

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

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

“B1” CATEGORY (Cluster) – MINOR MINERAL – CLUSTER –

PATTA LAND - FRESH QUARRY

Cluster Extent – 9.09.9 Ha

(2 Proposed + 1 Existing Quarries)

Extent – 2.85.40 Ha

Project Proponent

M/s. SVS Mines,

Thiru. K. Ponnuramgam (Partner)

No.5/1, Sumangali Village,

Vembakkam Taluk,

Tiruvannamalai District- 604 402.

M/s. SVS MINES ROUGH STONE AND GRAVEL QUARRY

PROJECT LOCATION	PROPOSED PRODUCTION
S. F. Nos.: 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36 Kaganam Village, Vembakkam Taluk Tiruvannamalai District	Reserves: 3,59,080 m ³ of Rough Stone & 1,10,245 m ³ of Gravel Peak Production = 87,645 m ³ of Rough Stone, 61,845 m ³ of Gravel Proposed Depth = 50m bgl

File No.12613 ToR Identification: TO25B0108TN5485882N Dated: 30.09.2025

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 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/25-28/RA 0424 Phone: 0427-2431989, Email: info@geoexploration@gmail.com Web: www.gemssalem.com	  Laboratory GLOBAL LAB AND CONSULTANCY SERVICES Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636016.

Baseline Monitoring Period

OCTOBER 2025 to DECEMBER 2025

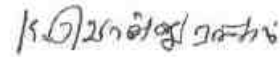
JANUARY 2026

UNDERTAKING

I K. Ponnurangam Partner of M/s. SVS Mines given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F. No 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36 over an extent of 2.85.40Ha in Kaganam Village, Vembakkam Taluk, Tiruvannamalai District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide File No.12613 ToR Identification: TO25B0108TN5485882N Dated: 30.09.2025.

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



Thiru.K. Ponnurangam
(Partner)

Place: Tiruvannamalai

Dated:

DECLARATION

I S.Nagamani – EIA Co Ordinator declare that this EIA & EMP report for the Rough stone and Gravel quarry in S.F.Nos. 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36 of over an extent of 2.85.40Ha in Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

The Data's provided in the EIA report are true and correct to the best of my knowledge.

Signature of the EIA Co Ordinator



S.Nagamani EIA Co Ordinator

M/s. Geo Exploration and Mining Solutions

Place: Salem

Dated:

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

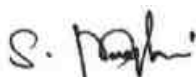
Declaration by experts contributing to the EIA/EMP for M/s.S.V.S. Mines Rough Stone & Gravel Quarry Project over an Extent of 2.85.40 ha in Kaganam Village of Vembakkam Taluk, Tiruvannamalai District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct 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: **Mr. S. Nagamani**

Designation: **EIA Coordinator**

Date & Signature:



Period of Involvement: **January 2023 to till date**

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. N.Sathishkumar	
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.	Mr. P. Govindasamy	
3	HG	- Interpretation of ground water table and predict impact and propose mitigation measures. - Analysis and description of aquifer Characteristics	Mr. E. Vadivel	
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. S. Nagamani	
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.P.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. J. R. Vikram Krishna	
8	LU	- Construction of Land use Map - Impact of project on surrounding land use	Mr. S. Ilavarasan	

		Suggesting post closure sustainable land use and mitigative measures.		
9	NV	- Identify impacts due to noise and vibrations - Suggesting appropriate mitigation measures for EMP.	Mr. J. R. Vikram Krishna	
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	Mr.M. Shaik Nawas	
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. J. R. Vikram Krishna	

For easy representation of Proposed and Existing, Expired and Abandoned Quarries in the Cluster are given unique codes and identifies and studied in this EIA/ EMP Report.

