mg/l, while sulphates is 49.2 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.1 to 7.56 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. The Total Dissolved Solids were found in the range of 457 - 690 mg/l in all samples. The Total hardness varied between 124 - 200 mg/l for all samples.
On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 130m. The maximum depth proposed out of proposed projects is 57m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to the proposed project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels which will be collected and stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

TABLE 3.11: POST MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

Station Code	Water Level in Meters bgl				Latitude	Longitude
	Mar-26	Apr-26	May-26	Average		
OW1	14.6	15.2	15.8	15.2	11° 31' 14.0655" N	77° 22' 40.7551" E
OW2	15.2	15.8	16.4	15.8	11° 31' 13.7752" N	77° 22' 48.4055" E
OW3	14.3	14.9	15.5	14.9	11° 31' 17.6815" N	77° 23' 03.9752" E
OW5	14.8	15.4	16	15.4	11° 30' 35.0921" N	77° 22' 20.9330" E
OW4	15.1	15.7	16.3	15.7	11° 31' 12.8645" N	77° 22' 08.5498" E
OW6	15	15.6	16.2	15.6	11° 31' 03.0571" N	77° 23' 14.0776" E
OW7	14.7	15.3	15.9	15.3	11° 30' 22.7691" N	77° 22' 36.1019" E
OW8	15.2	15.8	16.4	15.8	11° 31' 01.5111" N	77° 21' 52.5552" E
OW9	14.8	15.4	16	15.4	11° 31' 35.3709" N	77° 22' 33.1163" E

Source: Onsite monitoring data

TABLE 3.12: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

Station Code	Water Level in Meters bgl				Latitude	Longitude
	Mar-26	Apr-26	May-26	Average		
BW1	128	128.6	129.2	128.6	11° 30' 58.8047" N	77° 22' 53.1285" E
BW2	128.5	129.1	129.7	129.1	11° 30' 54.0846" N	77° 23' 13.3422" E
BW3	128.2	128.8	129.4	128.8	11° 30' 45.3635" N	77° 22' 41.8992" E
BW4	127	127.6	128.2	127.6	11° 30' 28.9164" N	77° 22' 24.2787" E
BW5	127.6	128.2	128.8	128.2	11° 30' 54.4242" N	77° 22' 07.9336" E
BW6	129	129.6	130.2	129.6	11° 31' 10.1569" N	77° 21' 53.4851" E
BW7	127.4	128	128.6	128	11° 31' 31.9901" N	77° 22' 40.7739" E
BW8	128.8	129.4	130	129.4	11° 31' 36.4771" N	77° 22' 25.1426" E

Source: Onsite monitoring data

FIGURE 3.6: OPEN WELL CONTOUR MAP – March 2026

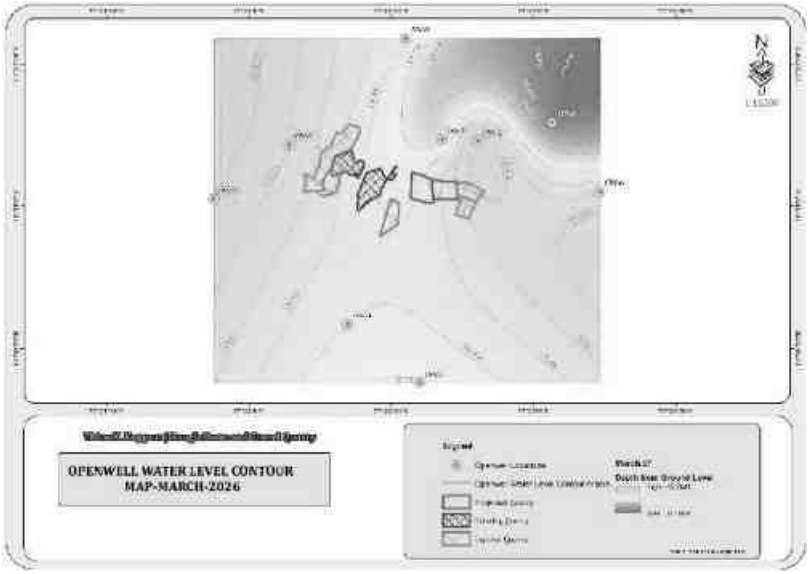


FIGURE 3.7: OPEN WELL CONTOUR MAP – April 2026

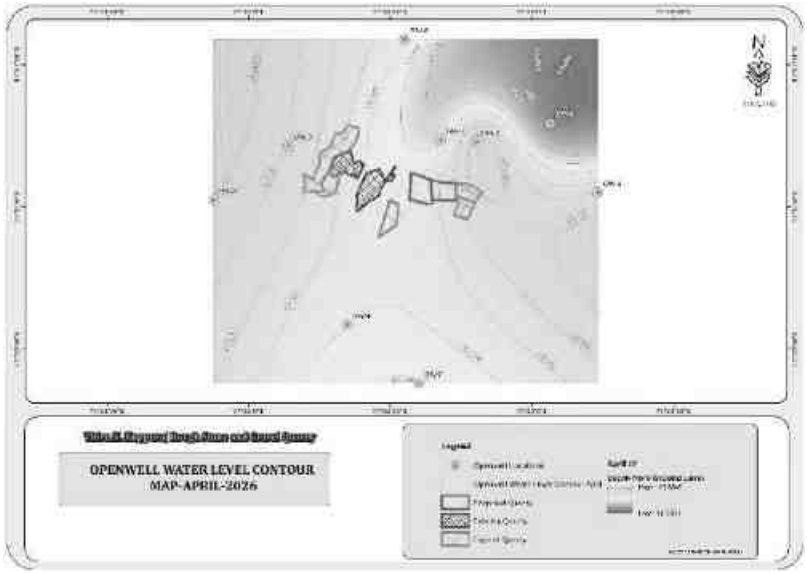


FIGURE 3.8: OPEN WELL CONTOUR MAP – May 2026

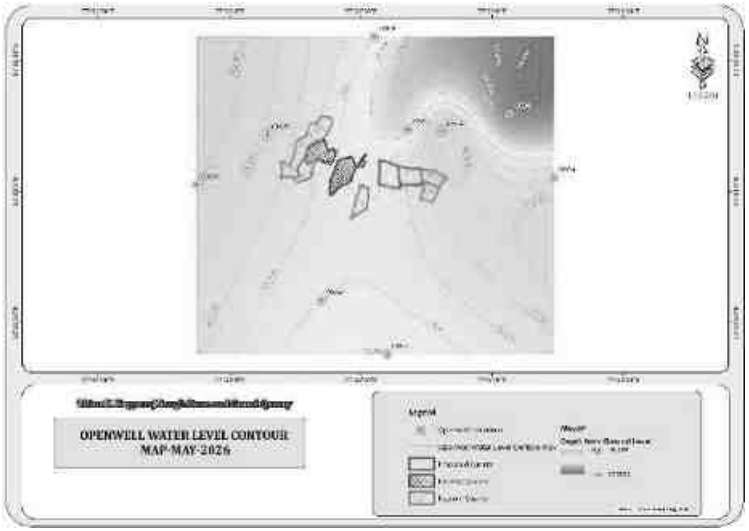


FIGURE 3.9: BOREWELL CONTOUR MAP – March 2026

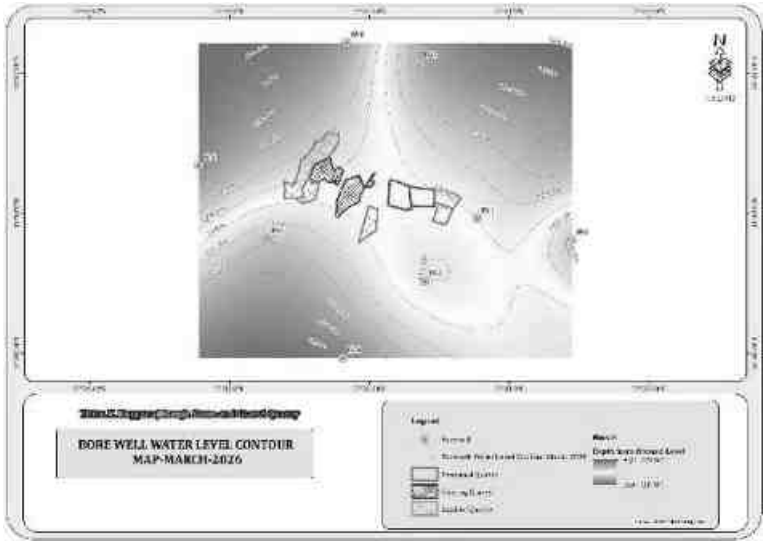


FIGURE 3.10: BOREWELL CONTOUR MAP – April 2026

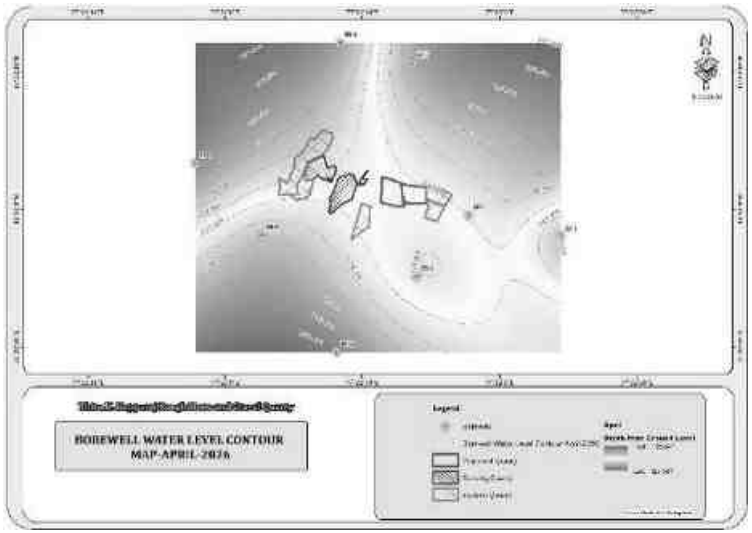


FIGURE 3.11: BOREWELL CONTOUR MAP – May 2026

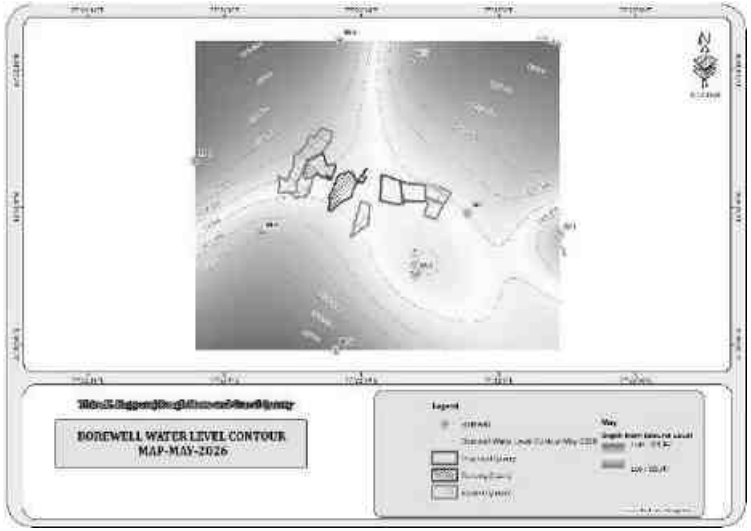


FIGURE 3.12: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

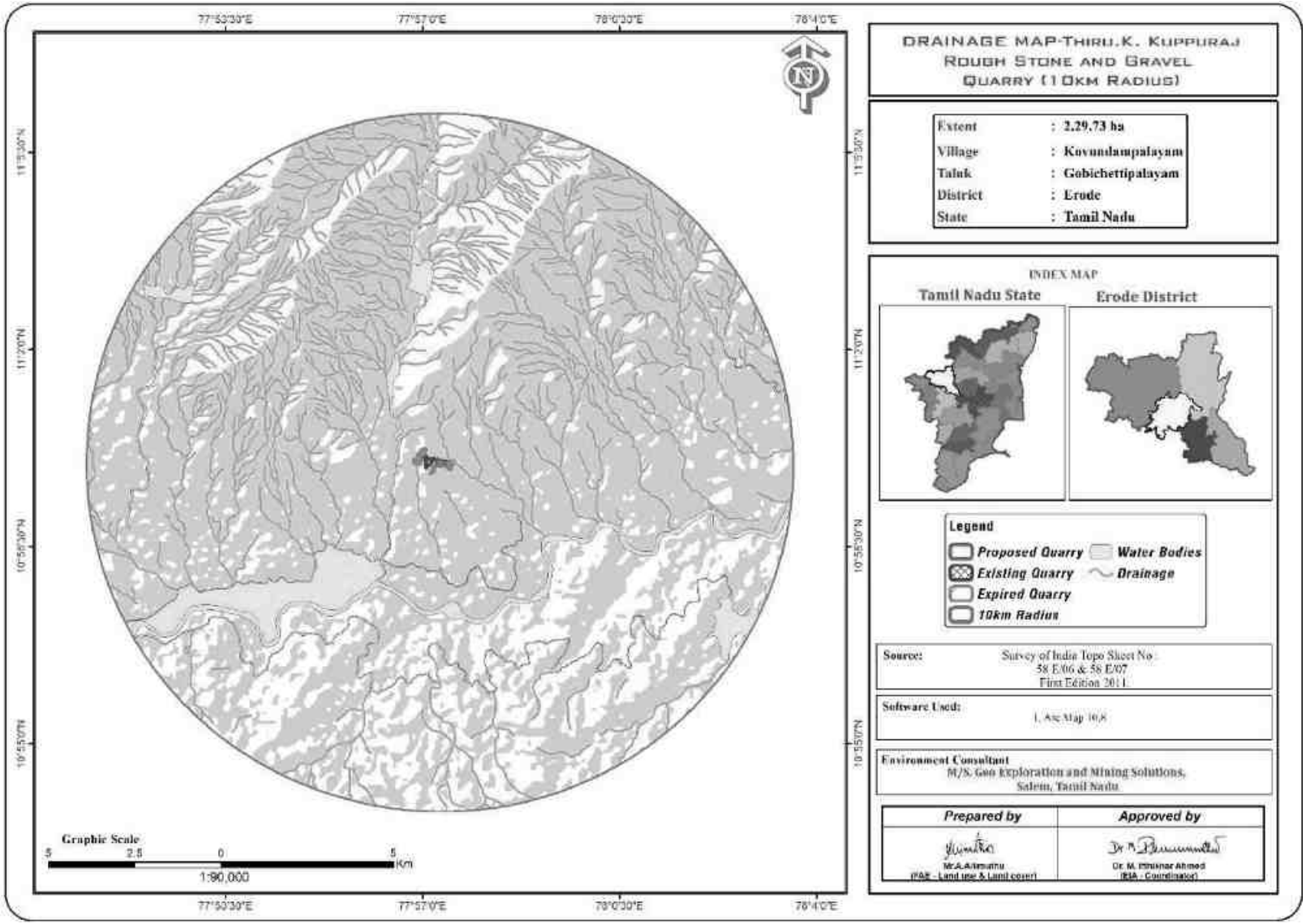
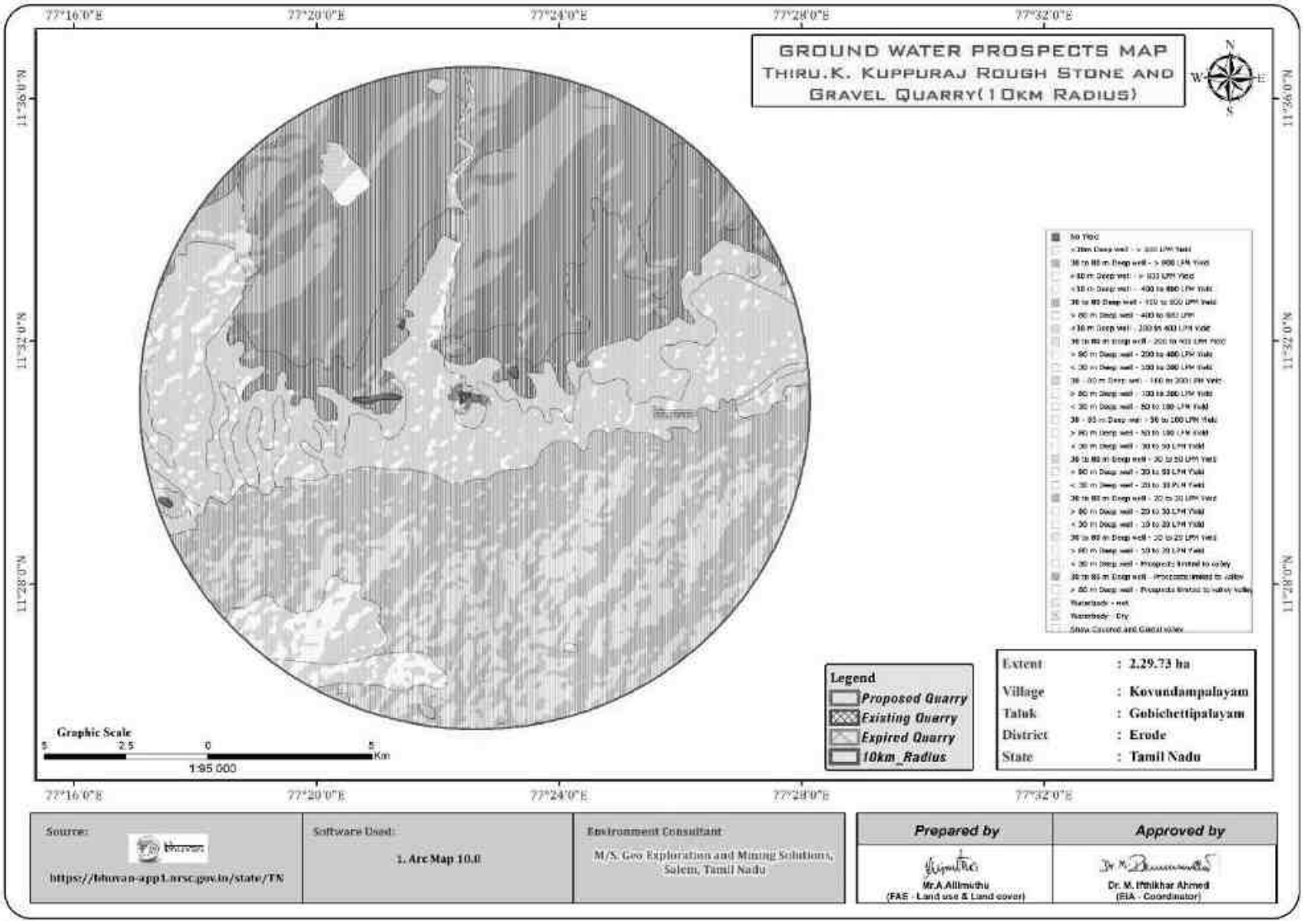


FIGURE 3.13: GROUND WATER PROSPECT MAP



3.2.5.1 Methodology and Data Acquisition

Electric Resistivity Method is well established for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface. The present study makes use of vertical electric sounding (VES) to delineate the Vertical Resistivity structure at depth. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation AB/2. The data from this survey are commonly arranged and contoured in the farm of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical in homogeneities that is consistent with the measured data.
For a Schlumberger among the Apparent resistivity can be calculated as follows.

$$\rho_a = \frac{G\Delta V}{I}$$

ΔV = potential difference between receiving electrodes
G = Geometric Factor.
Rocks show wide variation in resistivity ranging from 10-8 more than 10+14 ohmmeter. On a broad classification, one can group the rocks falling in the range of 10-8 to 1 ohmmeter as good conductors. 1 to 106 ohmmeter as intermediate conductors and 106 to 1012 ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

$$\rho_r = F\rho_w = a\,\emptyset^m\rho_w$$

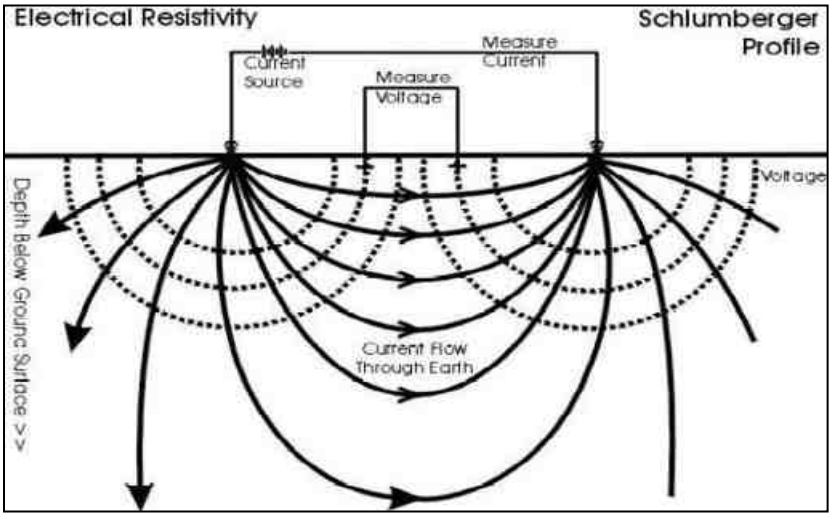
ρr = Resistivity of Rocks
ρw = Resistivity of water in pores of rock
F = Formation Factor
Ø = Fractional pore volume
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. Here the present study is considered with Schlumberger array. In which the distance may be used for current electrode separation while potential electrode separation is kept on third to one fifth of the same. One interesting aspect in VES is the principle of reciprocity, which permits interchange of the potential and current electrode without any effect on the measured apparent resistivity.

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to nose ration can be enhanced by √N where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 … (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

RESISTIVITY SURVEY PROFILE



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1& $C_{2)}$ and measuring the resulting potential by two other electrodes called potential electrode (P_1& P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 130m. The maximum depth proposed out of proposed project is 57m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

3.2.5.4 Geophysical Data Interpretation

The geophysical data was obtained to study the lateral variations, vertical in homogeneities in the sub – surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation will not have any significant impact on the natural water bodies.

3.3 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

3.3.1 Meteorology & Climate

Meteorology is the key to understand the Air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A temporary meteorological station was installed at project site by covering cluster quarries. The station was installed at a height of 3 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate –

- The climate here is tropical. During the Pre Monsoon season, there is a significant decrease in precipitation levels within Erode as compared to the summer months. Koppen and Geiger classify this climate as Aw. The average temperature in Erode is 27.3 °C | 81.2 °F. About 802 mm | 31.6 inch of precipitation falls annually.
- The region of Erode is characterized by a temperate climate, and the summer season presents some challenges in terms of precise categorization. The period of January, February, July, August, September, October, November, December is widely regarded as the peak season for visitation.
- The driest month is January, with 6 mm | 0.2 inch of rain. The month of October experiences the highest amount of precipitation, with an average value of 150 mm | 5.9 inch.
- April is the warmest month of the year. The temperature in April averages 31.1 °C | 87.9 °F. The month of December is characterized by the lowest temperatures, which have an average reading of 24.5 °C | 76.0 °F.

https://en.climate-data.org/asia/india/tamil-nadu/erode-3878/

Rainfall –

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm						Normal Rainfall in mm
2019	2020	2021	2022	2024	2024 (As on 30.09.2024)	
664.2	959.4	1010.1	1179	833.3	454.8	703

Source: https://www.twadboard.tn.gov.in/content/erode

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Mar–2026	Apr–2026	May–2026
1	Temperature (^{0}C)	Max	30.88	32.36	31.79
		Min	27.29	28.43	25.08
		Avg	29.08	30.39	28.43
2	Relative Humidity (%)	Avg	49.05	47.95	68.15
3	Wind Speed (m/s)	Max	3.31	3.14	6.05
		Min	1.30	1.68	1.29
		Avg	2.30	2.41	3.67
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ESE, E	ESE, SE	WSW, W

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

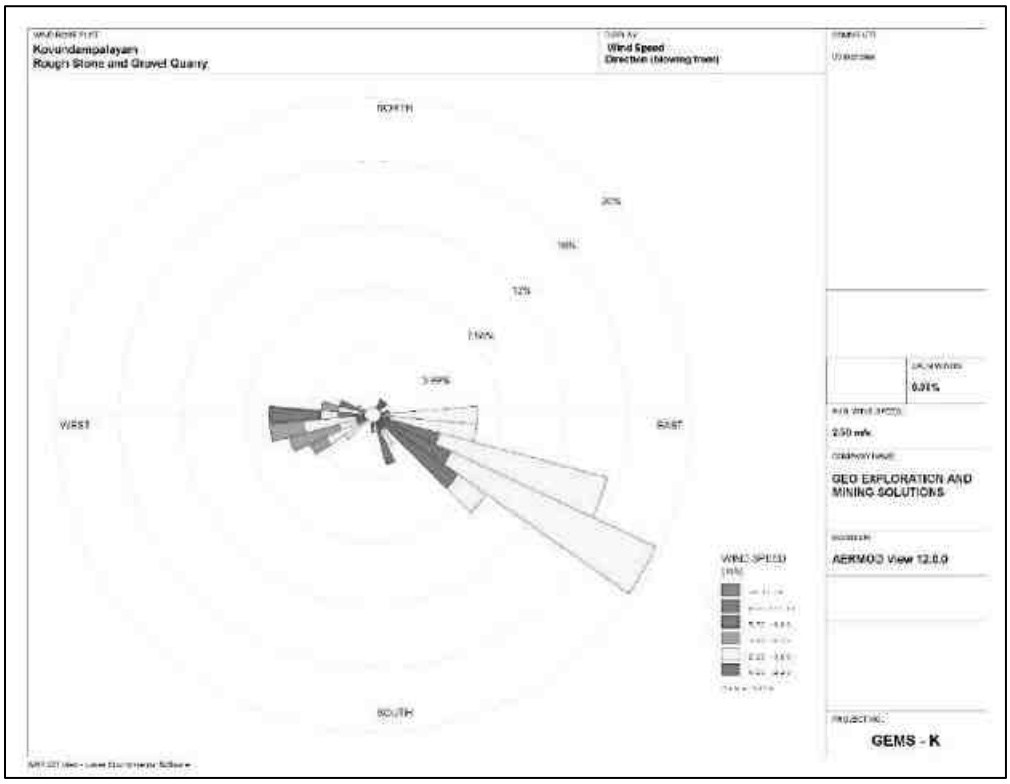
Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore_Agro. A comparison of site data generated during the three months with that of IMD, Coimbatore_Agro reveals the following:

- The average maximum and minimum temperatures of IMD, Erode_Agro showed a higher in respect of on-site data i.e. in Kovundampalayam village.
- The relative humidity levels were lesser at site as compared to IMD, Erode_Agro.
- The wind speed and direction at site shows similar trend that of IMD, Erode_Agro.

Wind rose diagram of the study site is depicted in Figure. 3.14. Predominant downwind direction of the area during study season is West to South East.

FIGURE 3.14: WINDROSE DIAGRAM



In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from West- SE
2. Wind velocity readings were recorded between 1.29 to 6.05 m/s
3. Calm conditions prevail of about 0.8 % of the monitoring period
4. Temperature readings ranging from 25.08 to 32.36 °C
5. Relative humidity ranging from 47.95 to 68.15 %
6. The monitoring was carried out continuously for three months.

3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

- Meteorological condition on synoptic scale;
- Topography of the study area;
- Representatives of regional background air quality for obtaining baseline status;
- Location of residential areas representing different activities;
- Accessibility and power availability; etc

3.3.3 Sampling and Analytical Techniques

TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	IS-5182 Part II (Jacob & Hochheiser modifiedmethod)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by Chennai Mettex Laboratories & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide (µg/m3)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide (µg/m3)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than 10µm) PM10 (µg/m3)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM2.5 (µg/m3)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a Week 24 hourly at uniform interval,

** 24 hourly / 8 hourly or 1 hourly monitored value as applicable shall be complied with 98 % of the time in a year. However, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Nine (9) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March 2026 – May 2026. The baseline data of ambient air has been generated for PM_{10}, $PM_{2.5}$, Sulphur Dioxide (SO_2) & Nitrogen Dioxide (NO_2) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5m above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.3.5 Ambient Air Quality Monitoring Stations

Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.15 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ1	Project Area	Core Zone	11°31'1.45"N 77°22'38.49"E
2	AAQ2	Near Existing Quarry	200m NW	11°31'12.23"N 77°22'30.32"E
3	AAQ3	Kumarankovil	410m SE	11°30'48.45"N 77°22'44.49"E
4	AAQ4	Kongarampalayam (School)	1.9km West	11°31'12.19"N 77°21'30.79"E
5	AAQ5	Erumaikaranputhur (Residential)	2.8km East	11°31'6.25"N 77°24'11.70"E
6	AAQ6	Podichinnampalayam (Residential)	6km South	11°27'44.50"N 77°22'42.53"E
7	AAQ7	Vinobanagar	4.2km NW	11°33'13.13"N 77°21'57.48"E

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

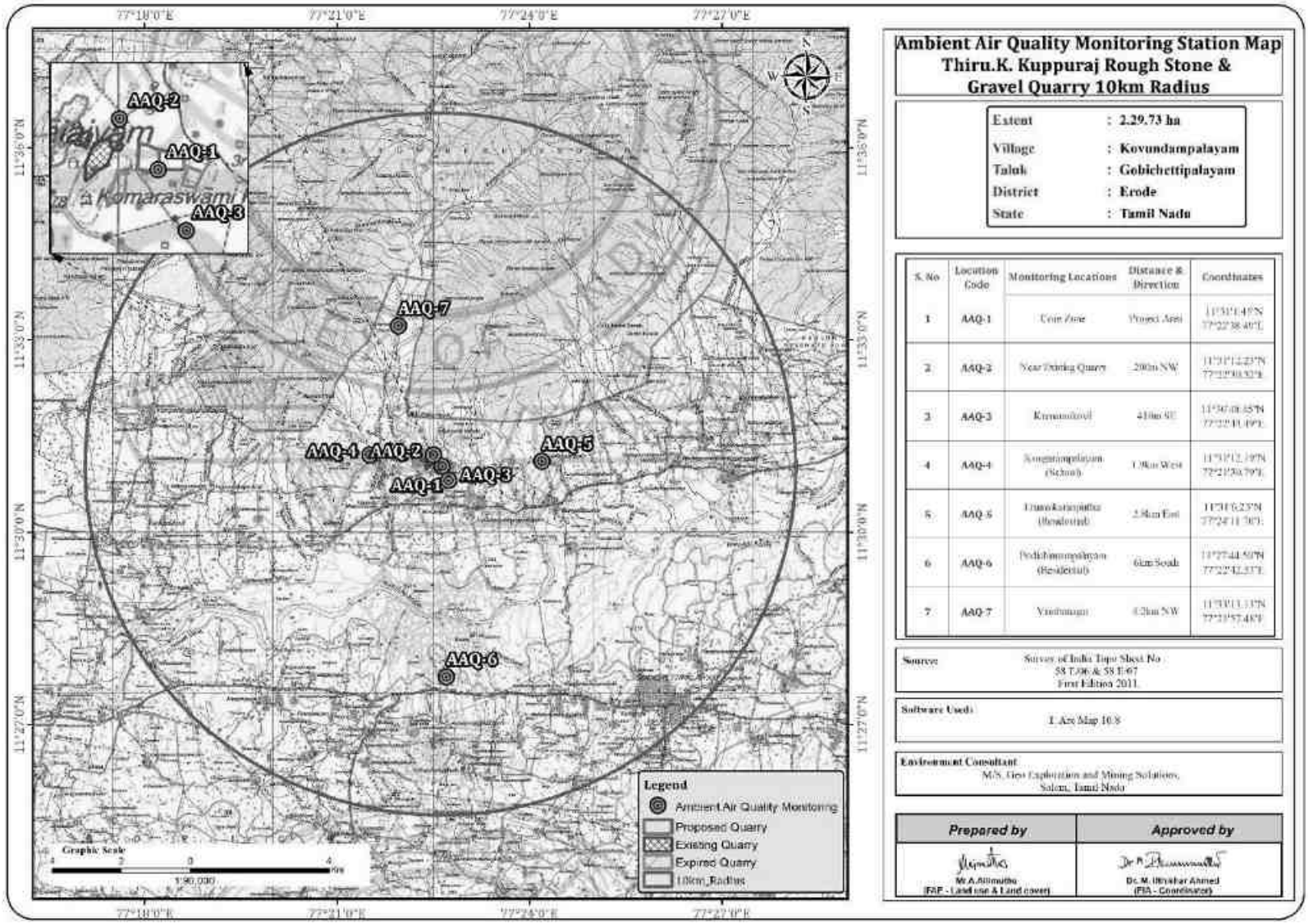


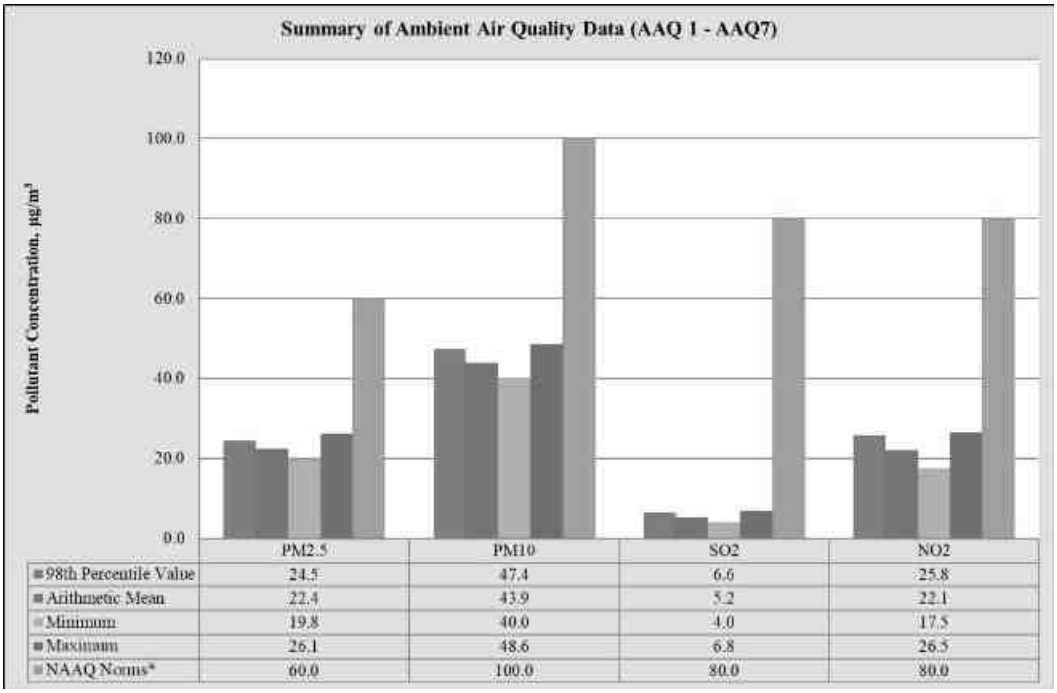
TABLE 3.27: SUMMARY OF AAQ – 1 to AAQ – 9

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	23.7	21.4	22.5	21.9	22.6	21.4	23.2
Minimum	22.1	20.2	20.2	20.0	20.4	20.4	19.8
Maximum	24.8	22.6	26.1	24.2	24.5	23.3	24.4
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	46.0	43.5	43.0	44.2	43.0	42.9	44.9
Minimum	45.0	41.8	40.1	40.0	40.3	41.4	41.9
Maximum	47.7	45.3	45.2	46.5	47.1	44.9	48.6
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SO_2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	4.9	5.1	5.3	5.2	5.3	5.5	5.4
Minimum	4.0	4.1	4.2	4.4	4.4	4.2	4.2
Maximum	6.1	6.1	6.7	6.0	6.2	6.8	6.6
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO_2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	23.7	20.4	22.7	21.6	24.3	21.4	20.8
Minimum	20.6	18.3	20.4	19.5	21.2	18.6	17.5
Maximum	26.5	23.4	24.5	24.0	26.5	26.5	22.7
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.28: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	**Parameter**	**PM2.5**	**PM10**	**SO_2**	**NO_2**
2	No. of Observations	23.7	20.4	22.7	21.6
3	10th Percentile Value	20.6	18.3	20.4	19.5
4	20th Percentile Value	26.5	23.4	24.5	24.0
5	30th Percentile Value	23.7	20.4	22.7	21.6
6	40th Percentile Value	20.6	18.3	20.4	19.5
7	50th Percentile Value	26.5	23.4	24.5	24.0
8	60th Percentile Value	23.7	20.4	22.7	21.6
9	70th Percentile Value	20.6	18.3	20.4	19.5
10	80th Percentile Value	26.5	23.4	24.5	24.0
11	90th Percentile Value	23.7	20.4	22.7	21.6
12	95th Percentile Value	20.6	18.3	20.4	19.5
13	98th Percentile Value	26.5	23.4	24.5	24.0
14	Arithmetic Mean	23.7	20.4	22.7	21.6
15	Geometric Mean	20.6	18.3	20.4	19.5
16	Standard Deviation	26.5	23.4	24.5	24.0
17	Minimum	23.7	20.4	22.7	21.6
18	Maximum	20.6	18.3	20.4	19.5
19	**NAAQ Norms***	26.5	23.4	24.5	24.0
	% Values exceeding Norms*	23.7	20.4	22.7	21.6

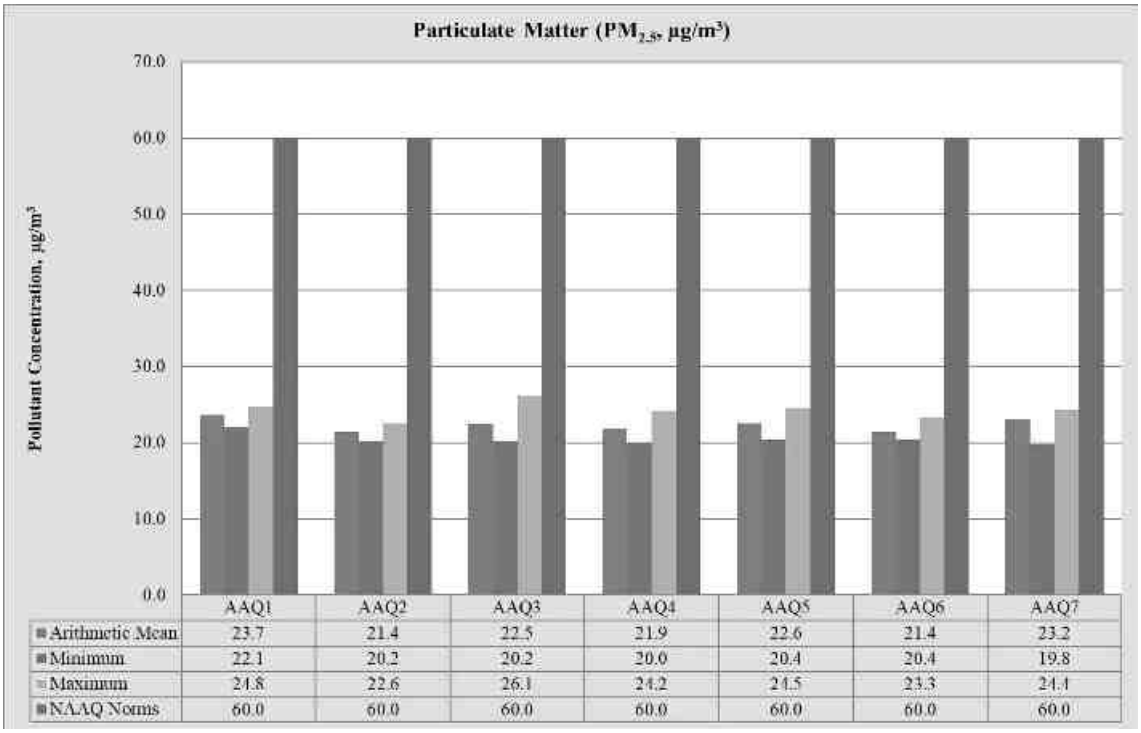
FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ 7



	PM2.5	PM10	SO2	NO2
98th Percentile Value	24.5	47.4	6.6	25.8
Arithmetic Mean	22.4	43.9	5.2	22.1
Minimum	19.8	40.0	4.0	17.5
Maximum	26.1	48.6	6.8	26.5
NAAQ Norms*	60.0	100.0	80.0	80.0

Source: Table 3.17 to 3.27

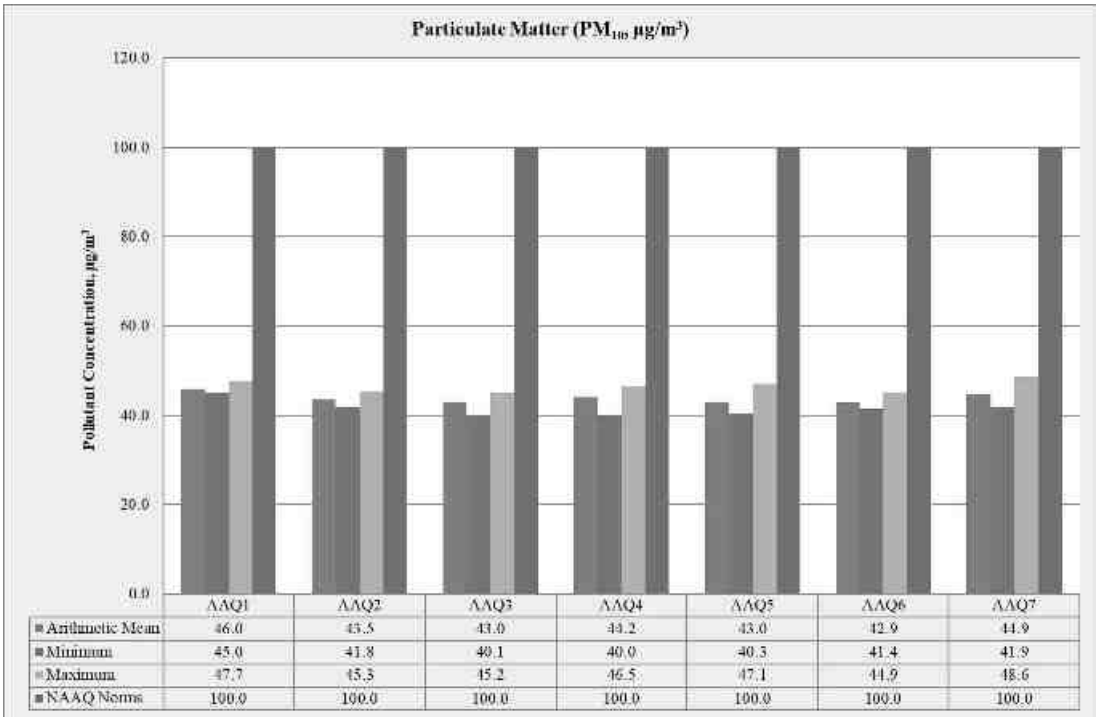
FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER $PM_{2.5}$



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	23.7	21.4	22.5	21.9	22.6	21.4	23.2
Minimum	22.1	20.2	20.2	20.0	20.4	20.4	19.8
Maximum	24.8	22.6	26.1	24.2	24.5	23.3	24.1
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0

Source: Table 3.17 to 3.27

FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{10}



Source: Table 3.17 to 3.27

3.3.6 Interpretations & Conclusion

As per monitoring data, PM_{10} ranges from 40 µg/m³ to 48.6 µg/m³, $PM_{2.5}$ data ranges from 19.8 µg/m³ to 26.1 µg/m³, SO_2 ranges from 4.0 µg/m³ to 6.8 µg/m³ and NO_2 data ranges from 17.5 µg/m³ to 26.5 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.3.7 FUGITIVE DUST EMISSION –

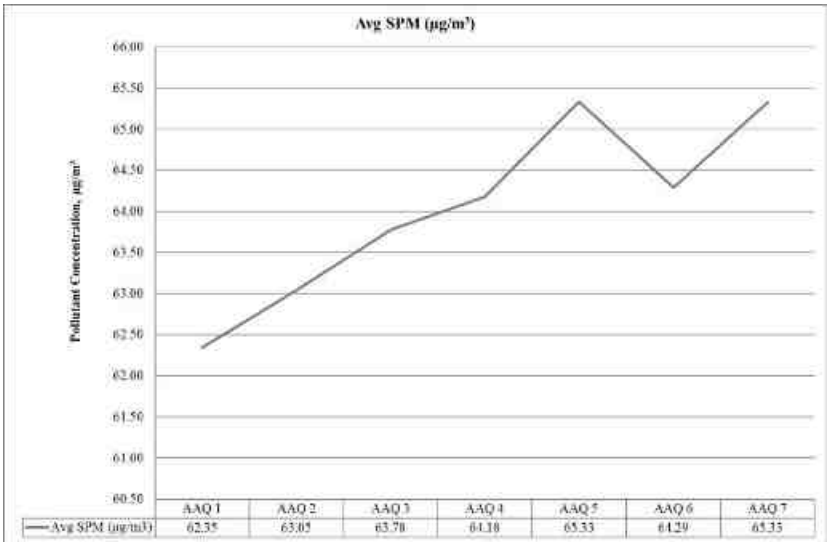
Fugitive dust was recorded at 7AAQ monitoring stations for 30 days average during the study period.

TABLE 3.29: AVERAGE FUGITIVE DUST SAMPLE VALUES

AAQ Locations	Avg SPM (µg/m³)
AAQ 1	62.35
AAQ 2	63.05
AAQ 3	63.78
AAQ 4	64.18
AAQ 5	65.33
AAQ 6	64.29
AAQ7	65.33

Source: Onsite monitoring/ sampling by Chennai Mettex Laboratories

FIGURE 3.19: LINE DIAGRAM OF AVERAGE SPM VALUES



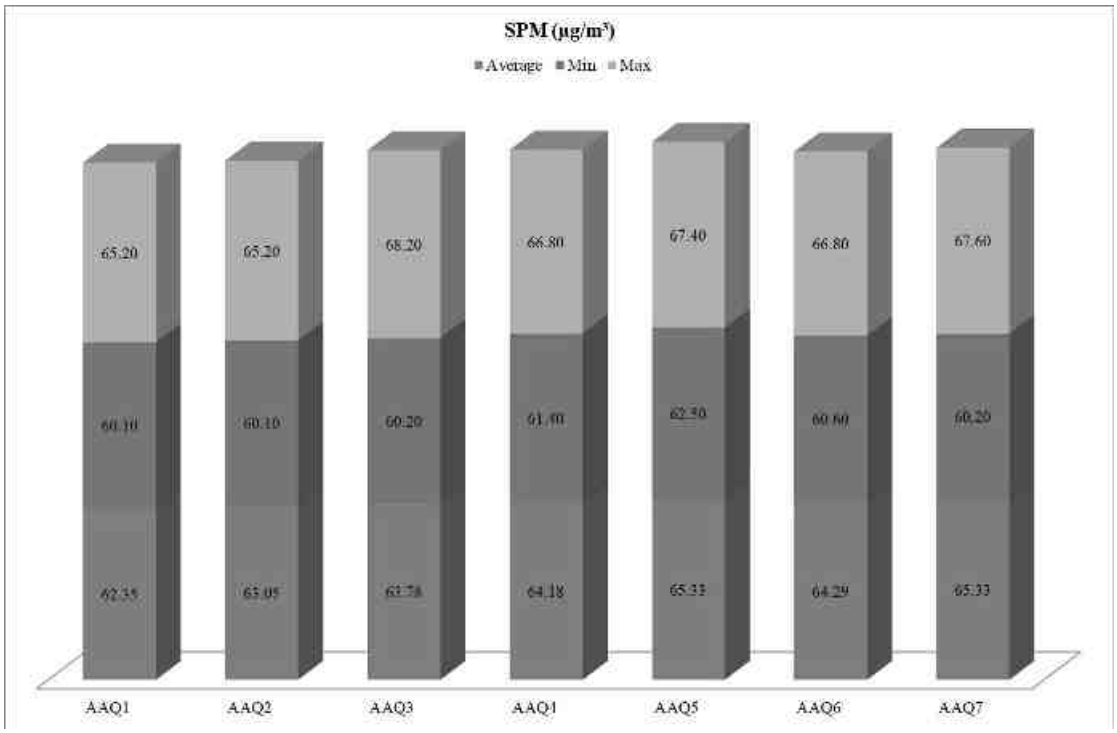
Source: Table 3.28

TABLE 3.30: FUGITIVE DUST SAMPLE VALUES IN µg/m³

SPM (µg/m³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Average	62.35	63.05	63.78	64.18	65.33	64.29	65.33
Min	60.10	60.10	60.20	61.40	62.50	60.60	60.20
Max	65.20	65.20	68.20	66.80	67.40	66.80	67.60

Source: Calculations from Lab Analysis Reports

FIGURE 3.20: BAR DIAGRAM OF SPM VALUES



Source: Table 3.30

3.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Seven (7) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.31: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Project Area	Core Zone	11°31'3.15"N 77°22'35.19"E
2	N2	Near Existing Quarry	200m NW	11°31'12.51"N 77°22'30.39"E
3	N3	Kumarankovil	410m SE	11°30'48.35"N 77°22'44.66"E
4	N4	Kongarampalayam (School)	1.9km West	11°31'12.38"N 77°21'31.03"E
5	N5	Erumaikaranputhur (Residential)	2.8km East	11°31'6.23"N 77°24'12.42"E
6	N6	Podichinnampalayam (Residential)	6km South	11°27'44.51"N 77°22'43.11"
7	N7	Vinobanagar (Residential)	4.2km NW	11°33'12.86"N 77°21'57.49"E

Source: On-site monitoring/sampling by Chennai Mettex Laboratories in association with GEMS

3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq, is used. Equivalent sound level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation. The equivalent noise level is defined mathematically as,

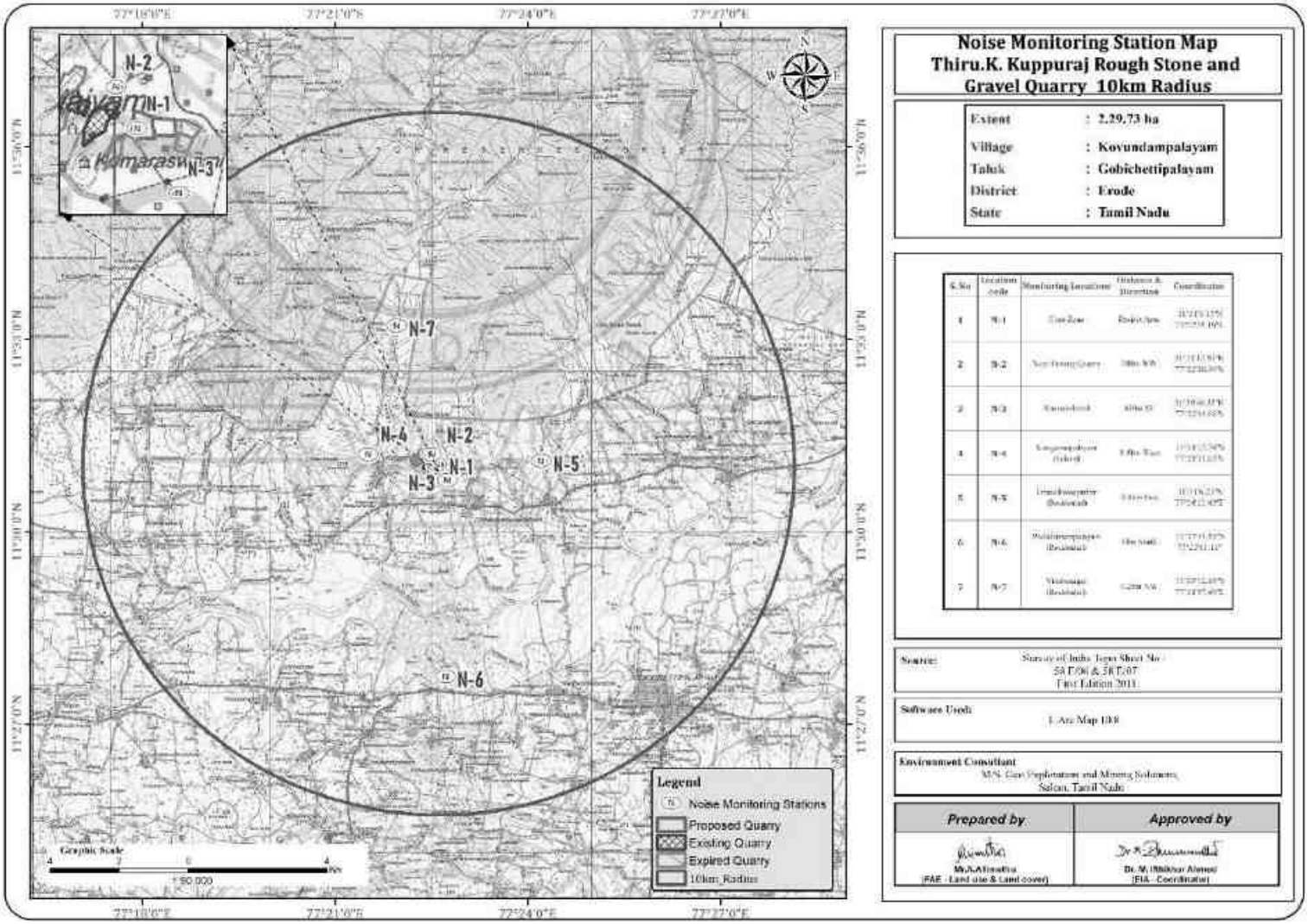
Leq = 10 Log L / T∑ (10Ln/10)

Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352) An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.32.

Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.32: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Project Area	40.4	35.0	**Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)**
2	Near Existing Quarry	41.7	35.4	
3	Kumarankovil	42.5	35.4	**Residential Day Time– 55 dB (A) Night Time- 45 dB (A)**
4	Kongarampalayam (School)	40.5	40.1	
5	Erumaikaranputhur (Residential)	42.5	38.6	
6	Podichinnampalayam (Residential)	45.4	36.7	
7	Vinobanagar (Residential)	42.2	36.7	

Source: On-site monitoring/sampling by EHS360 Laboratories in association with GEMS

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

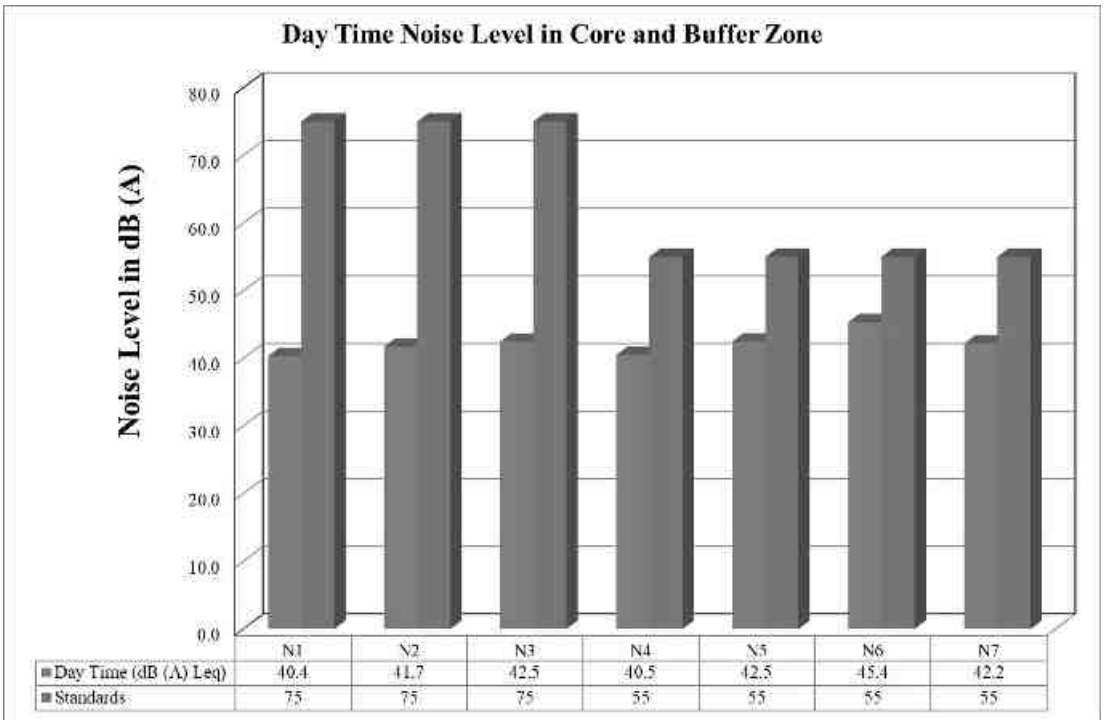
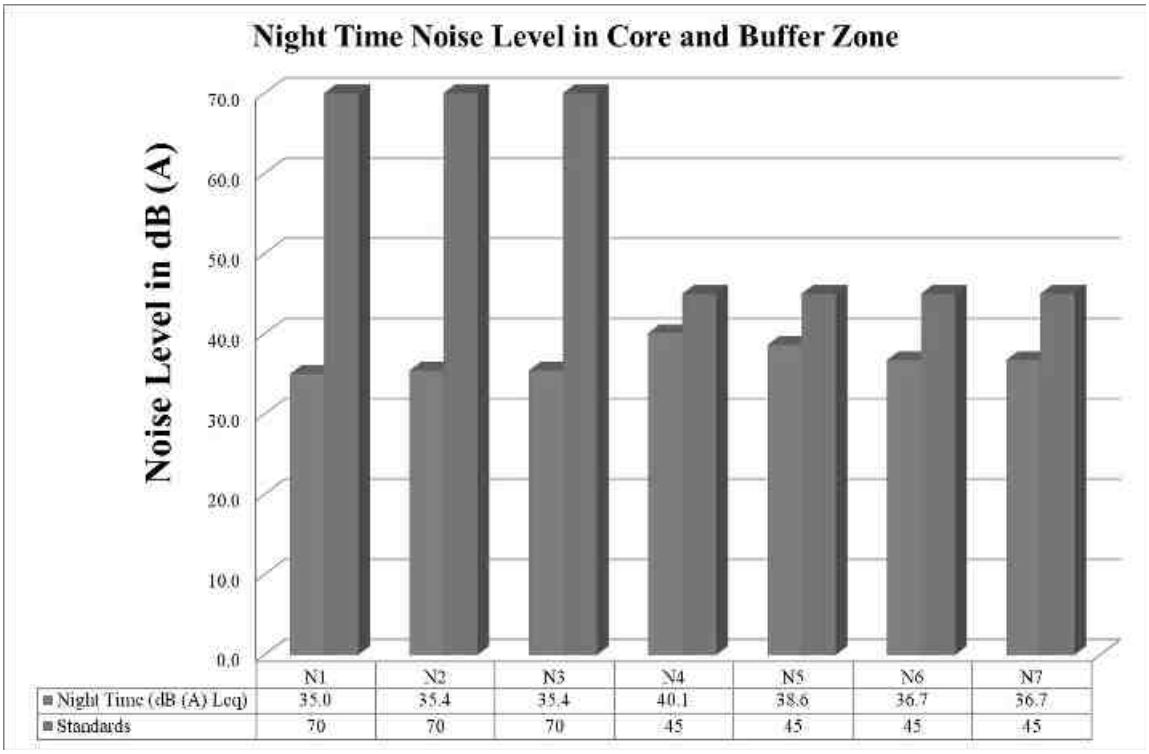


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 40.4 – 41.7 dB (A) Leq and during night time were 35 – 35.4 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 40.5 to 45.4 dB (A) Leq and during night time were from 35.4 to 40.1 dB (A) Leq.

Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 ECOLOGICAL ENVIRONMENT

Ecology is a branch of science which dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to listing of species and assessment of the existing baseline ecological conditions in the study area. The main objective of biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive survey of the area with reference to flora and fauna. Information is also collected from different sources i.e. government departments such as District Forest Office, Government of Tamil Nadu. The checklist of flora and fauna was prepared based on the onsite observations as well as forest department records.

3.5.1.Study area Ecology

The proposed Rough stone and Gravel quarry core area total extent of 2.29.73Ha of has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on the detailed study of the impacts of the Rough stone and gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed mine lease area is situated on an exhibiting plain topography. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

a) To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measures, if required, for vulnerable biota.

b) Undertake intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
c) Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
d) Suggest Wildlife conservation (species specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area as per the Red data book.
e) To identify the impacts of mining on agricultural lands and how it affects.
f) Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
g) Devise management & conservation measures for biodiversity.

3.5.3. Necessity of the Ecology Management Plan

Monitoring the influence of anthropogenic activities on flagship species is an important part of conserving biodiversity, because the information gained is crucial for the development and adaptation of conservation management plans. Ecological monitoring provides feedback about the actual environmental impacts of a project. Monitoring results help judge the success of mitigation measures in protecting the environment. They are also used to ensure compliance with environmental standards, and to facilitate any needed project design or operational changes.

Regulatory bodies worldwide are increasingly recognizing the fact that human activities are causing environmental and ecological damage. To effectively deal with this environmental crisis, it is important to understand its dimensions and dynamics. What specifically are the damages, how are they changing over time, and the best means of prevention or mitigation. To develop precise ecology management plan, longer-term programs of monitoring and research must be designed and implemented. Such programs are capable of detecting environmental and ecological change over large areas, and of developing an understanding of the causes and consequences of those changes.

3.5.4. Methodology of Sampling

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in core and buffer zone. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. Land use pattern in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers.

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordinates. Presence of

mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies. Birds and butterflies were classified into species level. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

3.5.5. The secondary baseline data of flora and fauna has been complied through the following data sources:

1. Forest working plan
2. IUCN Red Data Book.
3. Vivek Menon, Indian Mammals: A Field Guide. Hachette Book publishing India Pvt. Ltd., India.
4. Daniel J.C. The Book of Indian Reptiles and Amphibians, Bombay Natural History Society., India.
5. Ali, S and Ripley. handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim and Bhutan, Oxford University Press, Bombay.
6. ENVIS Centre on Wildlife and Protected Area.
7. Birds Life Data Zone
8. Ebird.org
9. Global Biodiversity Information Facility

3.5.6. Field Equipment's/ References

Following tools/equipment were used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – https://www.iucnredlist.org/species

Ornithological/Entomological/Herpetological/Mammalian catalogues and pictorial descriptions from various authors and websites are followed for species identification.

3.5.7. Part I Field Sampling Techniques (Fauna Sampling)

3.5.7.1. Transect walk – Birds

Six no transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and buffer areas of proposed site. The transect surveys were conducted from 0700 to 1100Hrs and 1430 to 1730Hrs (Bibby et al. 2000). All avifauna found along these transects were recorded for analysing the data. Counts were conducted while there is no heavy rain, mist or strong wind.

3.5.7.2. Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method were employed to investigate butterfly spatial distribution, diversity and abundance at the different survey sites.

3.5.7.3. Visual Encounter Survey (VES) - reptiles and Amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent on search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

3.5.7.4. Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

3.5.7.5. Multiple Stage Quadrats – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated with colored ribbons. Each site was identified in the field using a compass and clinometer, and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.8. Flora

3.5.8.1. Quadrat Sampling Method

The quadrat sampling technique was used for sampling vegetation. Sampling quadrats of the regular shape of dimensions 10 × 10 m, 5 × 5 m, and 1 × 1 m, were nested within each other and were defined as the units for sampling the area and measuring the diversity for trees, Shrubs, and herbs respectively.

3.5.8.2. Flora Composition in the Core Zone (Primary data)

Core zone flora samplings were conducted between 8.30 am to 10.30 am in three locations. The applied area is an exhibiting plain topography, so we used quadrat sampling methods. Taxonomically a total of 16 species belonging to 12 families have been recorded from the core mining lease area based on habitat classification of the enumerated plants the majority of species were Herbs 6, followed by Trees 4, Grasses 3, Shrubs 2 and Creeper 1.

Table 3.33: Flora in the Core zone of Kavundampalayam Village, Rough stone and Gravel quarry, Gobichettipalayam Taluk, Erode District (Primary data)

SI. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem	Vembu	*Azadirachta indica*	Meliaceae
2.	Mesquite	Mullu maram	*Prosopis juliflora*	Fabaceae
3.	Indian mulberry	Nuna maram	*Morinda tinctoria*	Rubiaceae
4.	Acacia Nilotica	Karuvelam maram	*Vachellia nilotica*	Fabaceae
Shrubs				
1.	Tanner's cassia	Avaram	*Senna auriculata*	Fabaceae
2.	Milk Weed	Erukku	*Calotropis gigantea*	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	*Leucas aspera*	Lamiaceae
2.	Coat buttons	Thatha poo	*Tridax procumbens*	Asteraceae
3.	Bindii	Nerunji mullu	*Tribulus terrestris*	Zygophyllaceae
4.	Dog Mustard	Nai kadugu plant	*Cleome viscosa*	Cleomaceae
5.	Country Mallow	Nilatutti	*Sida cordifolia*	Malvaceae
6.	Prickly chaff flower	Nayuruv	*Achyranthes aspera*	Amaranthaceae
Creeper				
1.	Stinking passionflower	Poonai puduku chedi	*Passiflora foetida L*	Passifloraceae
Grasses				
1.	Eragrostis	Pullu	*Eragrostis ferruginea*	Poaceae
2.	Nut grass	Korai	*Cyperus rotandus*	Poaceae
3.	Great brome	Thodappam	*Bromus diandrus*	Poaceae

Sources: Species observation in the field study



a. Azadirachta indica



b. Sida cordifolia



e.Vachellia nilotica



f.Croton bonplandianus



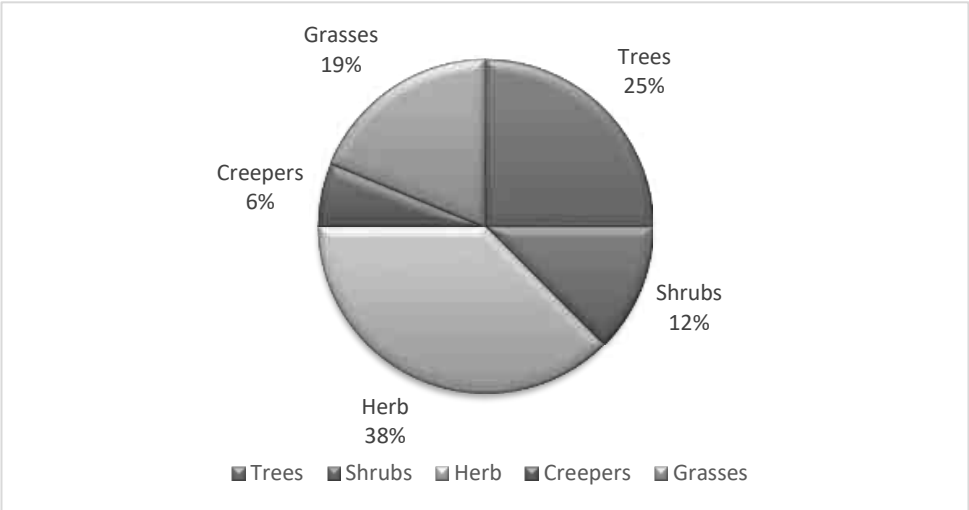
g. Prosopis juliflora



h. Bromus diandrus

Figure 3.26 Flora species observation in the Core zone area

Figure 3.27 Graph Showing % Distribution Of Floral Life Forms (Core Zone)



3.5.8.3 Flora Composition in the Buffer Zone (Primary data & Secondary data)

Buffer zone flora sampling was conducted between 10.30 am to 1.00 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrate methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrate methods were followed. The proposed project site there are 132 species in the buffer zone study area in total, based on records. The floral (132) varieties among them Trees 40, Herbs 46, Shrubs 27, Climbers/ Creepers 13, Grasses 4 and cactus 2 were identified. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people.

Table 3.34: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	40
2	Shrubs	27
3	Herbs	46
4	Climber/ Creeper	13
5	Grasses	4
6	Cactus	4
Total No. of Species		**132**

Table 3.35: Flora in Buffer Zone of Kavundampalayam Village, Rough stone and gravel quarry

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Gum arabic tree	Karuvelam	*Vachellia nilotica*	Fabaceae
2.	Ear -pod wattle	Kaththi Karuvel	*Acacia auriculiformis*	Fabaceae
3.	White leadtree	Subabul	*Leucaena leucocephala*	Fabaceae
4.	White-bark acacia	Vellaivelan	*Acacia leucophloea*	Mimosaceae
5.	Neem or Indian lilac	Vembu	*Azadirachta indica*	Meliaceae
6.	White Thorn	Seengai	*Acacia polyacantha*	Mimosaceae
7.	Horsetail She-oak	Chavuku	*Casuarina litorea*	Casuarinaceae
8.	Frywood	Vaagaimaram	*Albizia lebbeck*	Mimosaceae
9.	River tamarind	Subabul	*Leucaena leucocephala*	Mimosaceae
10.	Velvet mesquite	Mullu maram	*Prosopis juliflora*	Fabaceae
11.	Portia tree	Poovarasan	*Thespesia Populnea*	Malvaceae
12.	Indian ash tree	Othiyamaram	*Lannea coromandelica*	Anacardaceae
13.	Bael	Vilvam	*Aegle marmelos*	Rutaceae
14.	Indian gooseberry	Nelli	*Phyllanthus emblica*	Euphorbiaceae
15.	Lemon	Ezhumuchaipalam	*Citrus lemon*	Rutaceae
16.	Chinese chaste tree	Nochi	*Vitex negundo*	Verbenaceae
17.	Java Plum	Naval	*Syzygium cumini*	Myrtaceae
18.	Thorny bamboo	Moongil	*Bambusa arundinacea*	Poaceae
19.	Chinaberry	Malai Vembu	*Melia azadarach*	Meliaceae
20.	Asian Palmyra palm	Panai maram	*Borassus flabellifer*	Arecaceae
21.	Tree of heaven	Vathikuchimaram	*Ailanthus excelsa*	Simaroubaceae
22.	Tahitian gooseberry	Aranelli	*Phyllanthus acidus*	Euphorbiaceae
23.	Indian mulberry	Nuna maram	*Morinda tinctoria*	Rubiaceae
24.	Pongamia pinnata	Pongam	*Millettia pinnata*	Fabaceae
25.	Tasmanian blue gum	Eucalyptus	*Eucalyptus globulus*	Myrtaceae
26.	Guava	Koyya	*Psidium guajava*	Myrtaceae
27.	Sacred Tree	Thenthangkottai	*Butea monosperma*	Fabaceae
28.	Monoon longifolium	Nettulingamaram	*Polyalthiya longifolia*	Annonaceae
29.	Egyptian Pea	Sitthagathi	*Sesbania sesban*	Fabaceae
30.	Cluster fig	Atthi	*Ficus racemosa*	Moraceae
31.	Tamarind	Puliyamaram	*Tamarindus indica*	Legumes
32.	Drumstick tree	Murunga maram	*Moringa oleifera*	Moringaceae
33.	Ficus religiosa	Arasamaram	*Ficus religiosa*	Moraceae

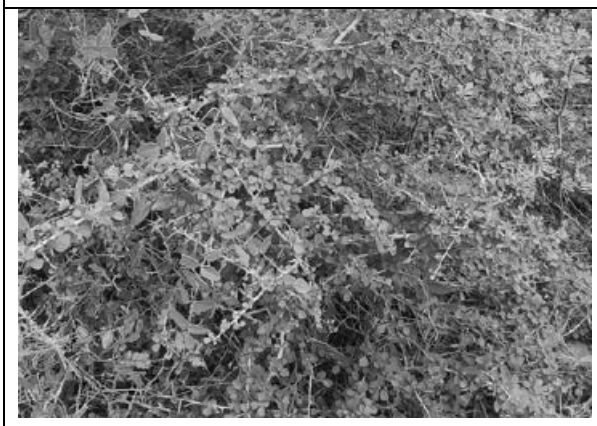
34.	Oil cake tree	Usil	*Albizia amara*	Mimosaceae
35.	Papaya	Pappali maram	*Carica papaya L*	Caricaceae
36.	Banana tree	Vazhaimaram	*Musa acuminata*	Musaceae
37.	Vegetable hummingbird	Agatthi	*Sesbania grandiflora*	Fabaceae
38.	Teak	Thekku	*Tectona grandis*	Verbenaceae
39.	Clammy Cherry	Naruvili	*Cordia obliqua*	Cordiaceae
40.	Indian jujub	Elanthai	*Ziziphus mauritiana*	Rhamnaceae
Shrubs				
1.	Malabar catmint	Paeimirati	*Anisomeles malabarica*	Lamiaceae
2.	candle bush	Seemai agathi	*Cassia alata*	Fabaceae
3.	jack in the bush	Siam Weed	*Chromolaena odorata*	Asteraceae
4.	Indian thornapple	Karu Oomathai	*Datura metel*	Solanaceae
5.	Asian indigo	punal-murunkai	*Indigofera trita*	Fabaceae
6.	pink morning glory	Neyveli Kattamanakku	*Ipomoea carnea*	Convolvulaceae
7.	erect prickly pear	Sappathikalli	*Opuntia stricta*	Cactaceae
8.	Prickly Sesban	Malai-murunkai	*Sesbania bispinosa*	Fabaceae
9.	pea eggplant	Sundakkai	*Solanum torvum*	Solanaceae
10.	African Milk Bush	Maan Sevi Kalli	*Synadenium grantii*	Euphorbiaceae
11.	Coromandel Boxwood	Kaarai	*Canthium coromandelicum*	Rubiaceae
12.	Apple of sodom	Vellai erukku	*Calotropis procera*	Asclepidaceae
13.	Broom creeper	Kattukodi	*Cocculus hirsutus*	Menispermaceae
14.	Hopbush	Virali chedi	*Dodonaea viscosa*	Sapindaceae
15.	Indian Atalantia	Kattu elumichai	*Atalantia monophylla*	Rutaceae
16.	Bellyache bush	Kattamanakku	*Jatropha gossypifolia*	Euphorbiaceae
17.	Porcupine flower	Kaatukanagambaram	*Barleria prionitis*	Acanthaceae
18.	Avaram	Avarai	*Senna auriculata*	Fabaceae
19.	Castor bean	Amanakku	*Ricinus communis*	Euphorbiaceae
20.	Shoe flower	Chemparuthi	*Hibiscu rosa-sinensis*	Malvaceae
21.	Malabar nut	Adathoda	*Justicia adhatoda*	Acanthaceae
22.	Turkey berry	Sundai	*Solanum torvum*	Solanaceae
23.	Castor oil plant	Aamannukku	*Ricinus communis*	Euphorbiaceae
24.	Milk Weed	Erukku	*Calotropis gigantea*	Apocynaceae
25.	Touch-me-not	Thottalchinungi	*Mimosa pudica*	Mimosaceae
26.	Indian mallow	Thuthi	*Abutilon indicum*	Meliaceae
27.	West Indian Lantana	Unni chedi	*Lantana camara*	Verbenaceae
Herbs				

1.	Watergrass	Mukkutikorei	*Bulbostylis barbata*	Cyperaceae
2.	Country Mallow	Nilatutti	*Sida cordifolia*	Malvaceae
3.	Sessile Joyweed	Ponnanganii	*Alternanthera sessilis*	Amaranthaceae
4.	Chamber bitter	Malai Kizhanelli	*Phyllanthus urinaria L.*	Euphorbiaceae
5.	Watergrass	Mukkorraikkorai	*Bulbostylis barbata*	Cyperaceae
6.	Bristly Starbur	Mul thulasi	*Acanthospermum hispidum*	Asteraceae
7.	Desert Cotton	Perumpoolai	*Aerva javanica*	Amaranthaceae
8.	Crofton weed	Catweed	*Ageratina adenophora*	Asteraceae
9.	Mexican poppy	Brahmadhandu	*Argemone mexicana*	Papaveraceae
10.	sickle senna	Senavu	*Cassia tora*	Fabaceae
11.	Mexican Tea	Pulukkollichedi	*Chenopodium ambrosioides*	Amaranthaceae
12.	Asian spiderflower	Naikadugu	*Cleome viscosa*	Cleomaceae
13.	Horn-Fruited Jute	Naruvalli	*Corchorus tridens*	Tiliaceae
14.	Ban Tulsi	Rail Poondu	*Croton bonplandianum*	Euphorbiaceae
15.	Indian-apple	Oomathai	*Datura innoxia*	Solanaceae
16.	Pignut	Seemai Thulasi	*Hyptis suaveolens*	Lamiaceae
17.	Narrowleaf Indigo	Kurukiya-ilai Nili	*Indigofera linifolia*	Fabaceae
18.	Water Primrose	Neer thandu	*Ludwigia adscendens*	Onagraceae
19.	Gooseberry	Sodakku Thakkali	*Physalis minima*	Solanaceae
20.	Goatweed	Kallurukki	*Scoparia dulcis*	Plantaginaceae
21.	Madagascar Periwinkle	Nithyakalyani	*Catharanthus roseus*	Apocynaceae
22.	Sand Herbage	Manal keerai	*Gisekia pharnaceoides*	Aizoaceae
23.	Common couch	Naaippul	*Agropyron repens*	Poaceae
24.	Taro	Sempu	*Colocasia esculenta*	Araceae
25.	Carrot grass	Parttiniyam	*Parthenium hysterophorus*	Asteraceae
26.	Aloe barbadensis	Katrazhai	*Aloe vera*	Asphodelaceae
27.	Indian Mercury	Kuppamani	*Acalypha indica*	Euphorbiaceae
28.	Bristly Needle Grass	Thudappampillu	*Aristida setacea*	Poaceae
29.	Indian nettle	Nayuruvi	*Achyranthes aspera*	Amaranthaceae
30.	Nut grass	Korai kilangu	*Cyperus rotundus*	Cyperaceae
31.	Indian doab	Arugampul	*Cynodon dactylon*	Poaceae
32.	Datura metel	Oomathai	*Datura metel*	Solanaceae
33.	Large Caltrops	Yanai nerunji	*Pedalium murex L.*	Pedaliaceae
34.	Commelina benghalensis	Kanavalai	*Commelina benghalensi*	Commelinaceae
35.	Monarch redstem	Neermel nerupu	*Ammannia baccifera*	Lythraceae
36.	Common leucas	Thumbai	*Leucas aspera*	Lamiaceae
37.	Green amaranth	Kuppaikeerai	*Amaranthus viridis*	Amaranthaceae

38.	King of Bitters	Nilavaemboo	*Andrographis paniculata*	Acanthaceae
39.	Billygoat weed	Poompillu	*Ageratum conyzoides*	Asteraceae
40.	Holy basil	Thulasi	*Ocimum tenuiflorum*	Lamiaceae
41.	Asthma-plant	Ammanpachaiarisi	*Euphorbia hirta*	Euphorbiaceae
42.	Tridax daisy	Thatha poo	*Tridax procumbens*	Asteraceae
43.	Spiny amaranth	Mullukeerai	*Amaranthus spinosus*	Amaranthaceae
44.	Floating Lace Plant	Kottikilangu	*Aponogeton natans*	Aponogetonaceae
45.	Mexican prickly poppy	Biramathandu	*Argemone mexicana*	Papaveraceae
46.	American Basil	Naaithulasi	*Ocimum americanum*	Lamiaceae
Climber				
1.	Balloon vine	Mudakkathan	*Cardiospermum halicacabum*	Sapindaceae
2.	queen's wreath	Kodi Roja	*Antigonon leptopus*	Polygonaceae
3.	Common Dodder	Sadathari	*Cuscuta reflexa*	Cuscutaceae
4.	Clustered Morning Glory	Onankodi	*Ipomoea staphylina*	Convolvulaceae
5.	Ivy gourd	Kovai	*Coccinia grandis*	Cucurbitaceae
6.	Asian pigeonwings	Sanguppu	*Clitoria ternatea*	Fabaceae
7.	Bitter apple	Peikkumatti	*Citrullus colocynthis*	Cucurbitaceae
8.	Wild water lemon	Poonai puduku chedi	*Passiflora foetida*	Passifloraceae
9.	Stemmed vine	Perandai	*Cissus quadrangularis*	Vitaceae
Creeper				
1.	Spreading Hogweed	Saaranai Keerai	*Boerhavia diffusa*	Nyctaginaceae
2.	Nut grass	Korai	*Cyperus rotandus*	Poaceae
3.	Cucumis maderaspatanus	Musumusukkai	*Mukia maderaspatana*	Cucurbitaceae
4.	Grona triflora	Siru puladi	*Desmodium triflorum*	Fabaceae
Grasses				
1.	Eragrostis	Pullu	*Eragrostis ferruginea*	Poaceae
2.	Windmill grass	Chevvarakupul	*Chloris barbata*	Amaranthaceae
3.	Great brome	Thodappam	*Bromus diandrus*	Poaceae
4.	Cogongrass	Naanal	*Imperata cylindrica*	Poaceae
Cactus				
1.	Indian fig opuntia	Sapathikalli	*Opuntia ficus-indica*	Cactaceae
2.	Fleshy Spurge	Chathurakkalli	*Euphorbia antiquorum*	Euphorbiaceae

Sources: Species observation in the field study and secondary data

https://www.researchgate.net/publication/329116707_Invasive_Alien_Flora_of_Sathyamangalam_Tiger_Reserve_in_Southern_Eastern_Ghats_India

	
Azadirachta indica	*Borassus flabellifer*
	
Cascabela thevetia	*Pongamia pinnata*
	
Canthium coromandelicum	*Lantana camara*

	
Tephrosia purpurea	*Calotropis gigantea*
	
Prosopis juliflora	*Morinda tinctoria*
	
Ziziphus Mauritiana	*Croton bonplandianus*

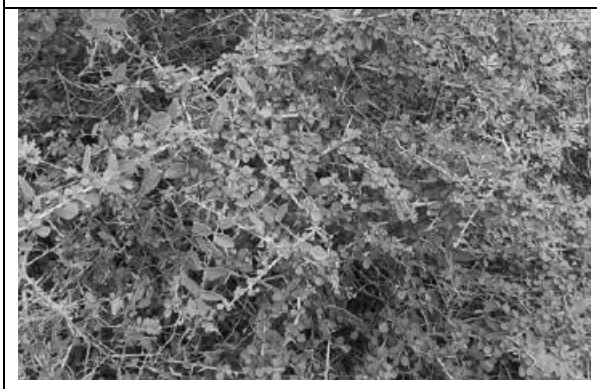
	
Solanum torvum	*Jatropha curcas*
	
Flueggea leucopyrus	*Ricinus communis*

Figure 3.28: Flora species observation in the Buffer zone area

3.5.8.4. The vegetation in the RF / PF areas, ecologically sensitive areas

Sathiyamangalam Tiger Reserve is located about 1.2km from North side of the area. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity.

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area.

3.5.9. Fauna

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with the Red Data Book. There are no rare, endangered, threatened (RET), and endemic species present in the core area.

3.5.9.1. Fauna Composition in the Core Zone (Primary Data)

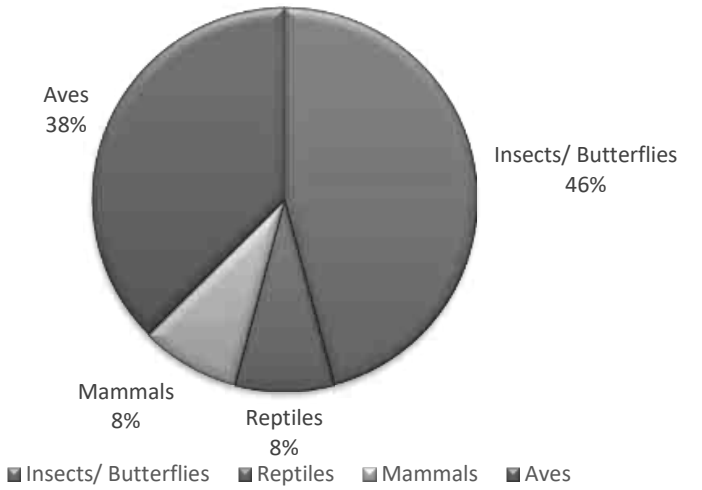
Core zone fauna samplings were conducted between 12.30 pm to 1.30 pm in two locations. A total of 24 varieties of species were observed in the Core zone of Kavundampalayam Village, Rough stone and gravel quarry among them numbers of Insects/Butterfly 11, Reptiles 2, Mammals 2 and Avian 9.

Table 3.36: Fauna in the Core zone of Kavundampalayam Village, Rough stone and Gravel quarry, Erode District (Primary data)

SI. No	Common Name/English Name	Scientific Name	IUCN
Insects/Butterflies			
1.	Common Tiger	*Danaus genutia*	Not Evaluated
2.	Mottled emigrant	*Catopsilia pyranthe*	Not Evaluated
3.	Striped tiger	*Danaus plexippus*	Least Concern
4.	Danaid egg fly	*Hypolimnasmisippus*	Not Evaluated
5.	Red-veined darter	*Sympetrum fonscolombii*	Least Concern
6.	Peacock Pansy	*Junonia almana*	Least Concern
7.	Plain Tiger Butterfly	*Danaus chrysippus*	Least Concern
8.	Blue Tiger	*Tirumala limniace*	Not Evaluated
9.	Carolina Mantis	*Stagmomantis carolina*	Not Evaluated
10.	Common Red Soldier Beetle	*Rhagonycha fulva*	Not Evaluated
11.	Gray Bird Grasshopper	*Schistocerca nitens*	Not Evaluated
Reptiles			
1.	Oriental Garden lizard	*Calotes versicolor*	Least Concern
2.	Indian forest skink	*Sphenomorphus indicus*	Least Concern
Mammals			
1.	Common rat	*Rattus rattus*	Least Concern
2.	Indian palm squirrel	*Funambulus palmarum*	Least Concern
Aves			
1.	Common myna	*Acridotheres tristis*	Least Concern
2.	Green Bee Eater	*Merops orientalis*	Least Concern
3.	Ashy Drongo	*Dicrurus leucophaeus*	Least Concern
4.	Asian Koel	*Eudynamys scolopaceus*	Least Concern
5.	Yellow-billed Babbler	*Argya affinis*	Least Concern
6.	Rose-ringed parkeet	*Psittacula krameri*	Least Concern
7.	House crow	*Corvus splendens*	Least Concern
8.	Cattle egret	*Bubulcus ibis*	Least Concern
9.	Common quail	*Coturnix coturnix*	Least Concern

(Sources: Species observation in the field study)

Figure 3.29 Distribution Of Faunal Communities (Core Zone)



3.5.9.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 3.00 pm to 6.00 pm in different locations. As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there are no reserved forests in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

There is sathiyamangalam tiger reserve is located 1.2km away from the Northern side of the area. The fauna species are present in tiger, elephant, deer, wild dog and etc., Taxonomically a total of 163 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 66, followed by Butterflies 59, Reptiles 11, Mammals 22, and Amphibians 5.

Table 3.37: List of Fauna & Their Conservation Status,
Mammals: (*directly sighted animals & Secondary data)

SI. No	Common Name/English Name	Scientific Name	IUCN
1.	Indian palm squirrel	*Funambulus palmarum*	Least Concern
2.	Indian Field Mouse	*Mus booduga*	Least Concern
3.	Indian hare	*Lepus nigricollis*	Least Concern
4.	Brown rat	*Rattus norwegicus*	Not Evaluated
5.	Spotted Deer	*Axis axis*	Least Concern
6.	Sambar Deer	*Cervus unicolor*	Vulnerable
7.	Asiatic Elephant	*Elephus maximus*	Endangered
8.	Indian Gaur	*Bos gaurus*	Vulnerable
9.	Barking Deer	*Muntiacus muntjak*	Least Concern
10.	Blackbuck	*Antilope cervicapra*	Near Threatened
11.	Mouse Deer	*Tragulus meminna*	Least Concern
12.	Black naped hare	*Lepus nigricollis*	Least Concern
13.	Wild Boar	*Sus scrofa*	Least Concern
14.	Sloth Bear	*Melursus ursinus*	Vulnerable
15.	Tiger	*Panthera tigris*	Endangered
16.	Wild Dog	*Cuon alpinus*	Endangered
17.	Striped hyena	*Hyaena hyaena*	Near Threatened
18.	Malabar Giant squirrel	*Ratufa indica*	Least Concern
19.	Common mongoose	*Herpestes edwardsi*	Least Concern

20.	Common Langur	*Semnopithecus entellus*	Least Concern
21.	Bonnet Macaque	*Macaca radiata*	Least Concern
22.	Leopard	*Panthera pardus*	Near Threatened

https://www.entomoljournal.com/archives/2019/vol7issue5/PartN/7-3-108-524.pdf

Table 3.38: Listed birds (Primary & Secondary data)

SI. No	Common Name/English Name	Scientific Name	IUCN
1.	Indian robin	*Copsychus fulicatus*	Least Concern
2.	Asian Koel	*Eudynamys scolopaceus*	Least Concern
3.	Cattle egret	*Bubulcus ibis*	Least Concern
4.	Black Kite	*Milvus migrans*	Least Concern
5.	Rock pigeon	*Columba livia*	Least Concern
6.	Common myna	*Acridotheres tristis*	Least Concern
7.	House crow	*Corvus splendens*	Least Concern
8.	Brown headed Barbet	*Psilopogon zeylanicus*	Least Concern
9.	Red Vented Bulbul	*Pycnonotus cafer*	Least Concern
10.	Ashy Drongo	*Dicrurus leucophaeus*	Least Concern
11.	Green Bee Eater	*Merops orientalis*	Least Concern
12.	Purple sunbird	*Cinnyris asiaticus*	Least Concern
13.	Large Woodshrike	*Tephrodornis virgatus*	Least Concern
14.	House sparrow	*Passer domesticus*	Least Concern
15.	Brahminy Starling	*Sturnia pagodarum*	Least Concern
16.	Common Kingfisher	*Alcedo atthis*	Least Concern
17.	Rose-ringed parkeet	*Psittacula krameri*	Least Concern
18.	Common quail	*Coturnix coturnix*	Least Concern
19.	Pond herons	*Ardeola grayii*	Least Concern
20.	Black drongo	*Dicrurus macrocercus*	Least Concern
21.	Baya Weaver	*Ploceus philippines*	Least Concern
22.	Jungle Bush Quail	*Perdicula asiatica*	Least Concern
23.	Wood Sandpiper	*Tringa glareola*	Least Concern
24.	Blue-Tailed Bee Eater	*Merops philippinus*	Least Concern
25.	Indian Roller	*Coracias benghalensis*	Least Concern
26.	Common Swallow	*Hirundo rustica*	Least Concern
27.	Purple Rumped Sunbird	*Leptocoma zeylonica*	Least Concern
28.	Spotted Dove	*Streptopelia chinensis*	Least Concern
29.	White-throated Kingfisher	*Halcyon smyrnensis*	Least Concern
30.	Common Sandpiper	*Actitis hypoleucos*	Least Concern
31.	Yellow-billed Babbler	*Argya affinis*	Least Concern
32.	Greater Coucal	*Centropus sinensis*	Least Concern
33.	Common Tailorbird	*Orthotomus sutorius*	Least Concern
34.	Spotted Owlet	*Athene brama*	Least Concern
35.	Red-wattled Lapwing	*Vanellus indicus*	Least Concern
36.	Little Cormorant	*Microcarbo niger*	Least Concern
37.	Indian Peafowl	*Pavo cristatus*	Least Concern
38.	Grey Francolin	*Francolinus pondicerianus*	Least Concern
39.	Grey Jungle fowl	*Gallus sonneratii*	Least Concern
40.	Imperial Pigeon	*Ducula aenea*	Near Threatened
41.	Blue winged Parakeet	*Psittacula columboides*	Least Concern
42.	Brain fever bird	*Hierococcyx varius*	Least Concern
43.	Shikra	*Accipiter badius*	Least Concern
44.	House Swift	*Apus affinis*	Least Concern
45.	Asian Palm Swift	*Cypsiurus unicolar*	Not Evaluated
46.	Blue beard bee eater	*Nyctyornis athertoni*	Least Concern
47.	Jungle Crow	*Corvus macrorhynchos*	Least Concern

48.	Common Iora	*Aegithina tiphia*	Least Concern
49.	Black Headed Cuckoo Shrike	*Coracina melanoptera*	Least Concern
50.	Asian Paradise Flycatcher	*Terpsiphone paradisi*	Least Concern
51.	Forest Wagtail	*Dendronanthus indicus*	Least Concern
52.	Common Babbler	*Turdoides caudatus*	Least Concern
53.	Common Swallow	*Hirundo rustica*	Least Concern
54.	Yellow Browed bulbul	*Iole indica*	Least Concern
55.	Eurasian Black bird	*Turdus merula*	Least Concern
56.	White bellied Drongo	*Dicrurus caerulescens*	Least Concern
57.	White browed Fantail	*Rhipidura aureola*	Least Concern
58.	Green leaf warbler	*Phylloscopus trochiloides*	Least Concern
59.	Ashy Minivet	*Pericrocotus divaricatus*	Least Concern
60.	Grey Breasted Prinia	*Prinia hodgsonii*	Least Concern
61.	Grey wagtail	*Motacilla cinerea*	Least Concern
62.	Indian Bush lark	*Mirafra assamica*	Least Concern
63.	Tree Pipit	*Anthus hodgsoni*	Least Concern
64.	Orphean Warbler	*Sylvia hortensis*	Least Concern
65.	Grey Shrike	*Lanius excubitor*	Least Concern
66.	Crimson Sun bird	*Aethopyga siparaja*	Least Concern

Reference: Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.

https://ebird.org/region/IN-TN-CP

https://ebird.org

https://tfrienglish.icfre.gov.in/IJTB-Journal/IJTB/31%20(2)%202023/New%20Paper-6%20Final%20%20(%20150-163%20).pdf

Table 3.39:List of Reptiles either spotted or reported from the study area (*indicates direct observations & Secondary data)

SI. No	Common Name	Scientific Name	IUCN
1.	Garden lizard	*Calotes versicolor*	Least Concern
2.	House lizards	*Hemidactylus frenatus*	Least Concern
3.	Green vine snake	*Ahaetulla nasuta*	Least Concern
4.	Common krait	*Bungarus caeruleus*	Least Concern
5.	Common skink	*Mabuya carinatus*	Not Evaluated
6.	Monitor Lizard	*Varanus bengalensis*	Near Threatened
7.	Agama	*Psammophilus dorsalis*	Least Concern
8.	Cobra	*Naja naja*	Least Concern
9.	Saw scaled vipe	*Echis carinatus*	Least Concern
10.	Common Trinket	*Coelognathus Helena*	Least Concern
11.	Indian Rock Python	*Python molurus*	Near Threatened

https://www.entomoljournal.com/archives/2019/vol7issue5/PartN/7-3-108-524.pdf

Table 3.40:List of Butterflies reported from the study area and Secondary data

SI. No	Common Name	Scientific Name	IUCN
1.	Indian palm bob	*Suastus gremius*	Not Evaluated
2.	Common Mormon	*Papilio polytes*	Not Evaluated
3.	Lemon Pansy	*Junonia lemonias*	Not Evaluated
4.	Common Crow	*Euploea core*	Least Concern
5.	Common rose	*Pachliopta aristolochiae*	Least Concern
6.	Spotless grass yellow	*Eurema laeta*	Not Evaluated

7.	Common Evening Brown	*Melanitis leda*	Least Concern
8.	Peacock Royal	*Tajuria cippus*	Not Evaluated
9.	Common Tiger	*Danaus genutia*	Not Evaluated
10.	Lime Butterfly	*Papilio demoleus*	Not Evaluated
11.	Blue Mormon	*Papilio polymnestor*	Not Evaluated
12.	Danaid Eggfly	*Hypolimnas misippus*	Least Concern
13.	Great Eggfly	*Hypolimnas bolina*	Not Evaluated
14.	Common emigrant	*Catopsilia pomona*	Not Evaluated
15.	Tiny Grass Blue	*Zizula hylax*	Least Concern
16.	Blue Tiger	*Tirumala limniace*	Not Evaluated
17.	Crimson tip	*Colotisdanae*	Not Evaluated
18.	Common Indian crow	*Euploea core*	Least Concern
19.	Yellow Pansy	*Junonia hierta*	Least Concern
20.	Chocolate Pansy	*Junonia iphita*	Not Evaluated
21.	Double-branded Black Crow	*Euploea sylvester*	Not Evaluated
22.	Peacock Pansy	*Junonia almana*	Least Concern
23.	Psyche	*Leptosia nina*	Not Evaluated
24.	Plain Tiger Butterfly	*Danaus chrysippus*	Least Concern
25.	Lesser Grass Blue	*Zizina otis*	Least Concern
26.	Pale Grass Blue	*Pseudozizeeria maha*	Not Evaluated
27.	Broad-bordered Grass Yellow	*Eurema brigitta*	Least Concern
28.	Crimson Rose	*Pachliopta hector*	Least Concern
29.	Common Mime	*Papilio clytia*	Not Evaluated
30.	Southern/Narrow-banded Bluebottle	*Graphium teredon*	Not Evaluated
31.	Common Jay	*Graphium doson*	Not Evaluated
32.	Tailed Jay	*Graphium agamemnon*	Not Evaluated
33.	Red Helen	*Papilio helenus*	Least Concern
34.	One-spot Grass Yellow	*Eurema andersoni*	Least Concern
35.	Common Grass Yellow	*Eurema hecabe*	Least Concern
36.	Mottled Emigrant	*Catopsilia pyranthe*	Not Evaluated
37.	Common Wanderer	*Pareronia hippia*	Not Evaluated
38.	Glassy Tiger	*Parantica aglea*	Not Evaluated
39.	Striped Tiger	*Danaus genutia*	Not Evaluated

40.	Common Treebrown	*Lethe rohria*	Not Evaluated
41.	Common Three-ring	*Ypthima asterope*	Least Concern
42.	Tawny Coster	*Acraea violae*	Not Evaluated
43.	Common Leopard	*Phalanta phalantha*	Least Concern
44.	Common Sergeant	*Athyma perius*	Not Evaluated
45.	Blue Pansy	*Junonia orithiya*	Not Evaluated
46.	Chocolate Pansy	*Junonia iphita*	Not Evaluated
47.	Dingy Lineblue	*Petrelaea dana*	Not Evaluated
48.	Pea Blue	*Lampides boeticus*	Least Concern
49.	Lesser Grass Blue	*Zizina otis*	Least Concern
50.	Pale Grass Blue	*Pseudozizeeria maha*	Not Evaluated
51.	Plain Hedge Blue	*Acytolepis puspa*	Not Evaluated
52.	Peacock Royal	*Tajuria cippus*	Not Evaluated
53.	Indian Red Flash	*Rapala airbus*	Not Evaluated
54.	Indigo Flash	*Rapala varuna*	Not Evaluated
55.	Indian Skipper	*Spialia galba*	Not Evaluated
56.	Rice Swift	*Borbo cinnara*	Not Evaluated
57.	Blank Swift	*Caltoris kumara*	Not Evaluated
58.	Brown Awl	*Badamia exclamationis*	Not Evaluated
59.	Pale Palm Dart	*Telicota colon*	Not Evaluated
Secondary data Source: https://www.researchgate.net/publication/359617202_Studies_on_the_Butterfly_Diversity_in_the_Sathyamangalam_Tiger_Reserve_Tamil_Nadu_India			

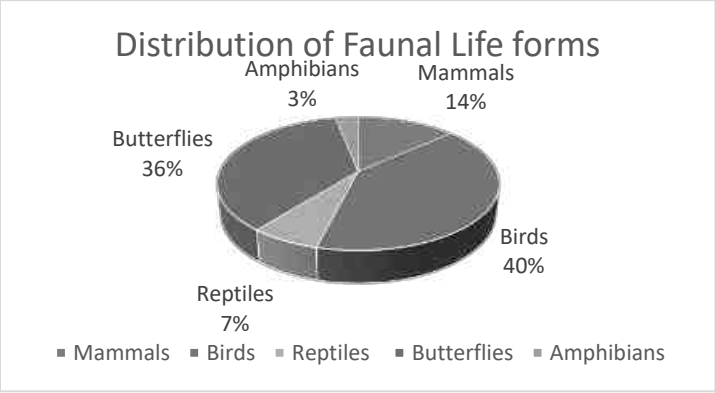


Figure 3.30 Diagram showing % distribution of faunal life forms

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in

this area; however, some commercial poultry farms are also recorded in the study area. The study area is marked with moderate population of flora and fauna.

3.5.10. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Rough stone and gravel quarry is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes, or agricultural sites, inside the mining lease area. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion.

3.5.10.1. Objectives of Aquatic Studies

- ✓ Generating data through actual field collection in these locations over the study period.
- ✓ Impacts on aquatic fauna/flora
- ✓ Consulted with locals to obtain knowledge about aquatic flora and animals.

3.5.10.2. Aquatic Faunal Diversity

Macrophytes

Table 3.41:Description of Macrophytes (Primary data & Secondary data)

Sl.No	Common Name	Scientific name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	Water hyacinth	*Eichornia crassipe*	Agayatamarai	NA
2.	Floating lace plant	*Aponogeton natans*	Kottikizhnagu	NA
3.	Blue water lily	*Nymphaea nouchali*	Nellambal	LC
4.	Sambu	*Typha angustifolia*	Narrowleaf cattail	LC
5.	Cross Grass	*Carex cruciata*	Koraipullu	NA
6.	Tall Flat Sedge	*Cyperus exaltatus*	Koraikizhangu	LC

Sources: Species observation in the field study

3.5.10.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Green pond frog, and etc. were sighted near the water bodies located in the study area.

Table 3.42:Amphibians Observed/Recorded from the Study Area& Secondary data

SI. No	Common Name/English Name	Scientific Name	IUCN
1.	Indian Burrowing frog	*Sphaerotheca breviceps*	Least Concern
2.	Indian pond frog	*Phrynoderma hexadactylum*	Not Evaluated
3.	Indian Skipper Frog	*Polypedates leucomystax*	Least Concern
4.	Common Indian frog	*Euphlyctis cynophlyctis*	Not Evaluated
5.	Common Indian toad	*Bufo melanstictus*	Not Evaluated

https://www.entomoljournal.com/archives/2019/vol7issue5/PartN/7-3-108-524.pdf

3.5.10.4. Other Aquatic Fauna

Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area

Table 3.43:Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S.No	Common name	Scientific name	Family
1.	Ponthia	*Puntius sophore*	Cyprinidae
2.	Catla	*Catla Catla*	Cyprinidae
3.	Catfish	*Siluriformes*	-
4.	Rohu	*Labeo rohita*	Cyprinidae

3.5.11. Findings/Results,

The assessment was carried out during the summer season. The inspection day was quite alright with respectable weather. The details of the flora and fauna observed are given below.

S.No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	Sathiyamangalam Tiger Reserve -1.2km-North
2.	Reserved Forests	Guttiyalattur R.F. – 1.2km – North
3.	Wildlife Corridors & Routes	Sathiyamangalam Tiger Reserve -1.2km-North
4.	Wetlands / Water bodies	➢ Odai – 51m – W ➢ Odai -890m-NE ➢ Canal-1.1km-W ➢ Bhavani River -3.8km-SW ➢ Kunderipalam Dam -4.7km-NW ➢ Canal – 5km-SW
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

There are no critically endangered endemic species were observed. As the rainfall in the area is scanty and as no toxic wastes are produced or discharged on account of mining, the proposed mining activity is not going to have any additional and adverse impacts on these RET species. There are no National Parks, Ramsar sites, within 10 km of the mine lease area.

3.6. Conclusion

The observations and assessment of the overall ecological scenario involve details such as classification of Biogeographic zone, eco-region, habitat types and land cover, distances from natural habitats, vegetation/forest types, and sensitive ecological habitats such as Wetlands sites, Important Bird areas, migration corridors of important wildlife etc. Such baseline information provides better understanding of the situation and overall ecological importance of the area. This baseline information viewed against proposed project activities help in predicting their impacts on the wildlife and their habitats in the region. Data collected and information gathered from secondary literature on flora, fauna, protected area, natural habitats, and wildlife species etc., and consulted and discussed with local people, from the villages, herders and farmers who inhabit close to the proposed project area.

Sources:
Invasive Alien Species | IUCN

https://ebird.org/region/IN-TN-CP
Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.
Ali, S and Ripley, S.D. 1969.Handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim,
Bird Life International 2012. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.

3.6 SOCIO ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.6.1 Objectives of the Study

The objectives of the socio-economic study are as follows:

- To study the socio-economic status of the people living in the study area of the proposed mining project.
- To assess the impact of the project on Quality of life of the people in the study area.
- To recommend Community Development measures needs to be taken up in the study Area.

3.6.2 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

3.6.3 District Profile

Erode District lies on the extreme north of Tamil Nadu. It is bounded mostly by Karnataka State and also River Palar covers pretty long distance. To the East lies Namakkal and Karur Districts. Dindigal District is its immediate neighbour to the South and on the West, it has Coimbatore and Nilgiri Districts, as its boundaries. Thus, Erode District is essentially a land-locked area having no sea-cost of its own. Erode District situated at between 10 36” and 11 58” North Latitude and between 76 49” and 77 58” East Longitude.

Now Erode District consists of 10 taluks viz., Erode, Modakkurichi, Kodumudi, Perundurai, Bhavani, Anthiyur, Gobichettipalayam, Sathyamangalam, Thalavadi and Nambiyur. There are 4 Municipalities in the district viz., Sathyamangalam, Bhavani, Gobichettipalayam, and Punjai Puliampatti. The other four Municipalities in the district viz. Periasemur, Kasipalayam, Surampatti and Veerappanchatram have been merged recently with Erode Corporation. There are 42 Town Panchayats, 230 Village Panchayats and 375 Revenue Villages. There are 14 Community Development Blocks in the district.

Source: https://erode.nic.in/about-district/.

3.6.4 Study area:

KOVUNDAMPALAYAM VILLAGE

Kavandampalayam is a village situated in the Gobichettipalayam taluka of Erode district, Tamil Nadu. It is located approximately 11 km from the tehsil headquarters in Gobichettipalayam and around 40 km from the district headquarters in Erode. Kongarpalayam serves as the Gram Panchayat for Kavandampalayam village.

As per Census 2011, the village code of Kavandampalayam is 634900. The village covers a total geographical area of 464.85 hectares and falls under the 638455 pincode. Vaniputhur is the nearest town.

Kavandampalayam village is governed under the Panchayati Raj system, with a Sarpanch serving as the elected head. For political representation, the village falls under the Gobichettipalayam Vidhan Sabha (Assembly) constituency and the Tiruppur Lok Sabha (Parliamentary) constituency.

TABLE 3.38: KOVUNDAMPALAYAM VILLAGE POPULATION FACTS

Population	3103
Male Population	1548
Female Population	1555
Children Population	253
Literacy	1604
Male Literacy	896
Female Literacy	708
Scheduled Tribes (ST)	10
Scheduled Caste (SC)	815

Source: https://villageinfo.in/tamil-nadu/erode/gobichettipalayam/kavandampalayam/

As per Census 2011, Kavandampalayam village has a total population of 3,103 people, consisting of 1,548 males and 1,555 females. The village has 921 households and a sex ratio of 1,004 females per 1,000 males. There are 253 children in the 0–6 years age group. The village has 1,604 literate and 1,499 illiterate residents. Additionally, 815 people belong to Scheduled Caste (SC) communities and 10 to Scheduled Tribe (ST) communities.

TABLE 3.39: DEMOGRAPHICS POPULATION OF VILLAGE KOVUNDAMPALAYAM

Total Population	Male Population	Female Population
3103	**1548**	**1555**

Source: : https://villageinfo.in/tamil-nadu/erode/gobichettipalayam/kavandampalayam/

Sex Ratio of Kovundampalayam Village -Census 2011

The sex ratio of Kavandampalayam (a village in the Gobichettipalayam Taluka of Erode district) is 1005 females per 1000 males, according to the 2011 Census.

Literacy of Kovundampalayam Village

The average literacy rate of Kavandampalayam village (Gobichettipalayam Taluka, Erode district, Tamil Nadu) is 56.28%. By gender, the male literacy rate stands at 63.23%, while the female literacy rate is 49.41%.

Worker's profile of Kovundampalayam Village

Work Profile Of 2079 workers engaged in Main Work, 492 were cultivators (owner or co-owner) while 1085 were Agricultural labourer.

TABLE 3.42: POPULATION DATA OF STUDY AREA

SI.No.	Village Name	No of House Holds	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
1	Arrakkankottaigramam	1084	3690	1875	1815	2058	1206	852	1632	669	963
2	Kavandampalayam	921	3103	1548	1555	1604	896	708	1499	652	847
3	Kongarpalayam	1692	5346	2590	2756	2991	1672	1319	2355	918	1437
4	NanjaiPuliampatti	506	1522	756	766	934	503	431	588	253	335
5	Pullappanaickenpalayam	925	3029	1484	1545	1700	932	768	1329	552	777
6	Punjaithuraipalayam	2372	7568	3779	3789	4534	2520	2014	3034	1259	1775

Source: www.censusindia.gov.in - Tamilnadu Census of India – 2011

TABLE 3.43: WORKERS PROFILE OF STUDY AREA

SI.No.	Village Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Other Workers	Non-Worker Population
1	Arrakkankottaigramam	3526	2355	1273	1082	1836	1058	778	430	764	624
2	Kavandampalayam	4626	2079	1070	1009	1890	971	919	492	1085	300
3	Kongarpalayam	5390	3411	1767	1644	3367	1750	1617	679	2096	530
4	NanjaiPuliampatti	8539	910	513	397	659	387	272	45	339	239
5	Pullappanaickenpalayam	4694	1756	1020	736	1661	981	680	170	1082	391
6	Punjaithuraipalayam	4904	4429	2495	1934	4092	2295	1797	643	2305	1048

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

TABLE 3.44: COMMUNICATION & TRANSPORT FACILITIES IN THE STUDY AREA

SI.No	Village Name	PO	SPO	PTO	T	PCO	MP	IC / CSC	PCF	BS	PBS	RS	NH	SH	MDR	BTR	GR	NWR	FP
1	Arrakkankottaigramam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
2	Kavandampalayam	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	1	2	1
3	Kongarpalayam	2	2	2	1	2	1	2	2	1	2	2	2	2	2	2	1	2	1
4	NanjaiPuliampatti	2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
5	Pullappanaickenpalayam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
6	Punjaithuraipalayam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1

bbreviations: PO - Post Office; MP - Mobile Phone Coverage; RS - Railway Station; GR - Gravel Roads; SPO - Sub Post Office; IC / CSC - Internet Cafe/Common Service Centre; NH - National Highways; NWR - Navigate waterways River; PTO - Post & Telegraph office; PCF - Private Courier Facility; SH - State Highways; FP - Foot path; T- Telephone (Landline); BS - Public Bus Service; MDR - Major District Road; PCO - Public call office / Mobile; PBS - Private Bus Service; BTR - Black Topped (Pucca Roads). Note: 1 - Available within the village 2 - Not available

TABLE 3.45: WATER & DRAINAGE FACILITIES IN THE STUDY AREA

SI.No	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1	Arrakkankottaigramam	1	1	1	1	1	2	1	2	1	1	1
2	Kavandampalayam	1	1	1	1	1	2	2	2	1	1	2
3	Kongarpalayam	1	1	1	1	1	2	1	2	1	1	1
4	NanjaiPuliampatti	1	1	1	2	1	2	2	2	1	1	2
5	Pullappanaickenpalayam	1	1	1	2	2	2	2	2	1	1	1
6	Punjaithuraipalayam	1	1	1	1	1	2	1	1	1	1	2

Abbreviations: T - Tap Water; R / C - River / Canal; CW - Covered Well; T/P/L - Tank / Pond / Lake; UCW - Uncovered Well; CD - Covered Drainage; HP - Hand Pump; OD - Open Drainage; TW/BH - Tube / Bore Well; CT - Community Toilet Complex for General public; S - Spring
Note – 1 - Available within the village; 2 - Not available

TABLE 3.46: OTHER FACILITIES IN THE STUDY AREA

SI.No	Village Name	ATM	CB	COB	ACS	SHG	PDS	RM	AMS	NC	NC-AC	CC	SF	PL	NPS	APS	BDRO	PS
1	Arrakkankottaigramam	2	2	2	2	1	1	1	2	1	1	2	1	1		1	1	1
2	Kavandampalayam	2	2	2	2	1	1	2	2	1	1	1	1	2		1	2	2
3	Kongarpalayam	2	2	1	1	1	1	2	2	1	1	2	2	1		1	1	1
4	NanjaiPuliampatti	2	2	2	2	1	1	2	2	1	1	2	1	1		1	1	1
5	Pullappanaickenpalayam	2	2	2	2	2	1	1	2	1	1	1	1	1		1	1	1
6	Punjaithuraipalayam	2	1	2	1	1	1	2	2	1	1	2	1	1		1	1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commerical Bank; RM - Regular Market; COB - Co-operative Bank; AMS - Agricultural Market Society; ACS - Agricultural Credit Societies; NC - Nutritional Centres; SHG - Self Help Group; NC-AC - Nutritional Centres - Anganwadi Centre; DBRO - Birth & Death Registration Office; PS - Power Supply Note – 1 - Available within the village; 2 - Not available

TABLE 3.47: EDUCATIONAL FACILITIES IN THE STUDY AREA

SI.No	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1	Arrakkankottaigramam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Kavandampalayam	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Kongarpalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	NanjaiPuliampatti	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Pullappanaickenpalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Punjaithuraipalayam	1	1	1	1	1	2	1	2	1	1	2	2	2	1	2	2	2	2	2	1	2	1	2	2

Abbreviations: PPS-Pre Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School For Disabled; SS-Secondary School; MI-Management College/Institute;
Note – 1 - Available within the village; 2 - Not available

TABLE 3.48: MEDICAL FACILITIES IN THE STUDY AREA

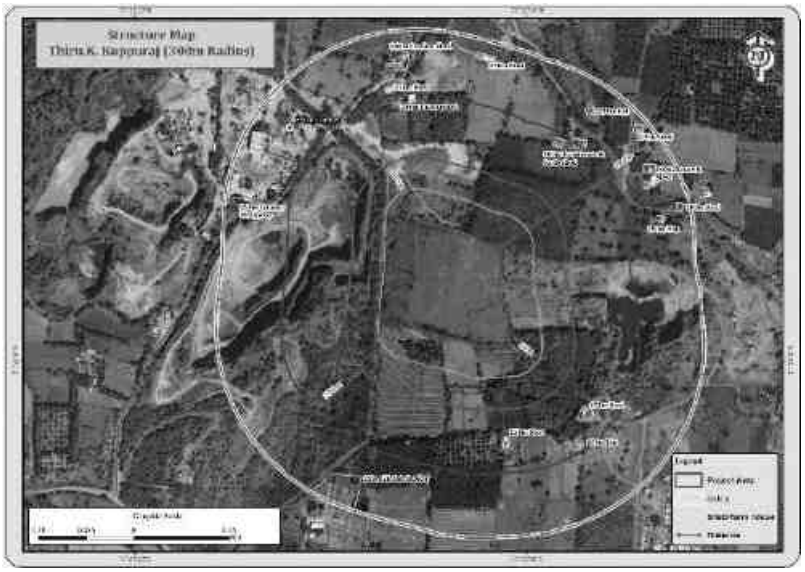
SI.No	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Arrakkankottaigramam	0	0	1	0	0	0	0	0	0	0	0	a
2	Kavandampalayam	0	0	1	0	0	0	0	0	0	0	0	a
3	Kongarpalayam	0	0	1	1	0	0	0	0	0	0	0	a
4	NanjaiPuliampatti	0	0	0	0	0	0	0	0	0	0	0	a
5	Pullappanaickenpalayam	0	0	1	1	0	0	0	0	1	0	0	a
6	Punjaithuraipalayam	1	1	1	1	1	0	0	1	1	0	1	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Veternity Hospital; PHC-Primary Health Centre; HA-Aallopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre ; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non Government Medical Facilities In & Out Patient

Note – 1 - Available within the village; 2 - Not available a-facility available at <5kms b-facility available at>10kms

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

STRUCTURE WITHIN 300M RADIUS



0 – 300m						
Structure Number	**Distance & Direction From the Project site**	**Structure Details and Usage Purpose**	**Type of Structure Structures (Kutcha/ Brick/ Cement/ RCC/ Framed Structures)**	**No. of Occupants**	**Structure belongs to owner (Yes/No)**	**Remarks**
1	150m – South	Shed	Sheet Structure	Nil	No	Storage Purpose
2	150m – SE	Shed	Sheet Structure	Nil	No	Storage Purpose
3	180m – NE	Farmhouse and Cattleshed	Concrete Structure	2 Nos	No	Used to store cattle feeds and agriculture materialas
4	180m – NW	Labour Shed	Sheet Structure	Nil	No	Used as Rest Shelter for labours
5	190m – SE	Hut	Brick Structure	Nil	No	Storage Purpose
6	210m – NW	Shed	Sheet Structure	Nil	No	Storage Purpose
7	250m - NE	Hut	Brick Structure	Nil	No	Storage Purpose
8	250m - NE	Hut	Brick Structure	Nil	No	Storage Purpose
9	250m – North	Crusher Shed	Sheet Structure	Nil	No	Used to store Crusher Materials
10	250m - NE	Crusher	Framed Structure	4 Nos	No	Used to Produce M. Sand, P-Sand & Jelly
11	250m – SW	EB Sub Station	Framed Structuer	Nil	No	Used for Transmission of Electricity
12	260m – West	Crusher Workshop	Sheet Structure	Nil	No	Used to repair the Crusher Equipments

13	260m – NE	House & Shed	Concrete Structure	3 Nos	No	Residential
14	270m - NE	Shed	Sheet Structure	Nil	No	Storage Purpose
15	270m - NE	Shed	Sheet Structure	Nil	No	Storage Purpose
16	280m - NE	Shed	Sheet Structure	Nil	No	Storage Purpose

3.6.6 Recommendation and Suggestion

- Awareness program to be conducted to make the population aware to get education and a better livelihood.
- Vocational training programme can be organized to make the people self - employed, particularly for women and unemployed youth.
- On the basis of qualification and skills local community may be preferred. Long term and short-term employments can be generated.
- Health care centre and ambulance facility can be provided to the population to get easy access to medical facilities. Maternity facility should be made available at the place to avoid going to distant places for treatment which involves risks. Apart from that as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

3.6.7 Summary & Conclusion

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis.