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	M/s. SVS Mines,	Kaganam	35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36	2.85.40	File No.12613 ToR Identification: TO25B0108TN5485882 N Dated:30.09.2025.
P2	M/s. SSS Mines	Kaganam	39/4	2.06.5	ToR Granted
	TOTAL EXTENT			4.91.9 Ha	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. S. Vadivel	Kaganam	38/1, 2, 39/5, 6, 7 & etc.,	4.18.0	20.09.2021 to 19.09.2031
	TOTAL EXTENT			4.18.0 ha	
ABANDONED QUARRY					
Nil					
	TOTAL CLUSTER EXTENT			9.09.90	

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

TERMS OF REFERENCE (ToR) COMPLIANCE

M/s. S.V.S. Mines

File No.12613 TOR Identification No. TO25B0108TN5485882N Dated:30.09.2025

SEAC 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 & agreed. Copy of affidavit agreement regarding forming CMC will be submitted during the appraisal meeting.
2	The PP should submit an affidavit to follow the scientific formation of benches for 5m *5m properly during mining as per the approved mining plan.	Noted & agreed.
3	The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.	Noted and agreed
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.	It is a Fresh lease
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 & agreed. The PP obtained VAO Certificate regarding the location of habitations within 300m radius from the periphery of the site and enclosed with as 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	Noted and agreed The hydro-geological study was conducted to evaluate the possible impact on the ground water

	operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 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 Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given 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.	Noted and agreed DFO letter will be submitted along with the Final EIA/EMP report
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 Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.
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 Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.
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 Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
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
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. There is no other quarry except this proposal operated by Proponent M/s.SVS Mines
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?	Noted and agreed.
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.	Fresh Lease

	· 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).	Noted and agreed Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.10, Page No.23 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.4, Pg.No.18
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	Noted and agreed. PP carried out the drone video survey and will be submitted during the appraisal while obtaining the EC.
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 The area has been fenced and plantation activities carried out within the project site.
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 The details of mineral reserves have been provided in Chapter No 1, Mineable reserves– 3,59,080 m ³ Peak Production – 87,645m ³ Proposed Depth – 50m bgl
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 PP provided 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
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.	Noted and agreed 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 One Season (Post Monsoon) October to December 2025 as per CPCB Notification and MoEF & CC Guidelines. Details in 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	Noted and agreed The Cumulative impact study due to mining operations is explained in chapter - 7

	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.	Noted and agreed
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. 2
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 Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Noted and agreed Transportation details mentioned in Chapter -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 Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific	Noted and agreed After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the 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 Details are given in the Chapter No.3
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	Noted and agreed Noted & agreed. It is proposed to plant a 1430nos of trees in the 7.5m safety barrier and village roads.

	trees alternating with shrubs should be planted in a mixed manner.	
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 No trees within the project site. it is proposed to plant 1430Nos of Trees in the safety barrier 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 details 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 A Risk Assessment and management Plan 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 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 measures should be detailed along with budgetary allocations.	Noted and agreed No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8
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 It is explained 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.	Noted and agreed No, Litigation 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 Chapter-8 discussed about benefits of projects.
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.	Fresh Lease
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 prepared for the life of the mine and discussed in chapter 10.
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 & agreed.

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 Cluster management committee detailed in chapter 7. Cluster management committee has been formed with mutual agreement with the proponents including Proposed quarry at present are framed.
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. As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combined.
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 formation of committee with list of members has been submitted to the AD mines office, Tiruvannamalai and the same will be update in every year.
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.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes. Transport details in chapter-2.
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.	The risk management plan and disaster management plan will be followed as per this EIA report.
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.
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 A proper action plan regarding the restoration will be followed by the committee.
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.
Agriculture & Agro-Biodiversity		
9	Impact on surrounding agricultural fields around the proposed mining Area.	Noted and agreed Detailed discussed in chapter 4.
10	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
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 The area is proposed Lease & Few trees present with in lease.
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.	Details in Chapter 3
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
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 dry barren land no agriculture activities carried out. This is a proposed lease area.

Forests		
15	The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife	Noted and agreed. Nearest Reserve Forest is Thandappanthangal RF – 6.7km – North West
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Noted and agreed The area is surrounded by Barren land. Details of flora and fauna studies given in the Chapter No.3.
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection	No major trees within the project area.
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site	Noted & agreed. Karikili Bird Sanctuary – 31.0km – South East Vedanthalangal Bird Sanctuary – 36.0km – South East
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	Noted and agreed There are 8 open wells and 6 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method
20	Erosion Control measures	Noted & agreed
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 2
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir	Details in Chapter 2 and 4 impact of bio diversity
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Noted & agreed
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.	Noted & agreed. Detailed under Chapter 3.
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components	Details in Chapter 3 Soil environment.
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites	Details in Chapter 3 Water environment.
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 There are 8 open wells and 6 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method
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 Details in Chapter 3 environmental monitoring details.
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 of carbon emission and mitigation activities are given in the Chapter No.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 in Chapter-3 for meteorological and climate/weather data representation of graphs.
31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	Noted and agreed Details of GHGs emissions and mitigation activities are given in the Chapter No.4
Mine Closure Plan		
32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
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	Detailed under 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.	Details in Green belt development in chapter 4
Risk Assessment		
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under 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 lease period as per precise area communication order issued.	Details in Study 7.3 Disaster Management Plan in Chapter -7
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.	Noted & agreed. Detailed under Chapter 4
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
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	Details of carbon emission and mitigation activities are given in the Chapter No.4

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. This is not a violation category project. This proposal falls under B1 Category
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 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.	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).	Noted & agreed. Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
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.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. 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° 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.	Noted & 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. 2, Table No 2.3
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, 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.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land. 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	Noted & agreed. 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.

	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.	Noted & agreed. 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.
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 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.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
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.	Noted & agreed. Baseline Data were collected for Post Monsoon Season October to December 2025 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	Noted & agreed. Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD 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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. The ground water table is at 60-65m below ground level. The ultimate depth of this projects is 50m from the general ground profile.
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.	Noted & agreed. Highest elevation of the project area is 116m AMSL Ultimate depth of the mine is 50m BGL Water level in the area is 60-65m 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.	Noted & agreed. Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9
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.	Noted & agreed. 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)	Noted & agreed. 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. .

	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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. 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.	Noted & agreed. Details in Chapter 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.	Noted & agreed. Environment Management Plan Chapter 10.
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.	Noted & agreed. The outcome of public hearing will be updated in the final EIA/EMP report
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.	Noted & agreed. No litigation is pending in any court against this 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.	Noted & agreed. The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6.
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.	Noted & agreed. Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Noted & agreed. Details in 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.	Noted & agreed. Details in Chapter.8.
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	Baseline monitoring reports are enclosed with 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.	Noted & agreed.
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	Noted & agreed.
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.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent M/s. SVS Mines applied for Rough Stone and Gravel Quarry over an extent of 2.85.40 Ha in S.F. Nos. 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36, Kaganam Village, Vembakkam Taluk, Tiruvannamalai District.

- Proponent applied for Rough Stone and Gravel quarry lease on 21.03.2025
- Precise area communication letter was issued by the District Collector vide RC. No. 220/Kanimam/2025 Dated 29.07.2025.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter RC. No. 220/Kanimam/2025 Dated 11.08.2025
- The Mining plan has been approved for the quantity of 3,59,080 m³ of Rough Stone and 1,10,245m³ Gravel up to the depth of 50m bgl for the period of five years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries - 2 Proposed and 1 Existing quarry forming Cluster Category {Total Extent of the Cluster is 9.09.50 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/548811/2025. Dated: 21.08.2025 and obtained Terms of Reference File No. 12613 Tor Identification No: TO25B0108TN5485882N Dated 30.09.2025.

Based on the ToR Baseline Monitoring study has been carried out for one season ie **(Post Monsson Season)**., **October to December 2025** and this EIA/EMP report is prepared for considering cumulative impacts arising out of this project, 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