The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

The environmental impact can be categorized as either primary or secondary, primary impacts which are attributed directly by the project; secondary impacts are those which are indirectly induced. The open cast mining operations involve development of benches, Approach Road, Haul Road, Excavation and handling of material. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts/lead to damage of the eco-system.

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 for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on

- Land environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Solid waste
- Soil environment

In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.

Whereas, this mining activity is restricted to a small scale mining and the proposal falls in "B1" Category, the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.

- The mine pit shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change.

4.1 Land Environment

4.1.2 Anticipated Impact from Proposed Project

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.
- If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course
- Impact due to heritage site, Archaeological sites

4.1.2.1 Mitigation Measures for Proposed Project

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.,
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle
- There are no Archaeological sites, heritage site in the vicinity of the project area, the topography will be changed due to excavation of rough stone and Gravel.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

The top layer of the project site in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. There is no disposal of Gravel. The excavated rough stone will be directly loaded into dumpers to the needy customers.

There will be no disposal of waste water from the quarry operation, No discharge of toxic effluent from the proposed project. The dust emission at working face and haul roads will be controlled by water sprinkling and plantation.

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.1.5 Mitigation Measures

- Run-off diversion – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

4.1.6 Waste Dump Management

There are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%). The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

4.2 Water Environment

4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry in 57m and water table is found at 130m in summer season and 135m in rainy season.

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.,) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

Purpose	*Quantity calculation*	*Source*
Dust Suppression	1.3KLD	From Nearby Existing bore well
Green Belt	1.0KLD	From Nearby Existing bore well
Sanitation & Drinking	1.2KLD	Approved water vendors
Total	**3.5 KLD**	

* Water for drinking purpose will be brought from approved water vendors
Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the proposed project is about 3.5 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Mitigation Measures:

- Garland drains, settling tank will be constructed along the mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting system.
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring (every 6 month once) and analysing the quality of water in open well, bore wells and surface water.

Possibilities of water contamination and impact on an aquatic ecosystem health

- Anticipated impact from this proposed mining activity is surface runoff from cleared surfaces, or discharges from the quarry pit or floor, is likely to have elevated levels of sediment (both suspended and dissolved). The quality of the water discharged from the site can have impacts on downstream ecological communities and water users.
- Therefore, Run-off diversion is proposed – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion with only clear water after the garland drains are enrooted through settlement traps.
- And, the depth of the mining is maximum 67m bgl and the ground water level in the surrounding areas is about 70-75 m bgl and there are no possibilities of encountering any ground water aquifers system and hence no ground water table intersection is anticipated.
- After the completion of quarry operation, the quarried out open pit mine may utilized for pici-culture or temporary reservoir pit for use of water for domestic purpose during dry seasons.
- Therefore, it's inferred that the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the possibilities of water contamination and impact on an aquatic ecosystem health.

4.3 Air Environment

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Rough Stone waste.

4.3.1. Anticipated

Impact

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

4.3.1.1. Modelling of Incremental Concentration from Proposed Project

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation and transportation are mainly PM_{10} & $PM_{2.5}$ and emissions of Sulphur dioxide (SO_2) & Oxides of Nitrogen (NOx) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to an impact on the ambient air environment around the project area.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using AERMOD Software.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM_{10}) affecting Ambient Air of the area. Prediction of impacts

on air environment has been carried out taking into consideration cumulative production three proposed Quarry. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.1.2 Emission Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.
The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:
E = emissions;
A = activity rate;
EF = emission factor, and
ER =overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

TABLE 4.2: ESTIMATED EMISSION RATE FOR PROPOSED PROJECT

	Activity	Source type	Value	Unit
Estimated Emission Rate for PM_{10}	Drilling	g/s	0.093103027	g/s
	Blasting	g/s	0.001116412	g/s
	Mineral Loading	g/s	0.050245069	g/s
	Haul Road	g/s/m	0.002708482	g/s/m
	Overall Mine	g/s	0.126520470	g/s
Estimated Emission Rate for SO_2	SO2	g/s	0.001159134	g/s
Estimated Emission Rate for NOx	Nox	g/s	0.000081711	g/s

4.3.2 Frame work of Computation & Model details

The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM_{10} was observed close to the source due to low to moderate wind speeds. Incremental value of PM_{10} was superimposed on the base line data monitored at the proposed site to predict total GLC of PM_{10} due to combined impacts.

Air Pollution Dispersion Modelling.

Baseline Air Quality –

Baseline air quality has been measured at 2 locations in the cluster and 5 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM_{10} and $PM_{2.5}$), SO_2 and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

Meteorology is the key to understand the air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly

basis. A weather data was collected from IMD, Erode agro for the month of Mar 2026 – May 2026 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

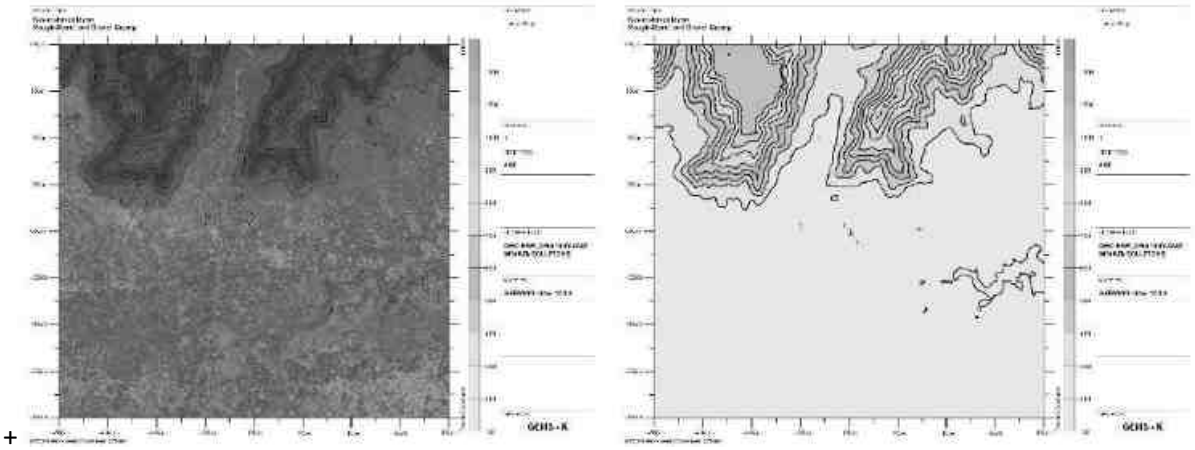


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM_{10}

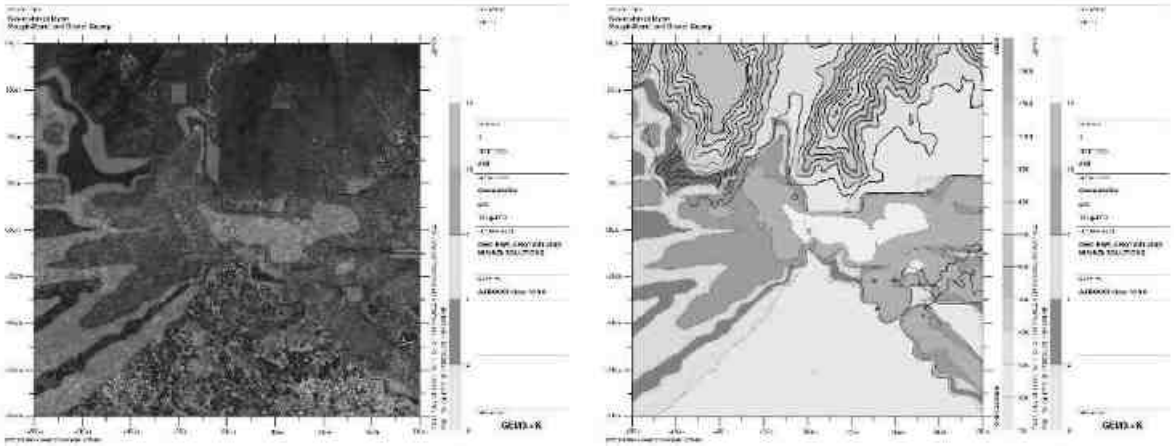


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF SO_2

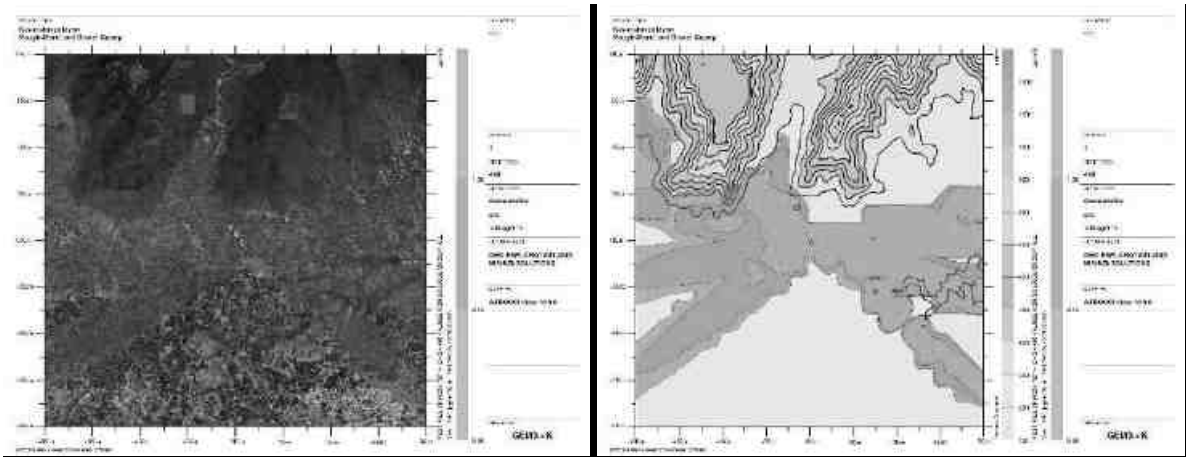


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

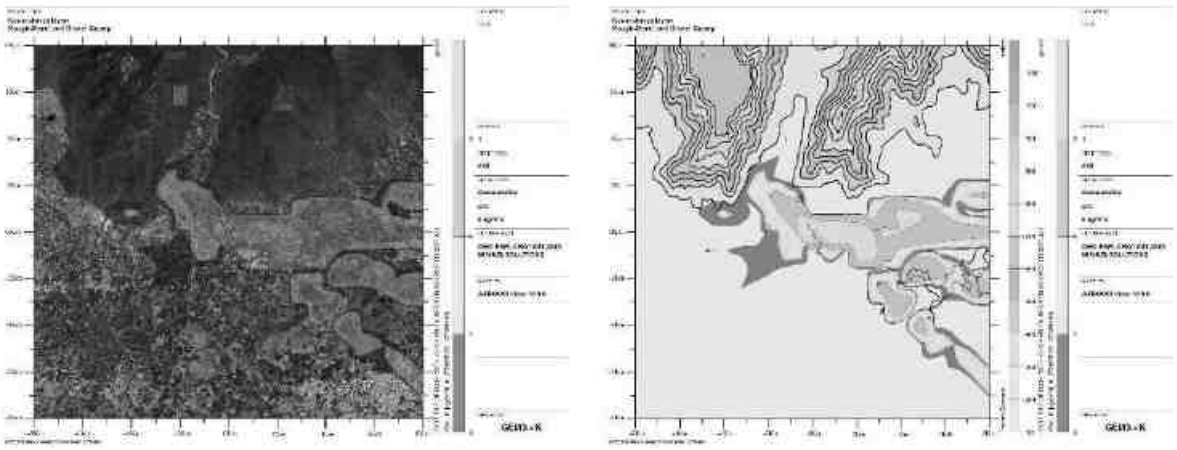
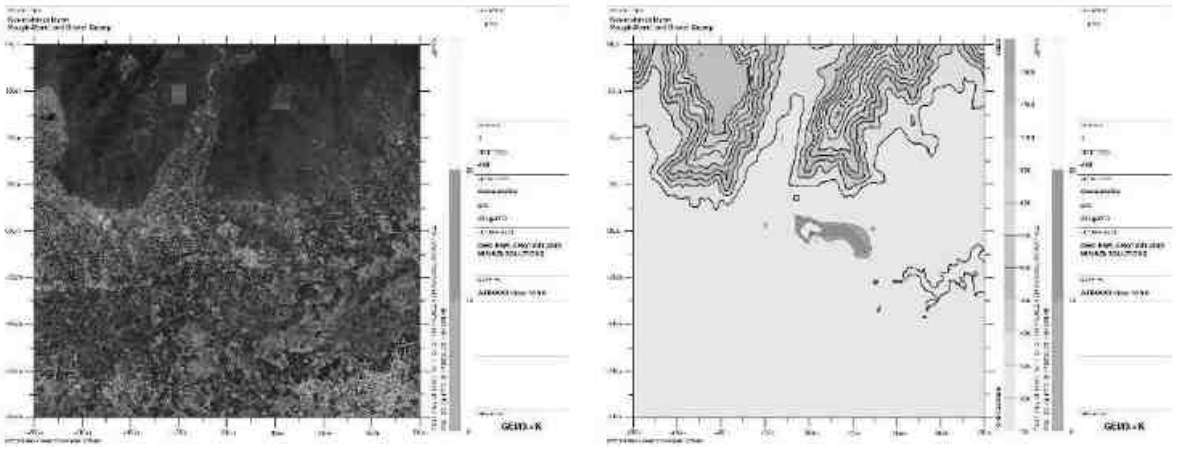


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM_{10}, $PM_{2.5}$, SO_2& NO_X (GLC) is given in Table below:

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{10}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM_{10} (µg/m^3)	Incremental value of PM_{10} due to mining (µg/m^3)	Total PM_{10} (µg/m^3) (5+6)
AAQ1	11°31'1.45"N 77°22'38.49"E	63	-69	46	13.79	59.79
AAQ2	11°31'12.23"N 77°22'30.32"E	-186	265	43.5	13.47	56.97
AAQ3	11°30'48.45"N 77°22'44.49"E	314	-452	43	12.00	55
AAQ4	11°31'12.19"N 77°21'30.79"E	-2002	262	44.2	10.82	55.02
AAQ5	11°31'6.25"N 77°24'11.70"E	2913	80	43	13.20	56.2
AAQ6	11°27'44.50"N 77°22'42.53"E	190	-6172	42.9	0	42.9
AAQ7	11°33'13.13"N 77°21'57.48"E	-1185	4008	44.9	7.30	52.2

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF $PM_{2.5}$

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline $PM_{2.5}$ ($\mu g/m^3$)	Incremental value of $PM_{2.5}$ due to mining ($\mu g/m^3$)	Total $PM_{2.5}$ ($\mu g/m^3$) (5+6)
AAQ1	11°31'1.45"N 77°22'38.49"E	63	-69	23.7	5.90	29.6
AAQ2	11°31'12.23"N 77°22'30.32"E	-186	265	21.4	5.56	26.96
AAQ3	11°30'48.45"N 77°22'44.49"E	314	-452	22.5	4.87	27.37
AAQ4	11°31'12.19"N 77°21'30.79"E	-2002	262	21.9	4.41	26.31
AAQ5	11°31'6.25"N 77°24'11.70"E	2913	80	22.6	5.34	27.94
AAQ6	11°27'44.50"N 77°22'42.53"E	190	-6172	21.4	0	21.4
AAQ7	11°33'13.13"N 77°21'57.48"E	-1185	4008	23.2	3.27	26.47

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO_2

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline So_2 ($\mu g/m^3$)	Incremental value of So_2 due to mining ($\mu g/m^3$)	Total So_2 ($\mu g/m^3$) (5+6)
AAQ1	11°31'1.45"N 77°22'38.49"E	63	-69	4.9	1.59	6.49
AAQ2	11°31'12.23"N 7°22'30.32"E	-186	265	5.1	1.57	6.67
AAQ3	11°30'48.45"N 77°22'44.49"E	314	-452	5.3	1.53	6.83
AAQ4	11°31'12.19"N 77°21'30.79"E	-2002	262	5.2	1.50	6.7
AAQ5	11°31'6.25"N 77°24'11.70"E	2913	80	5.3	1.55	6.85
AAQ6	11°27'44.50"N 77°22'42.53"E	190	-6172	5.5	0	5.5
AAQ7	11°33'13.13"N 77°21'57.48"E	-1185	4008	5.4	1.00	6.4

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_X

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Nox ($\mu g/m^3$)	Incremental value of Nox due to mining ($\mu g/m^3$)	Total Nox ($\mu g/m^3$) (5+6)
AAQ1	11°31'1.45"N 77°22'38.49"E	63	-69	23.7	8.61	32.31
AAQ2	11°31'12.23"N 77°22'30.32"E	-186	265	20.4	8.23	28.63
AAQ3	11°30'48.45"N 77°22'44.49"E	314	-452	22.7	4.75	27.45
AAQ4	11°31'12.19"N 77°21'30.79"E	-2002	262	21.6	3.00	24.6
AAQ5	11°31'6.25"N 77°24'11.70"E	2913	80	24.3	7.16	31.46
AAQ6	11°27'44.50"N 77°22'42.53"E	190	-6172	21.4	0	21.4
AAQ7	11°33'13.13"N 77°21'57.48"E	-1185	4008	20.8	0	20.8

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu g/m^3$)	Incremental value of Fugitive due to mining ($\mu g/m^3$)	Total Fugitive ($\mu g/m^3$) (5+6)
AAQ1	11°31'1.45"N 77°22'38.49"E	63	-69	62.35	25.38	87.73
AAQ2	11°31'12.23"N 77°22'30.32"E	-186	265	63.05	25.09	88.14
AAQ3	11°30'48.45"N 77°22'44.49"E	314	-452	63.78	0	63.78
AAQ4	11°31'12.19"N 77°21'30.79"E	-2002	262	64.18	0	64.18
AAQ5	11°31'6.25"N 77°24'11.70"E	2913	80	65.33	0	65.33
AAQ6	11°27'44.50"N 77°22'42.53"E	190	-6172	64.29	0	64.29
AAQ7	11°33'13.13"N 77°21'57.48"E	-1185	4008	65.33	0	65.33

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 $\mu g/m^3$ for PM_{10}, SO_2 & NO_X respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Mitigation Measure

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling: -

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face.
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas.
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with taurpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

Climatic Changes:

- In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.

- Whereas, this proposed mining activity is restricted to a small scale mining the proposals falls in a cluster situation where the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.
- The project area's proposed with land use type of patta land for mining with 5 m height bench with 5 m width bench and Pollution Under Control Certified Machineries is proposed for wining of mineral by opencast mechanized mining method and water consumption are proposed with water tankers from nearby areas and the mine pit itself shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary @ 1,820 Nos of trees, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change leading Droughts and Floods etc.,

4.4 Noise Environment (Impact & Mitigation Measures)

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (Drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

Lp_1 & Lp_2 are sound levels at points located at distances r_1 & r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \ldots\}$$

4.4.1 Anticipated Impact

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

- Source data
- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

*50 feet from source = 15.24 meters

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for nose prediction modelling.

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	46.2	46.2	46.1	50.4	47.8	53.2	49.9
Incremental Value dB(A)	60.1	54.1	47.8	34.5	31.2	24.5	27.6
Total Predicted Noise level dB(A)	60.3	54.7	50.1	50.5	47.9	53.2	49.9

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise.

- Time intervals for each quarry during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.

4.4.3 Ground Vibrations

Ground vibrations due to the proposed mining activities are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 310km NW. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

The empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K\,[R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

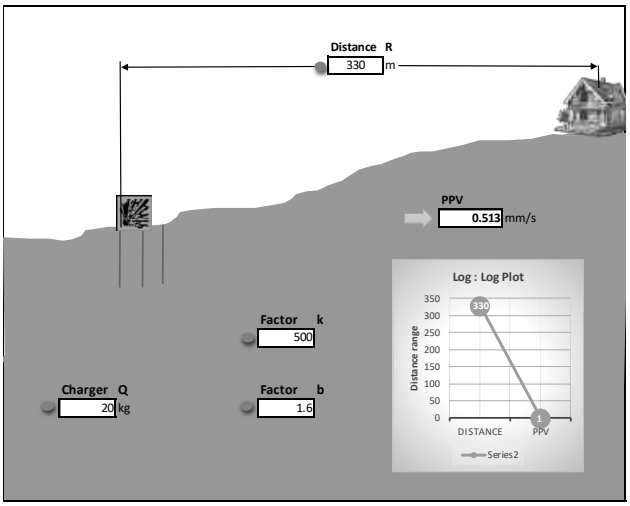
Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
Thiru.K.Kuppuraj	20	330m South West	0.513



From the above graph, the Maximum charge per blast of 20Kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It is proposed to carry out blasting not exceeding 2kg of Explosives per one blasting round. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures for Proposed Project

- The blasting operations in the Quarry is carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.

- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 Ecology and Biodiversity

Mining activities generally result in deforestation, land degradation, and water, air, and noise pollution which directly or indirectly affect the faunal and floral status of the mine area. However, the occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation, and technology involved. Existing roads will be used; new roads will not be constructed to reduce the impact on flora. Wildlife is not commonly found in the lease area and its immediate environments because of the lack of vegetal cover and surface water.

4.5.1. Impact Identification and Evaluation

In general, impact prediction methods argue that the foremost step in impact appraisal must consider and identify project actions that are likely to bring significant changes in the project environment. The present study determined to predict the likely impacts of the Proposed Rough stone and Gravel quarry, mining Project in the surrounding environment with a specific focus on biological attributes covering habitats/ecosystems and associated biodiversity. Likely impacts identified were categorized into different levels like direct or primary and indirect or secondary impacts based on the influence of sources of impacts.

4.5.2. Impact on Flora

The proposed mine lease area is characterized by flat terrain and comprises Patta land, which is not under active agricultural use. The site is predominantly barren with very limited and sparse vegetation cover. The core zone does not fall within any notified forest area.

Given the existing land condition and low vegetation density, the impact of mining activities on flora is expected to be negligible. No significant soil or ecological contamination is anticipated from the proposed operations. Furthermore, field investigations revealed the absence of any threatened or endemic plant species within both the core and buffer zones of the study area.

4.5.2.1. Anticipated Impact of mining activity on local flora and agricultural land

Anticipated Impact on Local Flora

- Removal of topsoil and existing vegetation during site preparation
- Dust deposition on plant leaves reducing photosynthesis
- Movement of heavy vehicles damaging nearby shrubs and grasses
- Reduction in soil moisture due to excavation activities
- Temporary disturbance to roadside vegetation

Anticipated Impact on Agricultural Land

- Dust settling on crops
- Temporary reduction in crop productivity near haul roads
- Soil compaction due to vehicle movement
- Possible alteration of drainage patterns if not managed properly

4.5.2. Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

Green belt development is an important environmental management measure in mining projects to reduce dust pollution, attenuate noise, improve aesthetics, and create a buffer between the quarry and surrounding environment.

A green belt should be developed all along the periphery of the lease boundary to act as a physical and biological barrier between mining operations and surrounding areas. A minimum width of 7.5 m to 10 m is generally recommended wherever land is available, especially along haul roads, site boundaries, and sensitive locations such as nearby agricultural lands or settlements.

The selection of plant species should be based on native, fast-growing, and pollution-tolerant varieties. Indigenous species are preferred as they are better adapted to local climatic and soil conditions and support local biodiversity. Species should have characteristics such as dense canopy, deep root systems, and high dust-capturing ability. A mix of trees, shrubs, and ground covers should be planted to ensure multi-layered vegetation.

Drone survey was covered the green belt and fencing as per the terms of references. The green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

After the operation of mining production capacity, Green belt and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities. Optimally designed green belts can be effective in reducing the impact of fugitive emissions and pollutants accidentally or otherwise released at ground levels.

4.5.2.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 500 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5m wide greenbelt will be developed along the plant premises, as per land available.

4.5.2.3. Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt.

4.5.2.4. Selection of Plant Species for Green Belt Development

It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. Green belt is plantation of trees for reducing the air pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution. Regional tree saplings in eco-friendly bags like Pterocarpus marsupium, Pongamia pinnata, Limonia acidissima, and Cassia roxburghii will be planted along the Lease boundary and avenues as well as over non-active dumps with intervals 3m in between with the GPS Coordinates. The greenbelt development plan aims to overall improvement in the environmental conditions of the region Native plant species will be preferred.

- The species should be wind-firm and deep-rooted.
- The species should form a dense canopy.
- Fast-growing plants will be planted
- Species tolerance to air pollution like SO2 and NO2 should be preferred.
- Plants having large leaf area index will be considered
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit-bearing.
- Birds and insects attract tree species.
- Roadsides will be planted with local vegetation.

. Table 4.11: List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	*Aegle marmelos*	Vilva maram
2	*Albizia lebbeck*	Vaagai maram
3	*Cassia fistula*	Konrai tree
4	*Lannea coromandelica*	Othiyam
5	*Limonia acidissima*	Vila maram
6	*Syzygium cumini*	Naval maram
7	*Toona ciliata*	Santhana Vembu
8	*Ficus hispida*	Aththi maram
9	*Borassus flabellifer*	Panai-maram
10	*Madhuca longifolia*	Illupai maram

(*Source: Term of Reference-ToR)

Table 4.12: Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	*Azadirachta indica*	Vembhu maram
2	*Ficus religiosa*	Arasan maram
3	*Ficus hispida*	Aththi maram
4	*Bombax ceiba*	Mul Elavu
5	*Syzygium cumini*	Naval maram
6	*Tamarindus indica*	Puliyamaram
7	*Mangifera indica*	Manga maram
8	*Harwickia binata*	Anjan maram
9	*Delonix regia*	Neruppu Kondrai
10	*Cassia fistula*	Sara Kondrai

(*Source: Guidance for Developing Green belts Manual, CPCB 2000)

The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

These species need to be planted along the periphery of the lease area for absorb fugitive emissions and noise levels which is generated during mining activities. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

Some of the important aspects to be considered are:

- ✓ Planting of trees in each row will be in staggered orientation.
- ✓ In the front row, shrubs will be grown.
- ✓ Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.
- ✓ The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees may grow vertically and slightly increase the effective height of the green belt.

4.5.3. Anticipated Impact on Fauna

- Noise and vibration may disturb birds and small mammals
- Increased vehicle movement may reduce animal movement near the site
- Dust generation may affect insects and grazing animals
- Temporary migration of small fauna from active quarry zones

4.5.3.1. Measures for protection and conservation of wildlife species

Restriction of Mining and Transportation Activities

- No mining, drilling, blasting, or transportation activities shall be carried out during night hours.
- Vehicle movement should be restricted between sunset and sunrise to avoid disturbance to nocturnal wildlife, particularly elephants and carnivores.
- Speed limits shall be imposed on all project vehicles.

Control of Noise and Vibration

- Controlled blasting techniques shall be adopted.
- Blasting shall be conducted only during daytime with prior intimation to the Forest Department.
- Use of silencers and regular maintenance of machinery shall be ensured.
- Noise levels shall be monitored periodically.

Dust Suppression Measures

- Regular water sprinkling on haul roads and working areas.
- Transportation vehicles shall be covered with tarpaulin sheets.
- Development of green belt around the project boundary to act as a dust barrier.

Wildlife Movement Protection

- Natural drainage channels and existing wildlife movement paths shall not be obstructed.
- Adequate buffer areas shall be maintained along forest boundaries.
- Any observed wildlife corridor shall be kept free from project infrastructure.

Habitat Improvement and Green Belt Development

- Native tree species such as Neem, Pongamia, Tamarind, Amla, Banyan, Peepal, and other indigenous species shall be planted.
- Progressive plantation shall be carried out in non-operational areas.
- Degraded areas around the project site shall be restored through afforestation.

Prevention of Human–Wildlife Conflict

- Workers shall be prohibited from entering nearby forest areas.
- Hunting, trapping, feeding, or disturbing wildlife shall be strictly prohibited.
- Awareness programs shall be conducted for workers regarding wildlife conservation and safety practices.

Waste Management

- No solid waste, food waste, or hazardous waste shall be dumped near forest areas.
- Waste shall be collected and disposed of through approved methods.

Water Resource Protection

- No discharge of untreated wastewater.
- Rainwater harvesting and water conservation measures shall be implemented.
- Surface runoff shall be managed through garland drains.

Wildlife Monitoring Program

- Periodic monitoring of wildlife sightings and movement in consultation with the Forest Department.
- Immediate reporting of wildlife incidents to forest authorities.

Support for Conservation Activities

- Financial contribution towards wildlife conservation and habitat improvement measures as directed by statutory authorities.

4.5.4. Impact on Aquatic Biodiversity

- The major lake along the project sites doesn't have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated.
- There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

Table 4.13: Overall Ecological impact assessments of Kavundampalayam Village, Rough stone and gravel quarry, Gobichettipalayam Taluk, Erode District.

S.No	Attributes	Assessment
1	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	Sathiyamangalam Tiger Reserve is located 1.2km from the Northern side of the area.
4	The proposed project restricts access to waterholes for wildlife	'No'
5	Proposed mining project impact surface water quality that also provides water to wildlife	'No'scheduled or threatened wildlife animals are sighted regularly core in the core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	The project release effluents into a water body that also supplies water to a wildlife.	Odai is passing 60m from the western side of the area.
9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No' migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No'
12	Forestland is to be diverted, has carbon high sequestration.	'No' There was no forest land diverted.
13	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No' Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.

(*Source: EIA Guidance Manual-Mining and Minerals, 2010)

4.6 Socio Economic

4.6.1 Construction Phase

Anticipated Impacts:

♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.

♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.

♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.

♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing, and increased consumption of drugs/alcohol within the area.

♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.

♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/ vector diseases.

♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.

♣ To overcome behavioral impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.

♣ To overcome behavioral impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.2 Operation Phase:

Anticipated Impacts:

♣ Long term exposure to the pollutants such as PM, SO2 and NO2 Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.

♣ Other impacts, associated with the applied for rough stone and Gravel quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO2 scrubber and De - NOx system will be installed for fuel burning along with calciner for low NOx formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

♣ For emergency, proposed to develop an occupational health center for its employees and nearby villagers.

4.6.3 Impact Evaluation:

Table 4.6.1 Impact Evaluation Impact evaluation *is given in table below.*

Impact Evaluation Element	Impact on socio economics due to the applied for rough stone and Gravel quarry over an extent of 2.29.73ha of Patta lands in S.F.Nos. 49/1, 55/2B(P) & 55/6(P), Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State.
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.

Characteristics of Impacts				
Nature	Positive		Negative	Neutral
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
	✓			
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.6.4 Mitigation Measures for Proposed Project

- Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc.., from this project directly and indirectly.
- From above details, the quarry operations will have highly beneficial positive impact in the area.
- No villages in the proposed mineral transportation route.
- Mineral loaded Vehicles will not allow during school hours (Morning 8 AM to 10 AM & Evening 4.30PM to 5.30PM).

4.7 Occupational Health and Safety

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

4.7.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

4.7.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)
- Periodic medical hearing checks will be performed on workers exposed to high noise levels.

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

4.7.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

1.8 Mine Waste Management

No waste is anticipated from any of the proposed quarry.

4.9 Mine Closure

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- To create a productive and sustainable after-use for the site, acceptable to mine owners and the public
- To protect public health and safety of the surrounding habitation
- To minimize environmental damage

- To conserve valuable attributes and aesthetics
- To overcome adverse socio-economic impacts.

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.9.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharge likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.9.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

- Where the nutrient level of spread topsoil is lower than material in-situ e.g. for development of social forestry
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g. planning for agriculture
- Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g. development of green barriers

The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 Introduction:

Consideration of alternatives to a project proposal is a requirement of EIA process. This quarry is site specific. The site has been selected based on geological investigation and exploration and from the Existing quarry pits around the project site. Drilling, Blasting, Excavation, Loading & Transportation will be carried out in this quarrying operation.

- This area denotes the indicative of flow pattern of the rock mass in $N45^0E$ to $S45^0W$ with dipping $SE60^0$.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

Enough infrastructure exists and lesser resources are required to be deployed. Since, any major construction for infrastructure is not required and hence does not affect the environment considerably.

5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Projects at Kovundampalayam Villages is a site specific. The proposed mining lease area has following advantages: -

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies within the project areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, fire-fighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history

5.2 Analysis of Alternative Site

The mineral deposits are site specific in nature; hence, question of seeking alternate site does not arise for this project.

5.3 Factors Behind Selection of Proposed Technology

Mechanized open cast mining operation with drilling and blasting method will be used to extract Rough Stone and Gravel in the area. The quarry areas fall in the clusters has following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method
- The material will be loaded after sprinkling with water with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.

  Semi skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 Analysis of Alternative Technology

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

Environmental Monitoring will be taken up for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF & Consent to Operate issued by the State Pollution Control Board. Monitoring reports will be submitted to regulator as per statutory requirements. The entire monitoring work will be carried out by MoEF & CC / NABL recognized laboratories.

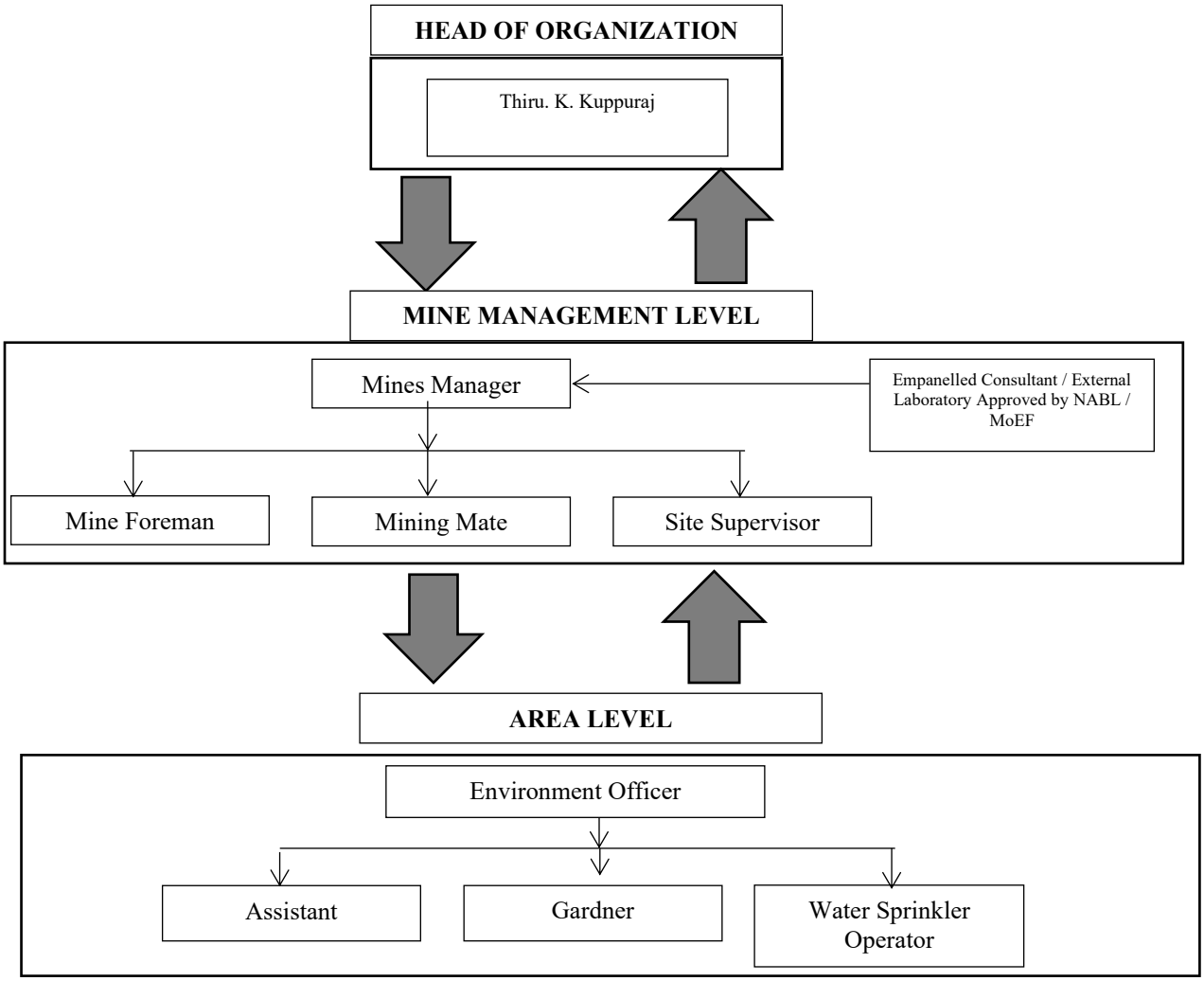
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by the proponents and respective quarry owners in the cluster Quarry. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Mine Management Level environmental protection measures like dust suppression, treatment and recycling of waste water, control of noise due to blasting and Ground vibration, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of other hand, implementation of area level protection measures like plantation and green Environmental Management Plan and environmental clearance conditions will be monitored by the proponent. On the belt development, environmental quality monitoring etc.,

An environment monitoring cell (EMC) will be constituted at the quarry consisting of following members to monitor the implementation of EMP and other environmental protection measures.

FIGURE 6.1 ENVIRONMENTAL MONITORING CELL



The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies. The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of monthly, half-yearly and yearly. The half-yearly reports will be submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC).

6.2 Implementation Schedule of Mitigation Measures

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

TABLE 6.1 IMPLEMENTATION SCHEDULE

Sl No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of the project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of the project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

6.3 Monitoring Schedule and Frequency

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms

4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010.

6.4 Environmental Policy of the Proponent

The project proponent in the Quarry is committed to ensure that:

- Protect the environment by control and prevention of pollution and promote green environment.
- To operate the quarry with an objective of no injuries and accidents at the work place and provide a safe work place for our employees, contractors and others who perform their duties.
- Adequate health care will be taken to all the employees and create process to reduce the adverse effect of the operations on Health of the employees.
- Provide safety appliance and continuous training in safety to employees to ensure safe production and achieve the target of zero accidents.
- Develop safe working methods and practices, remove unsafe work conditions and consider all the aspects at the early stages of process development to provide safe working atmosphere.
- Communicate Safety, Health and Environmental Policy to all employees for better understanding and practice.

6.5 Budgetary Provision for Environmental Monitoring Programme

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed total cost for Environmental Monitoring Programme for one proposed quarry for the mining plan period is Rs 3,80,000/-.

TABLE 6.3 ENVIRONMENT MONITORING BUDGET

Parameter	Sl.Nos	Capital Cost	Recurring Cost
Air Quality, Meteorology, Water Quality Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt	**Thiru. K. Kuppuraj**	Rs.3,80,000/-	Rs.76,000/-
TOTAL		**Rs. 3,80,000/-**	**Rs.76,000/-**

Source: Approved Mining Plans

6.6 Reporting Schedules of Monitored Data

The monitored data on Air quality, Water quality, Noise levels and other environmental attributes will be periodically examined by the proponent with Environmental Monitoring cell and necessary corrective measures will be carried out. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance

to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Half yearly status report
- TNPCB - Half yearly status report
- Department of Geology and Mining: quarterly, half yearly annual reports
- SEIAA, Chennai, Tamil Nadu

Besides the Mines Manager/Agent will submit the periodical reports to –

- Director of mines safety,
- Labour enforcement officer,
- Controller of explosives as per the norms stipulated by the department.

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. And items identified by public and other stakeholders will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management

7.1. Public Consultation:

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

7.2 Risk Assessment

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The cluster quarry operation will be carried out under the direction of a Qualified Competent Mine manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	▪ All safety precautions and provisions of Mine Act, 1952, Metalliferrous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Fire fighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use.

			▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut; ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling& Blasting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material	▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view

		While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	mirrors, side indicator lights etc., are in good condition. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

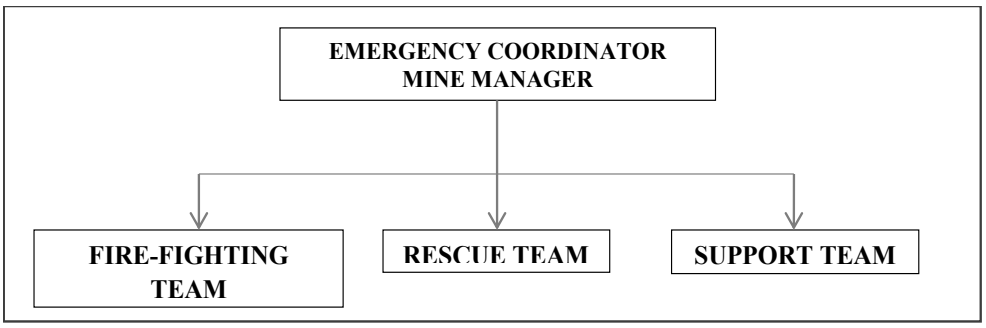
Natural disasters like Earthquake, Land slides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
RESCUE TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
SUPPORT TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g., fire brigade, police, doctor and media men etc.,

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.
    - He will receive information continuously from incident controller and give decisions and directions to:
        - Incident controller
        - Mine control rooms
        - Emergency security controller

Proposed fire extinguishers at different locations –

The following type of fire extinguishers is proposed at strategic locations within the quarry.

Location	Type of Fire Extinguishers
Electrical Equipment's	CO_2 type, foam type, dry chemical powder type
Fuel Storage Area	CO_2 type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations
- Fire fighting and first-aid provisions in the mines office complex and mining area will be provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring
- Training and refresher courses for all the employees working in the quarry in phase manner
- Cleaning of mine faces will be carried out regularly
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN will be used at the time of blasting for audio signal.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS will be displayed at prominent places

7.4 CUMULATIVE IMPACT STUDY

Totally 4 Quarry within the cluster, there are 2 Nos of Proposed quarry, 2 Nos existing Quarry falls in the cluster. The list of Quarry is as below –

TABLE 7.3: LIST OF QUARRY IN THE CLUSTER

Propsed Quarries				
Code	**Name of the Proponent and Address**	**S.F. Nos & Village**	**Area (Ha)**	**Status**
P1	K. Kuppuraj	49/1, 55/2B (P) & 55/6 (P) Kovundampalayam	2.29.73	File No. 13192 ToR Identification No.TO25B0108TN5156627N Dated.13.02.2026
P2	T.M. Manoharan and 2 others	49/2, 3, 4A & Kovundampalayam	1.99.0	EC Granted EC Identification No: EC25B0108TN5644274N Dated:19.08.2025
		Total	**4.28.73**	
Existing Quarries				
CODE	**Name of the Proponent and Address**	**S.F. Nos**	**Extent in Ha**	**Lease Period**
E-1	K. Indirani	55/1A(P), 3(P) & 58	2.91.50	09.01.2024 – 08.01.2029
E-2	S. Kandasamy	63/1, 64/1A, 3A, 5A	2.66.00	15.09.2023 – 14.09.2028
		Total	**5.57.50**	
Expired/ Abandoned Quarries				
EX-1	K. Kuppuraj	52/2C	1.27.0	02.12.2014 – 01.12.2019
EX-2	Thiru. S. Kandasamy	70/9 Part	5.00.0	09.01.2011 – 08.01.2016
EX-3	Thiru. M. Seenivasan	70/9 South Part	2.00.0	26.04.2010 – 25.04.2020
EX-4	T.R. Velusamy	38 South Part	2.00.0	26.04.2010 – 25.04.2015
EX-5	R. Paulraj	38 North Part	2.06.0	26.04.2010 – 25.04.2015
		Total	**12.33.00**	
		Total Cluster Extent	**9.86.23 Ha**	

Note:-

- **Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016**

TABLE 7.4: SALIENT FEATURES OF THE PROPOSAL PROJECT –P1

Name of the Quarry	**Thiru. K. Kuppuraj Rough Stone & Gravel Quarry**	
Toposheet No	58E/06	
Land Classification	It is a Patta Land, Registered in the name of the proponent (Thiru.K. Kuppuraj) vide patta nos.7 and 235.	
Latitude between	11°31'00.66"N to 11°31'07.06"N	
Longitude between	77°22'34.01"E to 77°22'39.12"E	
Highest Elevation	264m AMSL	
Proposed Depth of Mining as per Tor	57m (2m Gravel + 55m Rough Stone)	
Geological Resources	Rough Stone in m^3	Gravel m^3
	12,63,515	45,946
Mineable Reserves	Rough Stone in m^3	Gravel m^3
	4,06,025	35,802
Yearwise production for first five years	Rough Stone in m^3	Gravel m^3
	2,09,225	35,802
Yearwise production for Second five years	Rough Stone in m^3	Gravel m^3
	1,96,800	-
Ultimate Pit Dimension	153m (L) x 117m (W) x 57m (D) Bgl	
Water Level in the surrounds area	130 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Eastern side and altitude of the area is 264m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the nearby quarry pits. The Water level in the area is 130m below general ground profile. Average annual rainfall is about 703 mm.	
Machinaries	Jack Hammer	**7 Nos**
	Compressor	**2 Nos**
	Excavator with bucket and rock breaker	**1 No**
	Truck	**2 Nos**
	Water Sprinkling Tanker	**1 No**
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	30 Nos	
Project Cost	Rs.1,23,78,000/-	
CER Cost	Rs 3,00,000/-	
Nearby Water Bodies	**Water bodies**	**Distance & Direction**
	Vaikkal	60m West
	Odai	220m NE
	Odai	1.1km West
	Bhavani River	3.8km SW
	Perumpalla River	8.2km West

	Perumpallam Dam	8.5km NW
Greenbelt Development Plan	Proposed to plant 1150 trees in the 7.5m Safety Zone, Village Road and panchayat roads.	
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	330m South East	

TABLE 7.5: SALIENT FEATURES OF THE PROPOSAL PROJECT –E1

Name of the Quarry	Tmt. K. Indirani Rough stone and Gravel quarry	
S.F.No	55/1A(P), 55/3(P) and 58	
Extent	2.91.50 Ha	
Toposheet No	58-E/06	
Latitude between	11°30'59.07"N to 11°31'08.46N	
Longitude between	77°22'44.12"E to 77°22'31.18"E	
Highest Elevation	244m AMSL	
Proposed Depth of Mining	56m (16m agl + 40m bgl)	
Geological Resources	Rough Stone	Gravel
	11,62,270 m^3	5,560 m^3
Mineable Reserves	Rough Stone	Gravel
	4,04,470 m^3	2,006
Proposed Production for Five Years	Rough Stone	Gravel
	4,04,470 m^3	2,006
Ultimate Pit Dimension	Pit I: 284m (L) X 112m (W) X 56m (D) Pit II: 105m (L) X 37m (W) X 36m (D)	
Water Level in the surrounds area	70 to 65m BGL	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	10 Nos
	Compressor	3 Nos
	Excavator with bucket and rock breaker	2 Nos
	Tipper	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	40Nos	
Project Cost	Rs. 65,90,000/-	
EMP Cost	Rs.3,80,000/-	
CER Cost	Rs.69,97,000/-	
Nearby Water Bodies	**Water bodies**	**Distance & Direction**
	Odai	300m West
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	650m- SE	

TABLE 7.6: SALIENT FEATURES OF THE PROPOSAL PROJECT –E2

Name of the Quarry	Thiru. S. Kandasamy Rough Stone & Gravel Quarry		
S.F.No	63/1, 64/1A, 64/3A and 64/5A		
Extent	2.66.0 Ha		
Toposheet No	58-E/06		
Latitude between	11°31'05.96"N to 11°31'12.03" N		
Longitude between	77°22'17.19"E to 77°22'24.38" E		
Highest Elevation	240m AMSL		
Proposed Depth of Mining	46m		
Geological Resources	Rough Stone in m^3	Weathered Rock in m^3	Gravel m^3
	8,70,255	50,805	33,846
Mineable Reserves	Rough Stone in m^3	Weathered Rock in m^3	Gravel m^3
	2,97,605	35,217	25,380
Proposed Production for Five Years	Rough Stone in m^3	Weathered Rock in m^3	Gravel m^3
	2,97,605	35,217	25,380
Ultimate Pit Dimension	131m (L) X 137m (W) X 45m (D)		
Water Level in the surrounds area	65 - 70m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Machinery proposed	Jack Hammer	8 Nos	
	Compressor	2 Nos	
	Excavator with bucket and rock breaker	2 Nos	
	Tipper	4 Nos	
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.		
Proposed Manpower Deployment	36 Nos		
Project Cost	Rs.60,11,000/-		
EMP Cost	Rs. 3,80,000/-		
CER Cost	Rs 63,91,000/-		
Nearby Water Bodies	**Water bodies**	**Distance & Direction**	
	Odai	300m West	
Proposed Water Requirement	3.0 KLD		
Nearest Habitation	840m- SE		

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the Quarry (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting.

Impact on Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5 & 7.6.

TABLE 7.8 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

Proposed Quarry Project				
Quarry	**Production for Ten/five-year plan period considering safety parameters**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ $12m^3$ per load**
P1	4,06,025	40,602	135	11Trips /Day
List of Existing Quarry				
Quarry	**Production for five-year plan period**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ $12m^3$ per load**
E-1	4,04,470	80,894	270	22Trips /Day
E-2	2,97,605	59,521	198	17 Trips /Day
G. Total	**11,08,100**	**1,81,017**	**603**	**50 Trips/ Day**

TABLE 7.9: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER

Proposed Quarry Project				
Quarry	**Production for three-year plan period considering safety parameters**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ $12m^3$ per load**
P1	35,802	11,934	40	3 Trips /Day
List of Existing Quarry				
Quarry	**Production for three-year plan period**	**Per Year Production in m^3**	**Per Day Production in m^3**	**Number of Lorry Load Per Day @ $12m^3$ per load**
E-1	2,006	2,006	7	1Trip /Day
E-2	25,380	8,460	28	2 Trips /Day
G. Total	**63,188**	**22,400**	**75**	**6 Trips/ Day**

Based on the above production quantities the emissions due to various activities in all the 1 proposal quarry includes various activities like ground preparation, excavation, handling and transport of mineral. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.7.

TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM_{10} in $\mu g/m^3$	
Location	AAQ1 – CORE
Background (average)	46
Anticipated Incremental due to the proposals	13.79
Resultant	59.79
NAAQ Norms	100 $\mu g/m^3$
$PM_{2.5}$ in $\mu g/m^3$	
Location	AAQ1 – CORE
Background (average)	23.7
Highest Incremental	5.90
Resultant	29.6
NAAQ Norms	80 $\mu g/m^3$

SO_2 in µg/m^3	
Location	AAQ1 – CORE
Background (average)	4.9
Anticipated Incremental due to the proposals	1.59
Resultant	6.49
NAAQ Norms	80 µg/m^3
NO_x in µg/m^3	
Location	AAQ1 – CORE
Background (average)	23.7
Anticipated Incremental due to the proposals	8.61
Resultant	32.31
NAAQ Norms	80 µg/m^3

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different Quarry within the 500 m radius.

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

Lp_1& Lp_2 are sound levels at points located at distances r_1& r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \ldots\ldots\}$$

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

Source data has been computed taking into account of all the machinery and activities used in the mining process.

TABLE 7.12: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near South from the cluster 330m – P1	43.2	49.7	50.6	55
Habitation Near South East from the cluster 650m – E1	42.5	43.8	46.2	
Habitation Near South East from the cluster 840m – E2	40.6	41.6	44.1	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 44.1 – 50.6 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Ground Vibrations

Ground vibrations due to mining activities in the all the 3 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from all the 3 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease areas. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from Cluster is tabulated in Table 7.9

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K\,[R/Q^{0.5}]^{-B}$$

Where –
V = peak particle velocity (mm/s)
K = site and rock factor constant
Q = maximum instantaneous charge (kg)
B = constant related to the rock and site (usually 1.6)
R = distance from charge (m)

TABLE 7.13: GROUND VIBRATIONS AT MINES

PROPOSAL QUARRY			
Location ID	**Maximum Charge in kgs**	**Nearest Habitation in m**	**PPV in m/ms**
P1	20	330	0.513
EXISTING QUARRY			
Location ID	**Maximum Charge in kgs**	**Nearest Habitation in m**	**PPV in m/ms**
E1	20	650	0.173
E2	20	840	0.115

Source: PPV Calculation

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment

The mines shall provide employment and revenue will be created to government

TABLE 7.14: SOCIO ECONOMIC BENEFITS FROM CLUSTER MINES

PROPOSAL QUARRY			
Code	**Employment**	**Project Cost**	**CER**
P1	30	Rs.1,23,78,000 /-	Rs 3,00,000/-
EXISTING QUARRY			
Code	**Employment**	**Project Cost**	**CER**
E1	40	Rs. 65,90,000/-	Rs 5,00,000/-
E2	36	Rs 60,11,000/-	Rs 5,00,000/-
Grand Total	**106**	**Rs.2,49,79,000 /-**	**Rs. 13,00,000/-**

A total of 30people will get employment due to this cluster, in this already 76 people employed in the existing Quarry. For the Existing Quarry Corporate Environment Responsibility (CER) allocated as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

For the proposed projects it is recommended to spent Rs 3,00,000/- towards CER Activities in the nearby Government School for Renovation or reconstruction of Existing Toilet, Providing Note books to the school library and Plantation in the school ground any other recommendations by the School Head masters.

- In this cluster from the 1 Proposal, it is proposed to spent Rs 3,00,000/- for CER activities

Considering 500 Nos of trees per hectare it is proposed to plant about 1150nos. of saplings in the proposed project for the Mining plan period in safety barrier, Un utilized area and village roads with survival rate 80% (Anticipated). The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 7.15: GREENBELT DEVELOPMENT BENEFITS FROM PROPOSAL MINE

Proposed project				
CODE	**No of Trees proposed to be planted**	**Survival %**	**Area to be covered**	**Name of the Species**
Thiru. K. Kuppuraj	1150	80	7.5m Safety barrier, Panchayat road and Village roads	Neem, Pongamia, Pinnata, ashoka etc.,

It is anticipated that there shall growth of native species of Neem, Pongamia, Pinnata, etc., in the Proposal at a rate due to these proposals 1150 Trees Planted over a period of 10 Years with Survival Rate of 80%. Besides every individual lease holder will plant Saplings in the School ground as part of CER activities.

7.5 CLUSTER MANAGEMENT COMMITTEE

The cluster management committee is proposed to form including of 1 Proposed quarry and 2 existing quarries total extent of the cluster is 9.86.23 Ha

In the cluster management committee, the following Environmental Management plan will be followed the activities such as

- Transportation of Minerals and blasting activities with the coordination between the individual quarry owners.
- Sprinkling of water regularly thrice a day in the mutual understanding with the quarry owners
- Carrying out blasting operation as specified times by the Mines Managers and as per the EIA report
- Usage of Haul roads in a time specified by the Cluster Management Committee
- Following Safe operating procedure prescribed by the Mines Manager during natural calamities
- Planting Trees in the Government Land, School and within the project site
- Celebrating Safety month, Environmental Month along with the Mines Managers in every six months once
- Regularly follow the health of the workers and take medical examination as per the DGMS norms under the guidance of Mines Manager
- Meet at Association Hall monthly once to review the Environmental Management and Safety activities prescribed by the Cluster Management Committee
- We have read and understood all the above steps and we ensure to follow these specific steps Quarry owners in the Cluster management committee

Quarries in the Cluster Management Committee

Propsed Quarries				
Code	**Name of the Proponent and Address**	**S.F. Nos & Village**	**Area (Ha)**	**Status**
P1	K. Kuppuraj	49/1, 55/2B (P) & 55/6 (P) -	2.29.73	File No. 13192 ToR Identification

		Kovundampalayam		No.TO25B0108TN5156627N Dated.13.02.2026
P2	T.M. Manoharan and 2 others	49/2, 3, 4A & Kovundampalayam	1.99.0	EC Granted EC Identification No: EC25B0108TN5644274N Dated:19.08.2025
		Total	**4.28.73**	
Existing Quarries				
CODE	**Name of the Proponent and Address**	**S.F. Nos**	**Extent in Ha**	**Lease Period**
E-1	K. Indirani	55/1A(P), 3(P) & 58	2.91.50	09.01.2024 – 08.01.2029
E-2	S. Kandasamy	63/1, 64/1A, 3A, 5A	2.66.00	15.09.2023 – 14.09.2028
		Total	**5.57.50**	
Expired/ Abandoned Quarries				
EX-1	K. Kuppuraj	52/2C	1.27.0	02.12.2014 – 01.12.2019
EX-2	Thiru. S. Kandasamy	70/9 Part	5.00.0	09.01.2011 – 08.01.2016
EX-3	Thiru. M. Seenivasan	70/9 South Part	2.00.0	26.04.2010 – 25.04.2020
EX-4	T.R. Velusamy	38 South Part	2.00.0	26.04.2010 – 25.04.2015
EX-5	R. Paulraj	38 North Part	2.06.0	26.04.2010 – 25.04.2015
		Total	**12.33.00**	
		Total Cluster Extent	**9.86.23 Ha**	

STANDARD OPERATING PROCEDURE FOR KOVUNDAMPALAYAM CLUSTER MANAGEMENT COMMITTEE

1. Maintenance of Haul Roads and Village Roads:

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metaled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

2. Maintenance of Drilling Activities

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.

- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.
- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects

3. Maintenance of Blasting Activities

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e., at the time lunch hours (1.00 PM to 2.00 PM), controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored
- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.

- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4. Maintenance of Greenbelt Activities

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.
- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm

5. Maintenance of Occupational Health

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed
- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests

- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

6. Cluster Management Committee Policy

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Allocate necessary resources to ensure the implementation of the environmental policy
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programme to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

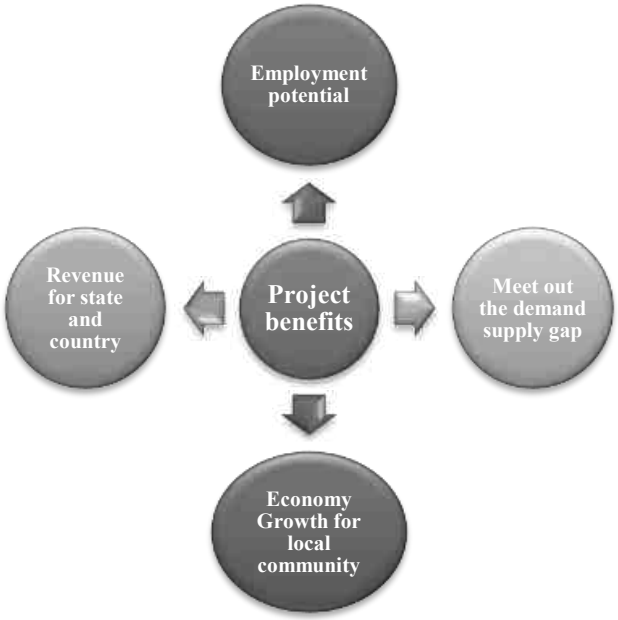
CHAPTER – 8: PROJECT BENEFITS

8.1 *General*

Thiru. K. Kuppuraj Rough Stone and Gravel Quarry Project aims to produce 4,06,025m^3 Rough Stone over a period of 10 Years, 35,802 m^3 of Gravel over a period of 3 Years.

This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure



8.2 Employment Potential

This prosed project falls in the cluster will provide employment opportunities to about employment to about 39 persons directly. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.3 Socio-Economic Welfare Measures Proposed

The impact of mining activity in the area will be more positive than negative on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.4 Improvement in Physical Infrastructure

The proposed project site is located in Kovundampalayam village, Gobichettipalayam taluk, Erode District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to the cluster quarry projects.

- Road Transport facilities
- Communications
- Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.5 Improvement in Social Infrastructure

The quarry project in the region will have positive impact on the social economic condition of the area by way of providing employment to the local peoples; thereby increasing the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

- Social welfare program like medical camps, educational facilities to the poverty level students, providing water supply from the Quarry during drought seasons will be taken from the project proponent's
- Supplementing Govt. efforts in health monitoring camps, social welfare and various Awareness programs among the rural population.

8.6 Other Tangible Benefits

The proposed quarry project is likely to have other tangible benefits as given below.

- Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation, for supply of goods and services to the quarry site and other community services.
- Additional housing demand for rental accommodation will increase.
- Cultural, recreation and aesthetic facilities will also improve.
- Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity.
- The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

CORPORATE SOCIAL RESPONSIBILITY

Project Proponent will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing Quarry Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.
As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER.

For the proposed projects it is recommended to spend Rs 3, 00,000/- towards CER Activities in the nearby Government School for Renovation or reconstruction of Existing Toilet, Providing Note books to the school library and Plantation in the school ground any other recommendations by the School Head masters.

TABLE 8.1 CER – ACTION PLAN

Code	CER
Thiru. K. Kuppuraj	Rs 3,00,000/-
Total	**Rs 3,00,000/-**

Source: Field survey conducted by FAE, consultation with project proponent

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 Environmental Policy

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent **Thiru. K. Kuppuraj** will –

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Allocate necessary resources to ensure the implementation of the environmental policy
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhabition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora spices will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no top soil within the project area thin layer of soil will be utilized for Greenbelt purpose.

Overburden / Waste and Side Burden Management –

- The overburden in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer

Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.4 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is proposed upto a depth of 57m BGL, the water table in the area is 130m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

Carbon dioxide (CO_2): Carbon dioxide enters the atmosphere through burning fossil fuels (Coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Therefore, the proposal for 1150 Nos. of trees to be planted.

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager

Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters and 50m safety barrier) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an in-built mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
    - Based on the area of plantation.
    - Period of plantation
    - Type of plantation
    - Spacing between the plants
    - Type of manuring and fertilizers and its periods
    - Lopping period, interval of watering
    - Survival rate
    - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1 Green Belt Development Plan

About 1150 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier and nearby village roads with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 10 YEAR PLAN PERIOD

Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species
I	It is proposed to plant **1150 Nos** of trees in the 1st year	80 %	7.5m Safety barrier, Panchayat Road and nearby village roads	Neem, Pongamia, Pinnata, ashoka etc.,

Source: Conceptual Plan of Approved Mining plan& proposed by FAE's & EIA Coordinator

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

S.No	Botanical Name	Local Name
1.	Azadirachta indica	Neem, Vembu
2.	Borassus Flabellifer	Palmyra Palm
3.	Pongamia pinnata	Pungam

Source: Proposed by FAE's & EIA Coordinator

10.9 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in Quarry are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

TABLE 10.9: MEDICAL EXAMINATION SCHEDULE

Sl.No	Activities	1st Year	2nd Year	3rd Year	4th Year	5th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-

Age Group	**PME as per Mines Rules 1955**	**Special Examination**
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies

Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3 Health and Safety Training Programme

The Proponent will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health &safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid

				Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Haul road maintenance & Water sprinkling	Lump sum fund allocation for daily maintenance of haul roads and thrice a day water sprinkling by fixed sprinklers or water tankers	0	50000
	Muffle blasting – To control fly rocks during blasting	Lump sum fund allocation Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure	Lump sum fund allocation for ensuring wet drilling by covering drill holes with wet gunny bags and spraying water while drilling	0	10000
	No overloading of trucks/tippers/tractors	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Enforcing speed limits of 20 km/hr within ML area	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Regular monitoring of exhaust fumes as per RTO norms	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	5000
	Haul road maintenance & Water sprinkling	Lump sum fund allocation for daily maintenance of haul roads and thrice a day water sprinkling by fixed sprinklers or water tankers	0	50000
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
	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 / Competent Person	0	0
	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	0
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		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
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare	5000	1000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Provision made in Operating Cost	0	0
	3. Greenbelt development under safety zone during the mining plan period	Provision made in Operating Cost	0	0
Implementation of EC, Mining Plan &	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	10000	1000

DGMS Condition	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	100000
	Workers will be provided with Personal Protective Equipment's	Lumpsum fund allocation	50000	15000
	Health checkup for workers will be provisioned	IME & PME Health checkup for all the employees will be covered batch wise.	0	50000
	First aid facility will be provided	Lumpsum fund allocation	0	5000
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	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	Lumpsum fund allocation	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Appointment of Competent person for ensuring the safety operation	Provision made in operational cost	0	0
	Erection of Sheet Fencing	Sheet Fencing will be erected in the South & Eastern side	300000	28000
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	200000	0
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Lumpsum fund allocation	300000	0
TOTAL			**10,60,000**	**3,30,000**

In order to implement the environmental protection measures, an amount of Rs.10.60 lakhs as capital cost and recurring cost as Rs. 3.30 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project

Year Wise Break Up			
1st Year	₹ 13,90,000/-	6th Year	₹ 4,21,173/-
2nd Year	₹ 3,46,500/-	7th Year	₹ 4,42,232/-
3rd Year	₹ 3,63,825/-	8th Year	₹ 4,64,343/-
4th Year	₹ 3,82,016/-	9th Year	₹ 4,87,560/-
5th Year	₹ 4,01,117/-	10th Year	₹ 5,11,938/-
Total		**Rs. 52 lakhs**	

10.10 CONCLUSION –

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Thiru. K. Kuppuraj Rough Stone & Gravel Quarry (Cluster Extent – 9.86.23 ha); falls under "B" category as per MoEF & CC Notification (S.O. 3977 (E)).

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

A detailed Draft EIA /EMP Report is prepared for public and other stakeholders' suggestions and the Final EIA /EMP Report will be prepared based on the outcome of Public Consultation and the outcome will be incorporated in the EMP Report.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster Quarry and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months Mar 2026 to May 2026 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the Draft EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 30 people directly in the one proposed project people.

As discussed, it is safe to say that the one proposed quarry in cluster is not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from Thiru. K. Kuppuraj Rough Stone & Gravel Quarry (Extent – 2.29.73 ha).

CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent Thiru. K. Kuppuraj have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS
No 17, Advaitha Ashram Road,
Alagapuram, Salem – 636 004
Tamil Nadu, India
Email: infogeoexploration@gmail.com
Web: **www.gemssalem.com**
Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below –

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	**Dr. M. Ifthikhar Ahmed**	**In-house**	**1** **38**	**A** **B**	WP GEO SC	B A A
2	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
3	Mr. A. Allimuthu	In-house	-	-	LU SE	A B
4	Mr. N. Senthilkumar	Empanelled	**31** **38**	**A** **B**	AQ RH	A A
5	Mr. P. Panneer Selvam	In-house	-	-	EB	B
6	Mr. L. Jayaraj	In-house	-	-	HG	B
7	Mr. Vengadagiri Balasubramanian	In-house	-	-	GEO	A

Abbreviations

EC	**EIA Coordinator**	**EB**	**Ecology and bio-diversity**
AEC	**Associate EIA Coordinator**	**NV**	**Noise and vibration**
FAE	**Functional Area Expert**	**SE**	**Socio economics**
FAA	**Functional Area Associates**	**HG**	**Hydrology, ground water and water conservation**
TM	**Team Member**	**SC**	**Soil conservation**
GEO	**Geology**	**RH**	**Risk assessment and hazard management**
WP	**Water pollution monitoring, prevention and control**	**SHW**	**Solid and hazardous wastes**
AP	**Air pollution monitoring, prevention and control**	**MSW**	**Municipal Solid Wastes**
LU	**Land Use**	**ISW**	**Industrial Solid Wastes**
AQ	**Meteorology, air quality modeling, and prediction**	**HW**	**Hazardous Wastes**

ANNEXURE

THIRU. K. KUPPURAJ ROUGH STONE AND GRAVEL QUARRY

S.F. Nos: 49/1,55/2B (P) & 55/6(P),

Extent: 2.29.73ha

Kovundampalayam Village,

Gobichettipalayam Taluk,

Erode District.

Cluster Extent – 9.86.23 Ha

Project Proponent

Thiru. K. Kuppuraj,

S/o.Karuthirumagowder,

No.16, Kamarajar Street,

Kongu Nagar, Vanipudhur,

T.N.Palayam, Erode District – 638506

LIST OF ANNEXURES

Annexures	DESCRIPTION	PAGE NO
P1- THIRU. K. KUPPURAJ	COPY OF TERMS OF REFERENCE	1A - 22A
	COPY OF APPROVAL LETTER	23A-26A
	COPY OF 500M LETTER	27A-28A
	COPY OF MINING PLAN WITH PLATES	29A-105A
	COPY OF 300M LETTER	106A
	COPY OF FOREST LETTER	107A-108A
P2-T.M. MANOHARAN AND 2 OTHERS	COPY OF EC COPY	109A-148A
EXISTING QUARRY-1	COPY OF EXISTING QUARRY EC COPY	149A-186A
	COPY OF BASE LINE MONITORING DATA	187A-215A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	216A

File No: 13192
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
***

Dated: **13/02/2026**

To,

KUPPURAJ K
S/o. Karuthirumagounder, No.16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N.Palayam, Erode District - 638 506, Tamil Nadu .
bharathaggregates@gmail.com

Subject: Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

Sub: SEIAA, TN - Proposed Rough Stone & Gravel Quarry over an Extent of 2.29.73 Ha in S.F. Nos. 49/1, 55/2B (P) & 55/6 (P) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu **Thiru. K. Kuppura**j - under project category – "B1" and Schedule S.No.1(a) "Mining of Minerals Projects" of EIA Notification, 2006, as amended – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

Ref:
1. Online proposal No. SIA/TN/MIN/562673/2025 Dated 22/12/2025.
2. Your application submitted for Terms of Reference dated: 23.12.2025.
3. Minutes of the 665th SEAC meeting held on 19.01.2026.
4. Minutes of the 957th SEIAA meeting held on 05.02.2026.

2. The particulars of the proposal are as below:

(i) TOR Identification No.	TO25B0108TN5156627N
(ii) File No.	13192
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Thiru. K. Kuppuraj Rough Stone and Gravel Quarry
(viii) Name of Company/Organization	KUPPURAJ K
(ix) Location of Project (District, State)	ERODE, TAMIL NADU
(x) Issuing Authority	SEIAA
(xi) Applicability of General Conditions	no

(xii) Applicability of Specific Conditions no

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 05.02.2026. The 6+minutes of the meeting and all the Application and documents submitted [viz. Form-1 Part A, Part B] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3.The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. K. Kuppuraj** under the provisions of EIA Notification, 2006 and as amended thereof.
5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
6.The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
7.This issues with the approval of the Competent Authority.
8.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.

Annexure 1

Specific Terms of Reference s for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: i) Copy of the agreement forming CMC. ii) The Organization chart of the Committee with defining the role of the members iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/video graphic evidence along with the EIA report.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:

S. No	Terms of Reference
	(i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. 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. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. 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. 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 the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, 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 30 m below ground level. 9. 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. 10. 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. 11. 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. 12. 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, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining.

S. No	Terms of Reference
	· Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. 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). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 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 the 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 groundwater 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 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

S. No	Terms of Reference
	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. 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. 32. 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. 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. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly 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 34. 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. 35. 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. 36. 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. 37. 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. 38. 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 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. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. 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. 41. 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. 42. 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. 43. 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.

3. Seiaa Specific Conditions :

S. No	Terms of Reference
3.1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant **Terms of Reference (ToR) along with Public Hearing for the quantity of 4,06,025 m^3 of Rough Stone and 35,802 m^3 of Gravel up to the depth of 57m BGL and the annual peak production should not exceed 53,550 m^3 of Rough Stone & 11,934 m^3 of Gravel** as per the approved mining plan, 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-I & normal conditions & SEIAA Specific & Standard conditions.

4. Seiaa Standard Conditions :

S. No	Terms of Reference
4.1	**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 & emergency management plan, fire safety & evacuation plan and sustainable development goals 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 in the 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. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. **Agriculture & Agro-Biodiversity** 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **Forests** 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.

S. No	Terms of Reference
	16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 19. 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. 20. Erosion Control measures. 21. 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. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. 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. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including Environmental stress. c) Sediment geochemistry in the surface streams. **Energy** 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. **Climate Change** 29. 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. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. **Mine Closure Plan** 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. **EMP** 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

S. No	Terms of Reference
	Risk Assessment 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. **Disaster Management Plan** 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & 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. **Others** 37. 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. 38. 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. 39. 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.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	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
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	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
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould 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)
1.5	Information should be provided in Survey of India Toposheet 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
1.6	Details about the land proposed for mining activities should be givenwith 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

S. No	Terms of Reference
1.7	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 EC 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
1.8	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
1.9	The study rea 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
1.10	Land use of the study rea 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
1.11	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
1.12	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. 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
1.13	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
1.14	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
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	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
1.17	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.

S. No	Terms of Reference
	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 Wildlifeand copy furnished
1.18	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, 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 alongwith 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
1.19	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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	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 w.r.t 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)
1.21	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
1.22	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 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
1.23	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
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed

S. No	Terms of Reference
	water balance should also be provided. Fresh water requirement for the Project should be indicated
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	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
1.27	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
1.28	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
1.29	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
1.30	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
1.31	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 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
1.32	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
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	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
1.35	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

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	mitigation measures with required facilities proposed in the mining area may be detailed
1.36	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
1.37	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
1.38	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 Project
1.39	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
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	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
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the 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 be followed. g) 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. h) As per the circular no. J-11011/618/2010-IA.II(I) 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. i) 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

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	and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area

STANDARD TERMS OF REFERENCE

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.
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 EC 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 / 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 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 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 (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 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.

i) As per the circular no. J-11011/618/2010-IA.II(I) 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 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.

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 is acquisition, nearby (in 2-3 km.) water body, population, with in 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 intuitions/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.

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 -l1013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th 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 SEIAA, 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.

Signed by
Rahul Nadh A R
Date: 13-02-2026 17:46:17
Reason: Verified and signed

From

Dr. K.L.K. Vallal, M.Sc., Ph.D.,
Assistant Director,
Geology and Mining,
Erode

To

Thiru. K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vaniputhur,
T.N. Palayam, Erode - 638 506

R.c. No. 840/ Mines / 2024 dated: 19.12.2025.

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel- Erode District - Gobichettipalayam Taluk - Goundampalayam Village- S.F.No. 49/1, 55/2B (part), 55/6 (part)- Over an Extent of 2.29.73 of patta land- Quarry lease for Rough Stone and Gravel - Application preferred Thiru. K. Kuppuraj, S/o. Karuthurimagowder - Precise area communicated for the proposed grant of quarry lease - Mining Plan Submitted for approval - Approved - regarding.

Ref: 1. Application for Rough Stone and Gravel quarry permission preferred by Thiru. K. Kuppuraj, S/o. Karuthurimagowder dated: 04.10.2024.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.

3. The Assistant Director, Geology and Mining, letter R.C.No. 840/Mines/2024 dated 27.11.2025.
4. Mining Plan submitted by Thiru. K. Kuppuraj, S/o. Karuthurimagowder letter dated: -- (Received on 15.12.2025).

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Thiru. K. Kuppuraj, S/o. Karuthurimagowder preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 2.29.73 Hectare of Patta land in S.F.No. 49/1, 55/2B (part) and 55/6 (part) of Goundampalayam Village of Gobichettipalayam Taluk, Erode District vide the reference 1st cited and the precise area was communicated to the applicant vide the reference 3rd cited with a direction to submit the approved mining plan and Environmental Clearance.

As directed, the applicant submitted three copies of mining plan for approval vide the reference 4th cited. The Mining Plan has been verified in detail and found that it was prepared in accordance with the guidelines / instructions issued by the Commissioner of Geology and Mining in letter RC. No. 3868 / LC / 2012 dated 19.11.2012.

Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O. (Ms). No.79 /

Industries (MMC 1) Department dated 06.04.2015, the mining plan is hereby approved, subject to the following conditions:

(i) 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 convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

(iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

(iv) The validity of the mining plan is co-terminus with the lease period.

(v) Quarrying shall be done in accordance with the approved Mining Plan and 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.

(vi) If anything is found to be concealed as required by the Mines Act in

the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

(vii) A safety distance of 7.5 meters shall be provided for the patta lands situated adjacent to the applied area.

(viii) A safety distance of 10m should be provided to the Cart trak situated on the western side of the applied area.

(ix) A safety distance of 51m should be maintained from the Kpu Vaikal on the west side of the applied area and quarrying operation shall be executed without causing any disturbance to the vaikal.

(x) In the letter No. 2815/2025/B dated 01.08.2025 from the Deputy Director, Sathyamangalam Tiger Reserve, Sathyamangalam Forest Division it has been stated that, if permission is granted for the rough stone quarry lease area, some conditions must be strictly followed.

Encl.: Approved Mining Plan.

19/12/25

Assistant Director,
Geology and Mining,
Erode

19/12/25

19/12/25

From

Dr. K.L.K. Vallal, M.Sc., Ph.D.,
Assistant Director,
Geology and Mining,
Erode

To

Thiru. K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vaniputhur,
T.N. Palayam, Erode - 638 506

R.c. No. 840/ Mines / 2024 dated: 19.12.2025.

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel- Erode District - Gobichettipalayam Taluk - Goundampalayam Village- S.F.No. 49/1, 55/2B (part), 55/6 (part)- Over an Extent of 2.29.73 Hectares of patta land- Quarry lease for Rough Stone and Gravel - Application preferred Thiru. K. Kuppuraj, S/o. Karuthurimagowder - Precise area communicated for the proposed grant of quarry lease - Mining Plan Submitted - Approved - further details called - send regarding.

Ref:
1. Application for Rough Stone and Gravel quarry permission preferred by Thiru. K. Kuppuraj, S/o. Karuthurimagowder dated: 04.10.2024.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The Assistant Director, Geology and Mining, Erode letter R.C.No. 840/Mines/2024 dated 27.11.2025.
4. Mining Plan submitted by Thiru. K. Kuppuraj, S/o. Karuthurimagowder letter dated: -- (Received on 15.12.2025).
5. The Assistant Director, Geology and Mining, Erode letter R.C. No.840/Mines/2024 dated 19.12.2025.

****

In the reference 3rd cited, precise area was communicated to the applicant Thiru. K. Kuppuraj, S/o. Karuthurimagowder for submission of mining plan, for grant of Rough Stone and Gravel quarry lease, over an extent of 2.29.73 hectares, comprising in S.F.No. 49/1, 55/2B (part) and 55/6 (part) of Goundampalayam Village of Gobichettipalayam Taluk, Erode District. As directed the applicant submitted the mining plan and same was approved vide reference 5th cited.

As requested by the applicant, the details of existing, proposed and expired quarries situated within the radius of 500 meters from the subject area are furnished as follows:-

1. Existing quarries:

S. No	Name of the Applicant	S.F.Nos	Extent (Hect)	Lease Details
1.	K. Indirani	55/1A(p), 3(p), 58	2.91.5	R.C. 23891/Mines/2023 dt 09.01.2024 (09.01.2024 to 08.01.2029)
2.	S. Kandasamy	63/1, 64/1A, 3A, 5A	2.66.0	Rc.No.18122/2018/X1 dated 15.09.2023 (15.09.2023 to 14.09.2028)

2. Proposed quarries :

Sl.No	Name of the Applicant	S.F.Nos	Extent (Hect)	Date of application
1.	K. Kuppuraj	49/1, 55/2B (part) and 55/6 (part)	2.29.73	04.10.2024.
2.	T.M. Manoharan and 2 others	49/2, 3, 4A	1.99.0	04.06.2018

3. Lease expired and abandoned quarries:

Sl. No	Name of the Applicant	S.F.Nos	Extent (Hect)	lease Expired date
1.	K.Kuppuraj	52/2C	1.27.0 Hect	02.12.2014 to 01.12.2019
2.	Thiru. S. Kandasamy	70/9 part	5.00.0	09.01.2011 to 08.01.2016
3.	Thiru. M. Seenivasan	70/9 south part	2.00.0	26.04.2010 to 25.04.2020
4.	T.R. Velusamy	38 South Part	2.00.0	26.4.2010 to 25.4.2015
5.	R. Paulraj	38 North part	2.06.0	26.4.2010 to 25.4.2015

19/12/25

Assistant Director,
Geology and Mining,
Erode

19/12/25

19/12/25

MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KOVUNDAMPALAYAM ROUGH STONE AND GRAVEL QUARRY

Assistant Director
Erode

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

Patta Land / Lease Period = Ten Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	: 2.29.73 Ha
S.F.Nos.	: 49/1, 55/2B (Part) AND 55/6 (Part)
VILLAGE	: KOVUNDAMPALAYAM
TALUK	: GOBICHETTIPALAYAM
DISTRICT	: ERODE
STATE	: TAMIL NADU

FOR

APPLICANT

THIRU. K. KUPPURAJ,

S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vanipudhur,
T.N. Palayam, Erode District,
Tamil Nadu State – 638 506.

PREPARED BY

M. SANTHOSHKUMAR, M.Sc.,

Qualified Person

(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Plot No.3, Kattuvattam,
Kothukara Samathi Via, Kannakurichi,
Salem District – 636 008.
Mobile No.: +91 97914 41745.
Email ID: santoshgeo2004@gmail.com.

ABBREVIATIONS

Assistant Director
Erode

- EIA - Environment Impact Assessment.
- EMP - Environment Management Plan.
- SEIAA - State Level Environment Impact Assessment Authority.
- SEAC - State Expert Appraisal Committee
- MoEF&CC - Ministry of Environment, Forest and Climate changes.
- CPCB - Central Pollution control board.
- TNPCB - Tamil Nadu Pollution control board.
- DMS - Director of Mines Safety.
- DGMS - Director of General Mines Safety.
- CRZ - Coastal Regulatory Zone.
- HACA - Hill Area Conservation Authority.
- S.F.No. - Survey Field Number.
- MMR - Metalliferous Mines Regulations.
- MCR - Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules.
- TNMMCR - Tamil Nadu Minor Mineral Concession Rules.
- PPV - Peak Particle Velocity.
- QP - Qualified Person.
- MSL - Mean Sea Level
- AGL - Above Ground Level
- BGL - Below Ground Level
- MT - Metric Tonnes

K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vanipudhur,
T.N. Palayam, Erode District
Tamil Nadu State – 638 506.

Assistant Director
Erode

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kovundampalayam Rough Stone and Gravel Quarry over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State has been prepared by

M. Santhoshkumar, M.Sc.,
Qualified Person

I have entrusted the works to prepare the Mining plan based upon the production requirements to me as per the Mines Acts, Rules, Regulations and Amendments as on date. I request to the Assistant Director, Department of Geology and Mining, Erode District, Tamil Nadu State to make further correspondence regarding the modification of the Mining plan with the said Qualified Person at his following address.

M. Santhoshkumar, M.Sc.,
Plot No.3, Kattuvattam,
Kothukara Samathi Via, Kannakurichi,
Salem District – 636 008.
Mobile No.: +91 97914 41745.

I hereby undertake that all the responsibilities of contents in the Mining plan and if any corrections made in the Mining plan by the 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. If there is any substantial change during operation. I will carried out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant

(K. Kuppuraj)

Place: Erode
Date: 28.11.2025

K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vanipudhur,
T.N. Palayam, Erode District
Tamil Nadu State – 638 506.

Assistant Director
Erode

DECLARATION OF THE APPLICANT

The Mining plan and Progressive Quarry Closure Plan in Respect of Kovundampalayam Rough Stone and Gravel Quarry over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State has been prepared in full consultation with me by.

M. Santhoshkumar, M.Sc.,
Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines and We will take all the responsibility for working the quarry in a manure under Rule 23 of Tamil Nadu Minor Mineral Concession Rules, 1959.

Signature of the Applicant

(K. Kuppuraj)

Place: Erode
Date: 01.12.2025

CERTIFICATE

Certified that I am, **M. Santhoshkumar, M.Sc.,** residing at Plot No.3, Kattuvattam, Kothukara Samathi Via, Kannakurichi, Salem District – 636 008, holding a Master Degree in Geology (M.Sc. Applied Geology) from Annamalai University, Chidambaram and I worked in the field of Mining in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a post graduate degree in Geology granted by a university established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepared this Mining plan and Progressive Quarry Closure Plan in Respect of Kovundampalayam Rough Stone and Gravel Quarry over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State for **Thiru. K. Kuppuraj,** S/o. Karuthirumagowder, residing at No. 16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N. Palayam, Erode District, Tamil Nadu State – 638 506. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

M Santhoshkumar

(M. Santhoshkumar, M.Sc.,)

Place: Salem

Date: 01.12.2025

M. Santhoshkumar, M.Sc.,
Plot No.3, Kattuvattam,
Kothukara Samathi Via, Kannakurichi,
Salem District – 636 008.
Mobile No.: +91 97914 41745.

Assistant Director * Erode * Building

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining plan and Progressive Quarry Closure Plan for Kovundampalayam Rough Stone and Gravel Quarry over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State has been prepared for

Thiru. K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vanipudhur,
T.N. Palayam, Erode District
Tamil Nadu State – 638 506.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Assistant Director, Department of Geology and Mining, Erode District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

It is also certified that information furnished in the above Mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

M. Santhoshkumar

(M. Santhoshkumar, M.Sc.,)

Place: Salem
Date: 01.12.2025

M. Santhoshkumar, M.Sc.,
Plot No.3, Kattuvattam,
Kothukara Samathi Via, Kannakurichi,
Salem District – 636 008.
Mobile No.: +91 97914 41745.

Assistant Director
Erode
Geology and Mining

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining plan and Progressive Quarry Closure Plan for Kovundampalayam Rough Stone and Gravel Quarry over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State has been prepared for

Thiru. K. Kuppuraj,
S/o. Karuthirumagowder,
No. 16, Kamarajar Street,
Kongu Nagar, Vanipudhur,
T.N. Palayam, Erode District
Tamil Nadu State – 638 506.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director of Mines Safety (DMS), No.5, II Street, Block–AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions / exemptions / relaxations and approvals.

It is also certified that information furnished in the Mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

M. Santhoshkumar

(M. Santhoshkumar, M.Sc.,)

Place: Salem
Date: 01.12.2025

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Assistant Director
Erode
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Assistant Director
Erode

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KOVUNDAMPALAYAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

Assistant Director Erode

INTRODUCTION AND EXECUTIVE SUMMARY:

The applicant **Thiru. K. Kuppuraj,** S/o. Karuthirumagowder, residing at No. 16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N. Palayam, Erode District, Tamil Nadu State – 638 506 has entrust and given consent to preparation of Mining plan and Progressive Mine Closure Plan as per the provisions of Mines Act, Rules, Regulations and as amended till date.

The applicant has applied for quarrying Rough stone and Gravel over an extent 2.29.73 Hectares of Patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District for the period of Ten years under rule 19 (1), 20 and 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was examined, Scrutinized, Inspected and processed by the Assistant Director, Department of Geology and Mining, Erode District and passed a precise area communication letter vide **Rc.No.840/Mines/2024, Dated: 27.11.2025** under rule 19 (1), 20 and 22 of Tamil Nadu Minor Mineral Concession Rules, 1959 for submission of Draft Mining plan and obtain approval within 90 days under Rules 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 the applicant should obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu to quarrying Rough stone and Gravel for the period of **Ten years** with following conditions (Refer Annexure No. I):

General Condition:

1. A safety distance of 7.5 meters should be provided to the adjacent patta lands while quarrying operation.

Specific Condition:

1. A safety distance of 10m should be provided to the Cart track situated on the western Side of the lease applied area.
2. A 51 m safety distance Should be maintained from the Kopu Canal on the west side of the lease area, quarrying operation shall be executed without causing any disturbance to the Canal.
3. A Kopu Canal is situated 51m Western side of the lease area, quarrying operation shall be executed without causing any disturbance to the canal.
4. In the letter No. 2815/2025/V dated 01.08.2025 from the Deputy Director, Sathyamangalam Tiger Reserve, Sathyamangalam Forest Division, it has been stated

that, if permission is granted for the Rough stone quarry lease area, the following conditions must be strictly followed.

- Electrical fences must be installed around the proposed quarry lease area in accordance with the Tamil Nadu Electricity (Registration and Regulation) Rules, 2023.
- While transporting quarry materials, the vehicles must be properly covered to prevent dust from escaping.
- Quarrying operations shall not be permitted within a 1260 m buffer zone between the forest area and the proposed lease applied area.
- Adequate protective measures must be fenced around the quarry area to prevent entry of wild animals.

This Mining Plan along with Progressive quarry closure Plan is prepared in full consent with **Thiru. K. Kuppuraj,** S/o. Karuthirumagowder, residing at No. 16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N. Palayam, Erode District, Tamil Nadu State – 638 506 in respect of Kovundampalayam Rough stone and Gravel quarry over an extent 2.29.73 Hectares of patta lands in S.F.Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State under amended Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 with obtained full consent as per the application and Production schedule in preparation of Mining plan as per the provisions of Mines Act, Rules, Regulations as on date.

The Mining plan has been prepared after carrying the field investigation, geological survey, collection of Primary & secondary data, geological attributes, environmental setting and estimated the Resources & Reserves, depth of mining as identified in the field with best our knowledge and experience without any geological exploration. This present mining plan is prepared by considering the Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent amendments.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal is require prior environmental clearance. As per amendment in EIA Notification 2006 vide S.O. 1886(E), Dated:20.04.2022 "All mining lease area in respect of minor mineral mining leases and ≤ 250 ha mining lease area in respect of major mineral mining lease other than coal" would be treated as category B and will be considered by the state notified by Ministry of Environment, Forest and Climate Change as prescribed procedure under EIA notification 2006.

The field investigation was carried out by the Qualified Person and his Team as on 29.11.2025.

Short Notes of Mining plan:

Assistant Director * Erode *

a. Village Panchayat - Kovundampalayam

b. Panchayat Union - Thookanaickenpalayam

c. Total extent of the lease applied area is 2.29.73 Ha.

d. Topography of the area - Plain Topography.

e. The Estimated Reserves and Resources are given table below:

Table – 1

Description	Rough stone (MT)	Gravel (MT)
Estimated Geological Resources	34,74,666	91,892
Tentative Mineable Reserves	11,16,569	71,604
Proposed production for 1st Five Years	5,75,369	71,604
Proposed production for 2nd Five Years	5,38,200	-
Annual Peak Production	1,47,263	23,868

f. Proposed Depth of mining = 57m (2m Gravel + 55m Rough Stone)

g. Lease Period = Ten Years

h. Mining Plan period = Ten Years

i. It is a fresh lease applied area, at present the area is virgin. Hence, no existing pit.

j. Method of mining / level of mechanization.

Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting with NONEL initiation.

k. Type of machineries proposed in the quarrying operation is given below.

Excavators attached with 0.90m³ Bucket and rock breaker.

Jack hammer, Compressor (Diesel drive) (4 Jack hammer capacity)

Tippers.

l. No trees will be uprooted due to this quarry operation.

m. The approach road from the main road to quarry will be constructed and the same will be maintain in good condition for the haulage of quarry materials and machineries.

n. There is No Export of this Rough stone and Gravel.

o. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance and places of worships is marked and enclosed as Plate Nos. IA & IB.

p. The lease applied area is bounded by sixteen corners; the corners are designated as 1 to 16 clock-wise from the Southwestern corner and Co-ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.

q. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and III-A.

r. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,

i) Interstate Boundary,

ii) Critically polluted areas as identified by CPCB,

iii) Notified Eco sensitive areas.

s. The Sathiyamanagalam Tiger Reserve is Situated at 1.2km on the Northern side of the lease applied area.

t. There is no waste anticipated during entire quarry operation. Hence, waste dump is not proposed in the lease applied area.

u. Around 30 employees are proposed to deploying the quarrying operation.

v. Total Cost of the project is about **Rs. 1,46,21,000/-**.

Assistant Director Erode

1.0 GENERAL INFORMATION

1.1 Name of the Applicant with Address:

Name	:	**Thiru. K. Kuppuraj,** S/o. Karuthirumagowder
Address	:	No. 16, Kamarajar Street, Kongu Nagar, Vanipudhur, T.N. Palayam, Erode District
State with PIN Code	:	Tamil Nadu State – 638 506
Mobile No.	:	+91 94886 35456
Aadhaar No.	:	5245 8270 4798
E-mail ID	:	bharath blue metal@gmail.com

1.2 Status of the Applicant (Individual / Company / Firm):

The applicant is Individual.

1.3 Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel.

1.4 Period of permission / lease to be granted:

Ten Years as mentioned in Precise Area Communication letter.

1.5 Name and address of the Qualified Person who preparing the Mining Plan:

Name	:	**M. Santhoshkumar, M.Sc.,** Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address	:	Plot No.3, Kattuvattam, Kothukara Samathi Via, Kannakurichi, Salem District,
State with PIN Code	:	Tamil Nadu – 636 008.
Mobile	:	+91 97914 41745
Email	:	santoshgeo2004@gmail.com

1.6 Name and Address of the Prospecting Agency:

State Geology and Mining Department, Government of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed regional exploration studies and geological mapping in Tamil Nadu. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area and the Rough stone is clearly inferred from the outcrop and nearby existing quarry. No detailed Exploration has carried out.

1.7 Reference no. Date of grant/ Precise Area Communication received form the State Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Erode District vide **Re.No.840/Mines/2024, Dated: 27.11.2025** (Refer Annexure No. I) and was given to us for the preparation of mining plan to meet out the applicant's production schedule.

Assistant Director Erode

2.0 LOCATION AND ACCESSIBILITY:

2.1. Details of the area with location map:

The lease applied area is located at 41.7km Northwestern side of Erode town and 9.4km Northwestern side of Gobichettipalayam town and 1.3km Northwestern side of Kovundampalayam Village.

	33km		8km		1.3km	
Erode	→	Gobichettipalayam	→	Kovundampalayam	→	Lease applied area
	Northwest		Northwest		Northwest	

Location Map of the Lease Applied Area

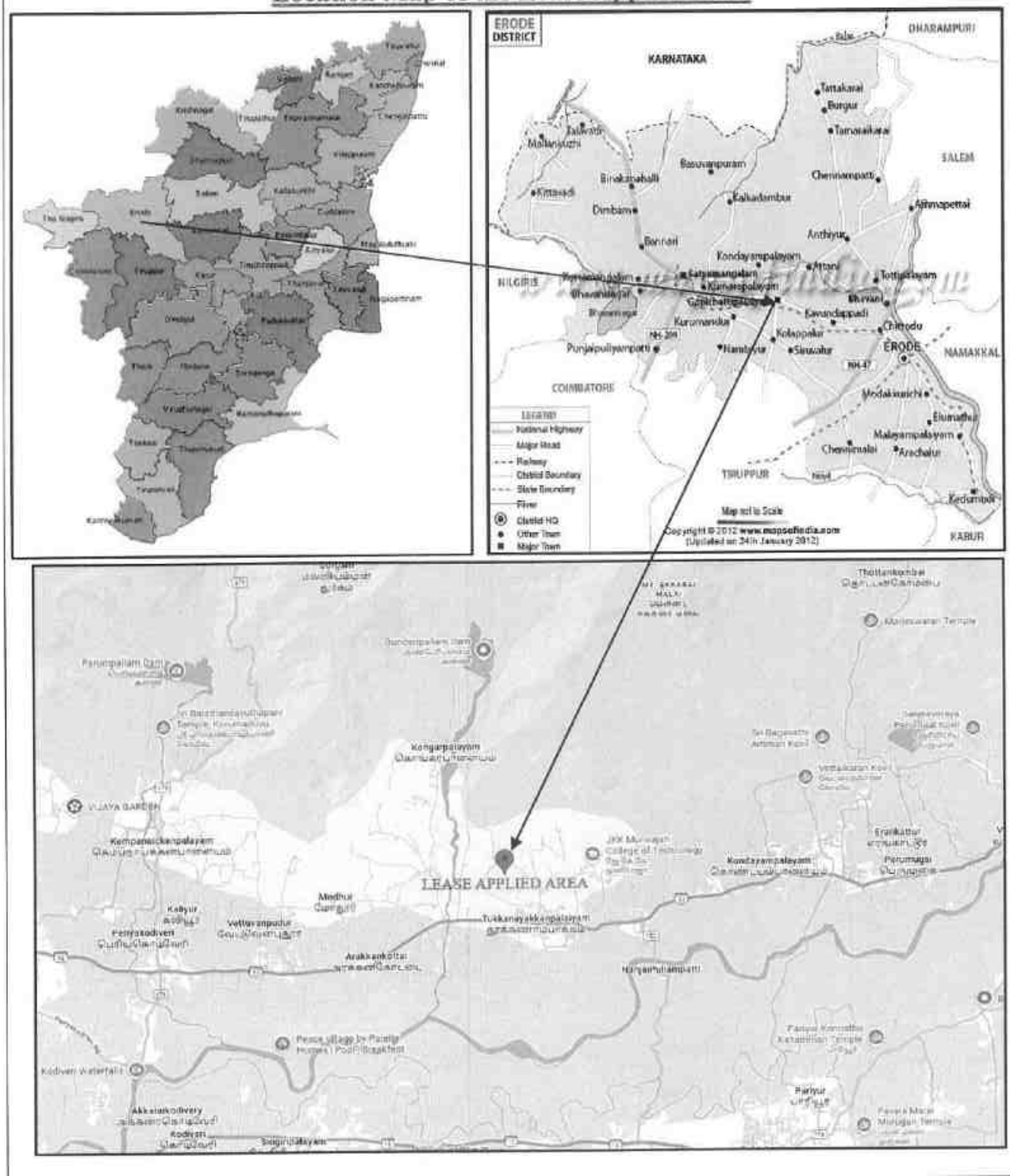


Table – 2

District	Taluk	Village	S.F. No.	Area (Ha.)	Patta No.
Erode	Gobichettipalayam	Kovundampalayam	49/1	1.52.50	7
			55/2B (P)	0.44.10	235
			55/6 (P)	0.33.13	
			Total	**2.29.73**	-

Source: As per the FMB and 'A' register record furnished by the Company.

2.2. Classification of the area (Ryotwari/ Poramboke / others):

The applied area is a patta land, classified as punsei (Refer Annexure No. IV to VI).

2.3. Ownership / Occupancy of the applied area (surface right):

It is patta lands, registered in the name of applicant (Thiru. K. Kuppuraj) vide Patta Nos. 7 and 235 (Refer Annexure No. IV to VI).

2.4. Existence of public road / Railway line, if any nearby and approximate distance:

The approach road will be construct on the eastern side, which is connects to the Village Road located at 380m on the Eastern side of the lease applied area.

Road access is available from the quarry to National Highway, no towns are enrooted hence the traffic density is not much more due to the transportation of Rough stone and Gravel.

The approach road from the quarry will be constructed and the same has been utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Salem – Coimbatore which is located at 38.6km on the Southeastern side of the area as per the GSI Toposheet and Google Map.

2.5. Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **58E/06** Latitude between: **11°31'00.66"N to 11°31'07.06"N** and Longitude between: **77°22'34.01"E to 77°22'39.12"E** on WGS datum-1984 as per the GSI Toposheet (Refer Plate Nos. I to II).

PART – A

3.0 GEOLOGY AND EXPLORATION:

3.1 Brief description of the Topography and general Geology of the area (with plans):

The lease applied area is situated in Plain topography. The gradient of the area is gentle towards Eastern side and altitude of the area is 264m above from MSL. The area is covered by quaternary formation of Gravel having an average thickness of 2m and followed by Massive Charnockite which is clearly inferred from the outcrops and nearby quarry pits.

The Water table in the area is 130m below from general ground profile. The Normal annual rainfall is about 703mm.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with accumulation of recent quaternary formation. On regional scale of the Charnockite body is N45°E – S45°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:

AGE		FORMATION
Recent	-	Quaternary formation (Gravel)
---------Unconformity----------		
Archaean	-	Charnockite
		Peninsular Gneissic complex

3.2 Details of exploration already carried out if any:

State Geology and Mining Department, Govt. of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Erode District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone is clearly inferred from the nearby existing quarry pit.

3.3 Estimation of Reserves:

a) Geological Resources with geological sections on a scale of 1:1000 / 1:2000

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally two sections have been drawn, one section drawn along the length wise as (X-Y) and another one cross section drawn width wise as (A-B) Width wise to cover the maximum area considered for lease upto a depth of 57m.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone and Gravel deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No. III). As the sale of Rough stone and Gravel are in terms of Metric Tonnes and the estimated bulk density of Rough stone is 2.75 and 2 for Gravel. No Exploration has been carried out.

Estimation of Geological Resources (Plate No. III):

The Geological Resources of Rough stone and Gravel are estimated upto a depth of **57m [(2m Gravel + 55m Rough stone)** below from the ground profile]. The Geological resources are estimated by area method and the total estimated geological resources are given table below:

TABLE – 3

GEOLOGICAL RESOURCES					
Area m^2	Depth (m)	ROM (m^3)	Bulk Density	Geological Resources of Rough stone in (MT)100%	Gravel (MT)
22973	2	45946	2	-	91892
	55	1263515	2.75	3474666	-
Total		**1309461**	-	**3474666**	**91892**

Estimated Geological Resources of Rough Stone : **34,74,666 MT**

Estimated Gravel : **91,892 MT**

Geological Resources has been estimated based on the physical observation and filed investigation data.

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Tentative Mineable Reserves:

The tentative mineable reserves are estimated after leaving safety distance and Bench loss (Refer Plate No. III). The estimated reserves are given table below:

TABLE – 4

MINEABLE RESERVE									
Section	**Bench**	**Length (m)**	**Width (m)**	**Depth (m)**	**Rough Stone @ (100%) Recovery (m^3)**	**Gravel (m^3)**	**Bulk Density**	**Rough Stone @ (100%) Recovery (MT)**	**Gravel (MT)**
XY-AB	i	153	117	2	-	35802	2	-	71604
	ii	151	115	5	86825	-	2.75	238769	-
	iii	140	105	5	73500	-	2.75	202125	-
	iv	129	95	5	61275	-	2.75	168506	-
	v	119	85	5	50575	-	2.75	139081	-
	vi	108	75	5	40500	-	2.75	111375	-
	vii	97	65	5	31525	-	2.75	86694	-
	viii	87	55	5	23925	-	2.75	65794	-
	ix	76	45	5	17100	-	2.75	47025	-
	x	65	34	5	11050	-	2.75	30387	-
	xi	55	24	5	6600	-	2.75	18150	-
	xii	45	14	5	3150	-	2.75	8663	-
Total					**406025**	**35802**	-	**1116569**	**71604**

Tentative Mineable Reserves of Rough Stone : **11,16,569 MT**

Estimated Gravel : **71,604 MT**

The Tentative mineable reserves have been estimated as **11,16,569 MT** of Rough stone and **71,604 MT** of Gravel at the rate of 100% recovery upto a depth of 57m below from the ground profile for entire life of quarry.

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4.0 MINING:

4.1 Method of mining (opencast / underground):

Open cast Mechanized Mining is being carried out with 5.0-meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director of Mines Safety. If the lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

4.2 Mode of working (mechanized/ manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by shallow jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

4.3 Proposed Bench Height and Width:

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height. After obtaining relaxation as per 106 2(b) of Metalliferous Mines Regulations, 1961 from the DMS, the realignment of benches will be carried out.

4.4 Indicate sthe overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The Composite year wise Development and production plan and sections indicating the Pit lay out, Greenbelt development are shown in Plate No. III and III-A.

Year wise Development and Production

TABLE – 5

YEAR WISE DEVELOPMENT AND PRODUCTION FOR FIRST FIVE YEARS

Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Rough Stone Recovery (m^3)	Gravel (m^3)	Bulk Density	Rough Stone Recovery (MT)	Gravel (MT)
I	XY-AB	i	51	117	2	-	11934	2	-	23868
		ii	37	115	5	21275	-	2.75	58506	-
		iii	26	105	5	13650	-	2.75	37538	-
		iv	10	95	5	4750	-	2.75	13062	-
Total						**39675**	**11934**		**109106**	**23868**
II	XY-AB	i	51	117	2	-	11934	2	-	23868
		ii	34	115	5	19550	-	2.75	53763	-
		iii	34	105	5	17850	-	2.75	49088	-
		iv	34	95	5	16150	-	2.75	44412	-
Total						**53550**	**11934**		**147263**	**23868**
III	XY-AB	i	51	117	2	-	11934	2	-	23868
		ii	25	115	5	14375	-	2.75	39531	-
		iii	25	105	5	13125	-	2.75	36094	-
		iv	25	95	5	11875	-	2.75	32656	-
Total						**39375**	**11934**		**108281**	**23868**
IV	XY-AB	iv	5	95	5	2375	-	2.75	6531	-
		v	64	85	5	27200	-	2.75	74800	-
		vi	23	75	5	8625	-	2.75	23719	-
Total						**38200**			**105050**	
V	XY-AB	vi	30	75	5	11250	-	2.75	30938	-
		vii	42	65	5	13650	-	2.75	37537	-
		viii	32	55	5	8800	-	2.75	24200	-
		ix	21	45	5	4725	-	2.75	12994	-
Total						**38425**			**105669**	
Grand Total						**209225**	**35802**		**575369**	**71604**

The Recoverable reserves have been estimated as **5,75,369 MT** of Rough stone at 100% recovery for first five years, **71,604MT** of Gravel for first three years upto a depth of 42m below from the ground profile (Refer Plate No. III).

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TABLE – 5A

YEAR WISE DEVELOPMENT AND PRODUCTION FOR SECOND FIVE YEARS

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rough Stone Recovery (m^3)	Bulk Density	Rough Stone Recovery (MT)
VI	XY-AB	ii	55	115	5	31625	2.75	86969
		iii	15	105	5	7875	2.75	21656
Total						**39500**	-	**108625**
VII	XY-AB	iii	40	105	5	21000	2.75	57750
		iv	38	95	5	18050	2.75	49638
Total						**39050**	-	**107388**
VIII	XY-AB	iv	17	95	5	8075	2.75	22206
		v	55	85	5	23375	2.75	64281
		vi	21	75	5	7875	2.75	21656
Total						**39325**	-	**108143**
IX	XY-AB	vi	34	75	5	12750	2.75	35063
		vii	55	65	5	17875	2.75	46156
		viii	32	55	5	8800	2.75	24200
Total						**39425**	-	**105419**
X	XY-AB	viii	23	55	5	6325	2.75	17394
		ix	55	45	5	12375	2.75	34031
		x	65	34	5	11050	2.75	30388
		xi	55	24	5	6600	2.75	18150
		xii	45	14	5	3150	2.75	8662
Total						**39500**	-	**108625**
Grand Total						**196800**	-	**538200**

The Recoverable reserves have been estimated as **5,38,200MT** of Rough stone only at 100% recovery to a depth of **57m** for remaining five years of the lease period (Refer Plate No. III-A).

The Recoverable reserves have been estimated as **11,16,569MT** of Rough stone at the rate of 100% recovery and **71,604 MT** of Gravel for a period of Ten years upto a depth of **57m** below from the ground profile.

The Annual peak production capacity in the quarry is 1,47,263 MT of Rough stone and 23,868 MT of Gravel and the proposed production schedule is arrived as per applicant's requirement and the EIA & EMP will be prepared an annual peak production.

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The Applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of Director of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	30 Tonns (approximate)
Total Number of Working days	=	300 days per year
Annual Peak production capacity	=	1,47,263 MT
Hence Total lorry loads per day	=	1,47,263 /30 MT
	=	4,909 lorry loads
	=	4,909 /300 Days
Rough Stone (Maximum)	=	**16 - 17** lorry loads per day.
Gravel Peak production	=	23,868 MT
Hence total Lorry loads per day	=	23,868 /30 MT
	=	796 Lorry loads
	=	796 /300 days
Gravel (Maximum)	=	**2 – 3** Lorry loads per day.

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 P.M. lunch break).

4.5 Machineries to be used:

For Mining:

The following machineries are utilized for the development and production work at this quarry.

TABLE – 6

I. DRILLING MACHINE:

S. No.	Type	Nos.	Dia Hole mm	Size Capacity	Motive power
1	Jack-Hammer	7	32	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S. No.	Type	Nos.	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos.	Capacity	Motive Power
1	Tippers	2	30 tonnes	Diesel Drive
2	Water Sprinkling Tanker	1	6,000 litres	Diesel Drive

4.6 Brief note on conceptual mining plan for the entire lease period based on the geological, mining and environmental considerations:

Conceptual mining plan is prepared with an object of long-term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

As the applicant has applied quarry lease for Ten years, the ultimate pit limit (dimension) at the end of this lease period is given below:

TABLE – 7

Length (m)	Width (m)	Depth (m) (Max.)
153	117	57m

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF & CC Norms. Please refer Plate Nos. III and V. As per the NGT orders the applicant is directed to plant 500 tree saplings per hectares along the quarry site either at the regular or the phased manner by planting native species.

There is no waste anticipated during the entire life of quarry. Hence, there is no proposal for backfilling. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV and V).

5.0 BLASTING:

5.1 Blasting pattern:

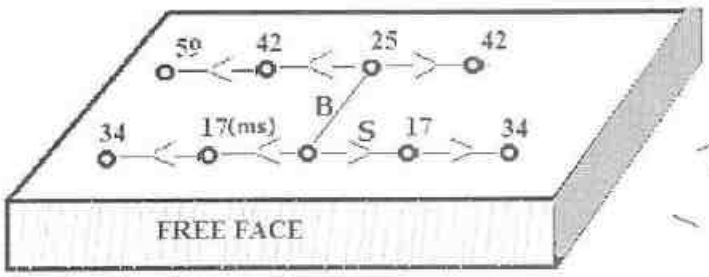
Selection of drilling pattern for blasting varies with the type and size of the drills used, depth of hole, kind of rock, quantity, rapidity of the explosives and amount of steaming. The quarrying operation is proposed to carried out with conventional method of mining using shallow Jack hammer drilling and mild blasting with NONEL initiation of shattering effect for loosen the Rough stone. NONEL initiation provides reasonably good solution to fly rock problem. The main objectives of NONEL Blasting are to reduce the ground vibration, noise, fly rocks generated due to blasting operations. The overall cost of blasting in NONEL is very less compared to electrical blasting and hence it optimizes the cost of blasting.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Spacing between holes	:	1.0m
Burden for hole	:	0.75m
Diameter of hole	:	32-35mm
Pattern of hole	:	Staggered pattern
Inclination of holes	:	80°from horizontal
Use of delay detonators	:	NONEL
Hole to Hole	:	17 milli second delay (ms)
Row to Row	:	25 milli second delay (ms)

Staggered Pattern of Blasting Design

NONEL DELAY PATTERN



Spacing (S)	=	**1.0m**
Burden (B)	=	**0.75m**
Depth of the hole	=	**1.5m**
No. of holes proposed per day (Peak Production)	=	**164 Holes**

5.2 Type of explosives to be used:

25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or secondary blasting is proposed. NONEL blasting and muffle blasting may be adopted after permission from DGMS.

5.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages, Controlled blasting measures by NONEL initiation is being adopt for minimizing ground vibration and fly rock.

Hand jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give heaving effect in rough stone for easy excavation and to control fly rock.

NONEL Delay detonators:

NONEL blasting permits for bottom initiation and lesser charge per delay.

The major advantages of NONEL blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day (As per Peak production capacity):

The Hydraulic excavators are attached with rock breakers for breaking the rock mass to reduce the blasting and explosive usage also to avoid secondary blasting. Some area in Tamil Nadu state consists very hard and compact rock formation. The requirement of explosive may vary for exploitation of this type of hard rock formation with blasting which is depend upon the site conditions. Since, the daily requirement of explosives for blasting will be estimated as approximate only. Anyhow, as per day's production schedule the approximately blasting program proposed as given below.

Annual Peak production	= 1,47,263 MT
No of Holes	= 164 Holes
Yield	= 492 Tons
Powder factor	= 6 Tons/ Kg of explosives
Maximum explosive required	= 82 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.M. (whenever required)

Anticipated theoretical calculation of PPV

The empirical equation for assessment of peak particle velocity (PPV) is:

$V = K [R/Q^{0.5}]^{-B}$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

PREDICTED PPV VALUES DUE TO BLASTING

Table – 8

Maximum Charge per day (kg)	Number of Round Blast per day	Maximum Charge per Round (kg)	Number of holes blasted per round	Number of holes blasted per day	Maximum Charge blast at a time by NONEL (kg)	Nearest Infrastructure (m)	PPV (mm/s)
82	1	82	164	164	1 (2 Holes)	330	1.586

From the above table, the charge per blast of 82kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Anyhow, the applicant ensures that carry out the blasting under the supervision of competent qualified statutory personnel employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

5.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency as approved by Petroleum and Explosives Safety Organization (PESO) to carry out the blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The agency will identify the appropriate type of explosive in which the quantity and quality will be decided based on the daily requirement. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After completion of Blasting the explosive Agency will take it out back the remaining quantity of Explosives. The blasting and quarrying operation is advised to handle by competent qualified statutory personnel of the applicant approved by the DGMS and competent authorities and he will maintain the records of Explosives as per the Indian Explosives Act, Mines Act and Environment Protection Act. The primary blasting will be carried out after obtained necessary permission from DGMS after of the quarry lease.

6.0 MINE DRAINAGE:

6.1 Depth of water table (based on nearby wells and water bodies):

The area is a flat terrain topography; since the lease applied area consist dendritic drainage pattern. The Water Table in the area is about 130m which is observed from the nearby existing private boreholes. The lease area is fully covered by Massive Charnockite. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt. Anyhow, safety bund constructed also Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

TABLE – 9

Type	Distance & Direction	Location
Bore Well	260m Northeastern side	11°31'8.95"N 77°22'46.40"E

6.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Greenbelt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE:

There is no waste anticipated during entire life of the quarry hence, disposal of waste does not arise.

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8.0 USE OF THE MINERAL:

The excavated rough stone (100%) will be directly loaded into Tippers as raw form to the needy nearby crushing unit to making Road metals and construction materials. The quarried out gravel will be directly loaded into Tippers for filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fee to the Government.