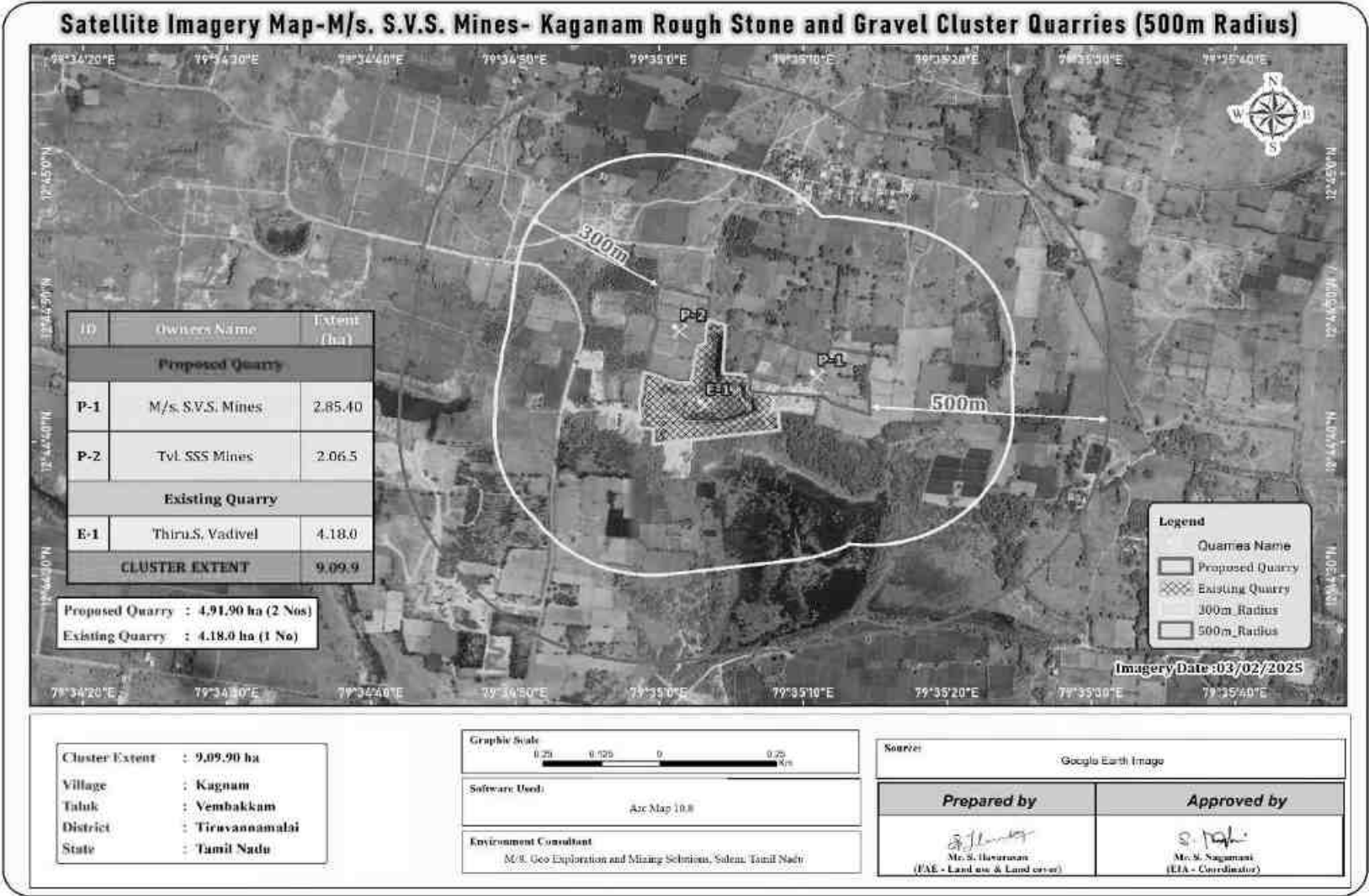
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and 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 B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed projects are 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 for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	M/s. SVS Mines Rough Stone and Gravel Quarry
Address	No.5/1, Sumangali Village, Vembakkam Taluk, Tiruvannamalai District– 604 402
Mobile	+91 77088 55810
Email	Vadivelsvs5@gamil.com
Status	Partnership Firm

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	M/s. SVS Mines Rough Stone and Gravel Quarry	
S.F. No.	35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36	
Extent	2.85.40 ha	
Village, Taluk and District	Kaganam Village, Vembakkam Taluk, Tiruvannamalai District.	
Land Type	It is a patta lands, S.F.Nos. 35/2, 35/1B1 and 35/1B2 registered in the name of Thiru. Vadivel vide Patta No. 1126 and S.F.Nos. 35/3, 35/5(Part), 35/1A and 36 jointly registered in the name of Thiru. Ponnurangam and Thiru. Vadivel vide patta no. 1353. The Company has obtained consent from the Joint Pattadar for the period of 10 years from the lease execute 21.03.2025 to 21.03.2035.	
Toposheet No	58 P/10	
Latitude between	12° 44' 42.06"N to 12° 44' 47.83"N	
Longitude between	79° 35' 06.20"E to 79° 35' 14.71"E	
Elevation of the area	116m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	50m bgl (5m Gravel + 45m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	12,84,300	1,42,700
Mineable Reserves	3,59,080	1,10,245
Year wise Production for five years	3,59,080	1,10,245
Peak Production	87,645	61,845
Ultimate Pit Dimension	Pit – 1: 133m (L) X 93m (W) X 40m BGL(D) Pit – 2: 88m (L) X 110m (W) X 50m BGL(D)	
Water Level in the region	60-65m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 116m above from Mean Sea level. The area is covered by 4m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.	
Machinery proposed	Jack Hammer	11 Nos
	Compressor	3 Nos
	Excavator with Bucket and Rock Breaker	1 No
	Tippers	3 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	38 Nos	
Project Cost	Rs. 4,37,41,000/-	
EMP Cost	Rs. 19,29,000/-	
Total Project cost	Rs. 4,56,70,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Periya Eri	150m South
	Sitteri	330m SE
	Kulam	470m East
	Tank	1.0km SW
	Mamandur Lake	4.2km SE
	Palar River	8.5km NE
	Cheyyaru River	9.5km SE
Greenbelt Development Plan	Proposed to plant 1430 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.0 KLD	
Nearest Habitation	320m – North	
Nearest Reserve Forest	Thandappanthangal R.F – 6.7 Km – NW (Source - TNGIS)	
Nearest Wild Life Sanctuary	Karikili Birds Sanctuary – 31.0 Km – SE Vedanthangal Birds Sanctuary – 36km - SE	

Source: Approved Mining & Land Documents.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

The quarrying operation is proposed 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.

The peak production of Rough Stone is 87,645m³ maximum in a year (292m³ per day/ 24 Tippers per day considering 12m³ per load). The depth of the mining is 50m bgl.

1.3.2 Location of the Project

- The project site is located in Kaganam Village, Vembakkam Taluk and Tiruvannamalai District.
- 77km Northeast of Tiruvannamalai town, 4km Southwest of Vembakkam and 1km Northeast of Kaganam Village.

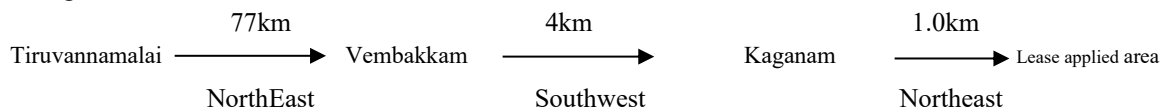
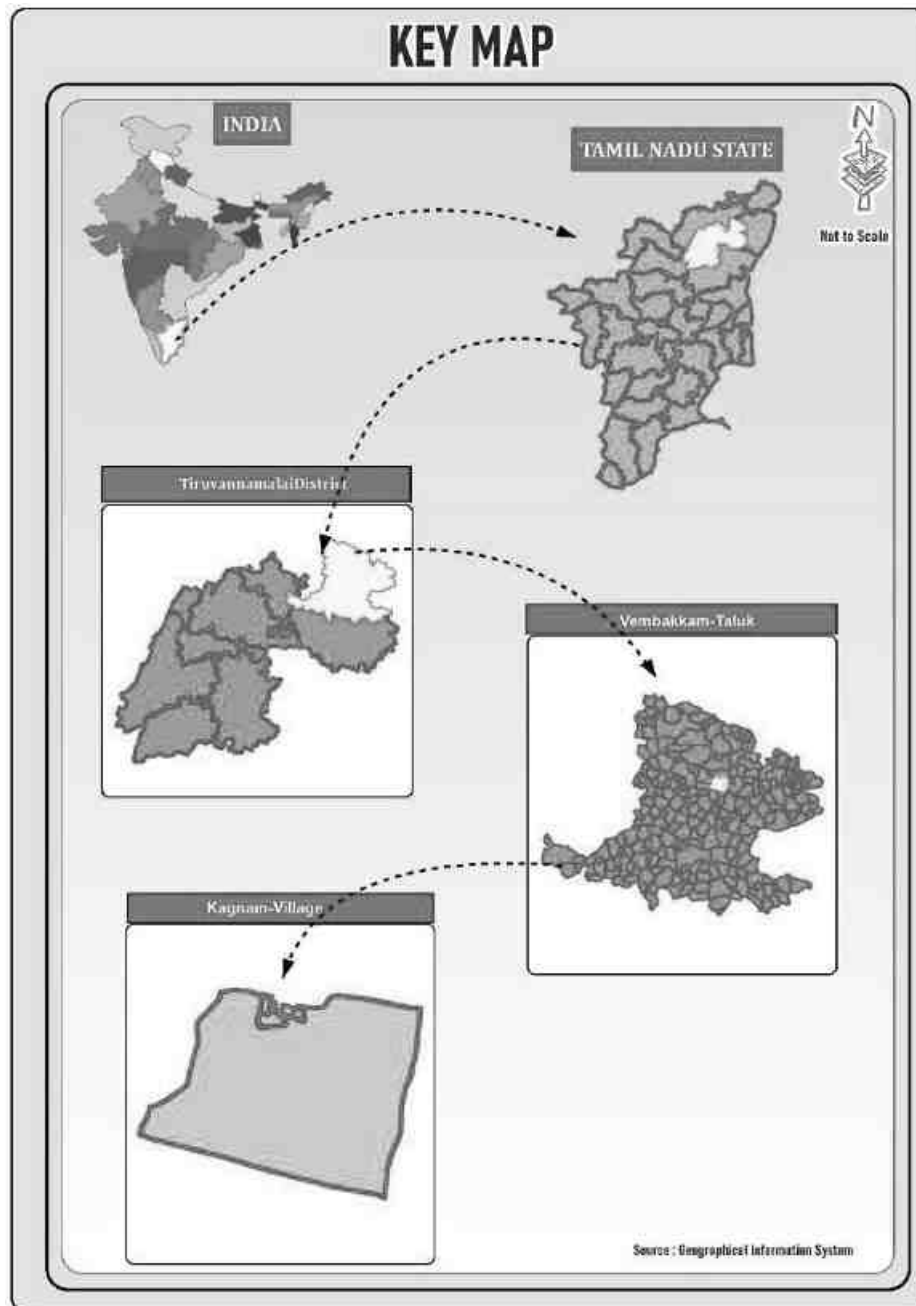