9.0 OTHERS:

9.1 Other Permanent Structure (also shown in the map)

TABLE – 10

S.No.	Description - Nearest	Particulars	Aerial Distance & Direction
1	National Highway	(NH-948) Sathiyamangalam – Coimbatore	14.2 km – SW
2	State Highways	(SH-82) Sathiyamangalam – Bhavani	1 km – South
3	Railway station	Vijayamangalam	38.8 km – SE
4	Airport	Coimbatore	65 km – SW
5	Town	Kovundampalayam	1.3 km – SE
6	Government School	Thukkanayakkanpalayam– Higher Sec School	910m – SE
7	Government Hospital	Sathiyamangalam – Govt. Hospital	12.7km – SW
8	Habitation	330m – SE	
9	Reserved Forest	Guttiyalattur R.F. – 1.1 km – North	
10	Water Bodies	Odai – 55m - Western.	
11	Defence Installation/ Historical Monuments/ Archaeological	Nil within 500m radius.	
12	Interstate Boundary	Around 27.3km – NE (Karnataka State border)	
13	Critically Polluted areas identified by the CPCB	Around 77 km – SW (Kurichi SIDCO, Coimbatore)	
14	Protected areas Notified under wildlife (Protection) Act, 1972.	Around 1.2km – North (Sathiyamangalam Tiger Reserve).	
15	Applicability of CRZ, Notification 2011 as amended.	Not Applicable	
16	Applicability of Hill Area Conservation Authority (HACA) Clearance.	Not Applicable	

17	Housing area, EB line (HT & LT Line)	There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.
18	Boundaries of the permitted area.	The boundaries of the permitted areas are as follows (Refer Plate No. II): North - S.F.Nos. 56 and 48 East - S.F.No. 49/2, 49/3, 49/4A and 49/4B South - S.F.No. 50 and 51 West - S.F.No. 55/6 (P), 55/5B and 55/2B (P)
19	Adjacent Patta lands / Govt. Land	(Refer Plate No. II):

Direction	Classification	Safety Distance
North	Patta land	7.5m
East	Patta land	7.5m
South	Patta land	7.5m
West	Patta land	7.5m

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TABLE – 11

STRUCTURE WITHIN 100m Number of Structures - Nil.					
Numbers of Structure	**Type of Structure**	**Usage Purpose**	**Commercial / industry/ residential/ farm house/ Govt. building**	**Occupants of Building/ Structure**	**Remarks**
Nil					
STRUCTURE WITHIN 100 -200m Number of Structures – 4					
Structure Numbers	**Type of Structure**	**Usage Purpose**	**Commercial / industry / residential / farm house / Govt. building**	**Occupants of Building/ Structure**	**Remarks**
1	Shed	Labour shed	Non residential	No resident	Nil
3	Shed	Storage of Agriculture goods	Farm House	No resident	-
STRUCTURE WITHIN 200 -300m Number of Structures – 3					
Structure Numbers	**Type of Structure**	**Usage Purpose**	**Commercial / industry / residential / farm house / Govt. building**	**Occupants of Building/ Structure**	**Remarks**
1	Shed	Labour shed	Non residential	No resident	Nil
2	Shed	Storage of Agriculture goods	Farm House	No resident	-

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9.2 Employment potential (skilled, semi-skilled, un skilled):

TABLE – 12

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Mine manager	-	1	1
Geologist	-	1	1
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
b) Skilled labour			
Excavator – Operator	-	1	1
Tipper Driver	-	2	2
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	14	14
c) Unskilled			
Security	-	1	1
Labour & Helper	-	3	3
Co-operator and Cleaner	-	4	4
Total	-	**30**	**30**

The proposed output per man shift:

TABLE – 12

Annual Peak Production of Rough Stone		1,47,263 MT
No. of days likely to be worked		300 days
Average production per day		491 MT
OMS =	Average Production per day / Average employment per day	491 / 30 = 16.3 MT

The above manpower is adequate 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. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.3 Welfare Measures:

a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Kovundampalayam which is located about 1.3km on the Southeastern side of the lease applied area.

b) Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure within the applied area and it will be maintained periodically.

c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the company's vehicle. Hospital is available in Sathiyamangalam located at 12.7km on the Southwestern side of the area.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant's own cost.

e) Precautionary safety measures to the labourers:



- Helmets,
- Reflector Jackets
- Dust mask
- Mine Goggles,
- Ear plugs,
- Ear muffs
- Safety Shoes

All personnel protective equipment as per the DGMS standard will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

10.0 MINERAL PROCESSING:

No mineral processing / beneficiation involved.

PART – B

11.0 ENVIRONMENT MANAGEMENT PLAN:

The EMP is prepared based on the Mines act, Rules & amendment from by state & central government. If the SEIAA/SEAC instructed the modification and alter the EMP the outcome of their recon would be final and the applicant is instructed to follow the EIA / EMP for its compliance as per the CPCB / TNPCB Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	i. Topography of the area will change due to mining activity.	i. Backfilling is the only source of mitigation measure for topographical changes, but no waste will be anticipated during entire life of this Rough stone and Gravel quarry. Hence, backfilling is not proposed. ii. The Mining benches will not exceed beyond the approved height and width. iii. At the end of life of mine, the pit will be allowed to collect the seepage and rain water and the water storage will be kept as temporary reservoir for charging the nearby wells also the water utilized for greenbelt development purpose.
	ii. Soil quality on surrounding land environment will impact due to; a) Dust propagation during quarry operation like drilling, blasting, loading, unloading and movement of men, Vehicle and machineries. b) Vehicular and machineries emissions and spillage of oil and grease. c) Propagation of foreign material like polythene bag or undecomposed waste materials dumping.	i. Regular water sprinkling on dust prone area like haul road and other active area to arrest the dust generation. ii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation. iii. Greenbelt will be developed in the safety barrier with thick long leave plants to arrest the fugitive dust and vehicular emissions propagation on surrounding land environment. iv. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested for pollutant concentrations.

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		v. Oiling and greasing will be managed in respective places at vehicle maintenance shed and oil tray will be use to collect the spillage during maintenance and the same will be disposed in manner. vi. Non-degradable foreign material like polythene bag, Plastic water containers, cool drink containers and ill managed dumping will not be allowed within quarry premises.
Water Environment	Surface Mining can have direct impact on physico-chemical characteristics of the local drainage and groundwater resources. The detrimental effects, if any, to water resources resulting from surface mining are caused by following: i. Flow direction of Surface run off water will interrupting during rainy season due to modification of topography. ii. Surface water bodies will be contaminated due to dust propagation, machinery and vehicular emissions.	i. Garland drain with check dam will be constructed all along the boundary barrier to prevent surface run off rain water entering into the pit. ii. Green belt will be developed in the safety barrier with thick long leave plants to prevent dust and vehicular emissions propagation during transportation. iii. Further mining will be completely stopped during the monsoon for free flow of surface run off and allowing natural recharge of groundwater. iv. No wastewater will be generated from the quarry activity. Proper drainage will be Maintained to eliminate inundation of working pit during rain from run-off water. v. The pit water due to rain and seepage will be utilized for water sprinkling on haul Roads and plantations. vi. Septic tanks and soak pits will be provided for the disposal of domestic/ washroom effluents, the same will be disposed in manner.
Air Environment	In surface mining operations, the source of air pollution may cause deterioration of air quality due to; a) The fugitive dust emissions from drilling/blasting, scooping, loading-	i. Regular water sprinkling on haul road and dust prone area to arrest the dust generation. ii. Greenbelt will be developed in the safety barrier with thick long leaves plants to arrest the fugitive dust and vehicular emissions.

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	unloading operation of extracted mineral and its transportation. Drilling/blasting and loading of quarry material would be associated with the fugitive dust emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to the road side. Another source of air pollution would be emission from the drilling machinery and excavators/Tippers vehicles to be used for loading.	iii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation. iv. Quarry material will be handled under wet condition during scooping, loading and unloading to minimize the dust propagation, besides loaded materials are covered by Tarpaulin until to reaches its destination. v. Provision of dust filters/ Nose mask to workers working at dust prone areas. vi. Vehicular emission as a result of combustion of diesel generates particulate matter (PM_{10} & $PM_{2.5}$), Nitrogen oxides and Sulphur dioxide (NO_2 & SO_2). High quality diesel will be used in the motor vehicles to control these pollutants. vii. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested the pollutant concentrations. viii. CPCB Prescribed emission standards for the vehicles would be followed.
Noise Environment	In the present mining activity for building material, noise will be generated from drilling machinery, blasting and vehicular movement. Noise level in the working environment is compared with the standards prescribed by Central Pollution Control Board as adopted and enforced by the Govt. of India through Noise Pollution (Regulation and Control) Rules, 2000.	i. Selection of innovative low – noise equipments for the quarry operation. ii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations. iii. To ensure minimum vibrations and noise due to blasting, NONEL in continuous sequence is proposed. iv. Personnel Protective Equipment (PPE) like earmuffs and earplugs shall be provided to the employees whose in critical operation like drilling, blasting and excavation as occupational safety measures.

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		v. Proper maintenance done with regular interval by the Oiling and greasing for the machineries and vehicles to control the Source of noise during operation and transportation. vi. Regular and proper maintenance of machinery and transportation vehicles shall be ensured. vii. Transporting vehicles are enforcing the speed limits of 25km/hour within quarry area and not exceed 40km per hour from quarry to destination to reduce Noise and vibration.
Biological Environment	The area having main floras are Neem, Prosopis juliflora, Cocos nucifera, Albizia amara, Pongamia pinnata, Calotropis, Bushes, and shrubs. No plants of botanical interest or animals of zoological interest recorded within 500m radius. The anticipated impacts on biological environment as follows: i. Public and cattle may cause serious injury by inadvertent entry to the pit. ii. Natural habitats of the existing faunas will change due to the noise and vibration during blasting and quarry operation. iii. Diversity of living insects and faunas due to vibration. iv. The mining activities can also disrupt the existing ecological due to noise by drilling, blasting and operation.	i. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. ii. The natural habitats of the existing flora and fauna will not be disturbed. iii. Fruit bearing trees will be planted to survive the existing birds and faunas. iv. No clearance of vegetation will be done during the entire mining operations. v. Green belt development as acoustic barrier, Low noise equipment and machineries for drilling and operation and Controlled blasting by NONEL is reduce the noise within permissible limit to sustain the existing ecology. vi. Regular Water sprinkling on haul roads would be reduces the dust propagation, thus avoiding damage to the crops and plants.

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	v. Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, growth ratio and agriculture productivity.	
Socio – Economic Environment	Any activity during mining will have adverse impact on Environment, careful mitigation measures are proposed to balance the impact on the existing environment and the applicant is always instruct to carry out safe, sustainable, eco-friendly mining operations at all times. The following positive impact on the society due to this mining activity. i. It is proposed to provide employment to about 30 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project. ii. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities. iii. Improvement of Physical structure like Road Transport facilities, Communications, Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine. iv. The continuation of opportunity for the employments, the nearby villages, living peoples and their life style would be improved. v. The applicant is advised to invest the CER cost (@ 2% from the total Project Cost) to develop the local Panchayat.	i. Preference employment will be given to the local community. This quarrying activity will also indirectly provide employment to the local community by the way of petty shops, hotels, etc. ii. The CER activity proposed by the applicant will enhance the requirement of the local community. iii. The improvement of physical structure like medical and social benefits of local community will get enhanced. iv. There will be a positive enhancement of lifestyle of the nearby village.

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11.1 Environmental impact assessment statement describing impact of mining on the next Ten years:

In the mining plan proposed for a small production of Rough stone and gravel. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B Category mine. The compliance monitoring will be carried out for every six months as prescribed by the MOEF & CC and with state concerned authorities.

11.2 Proposal for waste management:

There is no waste anticipated in this Rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%). The maintenance of machineries & fuelling will be carried out as per the TNPCB Norms and the waste will be disposed in the Norms.

11.3 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 57m of the area has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste anticipated during entire life of the quarry hence, backfilling is not proposed. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and will be utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV and V).

11.4 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety distance along the boundary barrier to be proposed for greenbelt development by planting 1300 tree saplings (Area 4,083m^2) also the applicant proposed to plant 600 tree saplings in the quarried out top benches and 800 saplings on haul road and maintain at least 2,160 plants at the end of the lease period at a survival rate of 80%. Manuring and tree guards will be provided by the applicant to safeguard and maintain the plants. The plantation will be carried out based on the output Environmental Clearance and the recommended species will be planted in a phased manner as described below (Refer Plate No. III to V).

Table – 13

Year	No. of tress proposed to be planted	Area to be covered (m^2).	Survival (%)	Name of the species	No. of trees expected to be grown
I	140	434	80%	Neem, Pongamia Pinnata, Cordia dichotoma, Mantharai, etc.,	112
II	140	434	80%		112
III	140	433	80%		112
IV	140	433	80%		112
V	140	433	80%		112
VI	120	384	80%		96
VII	120	383	80%		96
VIII	120	383	80%		96
IX	120	383	80%		96
X	120	383	80%		96

11.5 Proposed financial estimate / budget for the project:

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Budget Provision for the Mining Plan period:

TABLE – 14

<table>
<tr><th colspan="2">A. Project Cost / Investment:</th><th>Cost (Rs.)</th></tr>
<tr><td>i) Land cost</td><td>The Land value as per the Government Guideline land cost is calculated as follows,
<table>
<tr><th>S.F.Nos.</th><th>Area (Ha)</th><th>Cost / Ha.</th><th>Cost of the area (Rs.)</th></tr>
<tr><td>49/1</td><td>1.525</td><td>1235500</td><td>1884138</td></tr>
<tr><td>55/2B (P)</td><td>0.441</td><td>1235500</td><td>544856</td></tr>
<tr><td>55/6 (P)</td><td>0.3313</td><td>1248000</td><td>413462</td></tr>
<tr><td>Total</td><td>2.2973</td><td>-</td><td>2842455</td></tr>
</table>
Total Land Cost (Round off) = Rs. 28,43,000/-.
(source: https://tnreginet.gov.in/portal/)</td><td>28,43,000</td></tr>
<tr><td>ii) Machinery cost</td><td>The following machineries are proposed to meet out the productions. Excavator attached with rock breaker Tipper, Tractor mounted compressor with jack Hammer and loose tools (Rental Basis)</td><td>80,00,000</td></tr>
<tr><td>iii) Labourers shed</td><td>Labour shed will be constructed as semi-permanent structure. The cost is around</td><td>5,00,000</td></tr>
<tr><td>iv) Sanitary facility</td><td>Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around.</td><td>1,50,000</td></tr>
<tr><td>v) Drinking water facility for the labourers</td><td>Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around.</td><td>4,05,000</td></tr>
<tr><td>vi) Sanitary arrangement</td><td>The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.</td><td>3,00,000</td></tr>
<tr><td>vii) Safety kit</td><td>All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around.</td><td>1,00,000</td></tr>
<tr><td>viii) CCTV arrangements.</td><td>Installation of CCTV cameras in the quarry area.</td><td>80,000</td></tr>
<tr><td colspan="2">Total Cost</td><td>1,23,78,000</td></tr>
</table>

B. EMP Cost:	Cost (Rs.)
1. Environmental Monitoring Program (Air Quality, Water Quality Sampling, Noise and Ground vibration test) Rs. 50,000/ year.	5,00,000

2.	Water will be sprinkled in the haul roads by own water sprinklers for dust suppression (1 No.). The cost would be around.	6,00,000
3.	Fencing constructed around the lease area to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length 600m x Rs. 300/meter).	1,80,000
4.	Construction of Garland drain with check dam to prevent surface run-off rain water entering to the quarry pit, the construction cost is around (Total Peripheral length 560m x Rs. 300/meter).	1,68,000
5.	First aid room & accessories	80,000
6.	Dust extractor unit for Jackhammer (4 Nos.)	1,75,000
7.	Greenbelt development for dust suppression & Noise control measures	Greenbelt development will be carried out along the safety barrier; the cost would be around (1300 saplings x Rs. 200/sapling). 2,60,000
		Greenbelt development will be carried out along the quarried out top benches; the cost would be around (600 saplings x Rs. 200/sapling). 1,20,000
		Greenbelt development will be carried out on haul road; the cost would be around (800 saplings x Rs. 200/sapling). 1,60,000
	Total EMP Cost (B)	**22,43,000**

Description	**Cost (Rs.)**
A. Project Cost	**1,23,78,000**
B. EMP Cost	**22,43,000**
Total Project Cost (A+ B)	**1,46,21,000**

The total cost would be around one crore forty six lakhs and twenty one thousand only.

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12.0 PROGRESSIVE QUARRY CLOSURE PLAN

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12.1 Introduction:

As per guidelines for preparation of mining plan prescribed under Minor Mineral Conservation and Development Rules, 2010 also the entire area is proposed for a short period of Ten years only hence, the progressive quarry closure plan may not be applicable to this quarry. Anyhow, during temporary discontinuance of quarry the following measures will be taken.

a. Barbed wire fencing will be constructed around the quarry.
b. Benches will be smoothening.
c. Quarry will be closed & sentries will be posted round the clock.
d. Green belt development will be maintained.
e. Machineries will be removed from pit and engaged in another site.

12.2 Present and Post Land use pattern:

TABLE – 15

Description	Present area (Ha)	Area required during first five years (Ha)	Area at the end of the lease period (Ha)
Area Under Quarrying	Nil	1.85.90	1.85.90
Infrastructure	Nil	0.01.00	0.01.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.21.67	0.40.83
Unutilized Area	2.29.73	0.19.16	Nil
Grand Total	**2.29.73**	**2.29.73**	**2.29.73**

12.3 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations as per the DGMS, Department of Geology and Mines, Labour Enforcement officer, controller of Explosives etc., circulars, Norms, Rules, Regulations and Act.

12.4 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and executing agency who is involved in the Preparation of progressive quarry closure plan.

Name	:	**M. Santhoshkumar, M.Sc.,**
		Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address	:	Plot No.3, Kattuvattam, Kothukara Samathi Via,
		Kannakurichi,
		Salem District,
State with PIN Code	:	Tamil Nadu – 636 008.
Mobile	:	+91 97914 41745
Email	:	santoshgeo2004@gmail.com

The applicant will himself implement the closure plan; no outside agency will be involved.

(i) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

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- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of machineries and vehicles.
- Personnel Protective equipment like dust masks, ear-plugs/ muffs and other equipment shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.
- Installation of CCTV cameras in the quarry and entrance of the quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(ii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.

- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches and panchayat road of the lease applied area.



Environmental Monitoring Cell:

A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environment Management Plan and report the Compliance to the to the competent authority from time to time.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the applicant as per the Director of Mines Safety will be responsible for Disaster Management. It care any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.

(iii) Disposal of mining machinery

All the Machineries will be purchased fresh, the same has been maintained in good condition during entire life of quarry, if required the machineries will be replaced or repaired. After completion of quarry operation all machineries will be engaged at another quarry area/ sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(iv) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Quarry roads and approach roads,
  Fencing on approach roads,
  Checking and maintenance of machines and equipment,
  Drinking water arrangements,
  Quarry office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per TNPCB and TBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

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In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(v) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of Ten years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(vi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below at present scenario:

TABLE – 16

ACTIVITY		YEARS										RATE	COST (Rs.)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	140	140	140	140	140	120	120	120	120	120	Rs.200 Per sapling	2,70,000
	Cost	28000	28000	28000	28000	28000	24000	24000	24000	24000	24000		
Plantation in quarried out top bench	Nos	-	-	-	-	-	-	-	200	200	200		1,20,000
	Cost	-	-	-	-	-	-	-	40000	40000	40000		
Plantation in quarried out Haul road	Nos	200	200	200	100	100	-	-	-	-	-		1,60,000
	Cost	40000	40000	40000	20000	20000	-	-	-	-	-		
Barbed Wire Fencing (600 Mtrs)		1,80,000										Rs300 Per Meter	1,80,000
Garland Drain (560 Mtrs)		1,68,000										Rs300 Per Meter	1,68,000
Total													**8,98,000**

13.0 STATUTORY COMPLIANCE TO BE FOLLOWED DURING THE COURSE & CLOSURE OF QUARRY LEASE:

Assistant Director Erode Geology and Mining

The Applicant after execution of lease deed shall ensure to carry out that the quarry operation in accordance to the Approved Mining plan and as per TNMMCR, 1959, Mines Act 1952 & MMR 1961

The conditions in the nutshell as follows:

1. The quarry operation should be fenced with the barbed wire and three tier Greenbelt has to be carried out all along the boundary barriers and should be maintained till the end of the life of the mine.
2. The quarry operation should be carried out as per the regulation 3,4,5 of MMR 1961 as prescribed in the form I, II, III, IVA, IVB, IVC, V, VI.
3. Statutory competent qualified person as per regulation 39, 40, 41, 42, 43, 44, 47, 48 of MMR 1961 should be appointed to carryout day today quarrying operation in scientific & systematic manner.
4. Blasting has to be carried out during the designated timing as per the approved mining plan with sufficient warning all around the mines by only the Qualified blaster as indicated in the regulations 153, 154, 156, 160, 166, 167, 169 of MMR 1961.
5. During the Quarrying operations the benches has to be maintained and haul roads should be maintained as per the regulations 60, 61, 62, 65, 66, 95, 96, 105, 106, 110, 115, 118 of MMR 1961. When the quarry attains 30mts depth from the general ground profile a slope stability study should be carried out with competent authorized agencies only.
6. All PPE should be provided to the employees and initial Medical Examination has to be carried out as per the regulation 124, 127, 177, 178, 181, 183, 185, 188, 190, 191A of MMR 1961.
7. The Applicant should submit the quarterly, half yearly & Annual returns to the concerned Authorities as per regulation 3, 4, 5, 9 &10 MMR 1961 on time and HYCR self-compliance reports should be submitted to the State Pollution Control Board.
8. Periodical Hydrology & Hydrogeological Studies has to be carried out during the course of quarrying operation. if any significant seepages is inferred, the applicant should carry out a comprehensive Hydrogeological studies to ensure the impact of agricultural activities in and around the mine (Open well & Tube well). If the impact is noticed considerably the quarry had to be continued only after obtaining permission clearances and approval from the competent regulatory authorities.
9. The lessee should utilize green energy / Solar energy as far as possible for operation of machineries, equipment and illumination in the mine's office, quarry boundaries and avenue roads.
10. The lessee should ensure all the skilled and semi-skilled workers should be provided trainings in nearby Vocational Training centre as per the MVTR 1966 and should be registered in Shram Suvidha portal as directed by the Ministry of labour.
11. The lessee should carry out the quarrying operation keeping the view of mineral conservation, development and sustainable mining.
12. If the lessee intends to deviate from the approved mining plan, a modified mining plan has to be prepared submitted and approved from the concerned authority before making any significant changes in the mining operations.
13. The lessee should carry out the mining operation in Eco friendly environment with good hygienic conditions to the employees deployed and maintain good harmony with local communities in the impact zone.
14. The conditions stipulated in the lease deed and Environmental clearance especially the mitigation measures as proposed in EMP to the SEIAA has to be followed during the course of quarrying operation and also to as per the rules of TNMCR 1959, Mine act 1952, MMR 1961, Mine Rule 1955, Environment Protection Act 1986 and Indian Explosive act 1884 and Indian Explosive Rules 2008 and all the amendments issued by the concern State and Central Government authorities from time to time.

This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

This Mining Plan and mine design is prepared based on the requirement and full consent by the applicant to me. If there is any change in the production schedule, change of technology, change in product mix during the course of operations, the applicant is advice to prepare a modified mining plan and get approval by the concerned authority for subsequent clearance and approval. The same will be monitored by the inspecting authority of Department of Geology and mining and other Concerned Departments under Rule 25 and sub rule (5)(d) in Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

Prepared by

M. Santhoshkumar, M.Sc.,

Qualified Person

Place: Salem
Date: 01.12.2025

This Mining Plan is approved subject to the conditions indicated in the Mining Plan approved letter in
R.C. No. 840/Mines/2025
Dated: 19.12.2025

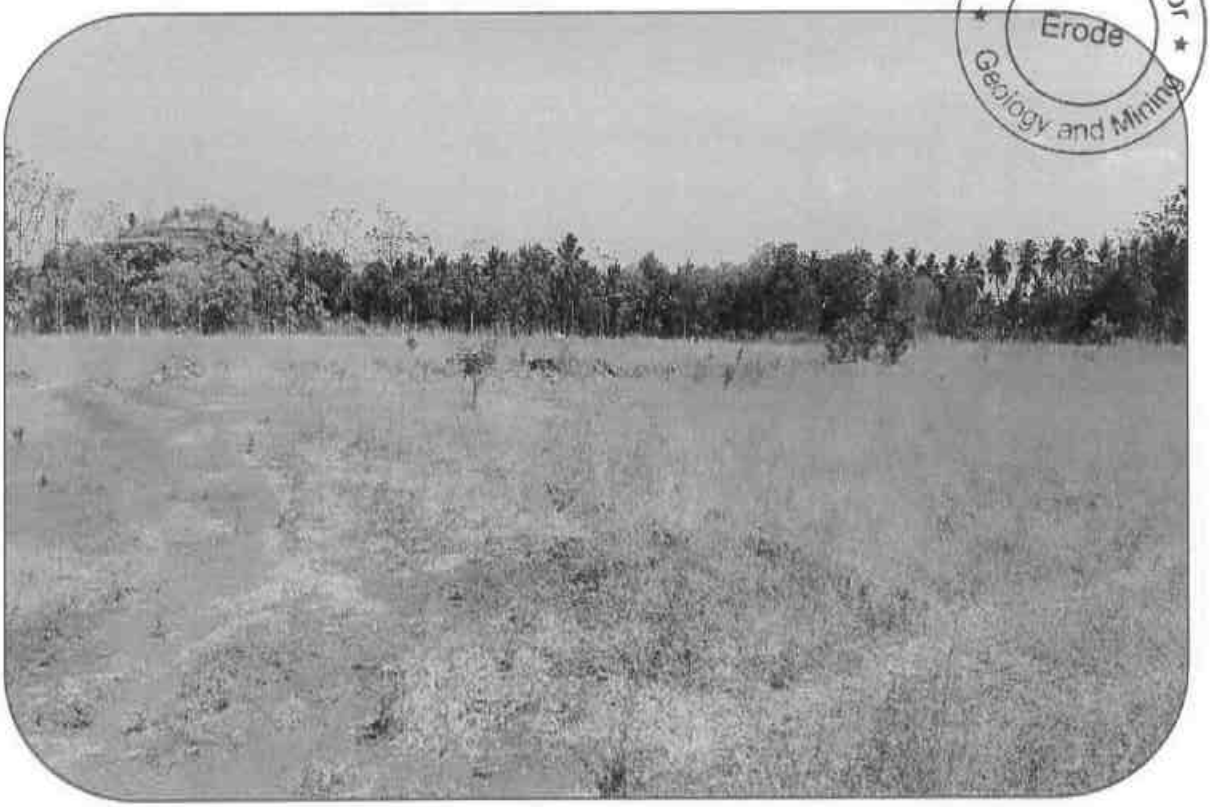
This Mining Plan is approved as per the Powers conferred under Rule 41 (2) of Tamil Nadu Minor Mineral Concession Rules, 1959

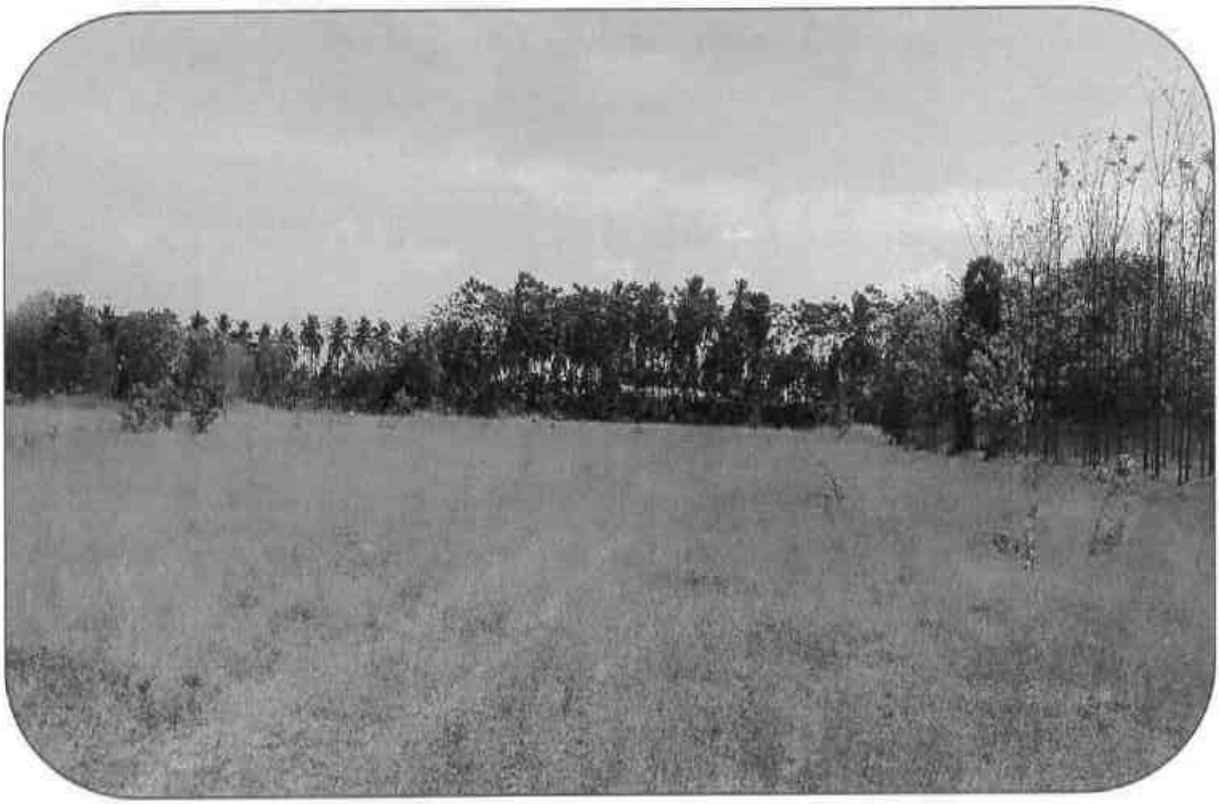
Assistant Director, 19/12/25
Geology and Mining,
Erode.

73 A

PHOTOGRAPHS OF THE KOVUNDAMPALAYAM ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA

Assistant Director
Erode
Geology and Mining





ANNEXURE 7

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
ஈரோடு

Assistant Director
Geology and Mining

ந.க. 840/கனிமம்/2024

நாள்: 27.11.2025

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - ஈரோடு மாவட்டம் - சிறுகனிமம் - சாதாரணக்கற்கள் மற்றும் கிராவல் - கோபிசெட்டிபாளையம் வட்டம் - கவுண்டம்பாளையம் கிராமம் - புல எண் 49/1, 55/2பி, 55/6-இல் 2.29.73 ஹெக்டர் பரப்பில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் கோரி திரு. கே. குப்புராஜ், த/பெ. கருத்திருமகவுடர் என்பவர் விண்ணப்பம் அளித்தது - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

பார்வை:
1. திரு. கே. குப்புராஜ், த/பெ. கருத்திருமகவுடர் என்பவரின் விண்ணப்பம் நாள்: 04.10.2024.
2. வட்டார வளர்ச்சி அலுவலர் (கி.ஊ), தூக்கநாயக்கன்பாளையம் ந.க. 4191/2024/ஆ1 நாள் 03.12.2024.
3. துணை இயக்குநர், சத்தியமங்கலம் வனக்கோட்டம், சத்தியமங்கலம் புலிகள் காப்பகம், சத்தியமங்கலம் கடிதம் ந.க. 2815/2025/வ நாள் 01.08.2025.
4. துணை இயக்குநர், சத்தியமங்கலம் வனக்கோட்டம், சத்தியமங்கலம் புலிகள் காப்பகம், சத்தியமங்கலம் கடிதம் ந.க. 2815/2025/வ நாள் 01.08.2025.
5. கோபிசெட்டிபாளையம் வருவாய் வட்டாட்சியரின் அறிக்கை ந.க. 6898/2024/அ5 நாள் 20.12.2024.
6. கோபிசெட்டிபாளையம் சார் ஆட்சியர் அவர்களின் அறிக்கை ந.க. 7182/2024/ஆ3 நாள் 13.08.2025.
7. ஈரோடு புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் தணிக்கை குறிப்பு நாள்: 26.11.2025
8. அரசு அணை எண் 169 தொழில் (எம்எம்சி1) துறை நாள் 04.08.2020.

ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், கவுண்டம்பாளையம் கிராமம், புல எண். 49/1 (1.52.50), 55/2பி (பகுதி) (0.44.10) மற்றும் 55/6 (பகுதி) (0.33.13)-ல் 2.29.73 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க பத்து ஆண்டுகளுக்கு திரு. கே. குப்புராஜ், த/பெ. கருத்திருமகவுடர் என்பவர் அளித்த விண்ணப்பித்தின் பேரில் குவாரிக் குத்தகை உரிமம் வழங்குவது தொடர்பாக வட்டார வளர்ச்சி அலுவலர் (கி.ஊ), தூக்கநாயக்கன்பாளையம், நகர் ஊரமைப்பு துணை இயக்குநர் (பொ), மாவட்ட நகர் ஊரமைப்பு அலுவலகம், ஈரோடு, துணை இயக்குநர், சத்தியமங்கலம் வனக்கோட்டம், சத்தியமங்கலம் புலிகள் காப்பகம், சத்தியமங்கலம், கோபிசெட்டிபாளையம் வருவாய் வட்டாட்சியர், கோபிசெட்டிபாளையம் சார் ஆட்சியர், புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் (கனிமம்) மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) ஆகியோர் மேற்காணும் விண்ணப்ப புல எண். 49/1 (1.52.50), 55/2பி (பகுதி) (0.44.10) மற்றும் 55/6

(பகுதி) (0.33.13)-ல் 2.29.73 ஹெக்டர் பரப்பில் பத்து ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி எண். 19 (1), 20, 22 ஆகியவற்றின் கீழ் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிம அனுமதி சில நிபந்தனைக்குட்பட்டு வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

Assistant Director Geology and Mining Erode

எனவே, மேற்காணும் பரிந்துரைகளின் அடிப்படையில் ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், கவுண்டம்பாளையம் கிராமம், புல எண். 49/1 (1.52.50), 55/2பி (பகுதி) (0.44.10) மற்றும் 55/6 (பகுதி) (0.33.13)-ல் 2.29.73 ஹெக்டர் பட்டா நிலத்தில், திரு. கே. குப்புராஜ், த/பெ. கருத்திருமகவுடர் என்பவருக்கு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றப்பட்ட நாளிலிருந்து பத்து ஆண்டுகளுக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக கீழ்க்காணும் நிபந்தனைகளுக்கு உட்பட்டு ஈரோடு உதவி இயக்குநரால் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் மாநில சுற்றுச் சூழல் அமைப்பிடம் இருந்து பெறப்பட்ட சுற்றுச்சூழல் ஒப்புதல் ஆகியன உரிய காலத்திற்குள் விண்ணப்பதாரால் பெற்றளிக்கப்பட வேண்டும் என தெரிவிக்கப்படுகிறது.

1. புலத்தை சுற்றி அமைந்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணிபுரிய வேண்டும்.
2. விண்ணப்ப புலத்தின் மேற்கு பகுதியில் உள்ள வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி புரிய வேண்டும்.
3. விண்ணப்ப புலத்தின் மேற்கு பகுதியில் சுமார் 51மீ தொலைவில் கொப்பு வாய்க்காலுக்கு போதுமான இடைவெளி அமைந்துள்ளதால், வாய்க்காலுக்கு பாதிப்பு இல்லாமல் குவாரிப்பணி புரிய வேண்டும்.
4. துணை இயக்குநர், சத்தியமங்கலம் வனக்கோட்டம், சத்தியமங்கலம் புலிகள் காப்பகம், சத்தியமங்கலம் கடிதம் ந.க. 2815/2025/வ நாள் 01.08.2025-இல் கல்குவாரி குத்தகை உரிமம் கோரும் இடத்திற்கு அனுமதி வழங்கும்பட்சத்தில் பின்வரும் நிபந்தனைகளை பின்பற்ற வேண்டும் எனத் தெரிவிக்கப்பட்டுள்ளது. அவற்றினையும் முறையாக கடைபிடிக்க வேண்டும்.
   - கல்குவாரி குத்தகை உரிமம் கோரும் இடத்தினைச் சுற்றி தமிழ்நாடு மின்வேலிகள் (பதிவு மற்றும் ஒழுங்குமுறை) விதிகள் 2023 - இன் படி அனுமதி பெற்று மின்வேலிகள் அமைக்கப்பட வேண்டும்.
   - குவாரி பொருட்கள் எடுத்துச் செல்லும் போது சம்பந்தப்பட்ட வாகனத்தின் மீது முறையாக தூசி பறக்காவண்ணம் மூடப்பட்டு எடுத்துச் செல்ல வேண்டும்.
   - காப்புக்காட்டிற்கும் குவாரி அமையவுள்ள இடத்திற்கும் இடைப்பட்ட 1260மீ பகுதியில் குவாரி பணிகள் மேற்கொள்ள அனுமதிக்க கூடாது.
   - இக்கல்குவாரி அமையவுள்ள இடத்தினைச் சுற்றிலும் வன விலங்குகள் உள்நுழையாவண்ணம் உரிய பாதுகாப்பு வேலிகளை அமைக்கப்பட வேண்டும்.

27/11/25

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
ஈரோடு.

பெறுநர்

திரு. கே. குப்புராஜ்,
த/பெ. கருத்திருமகவுடர்,
16, காமராஜ் வீதி,
கொங்கு நகர், வாணிப்புத்தூர்,
டி.என்.பாளையம் - 638 506

27/11/25

27/11/25

ANNEXURE

மாவட்டம் : ஈரோடு

வட்டம் : சென்னிமலை

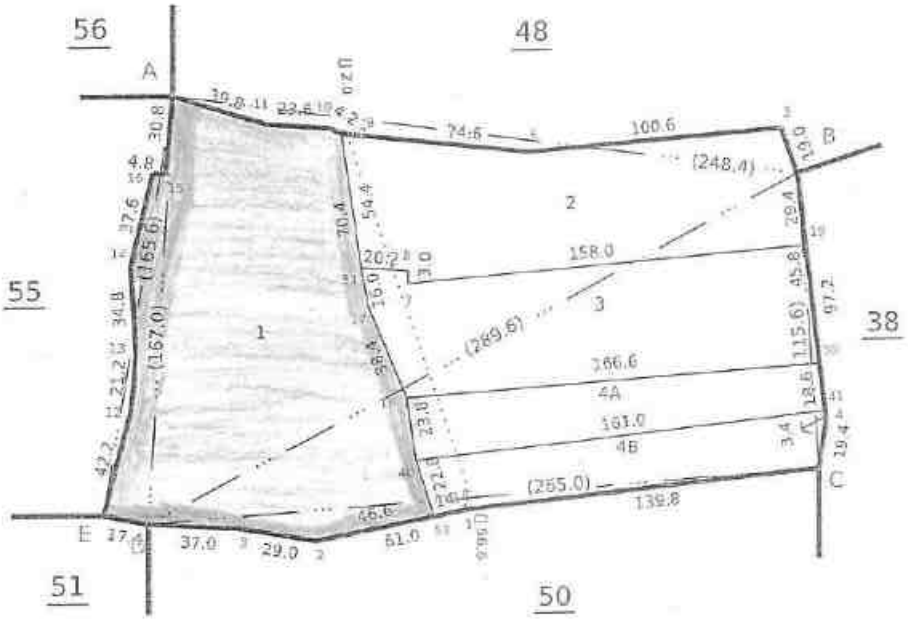
கிராமம் : 008 கவுண்டம்பாளையம் [8]

புல எண் : 49

பரப்பளவு : எக்: 03 ஏ 86.00

அளவு : 1 : 2000

Assistant Director
Geology & Mining
Erode



LEASE APPLIED AREA

Signed By Tahsildar
Name of approver : tahs
Date of Approval : 19-01-2018

Date of Issue: 08-04-2024 09:47:25

240 fv.1

Survey and Settlement Department, Government of TamilNadu

மாவட்டம் : ஈரோடு

வட்டம் : கோபிசெட்டிபாளையம்

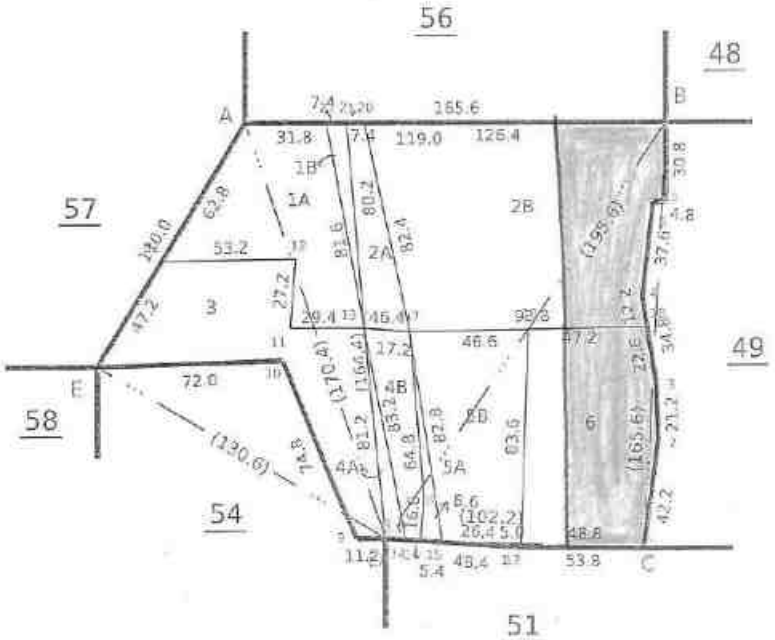
கிராமம் : 008 கவுண்டம்பாளையம் [8]

புல எண் : 55

பரப்பளவு : எக்.ஏ 02 ஏ 67 ச.மீ

அளவு : 1 : 2000

Assistant Director
Erode
Geology and Mining



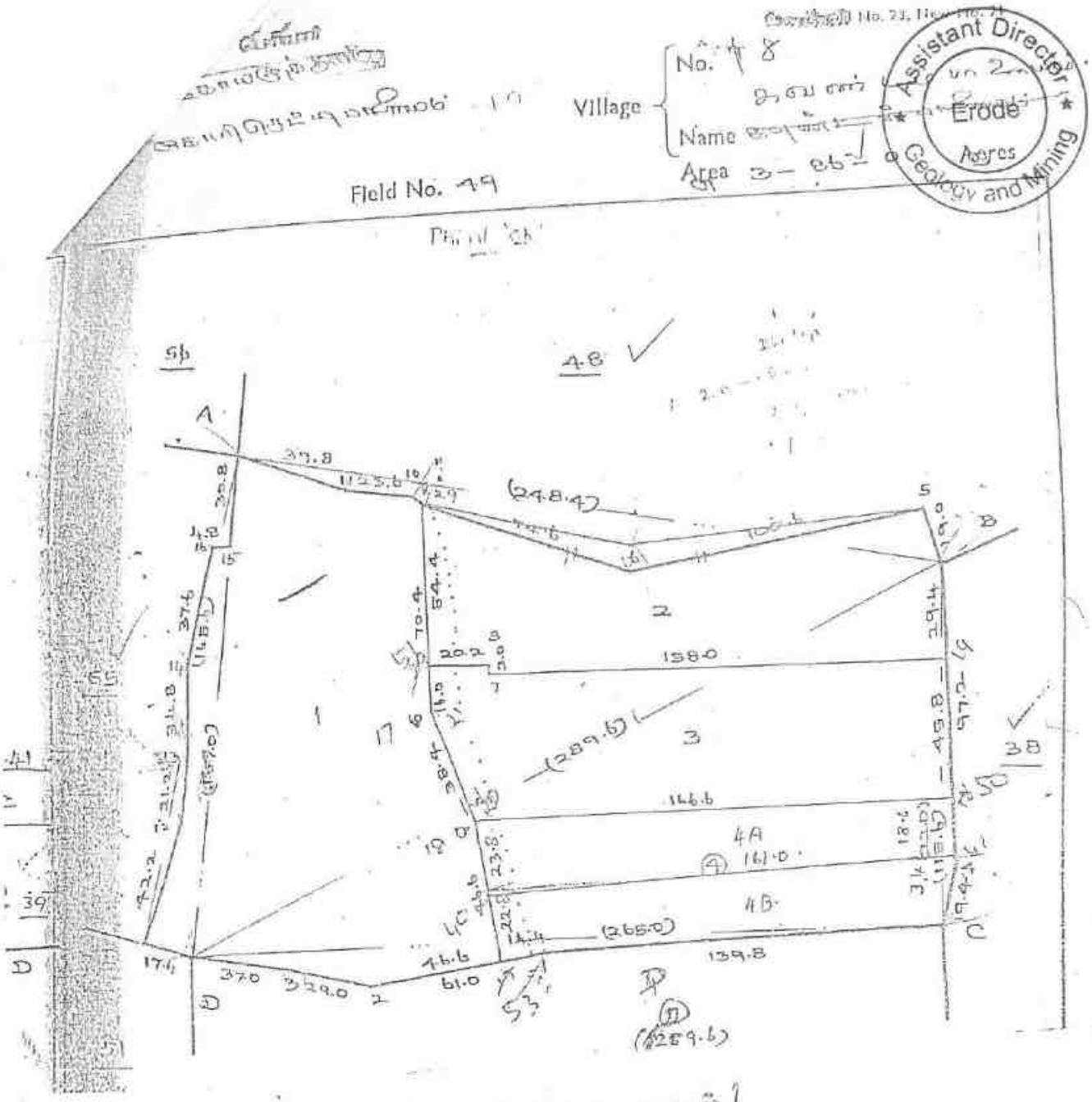
LEASE APPLIED AREA

Signed By Tahsildar
Name of approver : tahl1
Date of Approval : 19-01-2018

Date of Issue: 08-04-2024 09:48:26

Survey and Settlement Department, Government of TamilNadu

240 fv 1



/உண்மை நகல்/

[இச்சான்று அடியுடன் பணிக்கு மட்டும்]

24/07/2024

கிராம நிர்வாக அலுவலர்

17B. தெங்குப்பாளையம் கிராமம்

18 [illegible] கிராமம்

[illegible] மாவட்டம்

Attipalayam

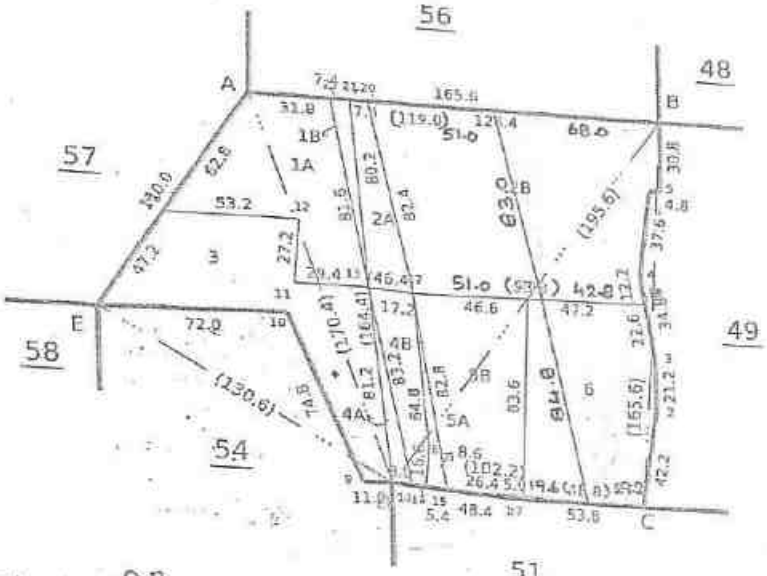
Vundampalayam [8]

Survey No : 55

Area : Hect 02 Ares 87.50

Scale : 1 : 2000

Assistant Director Geology and Mining Erode



திவாரி அளவைய பரிந்துரை செய்யப்பட்ட இடம்

△ - சி.எ. எண்: 55/2B - ல் 4.ஏ. 1.08.½ சென்ட்

△ - சி.எ. எண் : 55/6 - ல் 4.ஏ. 0.81.½ சென்ட்

உதவி இயக்குநர்
புவியியல் மற்றும் சுரங்கம்.

Signed By Tahsildar
Name of approver : tah1
Date of Approval : 29-01-2016

Date of Issue: 29-08-2024 17:14:48

80 A

ANNEXURE (4)



Assistant Director
Erode
Geology and Mining

ANNEXURE IV

தமிழ்நாடு அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

Assistant Director Erode Geology and Mining

மாவட்டம் : ஈரோடு

வட்டம் : கோபிசெட்டிபாளையம்

வருவாய் கிராமம் : 008 கவுண்டம்பாளையம்

பட்டா எண் : 7

உரிமையாளர்கள் பெயர்

1. கருத்திருமகவுடர் மகன் குப்புராஜ்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
49	1	1 - 52.50	2.11	--	--	--	--	RTR2630/15---------- 20-10-2015
		1 - 52.50	2.11					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் 10/31/008/00007/170887 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 08-04-2024 அன்று 09:43:34 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்

தமிழ்நாடு அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

Assistant Director Erode Geology and Mining

மாவட்டம் : ஈரோடு

வட்டம் : கோபிசெட்டிபாளையம்

வருவாய் கிராமம் : 008 கவுண்டம்பாளையம்

பட்டா எண் : 235

உரிமையாளர்கள் பெயர்

1. என்.கருத்திருமலவடர் மகன் கே.குப்புராஜ்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
55	2B	0 - 84.50	2.35	--	--	--	--	RTR798/14--- ---------- 18-06-2014
55	5B	0 - 32.50	0.90	--	--	--	--	RTR798/14--- ---------- 18-06-2014
55	6	0 - 43.50	1.20	--	--	--	--	RTR798/14--- ---------- 18-06-2014
		1 - 60.50	4.45					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **10/31/008/00235/120860** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 08-04-2024 அன்று 09:44:55 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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கிராம அளைக்கு எண்ணை - 2.

1433 -ஆம் பலிலிருந்து ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம். 08, கவுசிபுதூர் பாலைமேடு கிராமத்தில் வருடவாரி புலவாரிகைப்பற்று சாகுபடி அடங்கள் கணக்கு

நில அளவை எண் 1	உட்பிரிவு எண் 2	பரப்பு 3	நீர்வரி 4	ஒரு போகம் அல்லது இரு போகம் 5	சாகுபடி தாரருடைய பெயரும் என்னும் அல்லது அனுபோக தாரருடைய பெயர் 6	சாகுபடியாளின் பெயர் நஞ்சை மாவது புஞ்சையாவது? பயிரிடப்பட்டுள்ளதா? 7	முதல் போகம் 8				இரண்டாம் போகம் 13					கிராம அலுவலரின் குறிப்பு: 1. புல்லுனின் பகுதிகளில் மட்டும் பயிரிடப்பட்ட இனங்களில் விலக்குகள் அமைவில் 2. எஞ்சுற்றில்லாத நிலங்களில் சாகுபடியின் பரப்புதன்மையும் 3. முந்தைய மாதத்தில் பயிர்கள் உற்பத்தியின்றி பயிரிப்பட்டவை என்று பதிவாகி உள்ள நிலங்களுக்கு பிற்பாடு மாதங்களில் நிர்பந்திக்கப்பட்ட விபரங்கள் 13	விளைச்சல் குறைவு ஏற்பட்டுள்ள நிலத்திற்குள்ளதை மற்றும் பயிரிட்ட விவரக்கள் ஒவ்வொரு நில அளவை எண் அல்லது குறிப்பு பகுதியில் அ) நிலம் ஆ) புன்னாற பயிர் செய்ய இயலாத நிலம் இ) வேலையாற்ற நிதர் களின்களுக்கு பயன்படுத்தப்படும் நிலம் ஈ) பயிரிக்கத்க தரிசு உ) நிலையான புல் தளைகளும் மற்றும் நிதர் மேய்ல் நிலங்களும் ஊ) விதைக்கப்பட்ட நிதர் பயிரில் சேர்க்கப்படாத மரவகைப் பயிர்களும் தோப்புகளும் எந்துப்புதிகள் எ) நிதர் நில நிலங்கள் 16(அ)	பயிர் பாதிப்பும் அலுவலரின் குறிப்புகளும் 19
							எந்த மாதத்தில் பயிர் செய்யப்பட்டது? எந்த மாதத்தில் அறுவடை செய்யப்பட்டது? 9	பயிரிடப்பட்ட பரப்பு 10	உள்ளாயமான பாய்ச்சல் ஆதாரம் 11	விளைச்சல் குறைவு விபரக்கள் 12	எந்த மாதத்தில் பயிர் செய்யப்பட்டது? எந்த மாதத்தில் அறுவடை செய்யப்பட்டது? 13	பயிரிடப்பட்ட பரப்பு 14	பயிரிடப்பட்ட பரப்பு 15	உள்ளாயமான பாய்ச்சல் ஆதாரம் 16	விளைச்சல் குறைவு 17			
49	1	1525	211	7	இப்புராஜ்	நிலம்	7	0.34	1500	கிணறு								
58	2B	0845	035	235	இப்புராஜ்	நெல்	7	0.34	0820	கிணறு								
	6	0135	120	235	இப்புராஜ்	நெல்	7	0.34	0400	கிணறு								

அலுவலரது பணிக்கு மட்டும்

(உள்ளாய்வு)

09/07/2024

கிராம நிர்வாக அலுவலர்
78. கொங்கர்பாளையம் கிராமம்
கோபி வட்டம்

நன்கு தயாரித்தவர்

பயிட்டு சரிபார்த்தவர்

ANNEXURE V

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ANNEXURE VI

Assistant Director
Erode
Geology & Mining

(7) வெண்டம்பாளையம் - பகுதி.

1	2	3	4	5	6		7	8		9		10		11	
								ஹெ.	ஏ.	ஹெக்டே	ஏர்ஸ்	ஹெ.	ஏ.		
50	2	173-2	ஏ	டி	...	8	4	6	1	38	0	78·5	1	09	234. கா. சடைய கோயன் (1), கா. பொங்காளி கோயன் (2)..	
	3	173-5	ஏ	டி	...	8	4	6	1	38	1	52·0	2	10	102. வே. சின்ன மன்ட கோயன்.	சரை.
											2	14·5	4	35		
51	1	132ஏ	ஏ	டி	...	8	2	4	2	77	1	70·0	4	71	19. மா. தங்கே வெண்டர்.	மொது.
	2	132பி	ஏ	டி	...	8	2	4	2	77	1	65·5	4	58	134. மா. ஒன்ன மாரண்ணன்.	சரை.
											3	35·5	9	29		
52	...	134	ஏ	டி	...	8	2	6	1	38	1	67·5	2	31	141. கு. பழனியம் மாள்.	
53	...	139-2	ஏ	டி		8	4	6	1	38	0	90·0	1	24	41. ரா. கருப்பண வெண்டர்.	
54	1	139-1	ச	புஞ்சை	...	...	..	...	...	...	11	10·0	...	...	...	குமாரசாமி பூர்த்தி கோயில்.
	2	146	ஏ	டி	...	8	4	6	1	38	0	06·0	0	08	275. மா. ரங்கப்ப வெண்டர் (1), மா. சின்னத்தம்பி வெண்டர் (2), மா. திருவளசாமிச் வெண்டர் (3).	
											11	16·0	0	08		
55	1	138	ஏ	டி	...	8	4	6	1	38	0	38·0	0	52	276. செ. முத்தாயம் மாள் (1), செ. மாரப்ப வெண்டர் (2), குப்புசாமி நாயடு (3).	
	2	133	ஏ	டி	..	8	2	4	2	77	0	94·5	2	61	235. செ. மாரண்ண வெண்டர் (1), செ. மாரப்ப வெண்டர் (2),	
	3	138	ஏ	டி	...	8	4	6	1	38	0	43·0	0	59	235. செ. மாரண்ண வெண்டர் (1), செ. மாரப்ப வெண்டர் (2).	
	4	133	ஏ	டி	...	8	2	4	2	77	0	13·5	0	37	235. செ. மாரண்ண வெண்டர் (1), செ. மாரப்ப வெண்டர் (2).	
	5	133	ஏ	டி	...	8	2	4	2	77	0	35·0	0	97	235. செ. மாரண்ண வெண்டர் (1), செ. மாரப்ப வெண்டர் (2).	

/ உண்மை நகல் /
[இச்சான்று அலுவலக பணிக்கு மட்டும்]

31/07/2024
சார்பு நிலை அலுவலர்
178. வெண்டம்பாளையம் கிராம
00 வெண்டம்பாளையம் கிராம

(7) கவுண்டம்பாளையம் கார்.

1	2	3	4	5	6	7	8	9	10	11	12
							ஏ.	மை. ஹெஏர்ஸ்.	ரூ.	பை.	
55	6	133	ஏ	புன்செய்	8	2	4	2 77	0 43·5	1 20	235. செ. மாரண்ணா கவுண்டர் (1), செ. மாரப்ப கவுண்டர் (2).
									2 67·5	6 26	
56	1	172-1	ஏ	புன்செய்	8	4	6	1 38	0 19·5	0 27	298. கு. கருப்பண்ண(1), கு. பழனியப்பன் (2), கு. நடராஜன் (3), கு. ரங்கன் (4).
	2	172-1	ஏ	புன்செய்	8	4	6	1 38	0 20·0	0 28	298. கு. கருப்பண்ண(1), கு. பழனியப்பன் (2), கு. நடராஜன் (3), கு. ரங்கன் (4).
	3	172-1	ஏ	புன்செய்	8	4	6	1 38	0 78·5	1 09	298. கு. கருப்பண்ண(1), கு. பழனியப்பன் (2), கு. நடராஜன் (3), கு. ரங்கன் (4).
	4	172-1 172-2	ஏ	புன்செய்	8	4	6	1 38	0 01·0	0 06	308. கு. கருப்பணனும் மற்றும் நான்கு பேர்களும்.*
	5	172-2	ஏ	புன்செய்	8	4	6	1 38	0 77·5	1 07	188. வெ. ரங்கன் செட்டியார்.
	6	172-3 -4	ஏ	புன்செய்	8	4	6	1 38	2 14·5	2 96	309. க. பழனியப்ப முதலியாரும் மற்றும் நான்கு பேர்களும்.*
									4 11·0	5 73	
57	1	142-1	ஏ	புன்செய்	8	4	6	1 38	0 33·0	0 46	277. கு. கருப்பண்ண(1), கு. பழனியப்பன் (2), கு. நடராஜன் (3), கு. ரங்கண்ணன் (4).
	2	142-2	ஏ	புன்செய்	8	4	6	1 38	1 68·0	2 32	119. ஏ. முத்தாயி.
									2 01·0	2 78	
58	...	141	ஏ	புன்செய்	8	4	6	1 38	2 72·5	3 76	159. கு. பேச்சியம்மாள்.
59	...	140	ஏ	புறம்போக்கு	...	...	...	... ...	0 45·0	... ...	... வண்டிப் பாதை.
60	...	140 143	ஏ	புறம்போக்கு	...	...	...	... ...	0 50·0	... ...	... வண்டிப் பாதை.
61	...	143	ஏ	புறம்போக்கு	...	...	...	... ...	0 68·0	... ...	... வண்டிப் பாதை.
62	1	144	ஏ	புன்செய்	8	4	6	1 38	1 27·5	1 76	236. வி. ரங்கையா கவுண்டர் (1), வி. ரங்கப்பக் கவுண்டர் (2).

* விவரப்பட்டியலைப் பார்க்கவும்.

(உண்மை நகல்)
இக்கணம் அலுவலக பயன்பாட்டிற்கு மட்டும்

Assistant Director
Ecology and Minority
Erode

சரண நிர்வாக அதிகாரி
178, கொங்கர்பாளையம் கிராமம்
38 கவுண்டம்பாளையம் கிராம
கோபி வட்டம்

Assistant Director
Erode
Geology and Mining

(7) கவுண்டம்பாளையம் கிராம்.

		2	3	4	5	6	7	8	9	10	11	12
							ஹெ.	ஏ.	ஹெ. ஏ.	ஹெ.	ஏ.	
									0 24·0	...	...	வாரி.
44	1	179-1	ச	பற	...	...	...	...				
	2	179-2	ஏ	4	...	8	4	6	1 38	0 99·5	1 38	36. ரா. கருப்ப போயன்.
									1 23·5	1 38		
Changed (45)	...	169	ஏ	4	...	8	4	6	1 38	1 43·0	1 97	232. கு. கொங்கம்மாள் (1), அ. ராமபோயன் (2).
46	1	170-1	ஏ	4	...	8	4	6	1 38	0 17·0	0 23	205. அ. ராம போயன்.
	2	170-2	ச	பற	...	...	...	...	...	0 30·5	... ...	... வாரி.
	3	170-3	ச	பற	...	...	...	...	...	0 25·5	... ...	... வாரி.
										0 73·0	0 23	
47	1	171-2 +4 -5	ஏ	4	...	8	4	6	1 38	0 77·5	1 07	233. மு. கருப்ப கவுண்டர் (1), அ. குருதாதன் (2).
	2	171-1	ச	பற	...	...	...	...	...	1 02·0	... ...	... வண்டிப் பாதை. இறை.
	3	171-3	ஏ	4	...	8	4	6	1 38	0 71·5	0 99	6. பொ. அங்கம்மாள்.
										2 51·0	2 06	
48	1	174-1	ஏ	4	...	8	4	6	1 38	1 67·5	2 31	131. மா. தாச்சக்காள்.
	2	174-2	ஏ	4	...	8	4	6	1 38	0 63.5	0 88	37. ரா. கன்னியம்மாள் (1), அ. முத்துகாளி போயன் (2).
	3	174-2	ஏ	4	...	8	4	6	1 38	0 73·5	1 02	37. ரா. கன்னியம்மாள் (1), அ. முத்துகாளி போயன் (2).
	4	174-3	ஏ	4	...	8	4	6	1 38	0 60·0	0 83	154. பெ. பெரியமண்ட போயன்.
	5	174-3	ஏ	4	...	8	4	6	1 38	1 29·5	1 79	224. மு. வேலாயுத போயன்.
										4 94·0	6 83	
49	1	173-1	ஏ	4	...	8	4	6	1 38	1 52·5	2 11	7. பெ. அப்பாச்சிக் கவுண்டர்.
	2	173-3	ஏ	4	...	8	4	6	1 38	0 83·5	1 16	40. வெ. கருத்திரும கவுண்டர்.
	3	173-3	ஏ	4	...	8	4	6	1 38	0 81·0	1 12	18. வெ. ஒன்னப்பக் கவுண்டர்.
Changed (47)		171-4 171-5	ஏ	4	...	8	4	6	1 38	0 69·0	0 95	146. க. பாட்டா போயன்.
										3 86·0	5 34	
50	1	173-2	ஏ	4	...	8	4	6	1 38	0 84·0	1 16	234. கா. சடைய போயன் (1), கா. பொன்காளி போயன் (2).

24/07/2024

17B. கொங்குப்பாளையம் கிராமம்
கவுண்டம்பாளையம் குறுவட்டம்
கோபி வட்டம்

87 A

அ-பதிவேடு விவரங்கள் - ஊரகம்

Assistant Director
Erode
Geology and Mining

: ஈரோடு
: கோபிசெட்டிபாளையம்
ராமம் : 008 வெண்டம்பாளையம்

1. புல எண்	55	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	2B	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	138	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 84.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.35
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	235
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.கே.குப்புராஜ்

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **10/31/008/55/2B/150860** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

Assistant Director
Erode
Geology and Mining

ம : ஈரோடு
ம : கோபிசெட்டிபாளையம்
ராமம் : 008 கவுண்டம்பாளையம்

1. புல எண்	55	9. மண் வயனமும் ரகமும்	8 - 2
2. உட்பிரிவு எண்	6	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	133	11. தீர்வை (ரூ - ஹெ)	2.77
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 43.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.20
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	235
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.கே.குப்புராஜ்

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **10/31/008/55/6/150860** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : ஈரோடு
வட்டம் : கோபிசெட்டிபாளையம்
கிராமம் : 008 கவுண்டம்பாளையம்

Assistant Director Erode Geology and Mining

1. புல எண்	49	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	1	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	173-1	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 52.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.11
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	7
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.குப்புராஜ்

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **10/31/008/49/1/140887** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

ANNEXURE VII

தமிழ்நாடு வனத்துறை

Assistant Director Erode Ecology and Mining

அனுப்புதல்

திரு.குலால் மோகன் விஜய், இ.வ.ப.,
துணை இயக்குநர்,
சத்தியமங்கலம் வனக்கோட்டம்,
சத்தியமங்கலம் புலிகள் காப்பகம்,
சத்தியமங்கலம் - 638 402.

பெறுநர்

சார் ஆட்சியர்,
சார் ஆட்சியர் அலுவலகம்,
கோபிசெட்டிபாளையம்.

ந.க.எண்.2815/2025/வ, நாள்: as per e-sign

ஐயா,

பொருள் : வனம் - கனிமமும் சுரங்கமும் – ஈரோடு மாவட்டம் கோபிசெட்டிபாளையம் வட்டம் – கவுண்டம்பாளையம் கிராமம் புல எண்கள் 49/1–இல் பு.ஹெ.1.55.00, 55/2பி (பகுதி) –ல் பு.ஹெ.0.44.10 மற்றும் 55/6 –இல் (பகுதி) பு.ஹெ.0.33.13 ஆகியவற்றில் மொத்தம் 2.29.73 ஹெக்டர் பரப்பு நிலத்தில் - சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.கே.குப்புராஜ் த/பெ.கருமத்திருகவுடர் என்பவர் மனு செய்தது - குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் உள்ள காப்புக்காடுகள், சுற்றுச்சூழல் உணர்திறன்மண்டல பகுதிகள் மற்றும் சரணாலயங்கள் விபரம் கோருவது – தொடர்பாக.

பார்வை

1. சார் ஆட்சியர், கோபிசெட்டிபாளையம் ந.க.எண்.2815/2025/வ நாள்.12.03.2025
2. துணை இயக்குநர் சத்தியமங்கலம் வனக்கோட்டம் ந.க.எண்.2815/2025/வ நாள்.04.07.2025
3. வனச்சரக அலுவலர், தூ.நா.பாளையம் வனச்சரகம், ந.க.எண். 190/2025/வ நாள்.10.07.2025

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மேற்காண் பொருள் தொடர்பாக, பார்வை –1ல் கண்ட கடிதத்தின்படி ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், கவுண்டம்பாளையம் கிராமம் புல எண்கள் 49/1–இல் பு.ஹெ.1.55.00, 55/2பி (பகுதி) –ல் பு.ஹெ.0.44.10 மற்றும் 55/6 –இல் (பகுதி) பு.ஹெ.0.33.13 ஆகியவற்றில் மொத்தம் 2.29.73 ஹெக்டர் பரப்பு நிலத்தில் - சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் உள்ள காப்புக்காடுகள், சுற்றுச்சூழல் உணர்திறன்மண்டல பகுதிகள் மற்றும் சரணாலயங்கள் தொலைவு விபரம் அளிக்க கோரியது தொடர்பாக, மேற்படி பகுதிகளை களத்தணிக்கை மேற்கொண்டு பின்வரும் விபரங்கள் தெரிவிக்கப்படுகிறது.

விபரங்கள்:

குவாரி அமைக்கப்படவுள்ள இடமானது சத்தியமங்கலம் வனக்கோட்டம் தூக்கநாயக்கன்பாளையம் வனச்சரகம், பங்களாப்புதூர் வனப்பிரிவு, கொங்கர்பளையம் காவல்சுற்று, குத்தியாலத்தூர் காப்புக்காடு புலிகள் காப்பக வன எல்லையிலிருந்து கிழக்கில்டைவாறு அமைந்துள்ளது.

வ.எண்.	குவாரி அமைவிடம்		குத்தகைத்தரர் எல்லைக்கும் குவாரிக்கும் இடைப்பட்ட தூரம்	உரிமம் பெறப்பட்டுள்ள எல்லைக்கும் குவாரிக்கும் இடைப்பட்ட தூரம்
	புல எண்.	GPS Co-ordinates		
1	497	N 11.517951 E 77.37694	1.30 Km	0.30 Km
2	555/3	N 11.518296 E 77.376453	1.26 Km	0.2[illegible]
3	555	N 11.517658 E 77.376396	1.33 Km	0.33 Km

மேலும் கல்குவாரி குத்தகை உரிமம் கோரும் இடத்திற்கு அனுமதி வழங்கும் பட்சத்தில் பின்வரும் நிபந்தனைகளை பின்பற்ற தெரிவித்துமாறு கேட்டுக்கொள்ளப்படுகிறது.

- மேலும் கல்குவாரி குத்தகை உரிமம் கோரும் இடத்தினை சுற்றி தமிழ்நாடு மின்வேலிகள் (முறை மற்றும் ஒழுங்குமுறை) விதிகள்–2023–ன்படி அனுமதி பெற்று மின்வேலிகள் அமைக்கப்பட வேண்டும்.
- குவாரி பொருட்கள் எடுத்து செல்லும் போது சம்மந்தப்பட்ட வாகனத்தின் மீது முறையாக தார்பாய் மற்றும் கயிறு கொண்டு மூடப்பட்டு எடுத்துச்செல்ல வேண்டும்
- சுற்றுச்சுவர் கட்டிற்கும் குவாரி அமைவுள்ள இடத்திற்கும் இடைப்பட்ட 1260மீ பகுதியில் குவாரி பணிகள் மேற்கொள்ள அனுமதிக்க கூடாது.
- இக்கல்குவாரி அமைவுள்ள இடத்தினை சுற்றிலும் வனவிலங்குகள் உள்நுழையாவண்ணம் உரிய பாதுகாப்பு வேலிகளை அமைக்கப்பட வேண்டும்

Digitally signed by
Yogesh Vilas Kulal
Date: 01-08-2025
12:20:59 இயக்குநர்,
சத்தியமங்கலம் மலைக்கோட்டம்.

நகல்: மனச்சான்று அறிவுரை, தாளவாடி மலைச்சரகம்.

Assistant Director
Erode
Geology and Mining

இந்திய அரசாங்கம்
Government of India

குப்புராஜ் . க
Kuppuraj . K
தந்தை : கருத்திருமகவுடர்
Father : Karuthirumagowder

பிறந்த நாள் / DOB: 15/05/1990
ஆண்/மை / Male

5245 8270 4798

- சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

முகவரி: எ. கருத்திருமகவுடர், 16
காமராஜர் வீதி, கொங்கு நகர்
வாணிப்புத்தூர், வாணிபுதூர் (த பி)
தூக்கநாயக்கன்பாளையம், ஈரோடு
தமிழ் நாடு, 638506

Address: S/O:
Karuthirumagowder, 16,
KAMARJAR VEETHI,
KONGU NAGAR,
VANIPPUTHTHUR,
VANIPUTHUR (TP), Erode,
Thuckanaickenpalayam,
Tamil Nadu, 638506

5245 8270 4798

1947
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

Geology and Mining * Assistant Director * Erode

ANNEXURE VII

93 A

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

K KUPPURAJ

KARUTHIRUMAGOUNDER

05/07/1960

Permanent Account Number
AQWPK3948B

Signature





इस कार्ड के खोने/पाने पर कृपया सूचित करें/लौटाएं:
आयकर पैन सेवा इकाई, एन एस डी एल
चौथी मंजिल, 'ए' विंग, ट्रेड वर्ल्ड, कमला मिल्स कम्पाउंड,
एस. बी. मार्ग, लोअर परेल, मुम्बई - 400 013.

If this card is lost / someone's lost card is found, please inform / return to :
Income Tax PAN Services Unit, NSDL
4th Floor, 'A' Wing, Trade World,
Kamala Mills Compound,
S. B. Marg, Lower Parel, Mumbai - 400 013.

Tel: 91-22-2499 4650, Fax: 91-22-2495 0664,
email: tininfo@nsdl.co.in

Assistant Director
Erode
Geology and Mining

ANNEXURE

அண்ணாமலைப் பல்கலைக்கழகம்
ANNAMALAI UNIVERSITY

Assistant Director Mining
Reg. No : 08005



அறிவியற்புலம்
FACULTY OF SCIENCE

மே, 2010 இல் பயன்பாட்டு நிலத்தியல் பிரிவில்
நடத்திய தேர்வுகளில் சந்தோஷ்குமார் ம கூடுதல்
மதிப்புப்புள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று முதல் வகுப்பில்
தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி,
அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார்
என **அண்ணாமலைப் பல்கலைக்கழக ஆளவை** இதன்வழி அறிவிக்கினறது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **SANTHOSHKUMAR M** has been admitted to the Degree of **MASTER OF SCIENCE** in **APPLIED GEOLOGY**, he/she having secured **OGPA** of **7.04** out of **10.00** been certified by duly appointed Examiners at the Examination held in **MAY,2010** to be qualified to receive the same and that he/she was placed in **FIRST CLASS**.

பல்கலைக்கழக முத்திரை பெறுகின்றது
Given under the seal of the University

அண்ணாமலைநகர்
Annamalainagar
நாள்:
Dated: 06/10/2010

துணை தேர்வாணையர் (கல்விசார்ந்த)
Dy. Controller of Examinations (Academic)

Dr.M.Rathinasabapathi
பதிவாளர்
Registrar

Dr.M.Ramanathan
துணை வேந்தர்
Vice-Chancellor

ANNEXURE IV-A

Assistant Director * Erode * Geology and Mi...

GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT DIRECTORATE GENERAL OF MINES SAFETY

Certificate of Practical Experience granted by the Manager to a Candidate for a Manager's/ Surveyor's/ Mining foreman/ Mining Mate/ Blasters certificate of competency examination under Metalliferous Mines Regulation, 1961.

I, M.S.Pavel being the Manager of K.Pitchampatti Multicolor Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that **Thiru. M.santhoshkumar** son of **Thiu. R.Mathiyazhagan** (whose signature is appended) worked in the above mine from 10.07.2012 to 31.07.2018. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for certificate of competency.

M.S. Pavel

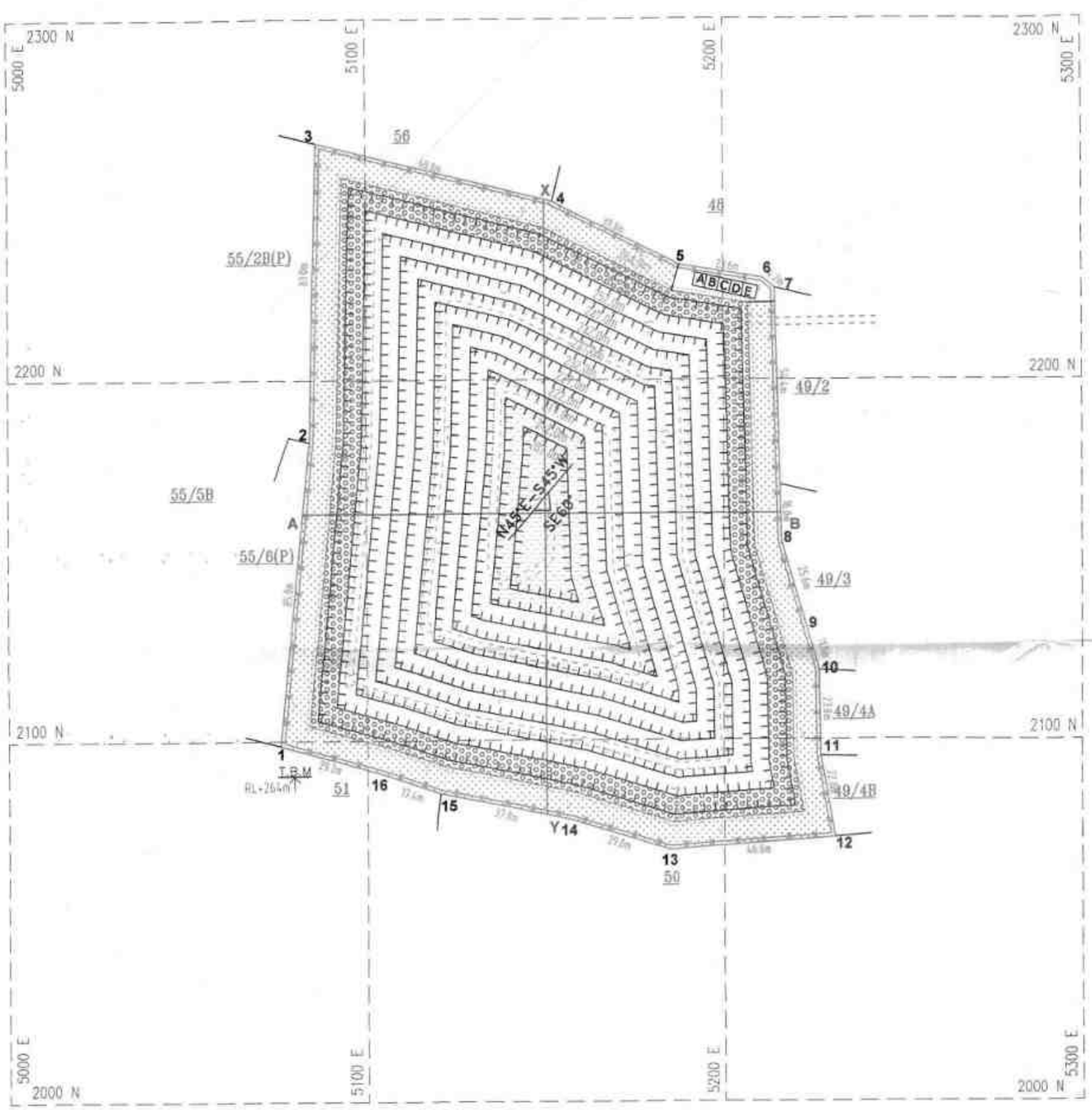
(Signature with date and official seal)

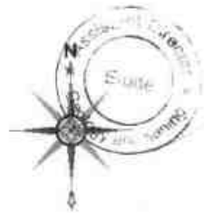
(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

M. Santhosh

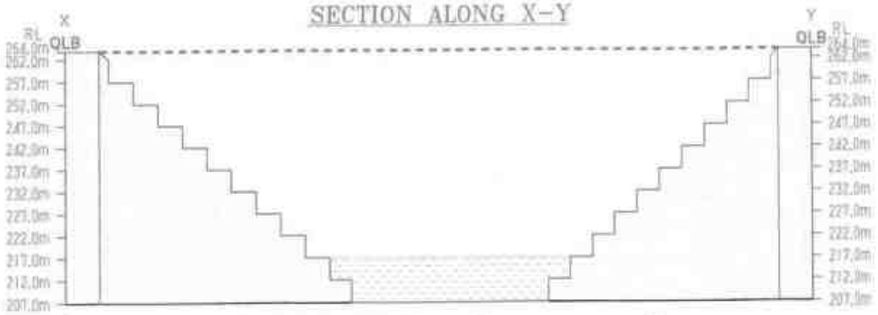
(Signature of Candidate)

State the name of the mineral works: Multi Colour Granite

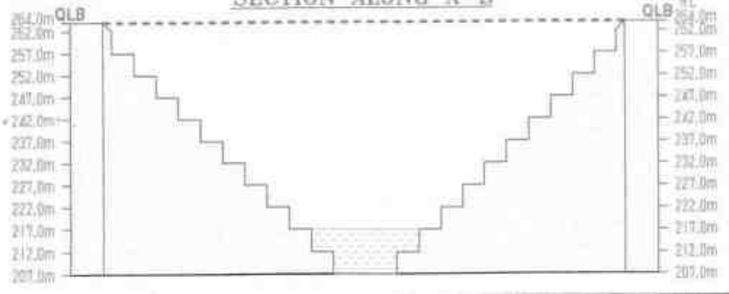




SECTION ALONG X-Y



SECTION ALONG A-B



SITE SERVICES
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

I-X Yr PLANTATION

Proposed Pit Dimension
153m(L)X117m(W)X57m(d)

PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	ADDITIONAL AREA REQUIRED DURING THE MINING PLAN(Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	NIL	1.85.90	1.85.90
INFRASTRUCTURE	NIL	0.01.00	0.01.00
ROADS	NIL	0.02.00	0.02.00
GREEN BELT	NIL	0.21.67	0.40.83
UN-UTILIZED AREA	2.29.73	0.19.16	NIL
GRAND TOTAL	2.29.73	2.29.73	2.29.73

PLATE NO-IV

DATE OF SURVEY : 29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/28(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- GRAVEL
- ROUGH STONE
- STRIKE AND DIP
- QUARRY ROAD
- QUARRY PIT
- EXISTING LANDFORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE
- FENCING
- PROPOSED GARLAND DRAIN
- REHABITATION

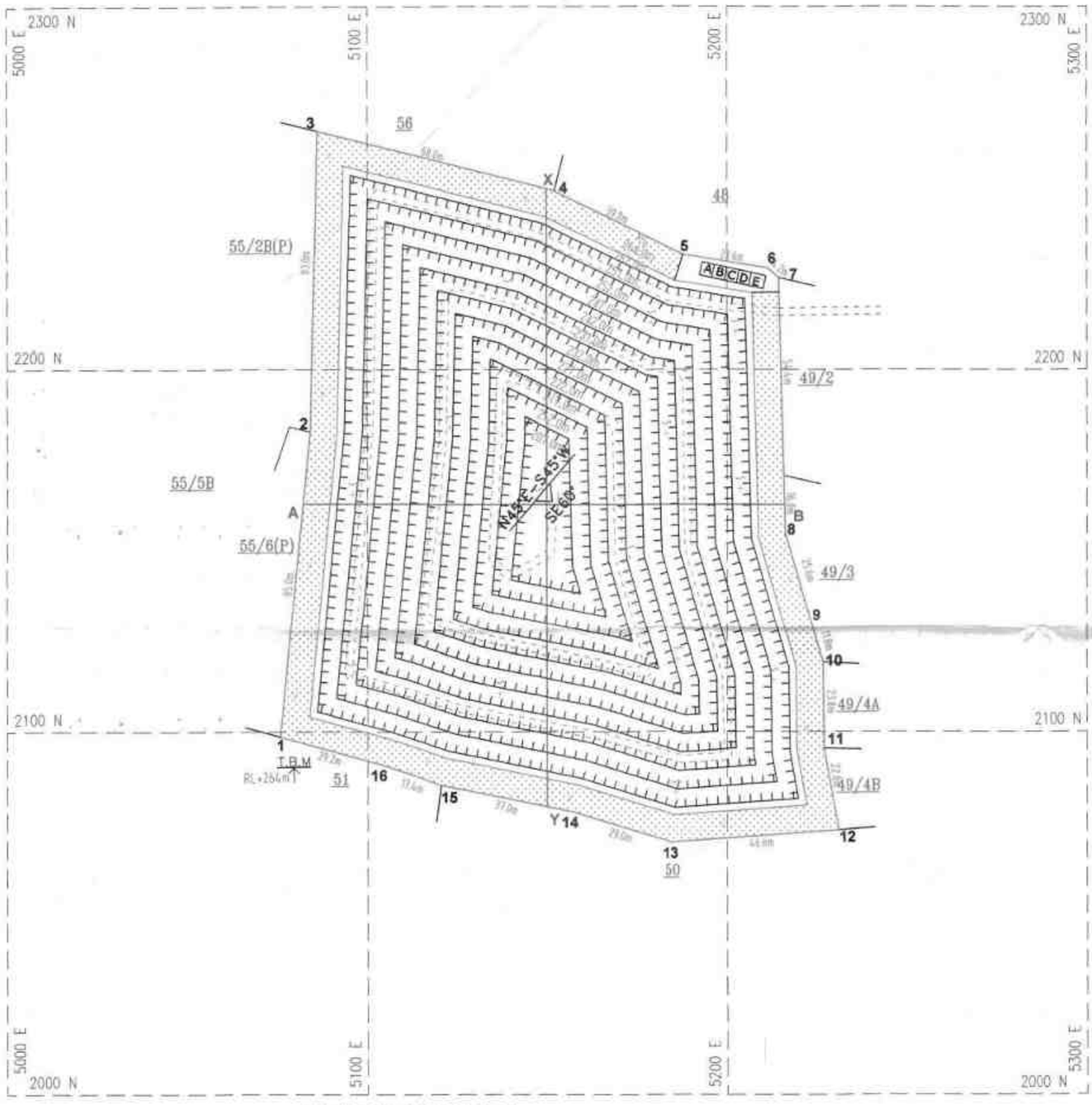
PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

SCALE 1 : 1000

PREPARED BY :

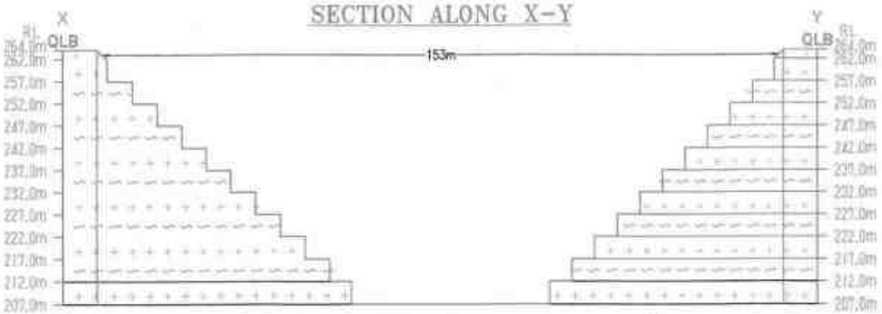
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT.

M. SANTHOSHKUMAR, M.Sc.,
AUTHORISED PERSON
Under Rule 10(1)(a)and(b)of MCR,2015

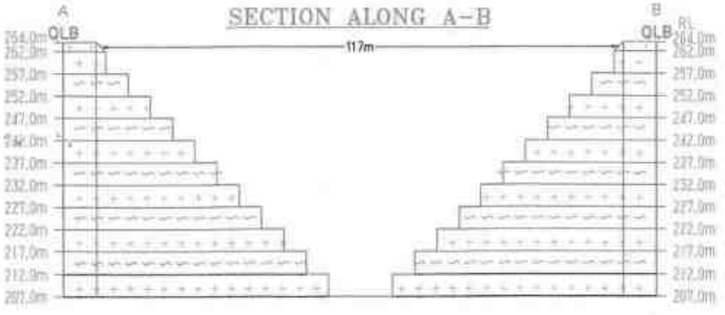




SECTION ALONG X-Y



SECTION ALONG A-B



SITE SERVICES
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

I-X Yr PLANTATION

Ultimate Pit Dimension
153m(L)X117m(W)X57m(d)

PLATE NO-V

DATE OF SURVEY : 29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No:16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM)
- APPROACH ROAD
- GRAVEL
- ROUGH STONE
- STRIKE AND DIP
- QUARRY ROAD
- QUARRY PIT

CONCEPTUAL PLAN & SECTIONS

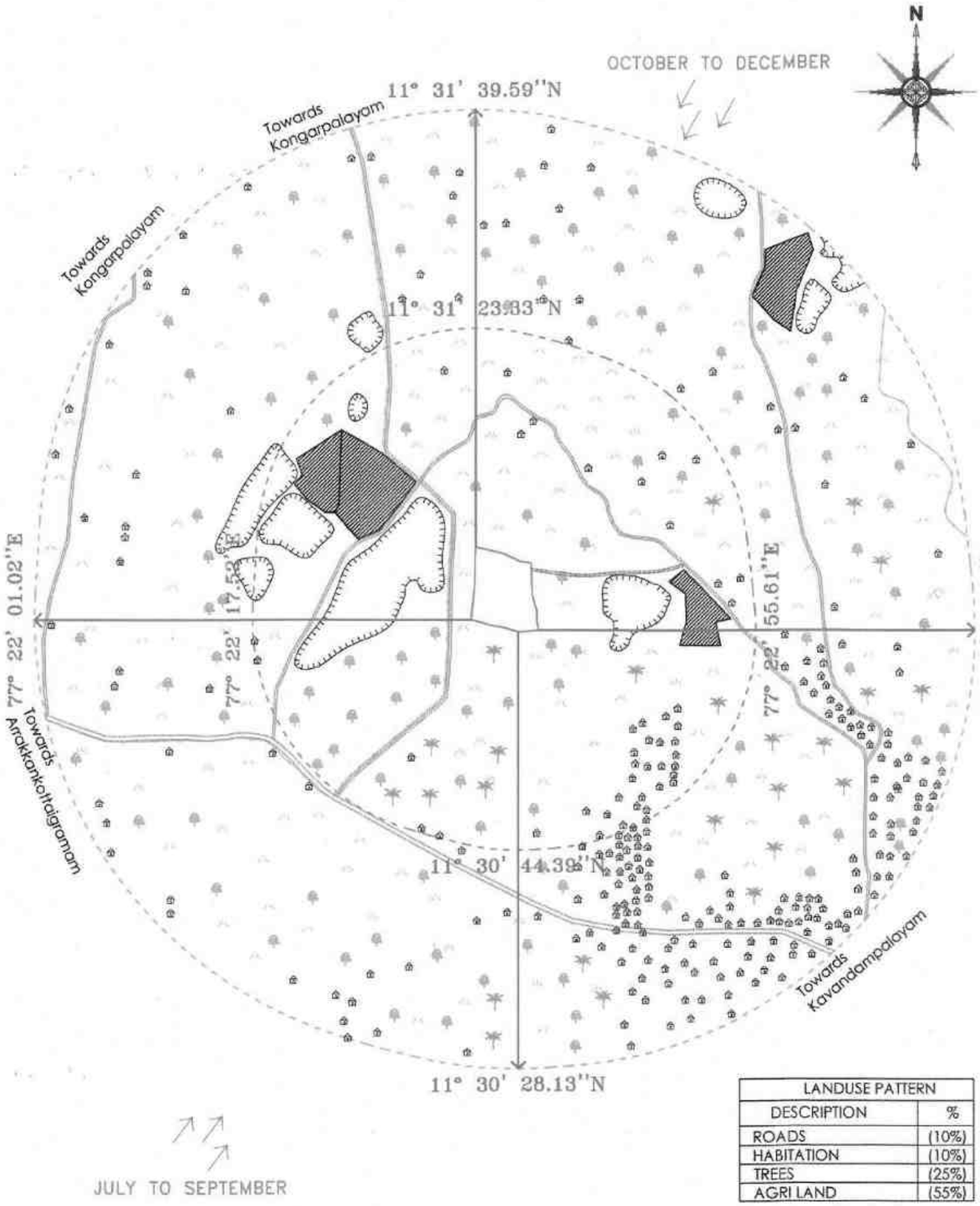
SCALE 1 : 1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Sankar

SANKAR,M.Sc.,
QP PERSON
Under Rule 15(1)(a)and(b)of MCR,2018



LANDUSE PATTERN	
DESCRIPTION	%
ROADS	(10%)
HABITATION	(10%)
TREES	(25%)
AGRI LAND	(55%)

PLATE NO:I-B

DATE OF SURVEY :29.11.2025

1Km Radius :

500m Radius

Q.L.Applied Area

TOPO SHEET NO. : 58 E/06

LATITUDE : 11° 31' 00.66"N to 11° 31' 39.59"N

LONGITUDE : 77° 22' 34.01"E to 77° 22' 39.12"E

Assistant Director Geology and Mining Erode

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- SEASONAL AGRICULTURAL LAND
- PIT
- CRUSHER PLANT
- WIND DIRECTION
- ODAI

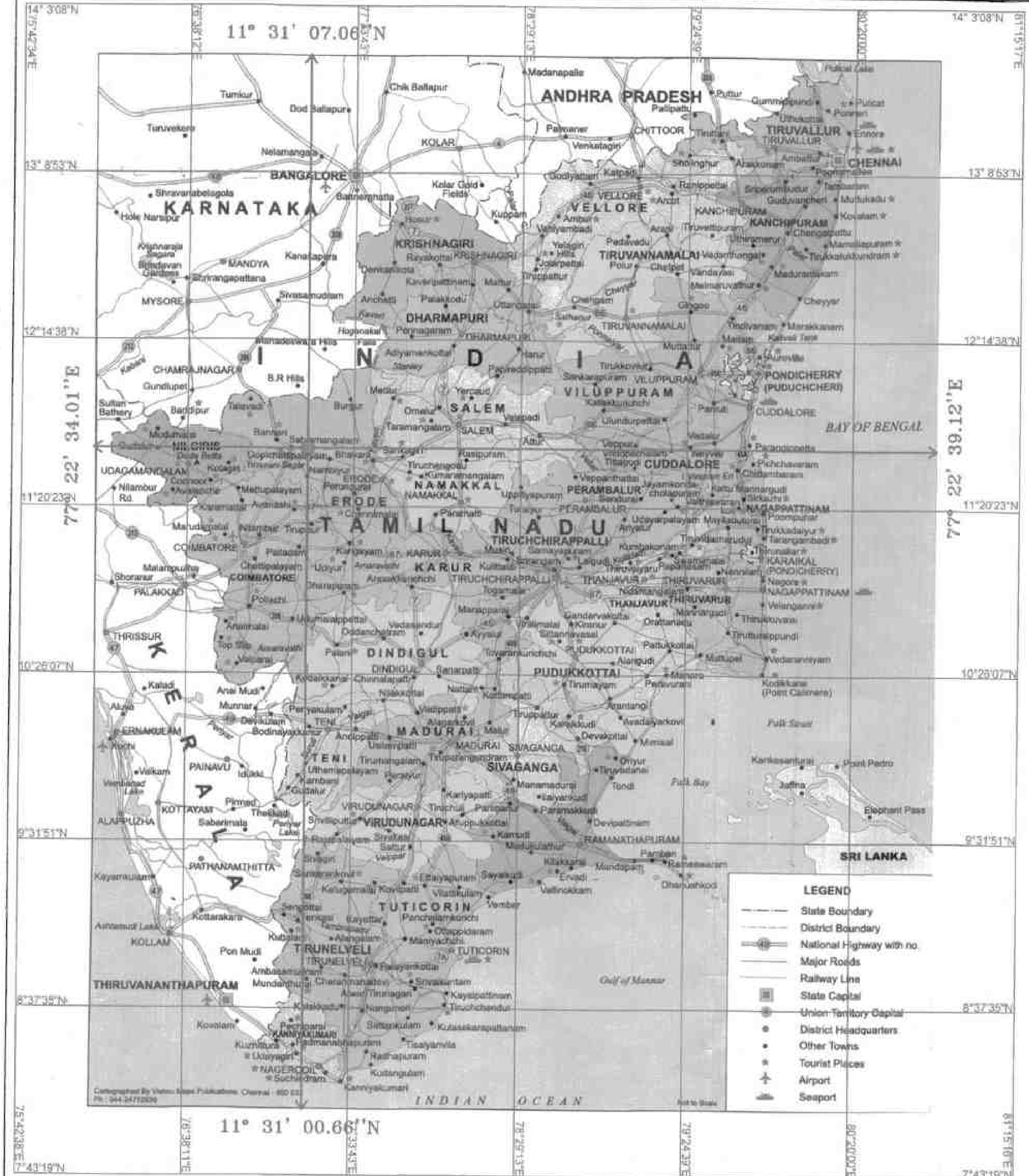
ENVIRONMENTAL AND LANDUSE PLAN (FOR 1Km RADIUS)

SCALE– 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M.SANTHOSHKUMAR M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b) of MMR,2015



Assistant Director
Erode
Geology and Mining

PLATE NO:I

DATE OF SURVEY :29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

Q. L. A. AREA :

TOPO SHEET NO. : 58 E/06

LATITUDE : 11° 31' 00.66''N to 11° 31' 07.06''N

LONGITUDE : 77° 22' 34.01''E to 77° 22' 39.12''E

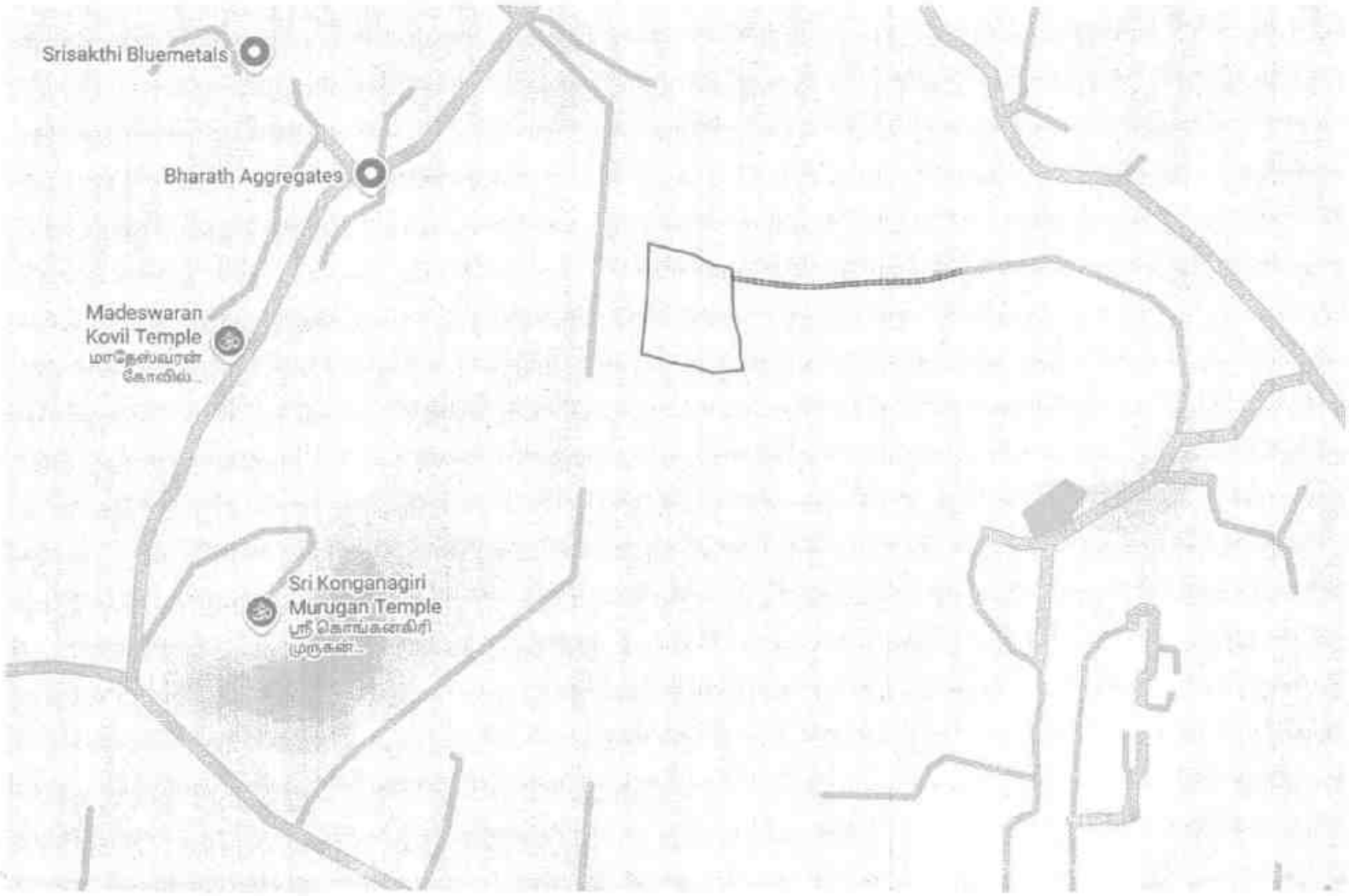
LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M.SANTHOSH...
QUALIFIED ...
Under Rule 15(1)(a)and(b)of MCR,2016



Assistant Director Geology and Mining Erode

PLATE NO:I-C

DATE OF SURVEY :29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

Q.L.APPLIED AREA

VILLAGE ROAD

APPROACH ROAD

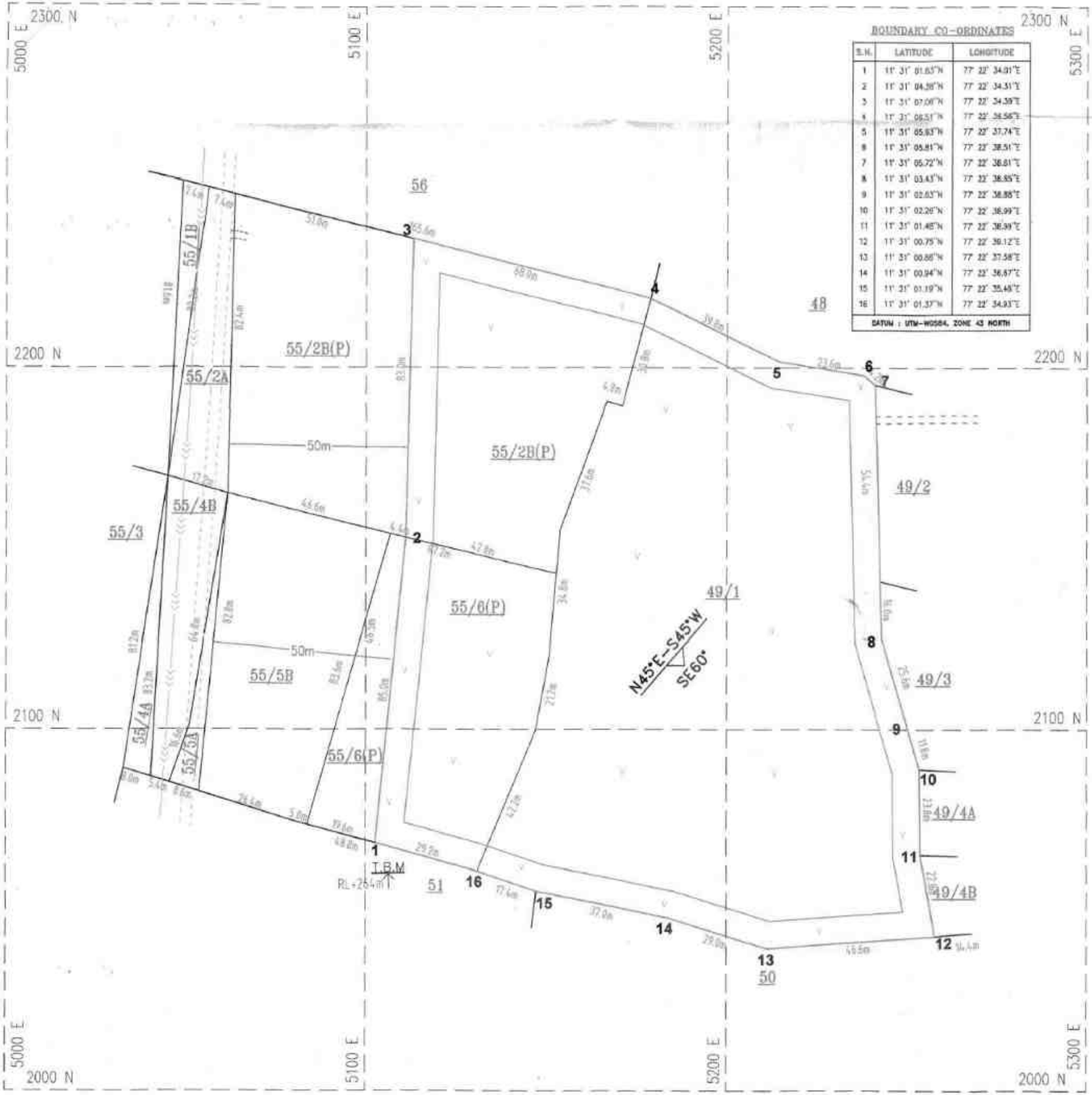
ROUTE MAP

Not To Scale

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED [illegible]
Under Rule 15(1)(a)and(b)of MCR,2016



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 31' 01.63"N	77° 22' 34.01"E
2	11° 31' 04.26"N	77° 22' 34.31"E
3	11° 31' 07.06"N	77° 22' 34.59"E
4	11° 31' 08.51"N	77° 22' 36.56"E
5	11° 31' 05.63"N	77° 22' 37.74"E
6	11° 31' 05.81"N	77° 22' 38.51"E
7	11° 31' 05.72"N	77° 22' 38.61"E
8	11° 31' 03.43"N	77° 22' 38.55"E
9	11° 31' 02.63"N	77° 22' 38.88"E
10	11° 31' 02.26"N	77° 22' 38.99"E
11	11° 31' 01.48"N	77° 22' 38.99"E
12	11° 31' 00.75"N	77° 22' 39.12"E
13	11° 31' 00.66"N	77° 22' 37.58"E
14	11° 31' 00.94"N	77° 22' 36.67"E
15	11° 31' 01.19"N	77° 22' 35.48"E
16	11° 31' 01.37"N	77° 22' 34.93"E

DATUM : UTM-WGS84, ZONE 43 NORTH

Assistant Director * Geology and Mining * Erode

N

PLATE NO-II

DATE OF SURVEY : 29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- APPROACH ROAD
- CART TRACK
- GRAVEL
- ODAI
- STRIKE AND DIP

QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Santhanakumar

M.Sc., M.Phil., M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b)of MCR,2015

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PLATE NO:I-A

DATE OF SURVEY :29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

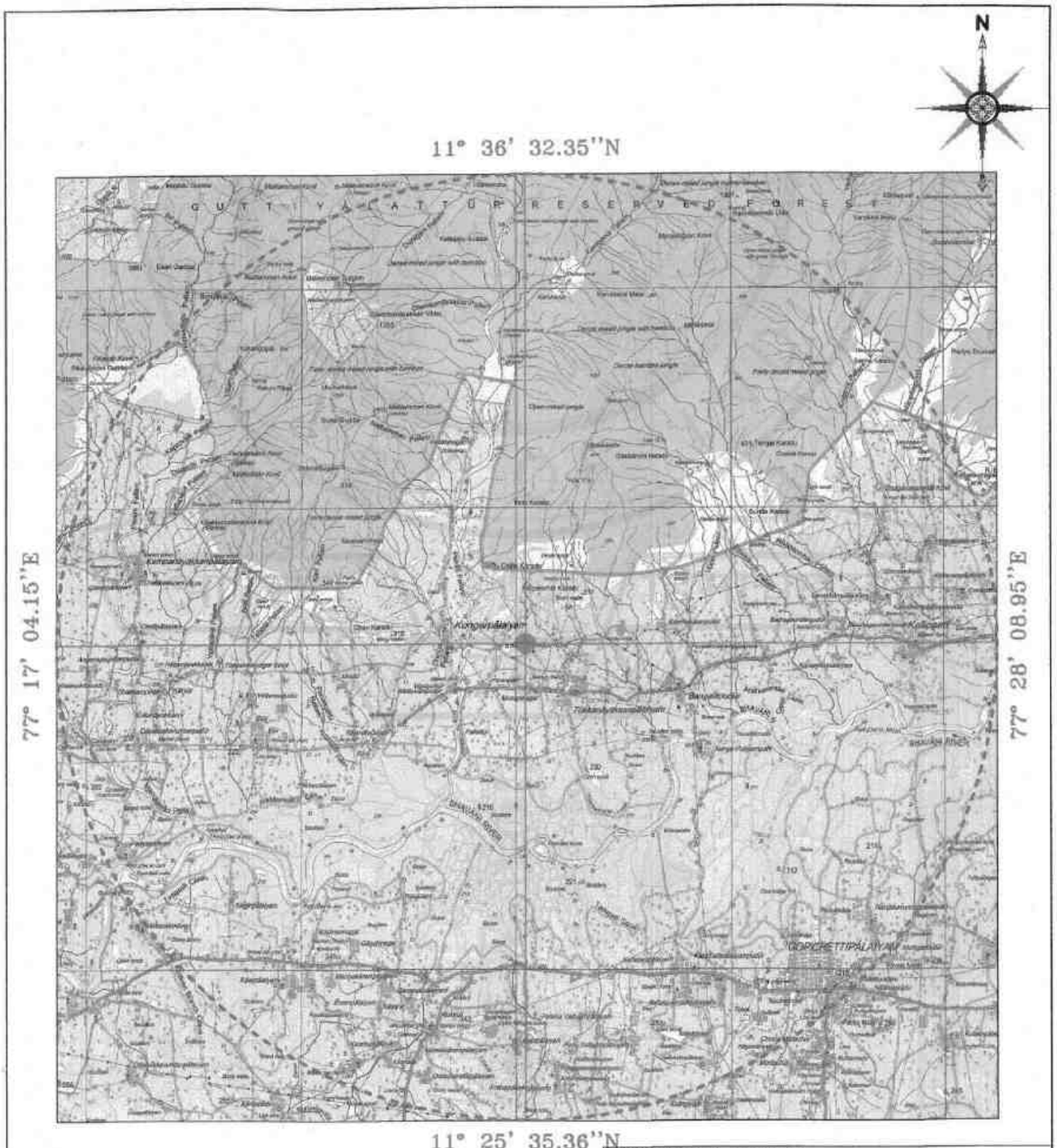
Assistant Director * Geology and Mining * Erode

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

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TOPO SHEET NO. : 58 E/06

LATITUDE : 11° 31' 00.66"N to 11° 31' 07.06"N

LONGITUDE : 77° 22' 34.01"E to 77° 22' 39.12"E

10KM RADIUS :

Q.L.APPLIED AREA :

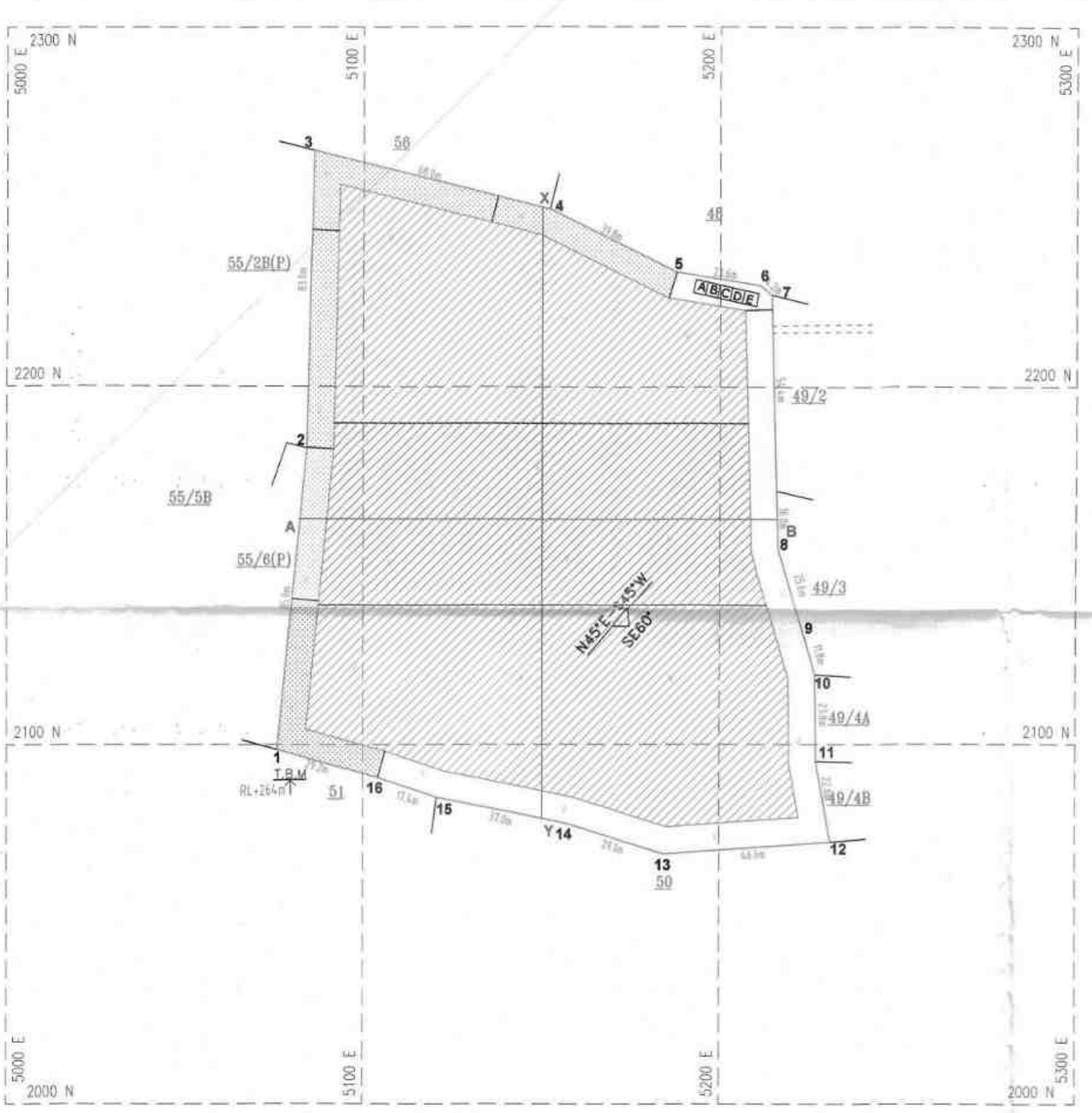
TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE- 1:100000

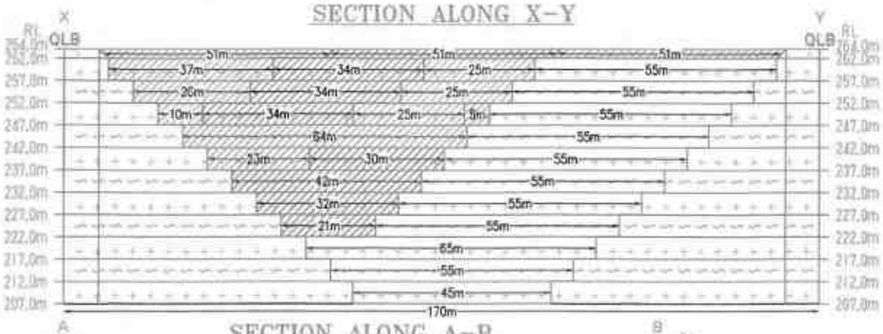
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

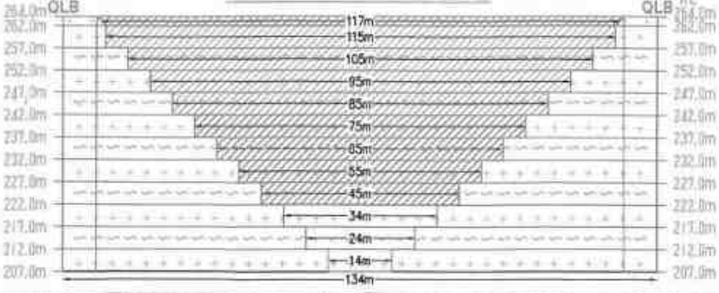
M.SANTHOSHKUMAR M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b) of MCR,2015



SECTION ALONG X-Y



SECTION ALONG A-B



SITE SERVICES (Proposed)
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

I Yr EXCAVATION	I Yr PLANTATION
II Yr EXCAVATION	II Yr PLANTATION
III Yr EXCAVATION	III Yr PLANTATION
IV Yr EXCAVATION	IV Yr PLANTATION
V Yr EXCAVATION	V Yr PLANTATION

PLATE NO-III

DATE OF SURVEY : 29.11.2025

APPLICANT:

THIRU . K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P)
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

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- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- APPROACH ROAD
- GRAVEL
- ROUGH STONE
- STRIKE AND DIP

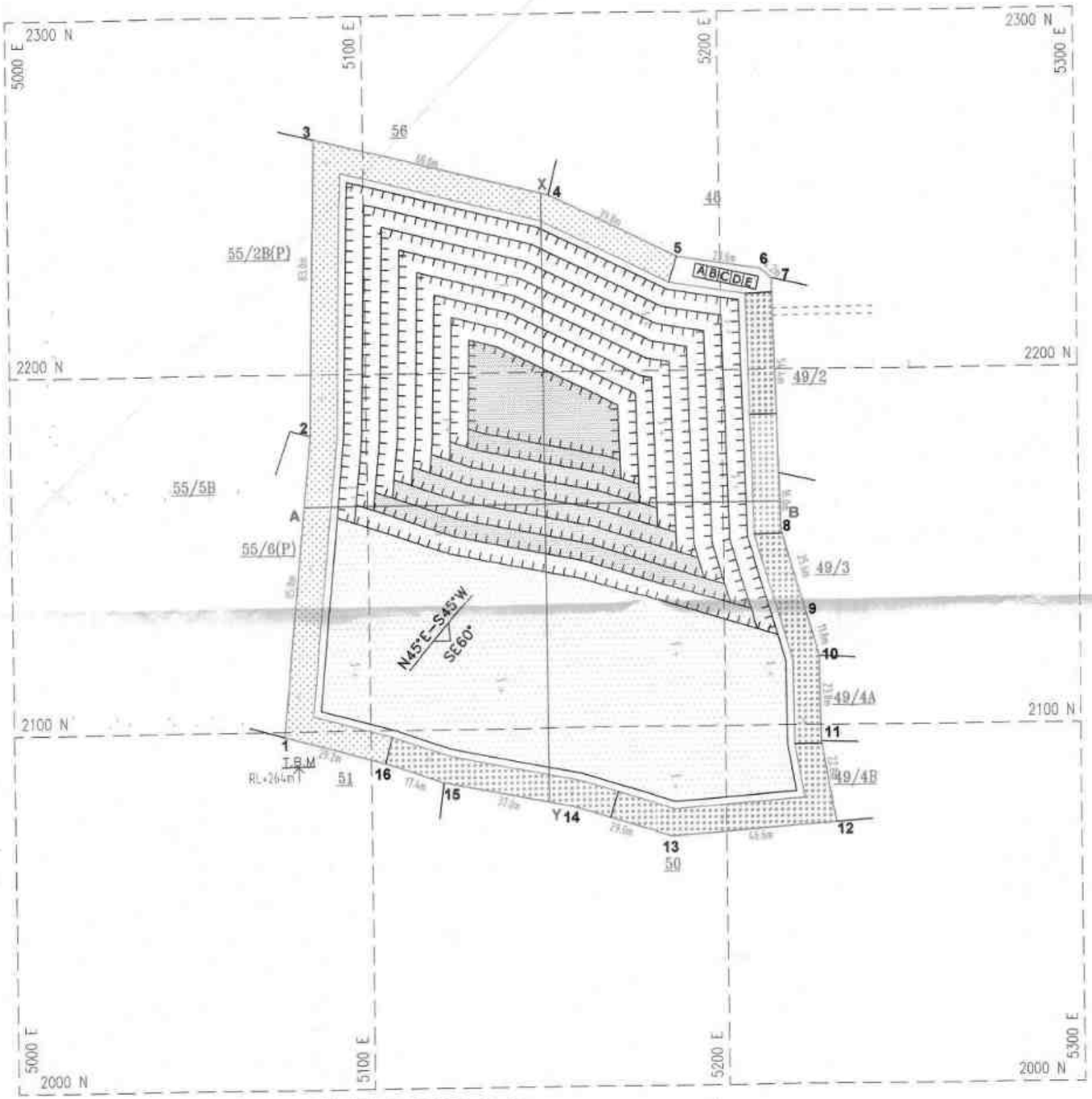
TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS FIRST "V" YEAR

SCALE 1 : 1000

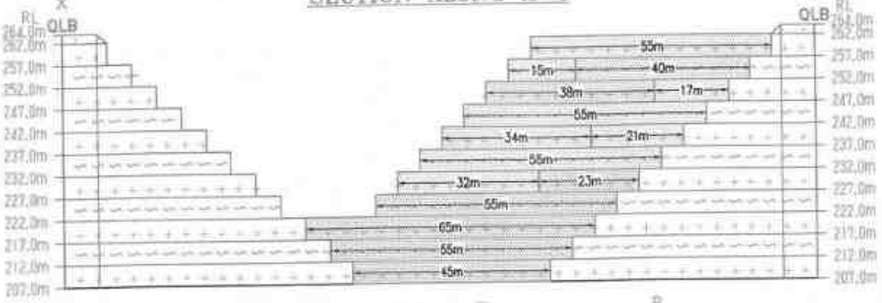
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

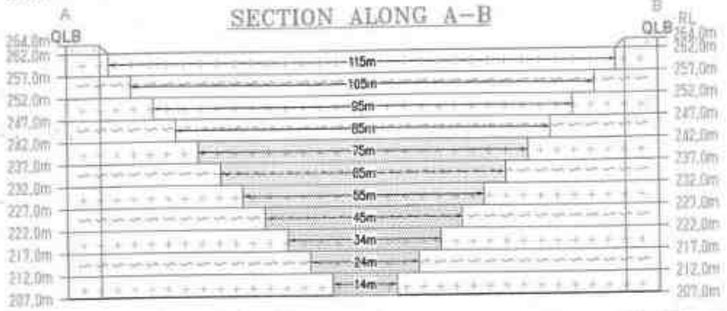
M. Sankar, M.Sc., M.A., M.L., M.P.L.
Licensed Surveyor
Under Rule 19(3)(a)and(3)(e) of MCR,2016



SECTION ALONG X-Y



SECTION ALONG A-B



SITE SERVICES
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

1st V Yr Proposed Pit Dimension
153m(L)X117m(W)X42m(d)

VI Yr EXCAVATION	I-V Yr PLANTATION
VII Yr EXCAVATION	VI Yr PLANTATION
VIII Yr EXCAVATION	VII Yr PLANTATION
IX Yr EXCAVATION	VIII Yr PLANTATION
X Yr EXCAVATION	IX Yr PLANTATION
	X Yr PLANTATION

PLATE NO-III-A

DATE OF SURVEY : 29.11.2025

APPLICANT:

THIRU , K. KUPPURAJ,
S/O. KARUTHIRUMAGOWDER,
No.16, KAMARAJAR STREET,
KONGU NAGAR, VANIPUDHUR,
T.N.PALAYAM, ERODE DISTRICT,
TAMIL NADU - 638 506.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.No.S	: 49/1,55/2B(P) & 55/6(P
EXTENT	: 2.29.73HA,
VILLAGE	: KAVUNDAMPALAYAM,
TALUK	: GOBICHETTIPALAYAM,
DISTRICT	: ERODE,
STATE	: TAMILNADU.