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE

Source: Survey of India Toposheet 57-P/10 & 16

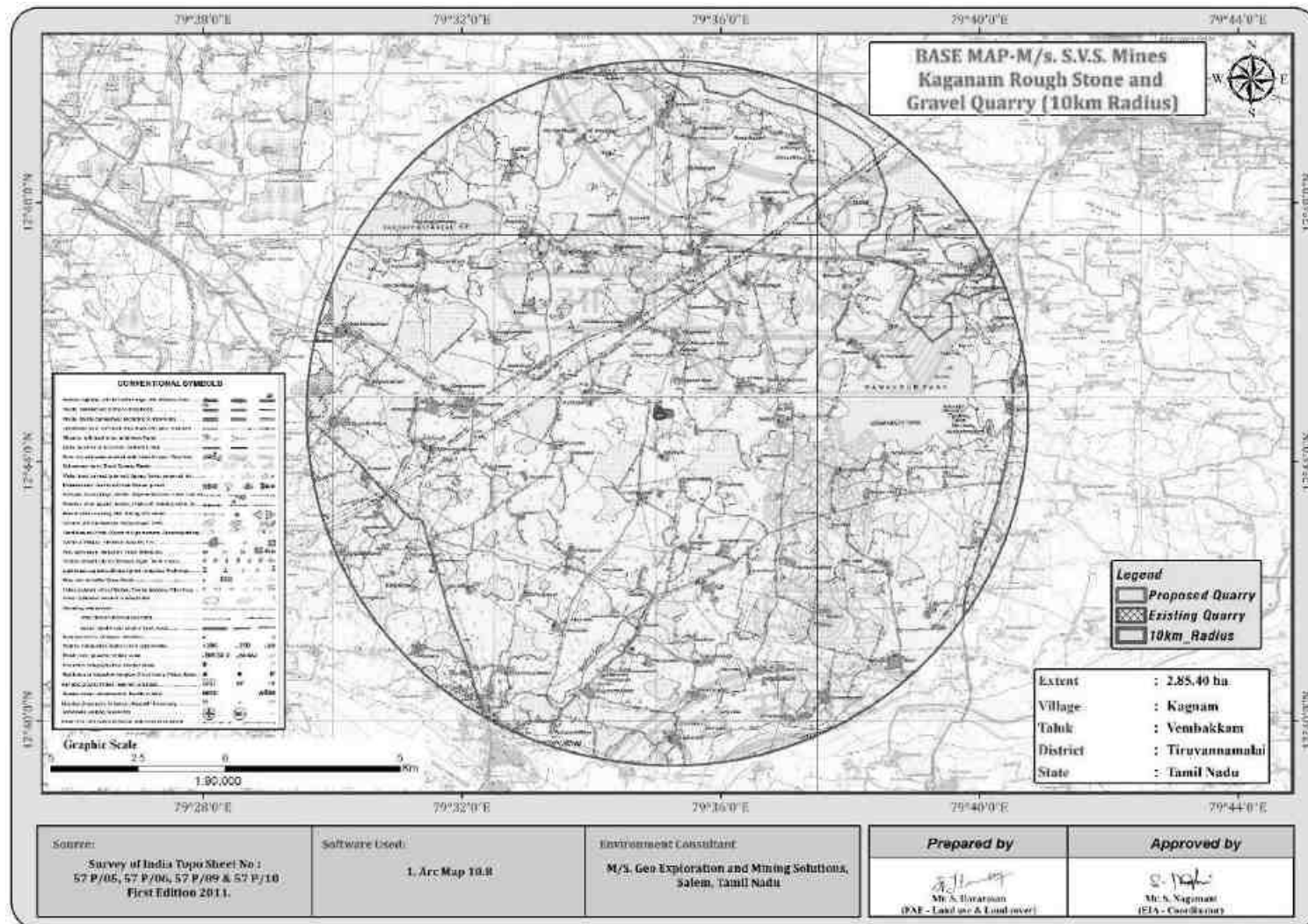
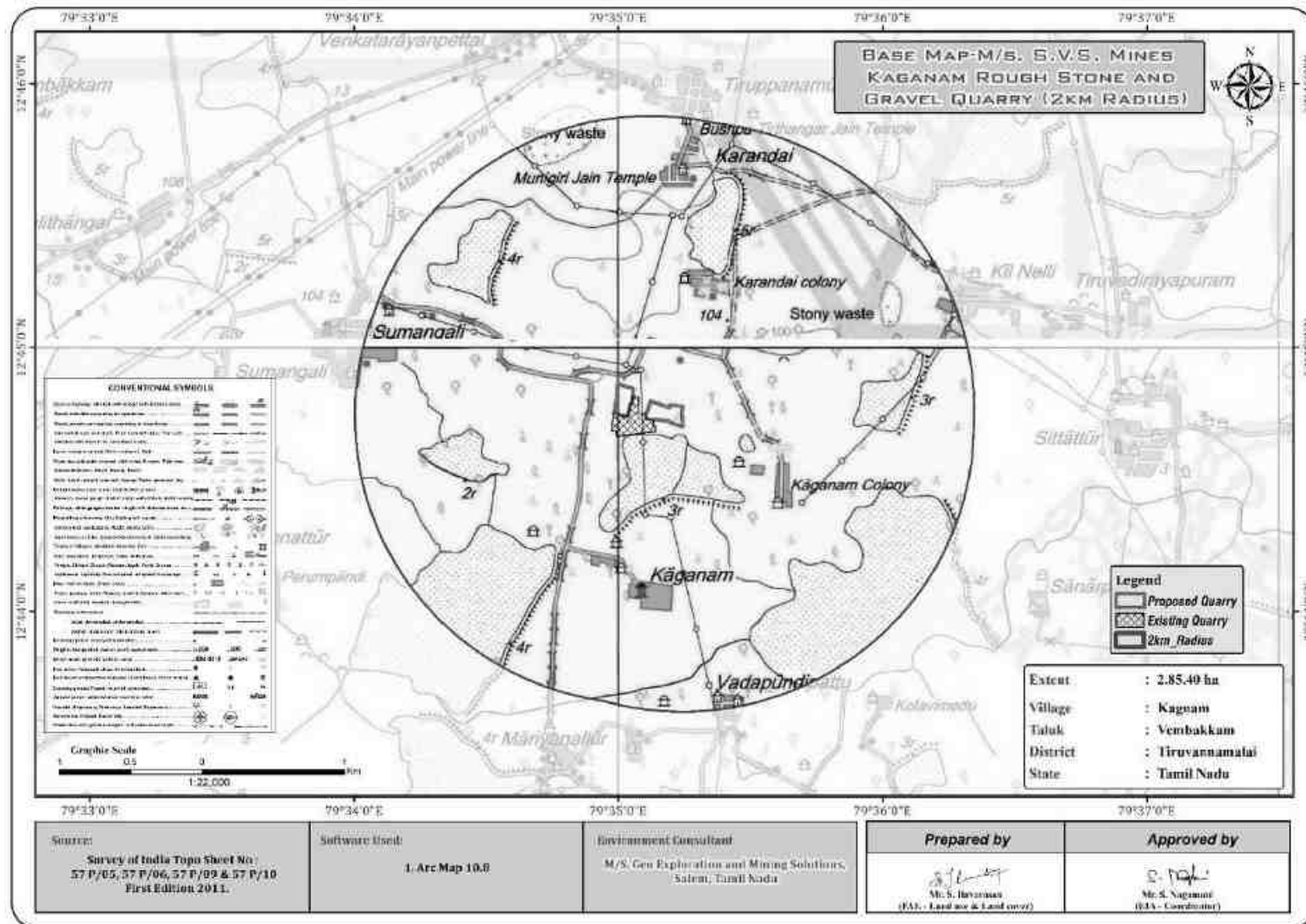
FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM 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: -