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- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- APPROACH ROAD
- GRAVEL
- ROUGH STONE
- STRIKE AND DIP

TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS SECOND "V" YEAR

SCALE 1 : 1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Santhosh Kumar

M. SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON
Rule 22(a)and(b)of MCR,2016

சான்று

T.S. ஒரு கலவட்டம், கோபிசெட்டிபாளையம் வட்டம் - வானிலிபுத்தூர் - அ கிராமம் 16. பிளாக்தூர் - T.N. பாளையம் என்னும் முகவரியில் வசித்து வரும் K. இன்பராஜ் த/பெ லேட். கருப்பண்ணகவுண்டர் என்பவருக்கு சொந்தமான மனை மற்றும் அவர்களுக்கு பாத்தியப்பட்ட நிலம் புல எண்கள் 49/1 -ல் 1.52.50 (4.வரை) 55/2B -ல் 0.84.50 (4.வரை) மற்றும் 55/6 -ல் 0.43.50 (4 வரை) என மொத்தம் 2.80.5 ஹெக்டேர் ஆகிய நிலத்தில் பாதிக்கப்பட்டதாகவும் இதனால் சுமார் 300 மீட்டர் சுற்றளவில் அமைந்துள்ள குடியிருப்புகள் மற்றும் விவசாயத் தோட்டங்கள் ஏதும் இல்லை என்பதை இதன் மூலம் தெரிவித்துக்கொள்கிறேன்.

சிராம நிர்வாக அலுவலர்,
78, கொங்கர்பாளையம் கிராமம்,
08, வெள்ளம்பாளையம் கிராமம்,
கோபி வட்டம்.

106 A

தமிழ்நாடு வனத்துறை

[illegible]

அனுப்புதல்

திரு.குவால் மோகேஷ் விலாஸ், இ.வ.ப.,
துணை இயக்குநர்,
சத்தியமங்கலம் வனக்கோட்டம்,
சத்தியமங்கலம் புலிகள் காப்பகம்,
சத்தியமங்கலம் - 638 402.

பெறுதல்

சார் ஆட்சியர்,
சார் ஆட்சியர் அலுவலகம்
கோபிசெட்டிபாளையம்.

ந.க.எண்.2815/2025/வ, நாள்: as per e-sign

ஐயா,

பொருள் : வனம் - கனிமமும் கரங்கமும் – ஈரோடு மாவட்டம் கோபிசெட்டிபாளையம் வட்டம் – கவுண்டம்பாளையம் கிராமம் புல எண்கள் 49/1–இல் பு.ஹெ.1.55.00, 55/2பி (பகுதி) –ல் பு.ஹெ.0.44.10 மற்றும் 55/6 –இல் (பகுதி) பு.ஹெ.0.33.13 ஆகியவற்றில் மொத்தம் 2.29.73 ஹெக்டர் பரப்பு நிலத்தில் - சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.கே.குப்புராஜ் த/பெ.கருமத்திருகவுடர் என்பவர் மனு செய்தது - குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் உள்ள காப்புக்காடுகள், சுற்றுச்சூழல் உணர்திறன்மண்டல பகுதிகள் மற்றும் சரணாலயங்கள் விபரம் கோருவது – தொடர்பாக.

பார்வை

1. சார் ஆட்சியர், கோபிசெட்டிபாளையம் ந.க.எண்.2815/2025/வ நாள்.12.03.2025
2. துணை இயக்குநர் சத்தியமங்கலம் வனக்கோட்டம் ந.க.எண்.2815/2025/வ நாள்.04.07.2025
3. வனச்சரக அலுவலர், தூ.நா.பாளையம் வனச்சரகம், ந.க.எண். 190/2025/வ நாள்.10.07.2025

----***----

மேற்காண் பொருள் தொடர்பாக, பார்வை –1ல் கண்ட கடிதத்தின்படி ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், கவுண்டம்பாளையம் கிராமம் புல எண்கள் 49/1–இல் பு.ஹெ.1.55.00, 55/2பி (பகுதி) –ல் பு.ஹெ.0.44.10 மற்றும் 55/6 –இல் (பகுதி) பு.ஹெ.0.33.13 ஆகியவற்றில் மொத்தம் 2.29.73 ஹெக்டர் பரப்பு நிலத்தில் - சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க குவாரி உரிமம் கோரும் புலத்திற்கு அருகில் உள்ள காப்புக்காடுகள், சுற்றுச்சூழல் உணர்திறன்மண்டல பகுதிகள் மற்றும் சரணாலயங்கள் தொலைவு விபரம் அளிக்க கோரியது தொடர்பாக, மேற்படி பகுதிகளை களத்தணிக்கை மேற்கொண்டு பின்வரும் விபரங்கள் தெரிவிக்கப்படுகிறது.

விபரங்கள்:

குவாரி அமைக்கப்படவுள்ள இடமானது சத்தியமங்கலம் வனக்கோட்டம் தூக்கநாயக்கன்பாளையம் வனச்சரகம், பங்களாப்புதூர் வனப்பிரிவு, கொங்கர்பளையம் காவல்சுற்று, குத்தியாலத்தூர் காப்புக்காடு புலிகள் காப்பக வன எல்லையிலிருந்து கீழ்க்கண்டவாறு அமைந்துள்ளது.

வ. எண்.	குவாரி அமைகிடம்		குத்தியாலத்தூர் வன எல்லைக்கும் குவாரிக்கும் இடைப்பட்ட தூரம்	உணர் திறன் மண்டல எல்லைக்கும் குவாரிக்கும் இடைப்பட்ட தூரம்
	புல எண்.	GPS Co-ordinates		
1	49/1	N 11.517961 E 77.37694	1.30 Km	0.30 Km
2	55/2A	N 11.518296 E 77.376453	1.26 Km	0.26 Km
3	55/5	N 11.517688 E 77.376396	1.33 Km	0.33 Km

மேலும் கல்குவாரி குத்தகை உரிமம் கோரும் இடத்திற்கு அனுமதி வழங்கும் பட்சத்தில் பின்வரும் நிபந்தனைகளை பின்பற்ற தெரிவிக்குமாறு கேட்டுக்கொள்ளப்படுகிறது.

- மேலும் கல்குவாரி குத்தகை உரிமம் கோரும் இடத்தினை சுற்றி தமிழ்நாடு மின்வேலிகள் (பதிவு மற்றும் ஒழுங்குமுறை) விதிகள்–2023–ன்படி அனுமதி பெற்று மின்வேலிகள் அமைக்கப்பட வேண்டும்.
- குவாரி பொருட்கள் எடுத்து செல்லும் போது சம்மந்தப்பட்ட வாகனத்தின் மீது முறையாக தூசி பறக்கா வண்ணம் மூடப்பட்டு எடுத்துச்செல்ல வேண்டும்
- கரப்புக்காட்டிற்கும் குவாரி அமையவுள்ள இடத்திற்கும் இடைப்பட்ட 1260மீ பகுதியில் குவாரி பணிகள் மேற்கொள்ள அனுமதிக்க கூடாது.
- இக்கல்குவாரி அமையவுள்ள இடத்தினை சுற்றிலும் வனவிலங்குகள் உள்நுழையாவண்ணம் உரிய பாதுகாப்பு வேலிகளை அமைக்கப்பட வேண்டும்

Digitally signed by
Yogesh Vilas Kulal
Date: 01-08-2025
12:20:59

துணை இயக்குநர்,
சத்தியமங்கலம் வனக்கோட்டம்.

நகல்: வனச்சரக அலுவலர், தூ.நா.பாளையம் வனச்சரகம்.

File No.: 12247
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
****

Dated **19/08/2025**

To,

Thiru.THUCKANAICKENPALAYAM MANOHARAN
S/o.Marannan,2.K.Subramaniam,S/o.Kolanthaigounder,3.R.P.Jaganathan,S/o.Palanigounder,Kovundampalayam Village,T.N.Palayam,Gobichettipalayam, Kavundanpalayam, ERODE, TAMIL NADU -638506
tmmanoharan246@gmail.com

Subject: Grant of prior Environmental Clearance (EC) to the proposed Mining Project under the provisions of EIA Notification 2006-as amended regarding

Sir/Madam,

Sub:SEIAA-TN - Proposed Rough Stone & Gravel quarry over an extent of 1.99.0 Ha at S.F. No. 49/2, 49/3 & 49/4A, Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu by Mr. T.M. Manoharan, Mr.K.Subramaniam, Mr.R.P.Jaganathan – under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

Ref:

1. ToR issued by SEIAA-TN vide Lr No. SEIAA-TN/F.No.9860/ToR- 1455/2023 Dated: 10.05.2023.
2. Public Hearing conducted on 16.08.2024.
3. Online Proposal No. SIA/TN/MIN/539875/2025, Dated: 31/05/2025.
4. Your Application for Environmental Clearance dated: 02.06.2025.
5. Minutes of the meeting 588th of SEAC held on 08.07.2025.
6. Minutes of the meeting 860th of SEIAA held on 25.07.2025.
7. Minutes of the meeting 868th of SEIAA held on 08.08.2025.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25B0108TN5644274N
(ii) File No.	12247
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals

(vii) Name of Project	Roughstone and Gravel Mining lease in Kavundampalayam village, Erode District
(viii) Location of Project (District, State)	ERODE, TAMIL NADU
(ix) Issuing Authority	SEIAA
(x) Applicability of General Conditions	No

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-2(Part A & B)/EMP Reports were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.

2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 08/08/2025. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above.

3.The SEAC, based on information submitted viz: Form2 (Part A, B)EMP report etc., & clarifications provided by the project proponent and after detailed deliberations on all technical aspects and compliance thereto furnished by the Project Proponent, recommended the proposal for grant of Environment Clearance under the provision of EIA Notification, 2006 and as amended thereof subject to stipulation of Specific and Standard EC conditions as detailed in the point below.

4.The SEIAA has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the SEAC hereby accords Environment Clearance for the instant proposal to Mr. T.M. Manoharan, Mr.K.Subramaniam, Mr.R.P.Jaganathan under the provisions of EIA Notification, 2006 and as amended thereof subject to compliance of the Specific and Standard EC conditions as given in Annexure (2)

5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

6.The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable,to the project.

7.The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

8.Salient features of the proposal are as follows:

Sl. No	Salient Features of the Proposal		
1	Name of the Owner/Firm and Address	:	**Mr. T.M. Manoharan,** **Mr.K.Subramaniam,** **Mr.R.P.Jaganathan** Kovundampalayam Village, T.N.Palayam, Gobichettipalayam, Erode – 638506.
2	Type of quarrying (Ordinary Stone/Sand/Granite/Limestone)	:	Rough Stone & Gravel
3	S.F Nos. of the quarry site	:	49/2, 49/3 & 49/4A
4	Village in which situated	:	Kovundampalayam
5	Taluk in which situated	:	Gobichettipalayam
6	District in which situated	:	Erode
7	Extent of quarry (in ha.)	:	1.99.0Hect
8	Latitude & Longitude of all corners of the quarry site.	:	11°31'1.41"N to 11°31'5.74"N, 77°22'38.63"E to 77°22’44.51"E
9	Topo Sheet No.	:	58-E/06
10	Type of mining	:	Opencast Mechanized Mining Method
11	Details of Environmental Setting.	:	**<u>Habitation</u>** • T.N. Palayam- 300m – South

			Water Bodies • Bhavani River- 3.45km – SE **Reserve Forests/ Protected forests** • Guthiyalathur R.F- 1.26km- North **National parks / Wildlife Sanctuaries** Sathyamangalam Tiger Reserve- 1.26km-North.
13	Details of Previous History	:	· It is a Fresh Lease
15	Date of ToR		Lr. No. SEIAA-TN/F.No.9860/ToR- 1455/2023 Dated: 10.05.2023
16	Date of Public Hearing		16.08.2024
17	Details of EC/ToR Granted in the Cluster.		• S.Kandasamy – (EC Granted) Lr.No.SEIAA-TN/F.No.8616/1(a)/EC. No:5652/2021 dated: 03.04.2023 • K.Indirani – 2.91.5Hect (EC Granted) Lr.No.SEIAA TN/F.No.8478/1(a)/EC.No: 5854/2022 dated: 10.07.2023
18	Period of Current Mine Plan		10 Years
19	Production (Quantity in m^3)		**236640 m^3 of rough stone & 25200 m^3 of gravel**
20	Depth of mining		**depth of 47m BGL**
20	Depth of water table	:	65m
21	Man Power requirement per day:	:	20 No's
22	Water requirement 1. Drinking and domestic 2. Dust Suppression 3. Green Belt	:	3.5 KLD 1.5KLD 1.0KLD 1.0KLD
23	Power requirement	:	1,93,512 Litres
24	Precise area communication approved by the Dept. of Geology & Mining	:	Rc.No.15255/Mines/2018, Dated: 10.02.2023
25	Mining Plan approved by the Dept. of Geology & Mining.	:	Rc.No.15255/Mines/2018, Dated: 07.05.2025
26	500m cluster letter issued by the Dept. of Geology and Mining, Collectorate.	:	Rc.No.15255/Mines/2018, Dated: 21.02.2023
27	VAO Certificate Regarding Structures within 300m Radius	:	VAO Letter obtained on 22.02.2023
28	Project Cost (excluding EMP cost)	:	Rs. 37,25,000/-
29	EMP cost (in Rs. Lakhs).	:	Capital Cost – 21.74 L Recurring Cost – 19.27 L
30	CER cost (in Rs. Lakhs).	:	Rs. 5.0 Lakhs
	Validity: **This Environmental Clearancc is accorded for the quantity of 236640 m^3 of rough stone & 25200 m^3 of gravel up to the depth of 47m BGL and the annual peak production should not exceed 39320 m^3 of rough stone & 8800 m^3 of gravel.** **The Environmental Clearance issued is valid as per the approved mine plan period and as per MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022.**		

9.General Instructions:

(i)The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of SEIAA website where it is displayed.

(ii)The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same

for 30 days from the date of receipt.
(iii)The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.
(iv)Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.
(v)Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
The Regional Office of this SEIAA shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
(vi)Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
10. This issue with an approval of the Competent Authority. For information on deliberations, refer to the minutes of SEAC and SEIAA available in the PARIVESH Portal.

Copy To

1. The Secretary, Ministry of Mines, Government of India, ShastriBhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resource Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chair Person, Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chair Person, TNPC Board,76, Mount Salai,Guindy, Chennai-32
7. The District Collector, Erode District
8. The Commissioner of Geology and Mines,Guindy,Chennai-32
9. The Assistant Director, Department of Geology & Mining, Erode District.
10. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Seiaa Specific Conditions:

S. No	EC Conditions
1.1	1. Keeping in view of MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022, this Environmental Clearance is valid as per the approved mine plan period. 2. The EC granted is subject to review by District Collector, Mines Dept. and TNPCB on completion of every 5 years and also during the mine plan period, till the project life so as to review the EC conditions and to ensure that they have all been adhered to and implemented. 3. The project proponent shall submit a Certified Compliance Report obtained from RO of MoEF&CC to the monitoring, regulatory and other concerned authorities including SEIAA, while seeking a renewal of the mining plan to cover the project life. 4. There should be regular monitoring of air quality, water quality, ground water level and noise

S. No	EC Conditions
	quality and reports regarding the same should be submitted to TNPCB, SEIAA & RO of MoEF&CC once in every 6 months. 5. The proponent shall strictly adhere to the mining plan and half yearly and annual returns shall be submitted to the Director of Geology and Mining Department with copy marked to TNPCB, SEIAA & RO of MoEF&CC. 6. Biodiversity in and around the project area should be monitored frequently and detailed biodiversity report should be submitted every year to SEIAA & RO of MoEF&CC. 7. The progressive and final mine closure plan including the green belt implementation and Environmental norms should be strictly followed as per the EMP and as per the amount committed and approved in EC for EMP. Status of progressive mine closure and green belt implementation should be included in the half yearly compliance report submitted to TNPCB, SEIAA & RO of MoEF&CC. 8. As per the OM vide F. No. IA3-22/1/2022-IA-Ill [E- 172624] Dated: 14.06.2022, the Project Proponents are directed to submit the six-monthly compliance on the Environmental conditions prescribed in the prior Environmental clearance letter(s) through newly developed compliance module in the PARIVESH Portal from the respective login. A copy of the half yearly compliance report should be mailed to envcompseiaatn@gmail.com. 9. The amount allocated for EMP should be kept in a separate account and both the capital and recurring expenditures should be done year wise for the works identified, approved and as committed. The work & expenditure made under EMP should be elaborated in the bi-annual compliance report submitted and also should be brought to the notice of concerned authorities during inspections. 10. The plantation of saplings shall be carried out in the earmarked greenbelt area as a part of the tree plantation campaign “Ek Ped Ma Ke Naam” and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

2. Seac Conditions - Site Specific

S. No	EC Conditions
2.1	**Major Condition:** **Other site specific condition:** 1) The PP shall mark the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left within the lease boundary and protective bunds and shall also erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB. 2) The PP shall carry out the required number of plantations as committed in the EMP without deviation before obtaining the CTO from the TNPCB. 3) The PP should strictly maintain the bench formation of 5m x 5m and the mine design parameters as per the approved mining plan. 4) The PP shall only carry out only the NONEL-based (or) Electronic Detonator based blasting operation along with statutory competent persons and should not carry out deep hole blasting. 5) As accepted by the Project Proponent the CER cost is Rs. 5,00,000/- and the amount shall be spent for the Government Higher Secondary School, Kongarpalayam Village, Gobichettipalayam Taluk, Erode before obtaining CTO from TNPCB.

3. Seac Standard Condition – Ordinary Stone

S. No	EC Conditions
3.1	

SEAC Standard condition – Ordinary Stone

Category		Conditions
General		The validity of Environmental Clearance (EC) shall be extended in accordance with EIA Notification, 2006 vide S.O.2944 (E) dated: 14.09.2016, as amended from time to time, if necessary.
		The EC does not exempt the Proponent and/or his appointed contractors and operator from securing other government approvals or preclude other agencies/departments from enforcing their rules and regulations.
		All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
Land	2.1	The ECH must not carry out any activity: · Within 60 m from the Reserve Forest. · Within the notified environmentally sensitive area of notified protected areas. · Within 1 km of protected areas where the environmentally sensitive area has not been notified.
Water	3.1	The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity.
Safety	4.1	The ECH shall ensure that the blasting operations shall be carried out with a prior notice to the habitations situated around the proposed quarry. The ECH also should post sentries/guards adequately to ensure safety to the public.
	4.2	The ECH shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
	4.3	The ECH shall ensure that the blasting operations are carried out by the blaster/Mine Mate/Mine Foreman **duly employed** by him/her in accordance with the provisions of MMR 1961.
	4.4	For the safety of the persons employed in the quarry, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall **during the 4th year or when the depth exceeds 30m whichever is earlier**, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Dept of Mining Engg-Anna University Chennai. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
Social & OHS	5.1	The ECH shall register promptly through online in the **Shram Suvidha Portal** which is the official portal of Ministry of Labour & Employment, Govt of India to obtain **Labour Identification**

S. No	EC Conditions

		Number (LIN) before obtaining the CTO from the TNPCB.
	5.2	The ECH shall **annually** carry out an Occupational Health Survey (OHS) **in accordance with the guidelines & period of examination laid in the DGMS (Tech.) (S&T) Circular No. 01 of 2011**, on OHS of the persons working in mines prone to generate the airborne dust, under Section 9A of Mines Act, 1952 and a copy of the annual compliance certificate shall be submitted to the SEIAA, IRO, MoEF&CC, TNPCB, AD/Mines-DGM and DMS, Chennai.
	5.3	The ECH shall install a 'Bio-toilet' and Rest shelter facility for the persons employed in the mine before obtaining the CTO from the TNPCB.
	5.4	The ECH shall monitor the whole-body vibration level of all the machineries deployed and shall undertake adequate measures to reduce whole-body vibration (WBV) exposure to eliminate the adverse occupational health hazards/impacts caused to the operators. The report on the periodic monitoring shall be included in the HYCR.
Miscellaneous	6.1	The ECH shall ensure that the provisions of the MMDR Act, 1957 & TNMMCR, 1959 are compiled by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure, the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
	6.2	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 adhere to the EMP as committed.
	6.3	The ECH shall use only the road indicated in the mining plan for transportation purposes. ECH shall monitor the condition of the road at all times and if the roads are damaged, ECH shall approach the District Collector for the maintenance of haulage road/village / Panchayat Road under DMF.
	6.4	The ECH shall abide by the production schedule specified in the approved mining plan and if any deviation is observed, it will render the ECH liable for legal action in accordance with Environment and Mining Laws.
	6.5	The PP to erect Display board as Appendix-II

Abbreviations:

ECH	=	Environment Clearance Holder
HYCR	=	Half Yearly Compliance Report.
CTO	=	Consent to Operate
DMF	=	District Mining Fund
IRO	=	Integrated Regional Office of MoEF&CC
CPCB	=	Central Pollution Control Board
WRD	=	Water Resources Department
DMS	=	Director of Mine Safety
OHS	=	Occupational Health and Safety
NABL	=	National Accreditation board for Testing and Calibration

S. No	EC Conditions
	<table><tr><td></td><td></td><td>Laboratories</td></tr><tr><td>TNMMCR</td><td></td><td>Tamil Nadu Minor Mineral Concession Rules</td></tr><tr><td colspan="3"></td></tr><tr><td colspan="3"></td></tr></table>

4. Seiaa Standard Conditions:

S. No	EC Conditions
4.1	**a) EC Compliance:** 1. The Environmental Clearance is accorded based on the assurance from the project proponent that there will be full and effective implementation of all the undertakings given in the Application Form, Pre-feasibility Report, mitigation measures as assured in the Environmental Impact Assessment/ Environment Management Plan and the mining features including Progressive Mine Closure Plan as submitted with the application. 2. All the conditions as presented by the proponent in the PPT during SEAC appraisal should be addressed in Full. 3. The proponent shall submit Compliance Reports on the status of compliance of the stipulated EC conditions including results of monitored data. It shall be sent to the respective Regional Office of Ministry of Environment, Forests and Climate Change, Govt. of India and also to the Office of State Environment Impact Assessment Authority (SEIAA). 4. Concealing the factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986. **b) Applicable Regulatory Frameworks:** 5. The project proponent shall strictly adhere to the provisions of Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation &Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002, Biological diversity Rules, 2004 & TN Forest Act, 1882 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter. **c) Safe mining Practices:** 6. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission of slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc and ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study. 7. A minimum buffer distance specified as per existing rules and statutory orders shall be maintained from the boundary of the quarry to the nearest dwelling unit or other structures, and from forest boundaries or any other ecologically sensitive and archeologically important areas or the specific distance specified by SEIAA in EC as per the recommendations of SEAC depending on specific local conditions. **d) Water Environment – Protection and mitigation measures:** 8. The proponent shall ensure that the activity does not disturb the water bodies, neighboring open wells, bore wells and natural flow of surface and groundwater, nor cause any pollution, to water sources in the area nor effect the water quality and water quantity in the water sources. 9. Water level in the nearest dug well in the downstream side of the quarry should be monitored

S. No	EC Conditions
	regularly and included in the Compliance Report. 10. Quality of water discharged from the quarry should be monitored regularly as per the norms of State Pollution Control Board and included in the Compliance Report. 11. Rain Water Harvesting facility should be installed as per the prevailing provisions of TNMBR/TNCDBR, unless otherwise specified. Maximum possible solar energy generation and utilization shall be ensured as an essential part of the project. 12. Regular monitoring of flow rates and water quality upstream and downstream of the springs and perennial nallahs flowing in and around the mine lease area shall be carried out and reported in the compliance reports to SEIAA. At any stage, if it is observed that ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. 13. Garland drains and silt traps are to be provided in the slopes around the core area to channelize storm water. De-silting of Garland canal and silt traps have to be attended on a daily basis. A labour has to be specifically assigned for the purpose. The proponent shall ensure the quality of the discharging storm water as per the General Effluent Discharge Standards of CPCB. **e) Air Environment – Protection and mitigation measures:** 14. The activity should not result in CO2 release and temperature rise and add to micro climate alternations. 15. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads. **f) Soil Environment – Protection and mitigation measures:** 16. The proponent shall ensure that the operations neither result in loss of soil biological properties and nutrients nor deplete the indigenous soil seed bank and disturb the mycorrizal fungi, soil organism, soil community and result in eutrophication of soil and water. Further, the activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health. 17. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration. 18. The proponent shall ensure that the mine restoration is done using mycorrizal VAM, vermincomposting, Biofertilizers and the topsoil is protected and used in planting activities, site restoration and establishment of green belt in the area to ensure soil health and biodiversity conservation. 19. The top soil shall be temporarily stored at earmarked place (s) and used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. At critical points, use of geotextile shall be undertaken for stabilization of the dump. Protective wall or gabions should be made around the dump to prevent erosion / flow of sediments during rains. The entire excavated area shall be backfilled. 20. Activities should not result in invasion of site by exotic and alien plant and animal species and disturb the native biodiversity and soil micro flora and fauna. **g) Noise Environment – Protection and mitigation measures:** 21. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines. The activity of the proponent should not effect the biological clock of the villages resulting in stress, sleeping disorders affecting health. **h) Biodiversity - Protection and mitigation measures:** 22. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities. 23. No trees in the area should be removed and all the trees numbered and protected. In case trees

S. No	EC Conditions
	fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around. Also, the activities should not disturb the agro biodiversity, agro farms, green lands and grazing fields of all types. Actions to be taken to promote agroforestry, mixed plants to support biodiversity conservation in the mine restoration effort. 24. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area. **i) Climate Change:** 25. There should be least disturbance to landscape resulting in land use change, contamination and alteration of soil profiles leading to Climate Change. 26. Operations should not result in GHG releases and extra power consumption leading to Climate Change. 27. Mining through operational efficiency, better electrification, energy use, solar usage, use of renewable energy should try to decarbonize the operations. 28. Mining should not result in water loss from evaporation, leaks and wastage and should support to improve the ground water. 29. Mining activity should be flood proof with designs and the drainage, pumping techniques shall ensure climate-proofing and socio-economic wellbeing in the area and vicinity. **j) Reserve Forests & Protected Areas:** 30. The activities should provide nature based support and solutions for forest protection and wildlife conservation. 31. The project activities should neither result in forest fires, encroachments nor create forest fragmentation and disruption of forest corridors and alter the geodiversity and geological heritage of the area. 32. There should be no disturbance to the freshwater flow from the forest impacting the water table and wetlands. 33. The project proponent should support all activities of the forest department in creating awareness to local communities on forest conservation. 34. The activities should not result in temperature rise due to increased fossil fuels usage disrupting the behaviour of wildlife and flora. 35. The activities should support and recognise the rights and roles of indigenous people and local communities and also support sustainable development. 36. The project activities should support the use of renewables for carbon capture and carbon storage in the project site and forest surrounds. 37. The project activities should not result in changes in forest structure, habitats and genetic diversity within forests. **k) Green Belt Development:** 38. The proponent shall ensure that in the green belt development more indigenous trees species as suggested in Appendix of SEAC Minutes are planted and that the area is restored and rehabilitated with native trees . **l) Workers and their protection:** 39. The project proponent is responsible for implementing all the provisions of labour laws applicable from time to time to quarrying /Mining operations. The workers on the site should be provided with on-site accommodation or facilities at a suitable boarding place, protective equipment such as ear muffs, helmet, etc. 40. The proponent has to provide insurance protection to the workers and the working hours and wages shall be implemented/enforced as per the Mines Act, 1952 in the case of existing mining or

S. No	EC Conditions
	provide the affidavit in case of fresh lease before execution of mining lease. **m) Transportation:** 41. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centres. 42. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions. **n) Storage of wastes** 43. The project proponent shall store/dump the waste generated within the earmarked area of the project site for mine closure as per the approved mining plan. **o) CER/EMP:** 44. The CER should be fully Implemented and fact reflected in the Half-yearly compliance report. 45. The EMP shall also be implemented in consultation with local self-government institutions & Govt. departments as indicated in SEAC meeting. **p) Directions for Reclamation of mine sites:** 46. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services. 47. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association. 48. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and

S. No	EC Conditions
	plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions. 49. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc., of pioneering spices should be collected, preserved and used in restoring the site. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses. 50. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoil should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for re-establishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. Efforts should to taken to aesthetically improve the mine site. Action taken for restoration of the site should be specifically mentioned in the EC compliances.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.2	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
1.3	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
1.4	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.5	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State

S. No	EC Conditions
	Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
1.6	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area."
1.7	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.8	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.9	This Environmental Clearance (EC) is subject to orders/ judgment of Honble Supreme Court of India, Honble High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.10	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.11	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
1.12	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.13	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
1.14	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

2. Air Quality Monitoring And Preservation

S. No	EC Conditions
2.1	The project proponent use leak proof trucks/dumpers carrying mineral and cover them with tarpaulin.

3. Water Quality Monitoring And Preservation

S. No	EC Conditions
3.1	Adhere to Zero Liquid Discharge
3.2	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry and State Groundwater Department / State Pollution Control Board.
3.3	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from SGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from SGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
3.4	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
3.5	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
3.6	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
3.7	The project proponent shall practice rainwater harvesting to maximum possible extent.

4. Noise Monitoring And Prevention

S. No	EC Conditions
4.1	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.
4.2	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.

5. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
5.1	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.
5.2	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
5.3	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.

6. Energy Conservation Measures

S. No	EC Conditions
6.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
6.2	Provide LED lights in their offices and residential areas.

7. Mining Plan

S. No	EC Conditions
7.1	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
7.2	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

8. Land Reclamation

S. No	EC Conditions
8.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
8.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
8.3	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
8.4	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

9. Waste Management

S. No	EC Conditions
9.1	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.

10. Green Belt And Emp

S. No	EC Conditions
10.1	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
10.2	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

11. Transportation

S. No	EC Conditions
11.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
11.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

12. Public Hearing And Human Health Issues

S. No	EC Conditions
12.1	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
12.2	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
12.3	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
12.4	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
12.5	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated in order to avoid contamination of underground water.

13. Green Belt

S. No	EC Conditions
13.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

14. Corporate Environment Responsibility

S. No	EC Conditions
14.1	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
14.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
14.3	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
14.4	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
14.5	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

15. Miscellaneous

S. No	EC Conditions
15.1	44) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

S. No	EC Conditions
15.2	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC)/SEIAA-TN.
15.3	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
15.4	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
15.5	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
15.6	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
15.7	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
15.8	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
15.9	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.
15.10	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
15.11	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
15.12	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
15.13	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

S. No	EC Conditions
15.14	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
15.15	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
15.16	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
15.17	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
15.18	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
15.19	In pursuant to Ministrys O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
15.20	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
15.21	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
15.22	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

16. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
16.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of

S. No	EC Conditions
	commencement of the project.

AFFIDAVIT FURNHSED BY THE PROPONENT

We, 1. T.M. Manoharan S/o. Marannan, 2. K. Subramaniam S/o. Kolanthaigoundar & 3. R.P. Jaganathan S/o. Palanigounder, residing at Kovundampalayam Village, T.N.Palayam, Gobichettipalayam, Erode – 638506. Solemnly declare and sincerely affirm that, I had applied for getting an Environment Clearance to SEIAA-Tamil Nadu for rough stone and gravel mining lease in Patta land at S.F.No's: 49/2, 49/3 & 49/4A, Over an Extent of 1.99.0 Hectares, Kovundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State.

1) I solemnly declare and sincerely affirm that the project doesn't attract general conditions as per EIA notification, 2006.
    a) The Sathyamangalam Tiger Reserve sanctuary is situated about 1.26km away from the northern side of the lease area.
    b) No critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act 1974.
    c) No eco-Sensitive areas as notified around 10km radius.
    d) There is no interstate within 10km radius from the boundary of the proposed site.
    e) There is no coastal zone found around 10km radius and this project site doesn't attract CRZ Notification, 2019.
2) I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

Government Higher Secondary School, Kongarpalayam Village, Gobichettipalayam Taluk, Erode District.	
CER Activity	**CER Cost**
Toilet construction	4,50,000/-
Laboratory chemicals, instruments	50,000/-
Total Cost Allocation	**Rs. 5,00,000/-**

a) EMP BUDGET (10 Years)

Activities	Mitigation measure	Provision for Implementation	Capital in Rs	Recurring in Rs
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	20,000	20,000

		maintenance @ Rs. 10,000/- per hectare		
	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	8,00,000	50,000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5,000
	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 - 6Units	50,000	5,000
	No overloading of trucks/tippers/tractors	Monitoring through weighing machines	0	2,90,000
	Stone carrying trucks will be covered	Monitoring if trucks will be covered by tarpaulin	0	10,000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governers @ Rs. 5000/- per Tipper/Dumper deployed - 4Units	40,000	4,000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5,000
	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	40,000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50,000	20,000
Noise Environment	Source of noise will be during operation of	Provision made in Operating Cost	0	0

	transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.			
	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
	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 / Competent Person (Provision made in Operating Cost)	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50,000	2,000

	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Bulk density of rock = 2.6 for Rough Stone/Granite; = 2.5 for Limestone; 6 tons of production requires 1 kg pf explosives; Cost of NONEL = Rs. 30 per kg.	0	4,92,000
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25,000	20,000
		Installation of dust bins	5,000	2,000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	20,000	10,000
	2. Progressive Closure Activity 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	4,00,000	20,000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - 200 trees inside lease area & 300 trees outside the 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)	1,60,000	24,000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	60,000	6,000

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	64,000	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	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	10,000	1,000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50,000
	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) - 20 Employees	80,000	20,000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	20,000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/- for 2 kits	0	4,000
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	2,00,000	0

	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10,000	2,000
	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	1,00,000	20,000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30,000	5,000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd 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	7,80,000
Conservation Measures	-	-	-	-
Total			**Rs. 21.74 L**	**Rs. 19.27 L**

Recurring cost in Year 1	**Recurring cost @ 5% inflation Rs in Lakhs**								
	Year 2	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
19.27	20.23	21.24	22.30	23.41	24.58	25.80	27.09	28.44	29.86

Total Recurring cost for 10 years in Lakhs	**Total Cost (Capital + Recurring) in Lakhs**
Rs. 242.22 Lakhs	**(Rs. 21.74 L + Rs. 242.22 L) = Rs. 263.96 Lakhs**

3) Details of quarry located within 500m radius from the periphery our lease area.

i) Existing Quarries:

S.No	Name of the Applicant	S. F. No	Extent (Hect)	Lease Period
--Nil--				

ii) Proposed Quarries:

Sl. No	Name of the Applicant	S.F. Nos	Extent (Hect)	Remarks
1	T.M. Manoharan, K.Subramaniam, R.P.Jaganathan	49/2, 49/3, 49/4A	1.99.0 hect	Fresh lease
2	S. Kandasamy	63/1, 64/1A, 64/3A, 64/5A	2.66.0 hect	Previously held under quarrying lease. Lastly held under quarrying lease for the period from 09.03.2009 to 08.03.2014 granted vide district collector proceeding R.C. No. 9557/ 2009/ X-2 dated 09.03.2009. After expiry of the lease period, afresh application has been received on 26.06.2018 and the same is under process
3	K. Indirani	55/1A (Part), 55/3 (Part), 58	2.91.5 hect	Previously held under quarrying lease. Lastly held under quarrying lease for the period from 09.03.2009 to 08.03.2014 in S.F. No. 55/3, 55/4A, 58 granted vide district collector proceeding R.C. No. 71408/ 2007/ X-2 dated 09.03.2009. After expiry of the lease period, afresh application has been received on 05.08.2013 and the same is under process

iii) Lease Expired & Abandoned Quarries:

Sl. No	Name of the applicant	S. F. No	Extent (Hect)	Lease Period
1	K. Kuppuraj	52/2C	1.27.0 hect	02.12.2014 to 01.12.2019
2	S. Kandasamy	70/9 (Part)	5.00.0	09.01.2011 to 08.01.2016
3	M. Seenivasan	70/9 South Part	2.00.0	26.04.2010 to 25.04.2020

4) There will not be hindrance or disturbance to the people living no enrooted / nearby our quarry site while transporting the mineral our material and due to quarrying activities.
5) The required insurance will be taken in the name of the laborers working in our quarry lease area.
6) 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 and gravel.
7) I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
8) All types of safety/ protective equipment will be provided to all the laborers working in our quarry lease area.
9) I will maintain the bench height and width in the proposed area while mining as given in the approved mining plan as per the Reg.106 of MMR.1961.
10) I will engage the DGMS authorized person for quarrying and blasting operation. Controlled blasting using non-electric detonators will use to break the rock and should follow the mitigation measures proposed in EMP to control the fly rocks within 20m distance.
11) I ensure that the fencing and the tree plantation done by me in the lease area is shown in photographs attached in power point presentation submitted to authority and adequate water sprinkling for the life of the mine will carry out without deviation.

I ensure to do all the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

DETAILS OF QUARRIES LOCATED WITHTN 5OOM RADILS FROM THE PROPOSED QUARRY:

The Project Proponent has submitted a copy of the letter obtained from the Deputy Director Department of Geology and Mining, Erode District in his letter Rc.No.15255/Mines/2018, Dated: 21.02.2023 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows.

i) Existing Quarries:

S.No	Name of the Applicant	S. F. No	Extent (Hect)	Lease Period
--Nil--				

ii) Proposed Quarries:

Sl. No	Name of the Applicant	S.F. Nos	Extent (Hect)	Remarks

1	T.M. Manoharan, K.Subramaniam, R.P.Jaganathan	49/2, 49/3, 49/4A	1.99.0 hect	Fresh lease
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3	M. Seenivasan	70/9 South Part	2.00.0	26.04.2010 to 25.04.2020

STANDARD CONDITIONS

Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
   - **I. The project has been accorded Environmental Clearance.**
   - **II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
   - **III. Environmental Clearance may also be seen on the website of the SEIAA.**

IV. **The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.

15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF&CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
    i. Roads shall be graded to mitigate the dust emission.
    ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
    i. Proper and regular maintenance of vehicles and other equipment
    ii. Limiting time exposure of workers to excessive noise.
    iii. The workers employed shall be provided with protection equipment and earmuffs etc.
    iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
    v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control)(Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF&CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.

24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
    i. Retention/ toe walls shall be provided at the foot of the dumps.
    ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF&CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF&CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.

47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.

71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF&CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO2, NOx or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity

Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

Signature Not Verified

Digitally Signed by : A R Rahul Nadh IAS
Member Secretary, SEIAA

Date: 19/08/2025

ENVIRONMENTAL CLEARANCE

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive, and Virtuous Environmental Single-Window Hub)

Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)

To,

The Proprietor
KANDASAMY S
Kavundampalayam Gobichettipalayam -638051

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/404467/2022 dated 01 Feb 2023. The particulars of the environmental clearance granted to the project are as below.

1.	**EC Identification No.**	**EC23B001TN110210**
2.	**File No.**	8616
3.	**Project Type**	New
4.	**Category**	B
5.	**Project/Activity including Schedule No.**	1(a) Mining of minerals
6.	**Name of Project**	S.Kandasamy Rough Stone and Gravel Quarry
7.	**Name of Company/Organization**	KANDASAMY S
8.	**Location of Project**	TAMIL NADU
9.	**TOR Date**	N/A

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 02/05/2023

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (TAMIL NADU)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/F.No.8616/1(a)/EC.No:5652/2021dated:03.04.2023

Sub: SEIAA, TN – Proposed Rough stone & Gravel quarry lease over an extent of 2.66.0 Ha in, SF. Nos. 63/1, 64/1A, 64/3A & 64/5A of Kavundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu by Thiru.S.Kandasamy – under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

Ref:
1. Your application submitted Terms of Reference dated: 07.07.2021.
2. TOR Issued vide letter No.SEIAA.TN/F.No.8616/SEAC/ToR-1025/2021 dated:26.08.2021.
3. Public Hearing conducted on 28.07.2022.
4. Online Proposal No. SIA/TN/MIN/ 404467/2022,Dt. 28.10.2022.
5. Project proponent submitted EIA Report to SEIAA-TN on 31.10.2022.
6. Minutes of the 350th SEAC meeting held on 02.02.2023.
7. Minutes of the 595th SEIAA meeting held on 20.02.2023 & 21.02.2023.
8. Minutes of the 361st SEAC meeting held on 10.03.2023.
9. Minutes of the 607th SEIAA meeting held on 03.04.2023.

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Details of Minor Mineral Activity:-

This has reference to your application 4th & 5th cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	Thiru.S.Kandasamy S/o.K.R.Subramaniam No.12/1, Kamaraj Street Chinna Kodiveri Gobichettipalayam Erode District-638503
2.	Type of quarrying	Rough stone & Gravel
3.	S.F No. of the quarry site	63/1, 64/1A, 64/3A & 64/5A
4.	Village in which situated	Kavundampalayam
5.	Taluk in which situated	Gobichettipalayam
6.	District in which situated	Erode
7.	Extent of quarry (in ha.)	2.66.0Ha
8.	Latitude & Longitude of all corners of the quarry site	11°31'05.96" N to 11°31'05.96" N 77°22'17.19"E to 77°22'24.38"E
9.	Topo Sheet No.	58 E/06
10.	Type of mining	Opencast Mechanized Mining
11.	Period of current mine plan	5 years
12.	Production (Quantity in m^3)	As per the mining plan the lease period is 5 years. The mining plan is for the period of five years & the production should not exceed 2,63,585m^3 of Rough stone & 25,380m^3 of Gravel with depth of mining 35m BGL.
13.	Depth of mining	35m BGL
14.	Depth of water table	70m in summer season -65 in rainy season
15.	Man Power requirement	36 Employees

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16.	Water requirement: 1. Domestic & Flushing 2. Dust suppression 3. Green Belt	**3.0 KLD** 1.0 KLD 1.5 KLD 0.5 KLD
17.	Power requirement	TNEB 2.48,180 Liters of HSD for the entire period of life.
18.	Precise area communication approved by the Assistant Director, Dept. of G&M with date	Na.Ka.No.18122/2018/X-1 dated: 07.05.2021
19.	Mining Plan approved by the Assistant Director, Dept. of Geology and Mining with date	Rc.No.18122/2018/X-1 dated: 31.05.2021
20.	500m cluster letter issued by the Assistant Director, Dept. of Geology and Mining with date	Rc. No.18122/2018/X-1 dated: 02.06.2021
21.	VAO certificate regarding habitations in 300m radius	Letter dated: 01.06.2021
22.	Certified Compliance Report (CCR)	NA
23.	DFO letter	Na.Ka.No.6852/2022/v
24.	Project Cost (excluding EMP)	Rs. 60.11 Lakhs
25.	EMP cost	Rs. 341.42 Lakhs
26.	ToR details	ToR issued vide Lr.No.SEIAA-TN/F.No. 8616 / SEAC/ToR-1025/2021 dated 26.08.2021.
27.	Public hearing details	Public hearing conducted on Dated: 28.07.2022.
28.	EIA report submitted on	EIA received on : **31.10.2022.**
29.	CER Cost	Nil
30.	**Validity:** **This Environmental Clearance is accorded for the quantity of 2,63,585m^3 of Rough stone & 25,380m^3 of Gravel up to depth of 35m as per the approved mining plan and is valid as per the approved mine plan period and as per MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022.**	

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The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that I, **S. Kandasamy** S/o. K.R.Subramaniam, aged about 58years, residing at., No.12/1, Kamaraj Street, Chinna Kodiveri, Gobichettipalayam Taluk, Erode District, Tamil Nadu State – 638 503, solemnly declare and sincerely affirm that, I had applied for getting prior Environment Clearance to SEIAA-Tamil Nadu for rough stone and gravel quarry lease in patta land at S.F.No. 63/1, 64/1A, 64/3A and 64/5A over an extent of 2.66.0hectares of Kavundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu State.

1. I swear to state and confirm that within 10km radius, from the quarry site none of the following is situated.
    a. The Sathiyamangalam Wildlife Sanctuaries located within 1.08km radius on the Northern side of the lease area.
    b. No Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act 1974.
    c. No Eco-Sensitive areas as notified around 10km radius periphery of the lease area.
    d. There is no inter-state boundary is situated within the radius of 10km periphery of our lease area.
    e. There is no coastal zone found around 10km radius and this project site doesn't attract CRZ Notification, 2011.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	CER Cost
Panchayat Union Primary School, Kongarpalayam Village, Erode	
Providing smart board Magnetic	1,00,000/-
RO Water facilities	20,000/-
Toilet Facilities	80,000/-
Total Cost Allocation	**Rs. 2,00,000/-**
Sathyamangalam Tiger Reserve Forest, Erode	**Rs. 5,00,000/-**
Total Cost Allocation	**Rs. 7,00,000/-**

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3. The quarries are located within 500m radius from the periphery of our quarry site.

i) Details of Existing Quarries:

S.No	Name of the Applicant	S.F.Nos	Extent (In Hect.)	Lease Period	Remarks
--Nil--					

ii) Details of Proposed Quarries:

S.No	Name of the Lessee	S.F.No	Extent (Hect)
1.	Thiru.S.Kandasamy	63/1, 64/1A, 64/3A and 64/5A	2.66.0 Hect
2.	Tmt.K.Indirani	55/1A (Part), 55/3 (Part) and 58	2.91.5 Hect

iii) Details of Lease Expired and Abandoned Quarries:

S.No	Name of the Lessee	S.F.No	Extent (in Hect.)	Lease Period	Remarks
1.	Thiru.T.P.Perumal	70/5	0.86.5	26.04.2010 to 25.04.2015	Lease Expired
2.	Tmt.T.P.Manonmani	70/7	1.25.0	03.05.2010 to 02.05.2015	Lease Expired
3.	Thiru.S.Kandasamy	70/9 (Part)	5.00.0	09.01.2011 to 08.01.2016	Lease Expired
4.	Thiru.K.Kuppuraj	57/2C	1.27.0	02.12.2014 to 01.12.2019	Lease Expired
5.	Thiru.M.Seenivasan	70/9 South part	2.00.0	26.04.2010 to 25.04.2020	Lease Expired

3. There will not be hindrance or disturbance to the people living no enrouted / nearby our quarry site while transporting the mineral our material and due to quarrying activities.
4. There is no approved habitation within 300m radius from the periphery of our lease area.
5. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
6. The required insurance will be taken in the name of the laborers working in our lease area.
7. 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 and gravel.

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8. I will not engage any child labor in our quarry site and we aware that engaging child labor is punishable under the law.
9. All types of safety/protective equipment will be provided to all the laborers working in our lease area.
10. No permanent structures, temples etc., are located within 500m radius from the periphery of our lease area.

I ensure to do all the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

Details of Quarries located within 500M radius from the proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director Department of Geology & Mining, Erode District in his letter Rc. No.18122/2018/X-1 dated: 02.06.2021 has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

1. **Existing Quarries:**

S.No	Name of the Applicant	S.F.Nos	Extent (In Hect.)	Lease Period	Remarks
--Nil--					

2. **Proposed Quarries:**

Sl.No	Name of the Lessee	S.F.No	Extent (Hect)
1.	Thiru.S.Kandasamy	63/1, 64/1A, 64/3A and 64/5A	2.66.0 Hect
2.	Tmt.K.Indirani	55/1A (Part), 55/3 (Part) and 58	2.91.5 Hect

3. **Lease Expired and Abandoned Quarries:**

S.No	Name of the Lessee	S.F.No	Extent (in Hect.)	Lease Period	Remarks
1.	Thiru.T.P.Perumal	70/5	0.86.5	26.04.2010 to 25.04.2015	Lease Expired
2.	Tmt.T.P.Manonmani	70/7	1.25.0	03.05.2010 to 02.05.2015	Lease Expired

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3.	Thiru.S.Kandasamy	70/9 (Part)	5.00.0	09.01.2011 to 08.01.2016	Lease Expired
4.	Thiru.K.Kuppuraj	57/2C	1.27.0	02.12.2014 to 01.12.2019	Lease Expired
5.	Thiru.M.Seenivasan	70/9 South part	2.00.0	26.04.2010 To 25.04.2020	Lease Expired

Appraisal by SEAC:-

Proposed Rough stone & Gravel quarry lease over an extent of 2.66.0 Ha in, SF. Nos. 63/1, 64/1A, 64/3A & 64/5A of Kavundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu by Thiru.S.Kandasamy - For Environmental Clearance.

(SIA/TN/MIN/ 404467/2022, Dt: 28.10.2022).

The proposal was placed in 350th SEAC meeting held on 02.02.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru.S.Kandasamy has applied for Environmental Clearance for the proposed Rough stone & Gravel quarry lease over an extent of 2.66.0 Ha in S. F. Nos. 63/1, 64/1A, 64/3A & 64/5A of Kavundampalayam Village, Gobichettipalayam Taluk, Erode District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan the lease period is 5 years. The mining plan is for the period of five years & the production should not exceed 2,83,295m^3 of rough stone and 25,380m^3 of Gravel with an ultimate depth of mining is 40m (2m Gravel + 38m Rough Stone). The annual peak production is 63045m^3 of Rough Stone (4th year) and 12,150m^3 of Gravel (1st year).
4. ToR issued vide Lr.No.SEIAA-TN/F.No.8616/SEAC/ToR-1025/2021 dated 26.08.2021.
5. Public hearing conducted on 28.07.2022.

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Based on the presentation and documents furnished by the project proponent, SEAC decided to **recommend the proposal for the grant of Environmental Clearance for total excavation quantity of 2,83,295m^3 of Rough Stone and 25,380m^3 of gravel not exceeding the annual peak production of 63045m^3 of Rough Stone and 12,150m^3 of Gravel with maintaining an ultimate pit depth of 40m bgl subject to** the standard conditions as per the **Annexure I** of this minutes & normal conditions stipulated by MOEF &CC, in addition to the following specific conditions:

1. The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a maximum of thirty years, whichever is earlier **vide MoEF&CC Notification S.O. 1807(E) dated 12.04.2022**.
2. The mine manager and other statutory competent persons such as blaster (or) mine mate shall be appointed before the commencement of mining operation as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
3. The Project Proponent (PP) shall inform the notice of opening of the quarry to the Director of Mines Safety (DMS)/Chennai Region before obtaining the CTO and get the necessary statutory permission under the MMR 1961 pertaining to the quarry working operations.
4. The PP shall ensure that all the statutory competent persons and non-statutory workmen are undergone the 'Refresher' training under Mines Vocational Training Rules 1961 in Group Vocational Training Centre, Trichy (or) Salem.
5. The proponent shall construct the 'S3 (or) G2' type of fencing all around the boundary of the proposed working quarry with gates for entry/exit before the commencement of the operation as recommended in the DGMS Circular, 11/1959 and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
6. Since the quarry is located in the cluster, the Project Proponent shall ensure strict compliance of the provisions given under the Mines Rules, 1955 for the health and welfare of the persons employed therein.
7. The PP shall carry out the tree plantation to act as a barrier to reduce noise level and dust pollution along the boundary of the quarrying site considering the wind direction before obtaining the CTO from the TNPCB.

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8. Further, the PP shall construct the garland drain with proper size, gradient and length along the boundary of the pit leaving behind the mandatory safety zone of 7.5 m as it is designed to take care of run-off water (size, gradient and length).
9. The Project Proponent (PP) shall submit a 'Slope stability action plan' incorporating the haul road ramp keeping the benches intact for the proposed quarry lease after it is duly vetted by the concerned AD (Mines) before obtaining CTO from TNPCB.
10. However, the PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall within 2 years from the commencement of quarrying operation, by involving any of one of the reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
11. As a part of EC Compliance, the PP shall carry out the tree plantation to act as a barrier to reduce noise level and dust pollution along the boundary of the quarrying site considering the wind direction before obtaining the CTO from the TNPCB.
12. No 'Deep-hole large diameter drilling and blasting' is permitted in the proposed quarry.
13. The PP shall carry out maximum of two rounds of controlled blast only per day, restricted to the maximum of 50 to 60 number of holes per round with maintaining maximum charge per delay in such a manner that the blast-induced ground vibration level (Peak Particle Velocity) measured in the houses/structures located at a distance of 300 m shall not exceed 2.0 mm/s and no fly rock shall travel beyond 10 m from the site of blasting. The PP shall also ensure that the blasting operation shall be carried out once in 2 days to reduce the environmental impacts effectively.
14. The PP shall furnish a Standard Operating Procedure for carrying out the safe method of carrying out the blasting operation to the concerned DEE/TNPCB before obtaining the CTO from the TNPCB while considering the adjacent quarries lies in a radial distance of 500 m from their quarry.
15. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.

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16. The PP shall ensure that the blasting operations are carried out by the blaster/Mine Mate/Mine Foreman employed by him only as per the provisions of MMR 1961 and it shall not be carried out by the persons other than the above statutory personnel.
17. The PP shall ensure that the blasting operations shall be carried out during a prescribed time interval with a prior notice to the school/other habitations situated around the proposed quarry after having posted the sentries/guards adequately to confirm the non-exposure of public within the danger zone.
18. The PP shall meticulously carry out the mitigation measures as spelt out in the revised EMP.
19. The PP shall carry out the comprehensive hydrogeological studies once in two years to assess the quality & quantity of the ground water due to impacts of quarrying operation by involving any of the reputed Research and Academic Institution such as CSIR-Central Institute of Mining and Fuel Research / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, Anna University Chennai-Dept of Geology, CEG Campus, and University of Madras -Dept of Applied Geology, Chennai etc shall be carried out before the commencement of mining operations. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, and DMS, Chennai as a part of Environmental Compliance.
20. The Project Proponent shall ensure that the funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to the MoEF& CC Ministry and its Integrated Regional Office (IRO) located in Chennai.
21. The Project Proponent shall send a copy of the clearance letter marked to concerned Panchayat from whom any suggestion/representation has been received while processing the proposal.
22. 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 adhere EMP furnished.
23. As the project site is located within 10 km from the Sathyamangalam Tiger Reserve, the Project proponent shall remit Rs. 6 lakhs to DFO, Erode and the amount shall be spent for doing conservation activities in the Sathyamangalam Tiger Reserve before obtaining CTO from TNPCB.

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This proposal was placed for appraisal in 595th Authority Meeting held dated 20.02.2023 & 21.02.2023.

The Authority noted that this proposal was placed for appraisal in this 350th meeting of SEAC meeting held on 02.02.2023 and SEAC has furnished its recommendation to the Authority for granting Environmental Clearance to the project subject to the conditions stated therein. After detailed discussion the Authority decided to request the Member Secretary SEIAA-TN to refer back the proposal to SEAC-TN stating the following reasons,

1. As per the kml uploaded by the proponent in the online through the Parivesh portal, it is ascertained that there are many structures, Odai and agricultural lands exists within 300m radius.

"No new layout, building plans falling within 300 metres from any quarry should be given approval by any agency unless prior clearance of the Director of Geology and Mining is obtained. On receipt of proposals for according clearance, the Director of Geology and Mining shall decide upon the continuance or closure, as the case may be of any quarry which is situated within 300 metres from the now layout, building sought for such "clearance".

Now the proposal was placed in 361st SEAC meeting held on 10.03.2023. The Project proponent has made a presentation along with clarification for the above shortcomings observed by the SEIAA.

S.No	Query	Reply
1	As per the kml uploaded by the proponent in the online through the Parivesh portal, it is ascertained that there are many structures, Odai and agricultural lands exists within 300m radius.	In the southern side of the proposed lease area at 118m is a house with cattle shed, workers shelter and Machinery shelter of 9000 sq feet owned by Proponent Kandasamy. The PP paid the House tax. At 115m in the South eastern side, a shed of 1200sq feet is owned by Mrs Indirani owner of the P2 quarry lease in the same cluster.The shed is in use for her quarry employees. At 215m and 254m in the southwest and southern side of the lease area is the open well with 5hp Motor Pump shed of king size which is also used for keeping the agricultural equipment's to make Banana Grove. The Banana yield and leaf were packed in this shelter for sale.

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The Committee carefully examined the points raised by SEIAA and the replies given by the PP and decided to **reiterate its recommendation** already made in 350th SEAC meeting held on 02.22.2023. All other conditions stipulated in the earlier minutes will remain unaltered.

ANNEXURE-I

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

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6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. 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 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.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements 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.
13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be

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avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.

14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
18. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.

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19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
20. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are compiled by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
23. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB)and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
25. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.
26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
27. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

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28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix –II** of this minute.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	*Aegle marmelos*	Vilvam	வில்வம்
2	*Adenaanthera pavonina*	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	*Albizia lebbeck*	Vaagai	வாகை
4	*Albizia amara*	Usil	உசில்
5	*Bauhinia purpurea*	Mantharai	மந்தாரை
6	*Bauhinia racemosa*	Aathi	ஆத்தி
7	*Bauhinia tomentos*	Iruvathi	இருவாத்தி
8	*Buchanania axillaris*	Kattuma	காட்டுமா
9	*Borassus flabellifer*	Panai	பனை
10	*Butea monosperma*	Murukkamaram	முருக்கமரம்
11	*Bobax ceiba*	Ilavu, Sevvilavu	இலவு
12	*Calophyllum inophyllum*	Punnai	புன்னை
13	*Cassia fistula*	Sarakondrai	சரக்கொன்றை
14	*Cassia roxburghii*	Sengondrai	செங்கொன்றை
15	*Chloroxylon sweitenia*	Purasamaram	புரசு மரம்
16	*Cochlospermum religiosum*	Kongu, Manjalllavu	கோங்கு, மஞ்சள் இலவு
17	*Cordia dichotoma*	Naruvuli	நருவுளி
18	*Cretewa adansoni*	Mavalingum	மாவிலங்கம்
19	*Dillenia indica*	Uva, Uzha	உசா
20	*Dillenia pentagyna*	SiruUva, Sitruzha	சிறு உசா
21	*Diospyro sebenum*	Karungali	கருங்காலி
22	*Diospyro schloroxylon*	Vaganai	வாகனை
23	*Ficus amplissima*	Kalltchi	கல் இச்சி
24	*Hibiscus tiliaceou*	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	*Hardwickia binata*	Aacha	ஆச்சா
26	*Holoptelia integrifolia*	Aayili	ஆயா மரம், ஆயிலி
27	*Lannea coromandelica*	Odhiam	ஓதியம்
28	*Lagerstroemia speciosa*	Poo Marudhu	பூ மருது
29	*Lepisanthus tetraphylla*	Neikottaimaram	நெய் கொட்டை மரம்
30	*Limonia acidissima*	Vila maram	விலா மரம்
31	*Litsea glutinos*	Pisinpattai	அரம்பா, பீசின்பட்டை
32	*Madhuca longifolia*	Illuppai	இலுப்பை
33	*Manilkara hexandra*	UlakkaiPaalai	உலக்கை பாலை
34	*Mimusops elengi*	Magizhamaram	மகிழமரம்
35	*Mitragyna parvifolia*	Kadambu	கடம்பு
36	*Morinda pubescens*	Nuna	நுனா
37	*Morinda citrifolia*	Vellai Nuna	வெள்ளை நுனா
38	*Phoenix sylvestre*	Eachai	ஈச்சமரம்
39	*Pongamia pinnat*	Pungam	புங்கம்

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40	*Premna mollissima*	Munnai	முன்னை
41	*Premna serratifolia*	Narumunnai	நறு முன்னை
42	*Premna tomentosa*	Malaipoovarasu	மலை பூவரசு
43	*Prosopis cineraa*	Varni maram	வன்னி மரம்
44	*Pterocarpus marsupium*	Vengai	வேங்கை
45	*Pterospermum canescens*	Veruvangu, Tada	வெண்வாங்கு
46	*Pterospermum xylocarpum*	Polavu	புலவு
47	*Puthranjiva roxburghii*	Karipala	கரிப்பாலா
48	*Salvadora persica*	Ugaa Maram	உகா மரம்
49	*Sapindus emarginatus*	Manipungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	*Saraca asoca*	Asoca	அசோகா
51	*Streblus asper*	Piray maram	பிரய் மரம்
52	*Strychnos nuxvomic*	Yetti	எட்டி
53	*Strychnos potatorum*	Therthang Kottai	தேத்தான் கொட்டை
54	*Syzygium cumini*	Naval	நாவல்
55	*Terminalia belleric*	Thandri	தான்றி
56	*Terminalia arjuna*	Ven maruthu	வெண் மருது
57	*Toona ciliate*	Sandhana vembu	சந்தன வேம்பு
58	*Thespesia populnea*	Puvarasu	பூவரசு
59	*Walsuratrifoliata*	valsura	வால்சுரா
60	*Wrightia tinctoria*	Veppalai	வெப்பாலை
61	*Pithecellobium dulce*	Kodukkapuli	கொடுக்காப்புளி

Appendix-II

Display Board

(Size 6' x5' with Blue Background and White Letters)

.....கரங்கம்

கரங்கங்களில் குவாரி செயல்பாடுகளுக்கான கற்றுத்துறல் அனுமதி கிடைத்தவைகளுக்கு உட்பட்டு வழங்கப்பட்டுள்ளது SEIAA/——, தேதியிடப்பட்டு கற்றுத்துறல் அனுமதி _____தேதி வரை செல்லத்தக்கதாக உள்ளது.

பசுமை பகுதி வளர்ச்சி மேம்பாட்டுக்கான கரங்கத் திட்டம்	குவாரியின் எல்லைகளைக் கற்றி வேலி அமைக்க வேண்டும்.
	கரங்கப்பரப்பின் ஆழம் நிலமட்டத்திலிருந்து ____மீட்டர்கு மிகாமல் இருக்க வேண்டும்.
	காற்றில் மாசு ஏற்படாதவாறு கரங்க பணிகளை மேற்கொள்ள வேண்டும்.
நடப்பாட்டு பராமரிக்கப்பட வேண்டிய மரங்கள் எண்ணிக்கை:	வாகனங்கள் செல்லும் பாதையில் மாசு ஏற்படாத அளவிற்கு தண்ணீரை முறையாக தண்ணீர் லாரிகளின் மூலமாக அல்லப்போது தெளிக்க வேண்டும்.
	இரைச்சல் அளவையும் தூசி மாசுபாட்டையும் குறைப்பதற்காக குவாரியின் எல்லையை சுற்றி அடர்த்தியான பசுமை பகுதியை ஏற்படுத்த வேண்டும்.
கரங்கத்தில் வெடி வைக்கும்பொழுது நிலஅதிர்வுகள் ஏற்படாதவாறும் மற்றும் கற்கள் பறக்காதவாறும் பாதுகாப்பு நடவடிக்கைகளை உள்ளிட்டாக செயல்படுத்தப்பட வேண்டும்.	
கரங்கத்தில் இருந்து ஏற்படும் இரைச்சல் அளவு 85 டெசிபல்ஸ் (dBA) அளவிற்கு மேல் ஏற்படாதவாறு தகுந்த கட்டுப்பாடுகளை மேற் கொள்ள வேண்டும்.	
கரங்க சட்ட விதிகள் 1959 கீழ் கரங்கத்தில் உள்ள பணியாளர்களுக்கு தகுந்த பாதுகாப்பு கருவிகள் வழங்குவதோடு கவாதாரமுள்ள சுழ்நிலை வதிகளை செய்து தர வேண்டும்.	
பிரைம் அல்லது பஞ்சாயத்து வழியாக வாகனங்கள் செல்லும் சாலையை தொடர்ந்து நன்கு பராமரிக்க வேண்டும்.	
கரங்கப்பணிகளால் அருகில் உள்ள விவசாயப் பணிகள் மற்றும் நீர்நிலைகள் பாதிக்கப்படக் கூடாது.	
நீர்நிலைகள் பாதிக்கப்படாமல் இருப்பதை உறுதி செய்யும் வகையில் நிலத்தடி நீரின் தரத்தினை தொடர்ந்து கண்காணிக்க வேண்டும்.	
கரங்கத்திலிருந்து கனிம பொருட்களை எடுத்துச் செல்வது பிரைம் மக்களுக்கு எந்தத் சிரமத்தினையும் ஏற்படுத்தாதவாறு பாதுகாப்போடும் மற்றும் கற்றுத்துறல் பாதிக்காவாறு வண்ணம் வாகனங்களை இயக்க வேண்டும்.	
கரங்கப்பணிகள் முடிக்கப்பட்டவுடன் கரங்க மூடல் திட்டத்தில் உள்ளவாறு கரங்கத்தினை மூட வேண்டும்.	
கரங்க நடவடிக்கைகளை முடித்தபின்னர் கரங்கப் பகுதி மற்றும் கரங்க நடவடிக்கைகளால் இடையூறு ஏற்படக்கூடிய வேறு எந்தப் பகுதியையும் மறுசுழற்சிமானம் செய்து தாவரங்கள் விலங்குகள் ஆகியவற்றின் வாழ்ச்சிக்கு ஏற்ற வகையில் பசுமைப்பகுதியை உருவாக்க வேண்டும்.	
முழுமையான நிபந்தனைகளை அறிய பார்வேஷ் (http://parivesh.nic.in) எனும் இணையதளத்தைப் பார்வையிடவும் மேலும் எந்தவித கற்றுதுறல் சார்ந்த புகார்களுக்கு செல்லையில் உள்ள கற்றுத்துறல் மற்றும் வன அலைச்சத்தின் ஒருங்கிணைந்த வட்டார அலுவலகம்: 044 – 28222325 (அல்லது) தமிழ்நாடு மாசு கட்டுப்பாடு வாரியத்தின் மாவட்ட கற்றுத்துறல் பொறியாளரை அணுகவும்.	

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Discussion by SEIAA and the Remarks:-

The subject was placed in 607th authority meeting held on 03.04.2023. The authority noted that this proposal was placed for appraisal in 361st meeting of SEAC held on 10.03.2023. SEAC decided to reiterate the recommendations already made in its 350th meeting of SEAC held on 02.02.2023 for granting Environmental Clearance subject to the conditions stated therein.

After detailed discussions, the Authority taking into account the recommendations of SEAC and also the safety aspects and to ensure sustainable, scientific and systematic mining, decided to grant Environmental Clearance for the quantity of 2,63,585m³ of Rough stone & 25,380m³ of gravel by restricting the depth of mining up to 35m as per the mine plan approved by the Department of Geology & Mining. This is also subject to the standard conditions as per Annexure - (I) of SEAC minutes, other normal conditions stipulated by MOEF&CC & all other specific conditions as recommended by SEAC in addition to the following conditions and the conditions in Annexure 'A' of this minutes.

1. Keeping in view of MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022, this Environmental Clearance is valid as per the approved mine plan period.
2. The EC granted is subject to review by District Collector, Mines Dept. and TNPCB on completion of every 5 years till the project life. They should also review the EC conditions to ensure that they have all been adhered to and implemented.
3. The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC while seeking a renewal of the mining plan to cover the project life.
4. The progressive and final mine closure plan including the green belt implementation and environmental norms should be strictly followed as per the EMP.
5. As per the OM vide F. No. IA3-22/1/2022-IA-III [E- 172624] Dated: 14.06.2022, the Project Proponents are directed to submit the six-monthly compliance on the environmental conditions prescribed in the prior environmental clearance letter(s) through newly developed compliance module in the PARIVESH Portal from the respective login.

Annexure-'A'

EC Compliance

1. The Environmental Clearance is accorded based on the assurance from the project proponent that there will be full and effective implementation of all the undertakings given in the

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Application Form, Pre-feasibility Report, mitigation measures as assured in the Environmental Impact Assessment/ Environment Management Plan and the mining features including Progressive Mine Closure Plan as submitted with the application.

2. All the conditions as presented by the proponent in the PPT during SEAC appraisal should be addressed in Full.
3. The proponent shall submit Compliance Reports on the status of compliance of the stipulated EC conditions including results of monitored data. It shall be sent to the respective Regional Office of Ministry of Environment, Forests and Climate Change, Govt. of India and also to the Office of State Environment Impact Assessment Authority (SEIAA).
4. Concealing the factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

Applicable Regulatory Frameworks

5. The project proponent shall strictly adhere to the provisions of Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation &Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter

Safe mining Practices

6. The AD/DD, Dept. of Geology &Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
7. The AD/DD, Dept. of Geology &Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.

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8. A minimum buffer distance specified as per existing rules and statutory orders shall be maintained from the boundary of the quarry to the nearest dwelling unit or other structures, and from forest boundaries or any other ecologically sensitive and archeologically important areas or the specific distance specified by SEIAA in EC as per the recommendations of SEAC depending on specific local conditions.

Water Environment – Protection and mitigation measures

9. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and groundwater, nor cause any pollution, to water sources in the area.
10. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
11. Water level in the nearest dug well in the downstream side of the quarry should be monitored regularly and included in the Compliance Report.
12. Quality of water discharged from the quarry should be monitored regularly as per the norms of State Pollution Control Board and included in the Compliance Report.
13. Rain Water Harvesting facility should be installed as per the prevailing provisions of TNMBR/TNCDBR, unless otherwise specified. Maximum possible solar energy generation and utilization shall be ensured as an essential part of the project.
14. Regular monitoring of flow rates and water quality upstream and downstream of the springs and perennial nallahs flowing in and around the mine lease area shall be carried out and reported in the compliance reports to SEIAA.
15. Regular monitoring of ground water level and water quality shall be carried out around the mine area during mining operation. At any stage, if it is observed that ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.
16. Garland drains and silt traps are to be provided in the slopes around the core area to channelize storm water. De-silting of Garland canal and silt traps have to be attended on a daily basis. A labour has to be specifically assigned for the purpose. The proponent shall ensure the quality of the discharging storm water as per the General Effluent Discharge Standards of CPCB.

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Air Environment – Protection and mitigation measures

17. The activity should not result in CO_2 release and temperature rise and add to micro climate alternations.
18. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
19. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.

Soil Environment – Protection and mitigation measures

20. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
21. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
22. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health.
23. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
24. The proponent shall ensure that the mine restoration is done using mycorrizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
25. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
26. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
27. The top soil shall be temporarily stored at earmarked place (s) and used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. At critical points, use of geotextile shall be undertaken for stabilization of the dump. Protective wall or gabions should be made around the dump to prevent erosion / flow of sediments during rains. The entire excavated area shall be backfilled.

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Noise Environment – Protection and mitigation measures

28. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
29. The sound at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Hence, the PP shall ensure that the biological clock of the villages are not disturbed because of the mining activity.

Biodiversity - Protection and mitigation measures

30. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
31. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.
32. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agroforestry, mixed plants to support biodiversity conservation in the mine restoration effort.
33. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
34. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.

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Climate Change

35. The project activity should not in any way impact the climate and lead to a rise in temperature.
36. There should be least disturbance to landscape resulting in land use change, contamination and alteration of soil profiles leading to Climate Change.
37. Intensive mining activity should not add to temperature rise and global warming.
38. Operations should not result in GHG releases and extra power consumption leading to Climate Change.
39. Mining through operational efficiency, better electrification, energy use, solar usage, use of renewable energy should try to decarbonize the operations.
40. Mining Operation should not result in droughts, floods and water stress, and shortages, affecting water security both on site and in the vicinity.
41. Mining should not result in water loss from evaporation, leaks and wastage and should support to improve the ground water.
42. Mining activity should be flood proof with designs and the drainage, pumping techniques shall ensure climate-proofing and socio-economic wellbeing in the area and vicinity.

Reserve Forests & Protected Areas

43. The activities should provide nature based support and solutions for forest protection and wildlife conservation.
44. The project activities should not result in forest fires, encroachments or create forest fragmentation and disruption of forest corridors.
45. There should be no disturbance to the freshwater flow from the forest impacting the water table and wetlands.
46. The project proponent should support all activities of the forest department in creating awareness to local communities on forest conservation.
47. The project activities should not alter the geodiversity and geological heritage of the area.
48. The activities should not result in temperature rise due to increased fossil fuels usage disrupting the behaviour of wildlife and flora.
49. The activities should support and recognise the rights and roles of indigenous people and local communities and also support sustainable development.

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50. The project activities should support the use of renewables for carbon capture and carbon storage in the project site and forest surrounds.
51. The project activities should not result in changes in forest structure, habitats and genetic diversity within forests.

Green Belt Development

52. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) are planted.
53. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).

Workers and their protection

54. The project proponent is responsible for implementing all the provisions of labour laws applicable from time to time to quarrying /Mining operations. The workers on the site should be provided with on-site accommodation or facilities at a suitable boarding place, protective equipment such as ear muffs, helmet, etc.
55. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
56. The workers shall be employed for working in the mines and the working hours and the wages shall be implemented/enforced as per the Mines Act, 1952.

Transportation

57. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain

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Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

58. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

Storage of wastes

59. The project proponent shall store/dump the granite waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

CER/EMP

60. The CER Should be fully Implemented and fact reflected in the Half-yearly compliance report.
61. The EMP Shall also be implemented in consultation with local self-government institutions.
62. The follow-up action on the implementation of CER Shall be included in the compliance report.

Directions for Reclamation of mine sites

63. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
64. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
65. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of

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project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.

66. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.
67. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
68. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.
69. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
70. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
71. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
72. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.

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73. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for re-establishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as far as possible be eco-friendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.
74. Efforts should to taken to aesthetically improve the mine site. Generally, there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following the succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be used to restore the site by adding soil humus and mycorrhiza.
75. Action taken for restoration of the site should be specifically mentioned in the EC compliances.

Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
   I. **The project has been accorded Environmental Clearance.**
   II. **Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
   III. **Environmental Clearance may also be seen on the website of the SEIAA.**
   IV. **The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

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4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.

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18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
    i. Roads shall be graded to mitigate the dust emission.
    ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
    i. Proper and regular maintenance of vehicles and other equipment
    ii. Limiting time exposure of workers to excessive noise.
    iii. The workers employed shall be provided with protection equipment and earmuffs etc.
    iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
    v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
    i. Retention/ toe walls shall be provided at the foot of the dumps.

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ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.

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35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.

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51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.

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63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.

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77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO2, NOx or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

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6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

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17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining tphe Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Erode District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Nature Protects if She is Protected

Signature Not Verified
Digitally signed by Thiru.Deepak S.Bilgi
Member Secretary
Date: 5/2/2023 12:29:49 PM

CHENNAI METTEX LAB PRIVATE LIMITED®

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016676 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 1, Core Zone- Near Project Area - 11°31'1.45"N 77°22'38.49"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/031 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/014 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM10	PM2.5	SO2	NO2	NH3	O3	CO	Pb	Ni	As	C6H6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	62.5	23.5	46.9	4.6	25.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	63.3	22.1	47.7	4.5	25.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	64.5	23.4	45.5	4.6	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	61.2	23.9	46.4	5.2	26.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	63.7	24.1	45.3	5.3	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	63.9	23.5	46.0	5.2	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	62.7	24.8	45.5	5.9	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	60.9	23.5	46.8	5.2	24.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	62.5	24.3	45.9	4.8	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	63.8	23.6	45.2	6.1	25.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	60.1	24.1	46.4	5.8	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	61.8	23.8	46.2	4.0	25.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	63.9	22.8	46.6	5.5	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	60.7	22.1	45.0	4.1	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	62.6	23.6	45.3	5.5	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	61.1	23.8	46.7	4.0	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	62.7	24.5	45.0	4.6	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	63.5	24.3	46.9	4.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2026	7:00-7:00	60.2	23.1	45.7	5.4	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2026	7:30-7.30	62.3	23.8	45.6	4.9	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2026	7:00-7:00	61.4	23.6	46.5	4.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2026	7:30-7.30	63.7	24.1	45.3	5.4	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2026	7:00-7:00	63.5	23.5	46.2	4.6	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2026	7:30-7.30	62.2	24.2	45.6	4.1	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2026	7:00-7:00	61.5	24.6	46.1	5.6	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2026	7:30-7.30	60.8	24.8	46.2	5.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	63.5	23.5	46.9	4.4	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH3: BDL (DL:20); O3: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C6H6: BDL (DL:1.0); BaP: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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CHENNAI METTEX LAB PRIVATE LIMITED®

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016677 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 2, Near Existing Quarry - 11°31'12.23"N 77°22'30.32"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/032 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/030 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	65.2	45.3	22.2	4.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	64.2	43.1	21.0	5.3	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	63.3	42.5	22.2	4.1	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	61.2	42.1	20.3	4.9	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	60.2	43.2	21.1	4.7	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	62.3	43.8	22.4	4.9	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	63.8	42.6	21.3	5.2	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	64.5	41.8	21.4	4.5	19.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	60.1	42.1	20.3	5.5	18.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	62.2	43.6	22.3	4.5	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	63.8	45.2	22.1	5.6	18.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	62.1	44.3	21.3	4.5	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	61.2	45.1	22.5	5.3	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	64.3	43.5	22.3	4.9	20.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	63.1	42.1	21.0	5.0	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	65.2	43.1	20.3	6.1	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	64.3	43.2	21.2	5.8	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	62.2	44.1	22.1	5.7	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2026	7:00-7:00	61.3	45.3	22.6	4.9	18.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2026	7:30-7.30	63.2	44.5	22.2	4.7	18.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2026	7:00-7:00	62.3	42.1	21.0	5.6	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2026	7:30-7.30	64.1	45.1	20.2	5.5	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2026	7:00-7:00	65.2	44.3	20.2	4.6	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2026	7:30-7.30	64.2	42.2	21.1	4.9	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2026	7:00-7:00	63.2	43.3	22.1	5.0	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2026	7:30-7.30	62.5	41.0	21.2	5.1	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	65.2	45.3	22.2	4.4	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016678 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 3, Kumarankovil - 11°30'48.45"N 77°22'44.49"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/033 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/031 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	63.4	44.1	22.0	5.2	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	66.5	43.2	22.1	6.1	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	64.2	40.2	22.3	5.6	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	68.2	42.3	22.5	4.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	60.2	44.2	23.6	4.4	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	62.3	43.1	24.5	6.0	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	61.3	45.2	25.2	5.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	60.2	44.2	26.1	4.2	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	62.3	43.3	22.1	5.4	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	61.2	41.2	21.2	6.6	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	62.2	40.1	22.2	4.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	67.3	42.3	20.2	5.5	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	68.2	43.6	21.3	4.5	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	66.1	44.5	22.5	5.3	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	65.3	45.2	22.4	4.4	22.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	65.1	43.6	22.3	5.2	20.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	63.8	41.7	20.8	5.6	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	64.7	42.2	22.4	5.3	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.05.2026	7:00-7:00	63.5	43.6	22.6	5.7	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.05.2026	7:30-7.30	62.4	42.8	23.0	5.4	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.05.2026	7:00-7:00	62.3	41.3	22.7	4.6	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.05.2026	7:30-7.30	63.7	42.7	21.3	6.7	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.05.2026	7:00-7:00	64.0	43.9	23.5	5.5	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.05.2026	7:30-7.30	63.1	42.6	20.6	5.1	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.05.2026	7:00-7:00	62.8	43.5	21.9	4.2	22.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.05.2026	7:30-7.30	63.9	41.8	22.4	5.4	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	62.9	40.8	22.9	5.7	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T0166769 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 4, Kongarampalayam (School) - 11°31'12.19"N 77°21'30.79"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/034 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/032 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	64.5	42.3	21.2	4.5	19.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	62.5	46.0	20.0	5.6	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	63.5	45.3	22.1	4.5	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	65.5	43.5	22.5	4.4	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	66.5	44.3	21.3	5.5	24.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	64.7	45.4	22.2	4.6	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	65.3	46.5	22.1	5.6	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	65.7	45.5	22.3	5.4	19.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	65.9	45.2	22.1	4.5	19.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	63.5	44.2	21.2	6.0	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	64.9	45.3	22.1	5.4	20.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	65.3	45.6	23.2	4.5	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	66.8	46.2	22.1	4.5	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	65.4	44.5	22.5	5.8	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	64.5	45.2	20.1	5.4	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	66.4	46.1	20.1	5.9	19.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	65.9	45.3	22.1	5.5	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	62.3	44.4	21.2	5.4	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.05.2026	7:00-7:00	63.0	40.9	22.4	5.6	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.05.2026	7:30-7.30	61.7	42.6	23.8	5.6	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.05.2026	7:00-7:00	63.7	42.9	20.5	4.8	23.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.05.2026	7:30-7.30	61.5	40.0	24.2	4.9	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.05.2026	7:00-7:00	62.6	41.1	20.4	5.4	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.05.2026	7:30-7.30	61.4	42.5	23.8	5.6	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.05.2026	7:00-7:00	63.8	40.7	22.1	5.1	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.05.2026	7:30-7.30	61.9	41.5	21.6	4.5	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:00-7:00	62.4	42.6	22.8	5.5	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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CHENNAI METTEX LAB PRIVATE LIMITED®

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016680 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 5, Erumaikaranputhur (Residential) - 11°31'6.25"N 77°24'11.70"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/035 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/033 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	66.8	44.5	20.5	5.4	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	65.6	41.4	21.6	4.5	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	67.4	42.6	22.9	5.5	25.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	66.3	43.7	20.9	5.6	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	65.7	42.6	22.6	5.4	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	64.5	41.5	23.5	5.5	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	65.3	41.9	22.6	5.5	26.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	66.4	42.8	23.6	4.4	24.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	65.6	45.5	22.5	4.8	25.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	64.5	44.9	23.5	4.9	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	62.5	43.1	24.5	5.2	25.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	63.5	42.6	23.5	6.2	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	64.5	42.8	23.8	5.8	25.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	65.5	42.5	24.5	4.9	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	66.7	41.4	23.5	4.8	24.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	65.3	42.3	21.5	5.0	25.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	64.1	40.6	22.6	4.9	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	66.0	41.4	21.6	5.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.05.2026	7:00-7:00	65.4	40.3	22.4	5.7	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.05.2026	7:30-7.30	65.0	44.5	21.5	5.5	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.05.2026	7:00-7:00	64.2	47.1	23.6	5.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.05.2026	7:30-7.30	65.4	43.2	20.4	5.6	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.05.2026	7:00-7:00	66.0	44.2	21.6	5.0	25.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.05.2026	7:30-7.30	64.9	45.3	22.7	5.3	23.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.05.2026	7:00-7:00	65.3	46.2	23.6	5.5	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.05.2026	7:30-7.30	66.2	47.2	21.4	5.4	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	65.3	45.8	22.6	4.8	24.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016681 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 6, Podichinnampalayam (Residential) - 11°27'44.50"N 77°22'42.53"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/037 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/034 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	65.2	42.5	23.3	4.8	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	62.5	41.4	22.2	5.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	63.2	43.2	22.2	5.5	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	62.5	41.5	21.8	5.4	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	65.4	42.5	20.5	4.8	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	66.5	43.4	21.5	5.8	18.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	65.4	42.5	20.4	6.5	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	64.5	41.6	22.3	6.2	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	65.5	43.5	21.5	6.2	20.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	66.8	42.8	20.5	5.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	64.5	42.9	21.6	5.0	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	62.8	43.6	20.6	5.5	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	60.6	42.8	20.5	5.5	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	66.5	41.6	21.5	5.4	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	65.4	42.9	20.5	6.0	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	64.5	43.6	21.8	5.5	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	63.4	42.5	22.5	6.1	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	64.4	41.8	20.6	4.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.05.2026	7:00-7:00	65.4	44.9	21.5	6.2	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.05.2026	7:30-7.30	64.3	43.6	22.6	4.3	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.05.2026	7:00-7:00	62.3	44.5	20.6	4.2	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.05.2026	7:30-7.30	65.3	42.6	21.6	5.0	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.05.2026	7:00-7:00	64.5	42.6	21.8	6.5	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.05.2026	7:30-7.30	62.0	43.8	20.4	6.8	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.05.2026	7:00-7:00	63.8	41.6	22.5	5.8	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.05.2026	7:30-7.30	64.3	42.6	21.4	6.1	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	63.2	42.1	22.5	5.7	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016682 Test Certificate Date : 20.05.2026
Location of Sampling : **AAQ – 7, Vinobanagar - 11°33'13.13"N 77°21'57.48"E**
Sampling Plan &Procedure : CML/LAB/ENV/SOP/AAQ (IS 5182 & USEPA Compendium)
Sampling Instrument ID &Calibration Due Date: CML/ENV/RDS/035 & 18.11.2026
Sampling Instrument ID &Calibration Due Date: CML/ENV/FDS/033 & 19.11.2026

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
02.03.2026	7:00-7:00	66.5	47.1	23.1	5.7	20.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.03.2026	7:30-7.30	67.4	47.6	23.3	5.6	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.03.2026	7:00-7:00	67.6	42.8	23.0	5.5	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.032026	7:30-7.30	66.7	44.6	24.3	5.5	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.032026	7:00-7:00	65.4	43.8	24.4	4.8	17.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.03.2026	7:30-7.30	66.4	44.9	23.2	5.5	17.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.03.2026	7:00-7:00	65.5	45.5	23.5	6.6	20.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.03.2026	7:30-7.30	66.4	46.6	24.3	5.9	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
01.04.2026	7:00-7:00	65.3	42.5	24.2	5.6	18.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.04.2026	7:30-7.30	64.7	45.8	24.4	4.9	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.04.2026	7:00-7:00	66.4	44.0	23.4	4.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.04.2026	7:30-7.30	65.6	45.6	24.0	5.8	20.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.04.2026	7:00-7:00	64.3	46.2	24.3	6.5	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.04.2026	7:30-7.30	67.4	46.3	24.4	5.6	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.04.2026	7:00-7:00	65.3	43.2	23.1	5.5	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.04.2026	7:30-7.30	66.2	42.9	24.3	4.2	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.04.2026	7:00-7:00	64.5	43.5	24.2	5.6	19.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.04.2026	7:30-7.30	65.9	44.9	23.4	6.5	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.05.2026	7:00-7:00	64.4	45.8	21.9	4.8	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.05.2026	7:30-7.30	66.6	47.7	20.1	5.8	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.05.2026	7:00-7:00	67.6	48.6	19.8	4.6	20.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.05.2026	7:30-7.30	66.3	42.5	20.8	5.8	20.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.05.2026	7:00-7:00	61.5	42.6	21.8	5.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.05.2026	7:30-7.30	62.5	41.9	22.6	4.4	22.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.05.2026	7:00-7:00	61.9	40.8	21.7	5.7	21.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.05.2026	7:30-7.30	60.2	36.8	20.9	5.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2026	7:30-7.30	62.3	37.8	22.4	5.6	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)
Remarks: The values observed for the pollutants given above are within the CPCB standards.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T0166783 Test Certificate Date : 20.05.2026
Sample Description : Ambient Noise Monitoring
Location of Sampling : N1 - Core Zone - 11°31'3.15"N 77°22'35.19"E
Location of Sampling : N2 - Near Existing Quarry - 11°31'12.51"N 77°22'30.39"E
Sampling Plan & Procedure: CML/LAB/ENV/SOP/N&L & IS 9989:1981
Sampling Instrument : CML/ENV/SLM/003 & CML/ENV/SLM/009

Sampling Date : 11.03.2026						
Location	N1 – Core zone			N2 - Near Existing Quarry		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.2	42.3	41.4	41.2	42.3	41.8
07:00-08:00	41.3	43.5	42.5	40.3	42.1	41.3
08:00-09:00	42.1	44.1	43.2	41.3	43.2	42.4
09:00-10:00	41.3	43.6	42.6	40.3	42.1	41.3
10:00-11:00	40.3	42.5	41.5	42.1	44.1	43.2
11:00-12:00	38.2	40.2	39.3	40.1	42.3	41.3
12:00-13:00	39.2	42.1	40.9	42.3	44.1	43.3
13:00-14:00	36.1	42.5	40.4	41.2	43.6	42.6
14:00-15:00	35.2	37.2	36.3	40.1	42.1	41.2
15:00-16:00	38.6	42.1	40.7	42.3	44.3	43.4
16:00-17:00	40.1	43.1	41.9	41.3	44.1	42.9
17:00-18:00	42.3	44.6	43.6	42.3	44.3	43.4
18:00-19:00	41.6	46.2	44.5	44.2	46.2	45.3
19:00-20:00	36.5	38.6	37.7	41.2	42.1	41.7
20:00-21:00	34.1	36.5	35.5	40.2	42.3	41.4
21:00-22:00	36.5	38.6	37.7	37.6	38.2	37.9
22:00-23:00	35.2	37.1	36.3	34.1	36.2	35.3
23:00-00:00	34.2	36.5	35.5	34.2	36.1	35.3
00:00-01:00	32.1	34.2	33.3	33.2	35.2	34.3
01:00-02:00	33.6	35.6	34.7	35.2	38.2	37.0
02:00-03:00	34.2	36.7	35.6	34.2	36.1	35.3
03:00-04:00	36.4	38.9	37.8	36.2	38.2	37.3
04:00-05:00	31.2	33.2	32.3	32.2	34.6	33.6
05:00-06:00	34.6	36.9	35.9	33.5	36.2	35.1
Result	Day Means		**40.3**	Day Means		**41.7**
	Night Means		**35.0**	Night Means		**35.4**

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016684 Test Certificate Date : 20.05.2026
Sample Description : Ambient Noise Monitoring
Location of Sampling : N3 – Kumarankovil - 11°30'48.35"N 77°22'44.66"E
Location of Sampling : N4 – Kongarampalayam (School) - 11°31'12.38"N 77°21'31.03"E
Sampling Plan & Procedure: CML/LAB/ENV/SOP/N&L & IS 9989:1981
Sampling Instrument : CML/ENV/SLM/001 & CML/ENV/SLM/003

Sampling Date : 03.04.2026						
Location	N3 – Kumarankovil			N4 – Kongarampalayam (School)		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.2	42.3	41.4	33.5	35.8	34.80
07:00-08:00	42.3	44.2	43.4	34.5	36.8	35.80
08:00-09:00	41.5	45.3	43.8	33.8	37.8	36.25
09:00-10:00	43.5	46.1	45.0	32.4	38.9	36.77
10:00-11:00	41.2	44.5	43.2	33.4	39.8	37.69
11:00-12:00	42.6	44.3	43.5	32.8	40.9	38.52
12:00-13:00	41.5	43.2	42.4	33.6	41.6	39.23
13:00-14:00	40.2	42.1	41.3	39.4	47.7	45.29
14:00-15:00	42.1	44.6	43.5	39.7	48.4	45.94
15:00-16:00	40.2	42.3	41.4	41.5	48.9	46.62
16:00-17:00	41.2	43.7	42.6	42.4	50.4	48.03
17:00-18:00	43.6	45.2	44.5	35.9	43.4	41.10
18:00-19:00	42.2	44.3	43.4	42.1	44.2	43.28
19:00-20:00	40.2	42.6	41.6	43.5	45.6	44.68
20:00-21:00	42.1	45.2	43.9	38.1	40.1	39.21
21:00-22:00	38.2	40.2	39.3	37.2	39.2	38.31
22:00-23:00	36.5	38.9	37.9	36.4	38.1	37.33
23:00-00:00	37.2	39.2	38.3	35.1	37.2	36.28
00:00-01:00	36.4	38.1	37.3	34.2	36.3	35.38
01:00-02:00	35.2	36.8	36.1	33.5	35.4	34.55
02:00-03:00	31.1	34.2	32.9	34.1	46.2	43.45
03:00-04:00	30.2	35.2	33.4	35.4	46.5	43.81
04:00-05:00	35.6	37.6	36.7	36.1	46.1	43.50
05:00-06:00	32.1	34.2	33.3	35.9	46.5	43.85
Result	**Day Means**		**42.5**	**Day Means**		**40.5**
	Night Means		**35.4**	**Night Means**		**39.8**

Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time:45 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016685 Test Certificate Date : 20.05.2026
Sample Description : Ambient Noise Monitoring
Location of Sampling : N5 – Erumaikaranputhur(Residential) - 11°31'6.23"N 77°24'12.42"E
Location of Sampling : N6 – Podichinnampalayam(Residential) - 11°27'44.51"N 77°22'43.11"
Sampling Plan & Procedure: CML/LAB/ENV/SOP/N&L & IS 9989:1981
Sampling Instrument : CML/ENV/SLM/001 & CML/ENV/SLM/009

Sampling Date : 08.05.2026						
Location	N5 - Erumaikaranputhur(Residential)			N6 - Podichinnampalayam(Residential)		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.2	42.3	41.38	36.8	41.5	39.8
07:00-08:00	41.2	43.2	42.31	37.8	43.5	41.5
08:00-09:00	40.3	42	41.23	39.8	44.8	43.0
09:00-10:00	42.3	44.3	43.41	42.3	45.7	44.3
10:00-11:00	41.5	42.5	42.03	41.5	51.4	48.8
11:00-12:00	40.5	42.1	41.37	40.5	50.1	47.5
12:00-13:00	42.3	44.2	43.35	42.3	52.4	49.8
13:00-14:00	40.1	42.3	41.34	40.1	50.1	47.5
14:00-15:00	41.2	42.1	41.67	41.2	42.1	41.7
15:00-16:00	39.2	40.2	39.73	42.5	53.2	50.5
16:00-17:00	41	46.8	44.80	39.8	49.8	47.2
17:00-18:00	39.8	47.8	45.43	38.7	48.7	46.1
18:00-19:00	37.8	45.8	43.43	39.6	47.8	45.4
19:00-20:00	36.8	44.9	42.52	37.8	47.8	45.2
20:00-21:00	36.1	43.4	41.13	36.8	46.8	44.2
21:00-22:00	41.8	45.8	44.25	38.9	47.8	45.3
22:00-23:00	40.8	44.6	43.10	38.6	45.6	43.4
23:00-00:00	38.7	42.8	41.22	36.2	44.4	42.0
00:00-01:00	34.7	41.8	39.56	35.2	38.4	37.1
01:00-02:00	35.9	43.7	41.36	34.1	39.2	37.4
02:00-03:00	36.2	40.7	39.01	33.2	36.2	35.0
03:00-04:00	37.4	39.8	38.76	31.6	34.2	33.1
04:00-05:00	37.6	38.7	38.18	34.2	36.2	35.3
05:00-06:00	31.2	33.2	32.31	35.6	38.5	37.3
Result	**Day Means**		**42.5**	**Day Means**		**45.4**
	Night Means		**40.1**	**Night Means**		**36.7**

Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time:45 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of Kavundampalayam Village,
Gobichettipalayam Taluk, Erode District,

Test Certificate No : CML/26-27/T016686 Test Certificate Date : 20.05.2026
Sample Description : Ambient Noise Monitoring
Location of Sampling : N7 – Vinobanagar (Residential) - 11°33'12.86"N 77°21'57.49"E
Sampling Plan & Procedure: CML/LAB/ENV/SOP/N&L & IS 9989:1981
Sampling Instrument : C/ENV/SLM/001

Location	N7 - Vinobanagar (Residential)		
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	33.8	37.8	36.2
07:00-08:00	32.4	38.9	36.8
08:00-09:00	33.4	39.8	37.7
09:00-10:00	36.8	40.9	39.3
10:00-11:00	38.9	44.7	42.7
11:00-12:00	39.7	45.8	43.7
12:00-13:00	40.1	46.7	44.5
13:00-14:00	41.5	44.8	43.5
14:00-15:00	42.6	49.8	47.5
15:00-16:00	43.8	48.7	46.9
16:00-17:00	45.7	49.9	48.3
17:00-18:00	40.1	47.8	45.5
18:00-19:00	35.6	46.8	44.1
19:00-20:00	32.7	40.1	37.8
20:00-21:00	33.6	41.9	39.5
21:00-22:00	34.6	42.4	40.1
22:00-23:00	38.6	45.6	43.4
23:00-00:00	36.2	44.4	42.0
00:00-01:00	35.2	38.4	37.1
01:00-02:00	34.1	39.2	37.4
02:00-03:00	33.2	36.2	35.0
03:00-04:00	31.6	34.2	33.1
04:00-05:00	34.2	36.2	35.3
05:00-06:00	35.6	38.5	37.3
Result	**Day Means**		**42.2**
	Night Means		**36.7**

End of Report

For Chennai Mettex Lab Private Limited

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Technical Manager
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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016687
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 08.05.2026
Lab No : 2705605/001
Sample Description : Surface Water (SW-1) – Bhavani River
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.91
Conductivity @ 25°C	IS 3025 Part 14:2013	1295.0µmhos/cm
Turbidity	IS 3025 Part 10:2023	4 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	752.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	216.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	62.5 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	14.6 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	202.5 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	256.2 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	49.2 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.46 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.38 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	13.3 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

...Contd....2

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Email : test@mettexlab.com I Web : www.mettexlab.com

Lab No: 2705605/001 T.C No: CML/26-27/T016687 Dated : 20.05.2026

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
BOD @ 27°C for 3 days	IS 3025 Part 44:2023	12.4 mg/l
Chemical Oxygen Demand	IS 3025 Part 58:2023	40.8 mg/l
Dissolved Oxygen	IS 3025 Part 38:1989 (Azide Modification)	5.3 mg/l
Barium as Ba	IS 3025 Part 65:2022	BDL (DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	15.9 mg/l
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	1600 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	230 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
G.S. RADHA
Technical Manager
Authorised Signatory

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016688
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705605/002
Sample Description : **Ground Water (OW-1)- Near Project Area**
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.56
Conductivity @ 25°C	IS 3025 Part 14:2013	1180.0 µmhos/cm
Turbidity	IS 3025 Part 10:2023	1 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	685.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	200.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	57.7 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	17.5 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	189.0 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	223.3 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	45.9 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.40 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.37 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	3.6 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 65:2022	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	BDL (DL:1.0 mg/l)
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	160 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number,< 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
G.S. RADHA
Technical Manager
Authorised Signatory

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016689
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705605/003
Sample Description : **Ground Water (OW- 2) - Vinobanagar**
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.41
Conductivity @ 25°C	IS 3025 Part 14:2013	1067.0 µmhos/cm
Turbidity	IS 3025 Part 10:2023	1 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	69.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	184.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	46.4 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	16.5 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	165.8 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	205.6 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	38.7 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.33 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.24 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	3.5 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 65:2022	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	BDL (DL:1.0 mg/l)
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	170 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number,< 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
G.S. RADHA
Technical Manager
Authorised Signatory

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016690
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705605/004
Sample Description : **Ground Water (BW-1) – Near Project Area**
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.31
Conductivity @ 25°C	IS 3025 Part 14:2013	933.5 µmhos/cm
Turbidity	IS 3025 Part 10:2023	1 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	545.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	152.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	33.6 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	16.5 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	132.4 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	188.9 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	37.6 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.30 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.26 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	2.9 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

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Email : test@mettexlab.com I Web : www.mettexlab.com

Lab No: 2705605/004 T.C No: CML/26-27/T016690 Dated : 20.05.2026

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 65:2022	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	BDL (DL:1.0 mg/l)
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	120 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number,< 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
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Technical Manager
Authorised Signatory

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016691
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705605/005
Sample Description : **Ground Water (BW-2)- Kongarampalayam**
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.10
Conductivity @ 25°C	IS 3025 Part 14:2013	785.0 µmhos/cm
Turbidity	IS 3025 Part 10:2023	1 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	457.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	124.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	30.4 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	11.6 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	108.9 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	136.5 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	32.8 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.25 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.21 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	2.8 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

Lab No: 2705605/005 T.C No: CML/26-27/T016691 Dated : 20.05.2026

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 65:2022	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	BDL (DL:1.0 mg/l)
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	130 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number,< 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
G.S. RADHA
Technical Manager
Authorised Signatory

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 I CIN : U74999TN2008PTC069459
Email : test@mettexlab.com I Web : www.mettexlab.com

TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016692
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705605/006
Sample Description : **Ground Water (BW-3)- Podichinnampalayam**
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical	**Group:** Water	
Colour	IS 3025 Part 4:2021	1 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:2022 (electrometric method)	7.21
Conductivity @ 25°C	IS 3025 Part 14:2013	872.5 µmhos/cm
Turbidity	IS 3025 Part 10:2023	1 NTU
Total Dissolved Solids	IS 3025 Part 16:2023	509.0 mg/l
Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (EDTA titrimetric method)	144.0 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (EDTA titrimetric method)	35.2 mg/l
Magnesium as Mg	IS 3025 Part 46:2023	13.6 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 Part 23:2023	121.0 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Argentometric Method)	168.7 mg/l
Sulphate as SO_4	IS 3025 Part 24/Sec 1-2022	32.8 mg/l
Iron as Fe	IS 3025 Part 53:2003 (1,10 phenanthroline method)	0.31 mg/l
Residual Free Chlorine	IS 3025 Part 26:2021	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 24th Edn. 2023:4500 F,D	0.21 mg/l
Nitrate as NO_3	IS 3025 Part 34:1988 (Chromotropic acid method)	2.6 mg/l
Copper as Cu	IS 3025 Part 65:2022	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Mercury as Hg	IS 3025 Part 65:2022	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2022	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)

...Contd....2

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Email : test@mettexlab.com I Web : www.mettexlab.com

Lab No: 2705605/006 T.C No: CML/26-27/T016692 Dated : 20.05.2026

TEST	PROTOCOL	RESULTS
Aluminium as Al	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Lead as Pb	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Zinc as Zn	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Total Chromium as Cr	IS 3025 Part 65:2022	BDL(DL : 0.02 mg/l)
Boron as B	IS 3025 Part 65:2022	BDL(DL : 0.05 mg/l)
Mineral Oil	IS 3025 Part 39-2021	BDL(DL : 0.01 mg/l)
Phenolic compounds as C_6H_5OH	IS 3025 Part 43/Sec 1 - 2022	BDL (DL:0.0005 mg/l)
Anionic Detergents (as MBAS)	IS 3025 Part 68:2019	BDL (DL:0.01 mg/l)
Cyanide as CN	IS 3025 Part 27/Sec 1-2021 (Colorimetric method)	BDL (DL:0.01 mg/l)
Barium as Ba	IS 3025 Part 65:2022	BDL(DL:0.05 mg/l)
Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Nesslerization method)	BDL (DL:0.01 mg/l)
Sulphide as H_2S	IS 3025 Part 29-2022	BDL (DL:0.01 mg/l)
Molybdenum as Mo	IS 3025 Part 65:2022	BDL (DL:0.02 mg/l)
Total Arsenic as As	IS 3025 Part 65:2022	BDL (DL:0.005 mg/l)
Total Suspended Solids	IS 3025 Part 17 -2022	BDL (DL:1.0 mg/l)
Discipline: Biological	**Group:** Water	
Total Coliform	APHA 24th Edn. 2023-9221 B	120 MPN/100ml
Escherichia coli	APHA 24th Edn. 2023-9221 F	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number,< 1.8 MPN/100ml can be taken as "No Microbial Growth".		

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
G.S. RADHA
Technical Manager
Authorised Signatory

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V. SELVAKUMAR
Technical Manager
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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016693
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/001
Sample Description : **Soil – 1 – Core Zone - Project Area**
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	6.64
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	251.0 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	30.1 %
	Sand		36.8 %
	Silt		33.1 %
04	Water Holding Capacity	By Gravimetric Method	41.3 %
05	Bulk Density	By Cylindrical Method	1.02 g/cm^3
06	Porosity	By Gravimetric Method	39.5 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	58.5 mg/kg
08	Magnesium as Mg		21.4 mg/kg
09	Manganese as Mn		21.6 mg/kg
10	Zinc as Zn		1.57 mg/kg
11	Boron as B		1.02 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	56.5 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.01 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.1 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	2.51 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	286.0 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		1.01 mg/kg
21	Iron as Fe		3.34 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	1.74 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	1.01%
24	Cation Exchange Capacity	USEPA 9080 – 1986	24.5 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
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T.C Date : 20.05.2026
T.C No : CML/26-27/T016694
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/002
Sample Description : **Soil – 2 – Kumarankovil**
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	5.94
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	292.4 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	29.7 %
	Sand		38.5 %
	Silt		31.8 %
04	Water Holding Capacity	By Gravimetric Method	39.3%
05	Bulk Density	By Cylindrical Method	0.96 g/cm^3
06	Porosity	By Gravimetric Method	36.9 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	61.5 mg/kg
08	Magnesium as Mg		32.4 mg/kg
09	Manganese as Mn		25.5 mg/kg
10	Zinc as Zn		4.12 mg/kg
11	Boron as B		3.01 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	63.5 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.024 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	22.6 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	2.12 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	320.8 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		1.12 mg/kg
21	Iron as Fe		3.18 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	3.75 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	2.18 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	27.8 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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TEST REPORT

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S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
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T.C Date : 20.05.2026
T.C No : CML/26-27/T016695
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/003
Sample Description : **Soil – 3 – Kongarampalayam (Barren Land)**
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	6.21
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	336 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	29.3 %
	Sand		39.3 %
	Silt		31.4 %
04	Water Holding Capacity	By Gravimetric Method	36.3 %
05	Bulk Density	By Cylindrical Method	1.03 g/cm^3
06	Porosity	By Gravimetric Method	32.8 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	73.5 mg/kg
08	Magnesium as Mg		32.3 mg/kg
09	Manganese as Mn		21.6 mg/kg
10	Zinc as Zn		3.82 mg/kg
11	Boron as B		1.09 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	75.5 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.022 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	23.8 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	4.69 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	284.5 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		2.96 mg/kg
21	Iron as Fe		3.29 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	2.03 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	1.18 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	26.6 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

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Technical Manager
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TEST REPORT

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S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016696
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/004
Sample Description : **Soil – 4 – Erumaikaranputhur (Residential Land)**
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	5.32
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	326.5 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	30.6 %
	Sand		32.5 %
	Silt		36.9 %
04	Water Holding Capacity	By Gravimetric Method	42.8 %
05	Bulk Density	By Cylindrical Method	1.01 g/cm^3
06	Porosity	By Gravimetric Method	32.3 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	76.5 mg/kg
08	Magnesium as Mg		31.6 mg/kg
09	Manganese as Mn		27.7 mg/kg
10	Zinc as Zn		4.18 mg/kg
11	Boron as B		1.22 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	61.1 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.019 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	23.3 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	1.24 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	325.8 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		1.23 mg/kg
21	Iron as Fe		1.56 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	2.0 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	1.19 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	21.9 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
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Technical Manager
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S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
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T.C Date : 20.05.2026
T.C No : CML/26-27/T016697
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/005
Sample Description : **Soil – 5 – Podichinnampalayam (Residential Land)**
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	5.31
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	298.4 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	29.0 %
	Sand		32.8 %
	Silt		38.2%
04	Water Holding Capacity	By Gravimetric Method	40.6 %
05	Bulk Density	By Cylindrical Method	1.08 g/cm^3
06	Porosity	By Gravimetric Method	36.2 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	62.9 mg/kg
08	Magnesium as Mg		26.6 mg/kg
09	Manganese as Mn		25.8 mg/kg
10	Zinc as Zn		1.98 mg/kg
11	Boron as B		1.13 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	68.6 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.019 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25.7 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	2.28 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	245.5 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		1.98 mg/kg
21	Iron as Fe		2.03 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	2.06 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	1.20 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	23.1 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
M. SELVAKUMAR
Technical Manager
Authorised Signatory

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CHENNAI METTEX LAB PRIVATE LIMITED®

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TEST REPORT

ISSUED TO: Thiru K. Kuppuraj, Extent: 2.29.73 Ha
S.F. Nos. 49/1, 55/2B (Part) and 55/6 (Part) of
Kavundampalayam Village, Gobichettipalayam Taluk,
Erode District,

T.C Date : 20.05.2026
T.C No : CML/26-27/T016698
Date Of Receipt : 09.05.2026
Analysis Commenced On: 09.05.2026
Analysis Completed On : 20.05.2026

Cust. Ref : SRF Dated : 17.02.2026
Lab No : 2705606/006
Sample Description : Soil – 6 - Vinobanagar (Residential Land)
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	6.36
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	286.5 µmhos/cm
03	**Texture :**		
	Clay	Gravimetric Method	31.8 %
	Sand		33.5 %
	Silt		34.7 %
04	Water Holding Capacity	By Gravimetric Method	41.9 %
05	Bulk Density	By Cylindrical Method	1.05 g/cm^3
06	Porosity	By Gravimetric Method	38.8 %
07	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	66.6 mg/kg
08	Magnesium as Mg		25.8 mg/kg
09	Manganese as Mn		17.9 mg/kg
10	Zinc as Zn		3.25 mg/kg
11	Boron as B		1.74 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	68.5 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.019 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	22.6 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Stannous chloride method)	2.05 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999	284.5 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		1.05 mg/kg
21	Iron as Fe		3.08 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972	2.15 %
23	Organic Carbon	Methods of analysis of soils, plants, waters and fertilizers by HLS Tandon	1.25 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	24.1 meq/100g of soil

End of Report

For Chennai Mettex Lab Private Limited

Reviewed & Authorised by
V. SELVAKUMAR
Technical Manager
Authorised Signatory

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भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL® OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration and Mining Solutions, Salem

No. 17, Advaitha Ashram Road, Fairlands, Salem, Tamil Nadu – 636 004

*Geo Exploration and Mining Solutions, Salem is Re-Accredited (RA3) **as Category-A organization** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Version 3), for the preparation of EIA/EMP reports in the sectors listed below, as per the specified categories*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
4.	Building and construction projects	38	8 (a)	B

Note: Names of approved experts and sectors are mentioned in RAAC minutes dated August 21, 2025, 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/25/3827 dated August 25, 2025. The accreditation needs to be renewed before the expiry date by Geo Exploration and Mining Solutions, Salem following due process of assessment.

Valid up to
August 06, 2028

Issue Date
August 25, 2025

Certificate No.
NABET/EIA/25-28/RA 0424

Prof (Dr) Varinder S Kanwar
(CEO – NABET)

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.