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING –

- Proponent applied for Rough Stone and Gravel quarry lease on 21.03.2025
- Precise area communication letter was issued by the District Collector vide RC. No. 220/Kanimam/2025 Dated 29.07.2025
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Tiruvannamalai District, vide RC. No. 220/Kanimam/2025 Dated.11.08.2025
- 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/548811/2025. dated: 21.08.2025.

SCOPING:

- The proposal was placed in 615th SEAC meeting held on 09.09.2025 and the committee recommended for issue of ToR.
- The proposal was considered in 893rd SEIAA meeting held on 24.09.2025 and issued Terms of Reference File no.12613 Tor Identification No: TO25B0108TN5485882N Dated 30.09.2025.

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.

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide Terms of Reference File no.12613 Tor Identification No: TO25B0108TN5485882N Dated 30.09.2025. The Details of the ToR Compliance is given in the Page No. i-xxii.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The 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 quarries and formulate the effective mitigation measures. 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 Post Monsoon season (Oct 2025 to Dec 2025) 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 1.3: 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 – 2 Surface water and 4 Ground 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)	8 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

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for all Proposed Quarries

- 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.
- Environment Protection Act, 1986
- Water (Prevention and control of Pollution) act, 1974
- Air (Prevention and control of Pollution) act, 1981
- Terms of Reference File no.12613 Tor Identification No: TO25B0108TN5485882N Dated 30.09.2025

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarry requires Environmental Clearance. There are 2 proposed and 1 existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 9.09.9 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 this project. Method of mining is 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

77km Northeast of Tiruvannamalai town, 4km Southwest of Vembakkam and 1km Northeast of Kaganam Village.

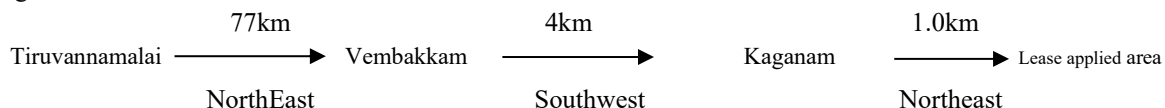


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH – 48 – Vellore – Chennai – 14.5 km -NE SH – 5 – Arcot – Vandavasi -7.3km-SW
Nearest Village	Kaganam – 1.0 km – South West
Nearest Town	Vembakkam – 4.5km – NE
Nearest Railway Station	Kancheepuram – 17.0km – NE
Nearest Airport	Chennai - 68km – NE
Seaport	Chennai - 84.0km – NE

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	12°44'43.78" N	79°35'06.28" E
2	12°44'44.92" N	79°35'06.20" E
3	12°44'45.87" N	79°35'06.80" E
4	12°44'47.38" N	79°35'07.28" E
5	12°44'46.38" N	79°35'11.63" E
6	12°44'47.01" N	79°35'11.81" E

7	12°44'46.59" N	79°35'14.71" E
8	12°44'44.48" N	79°35'14.36" E
9	12°43'44.41" N	79°35'14.54" E
10	12°43'42.06" N	79°35'14.61" E
11	12°43'42.87" N	79°35'12.01" E
12	12°43'43.37" N	79°35'11.39" E
13	12°44'43.64" N	79°35'08.20" E
14	12°44'43.51" N	79°35'08.17" E
Datum: UTM-WGS84, Zone 44 North		

Source: Approved Mining Plan

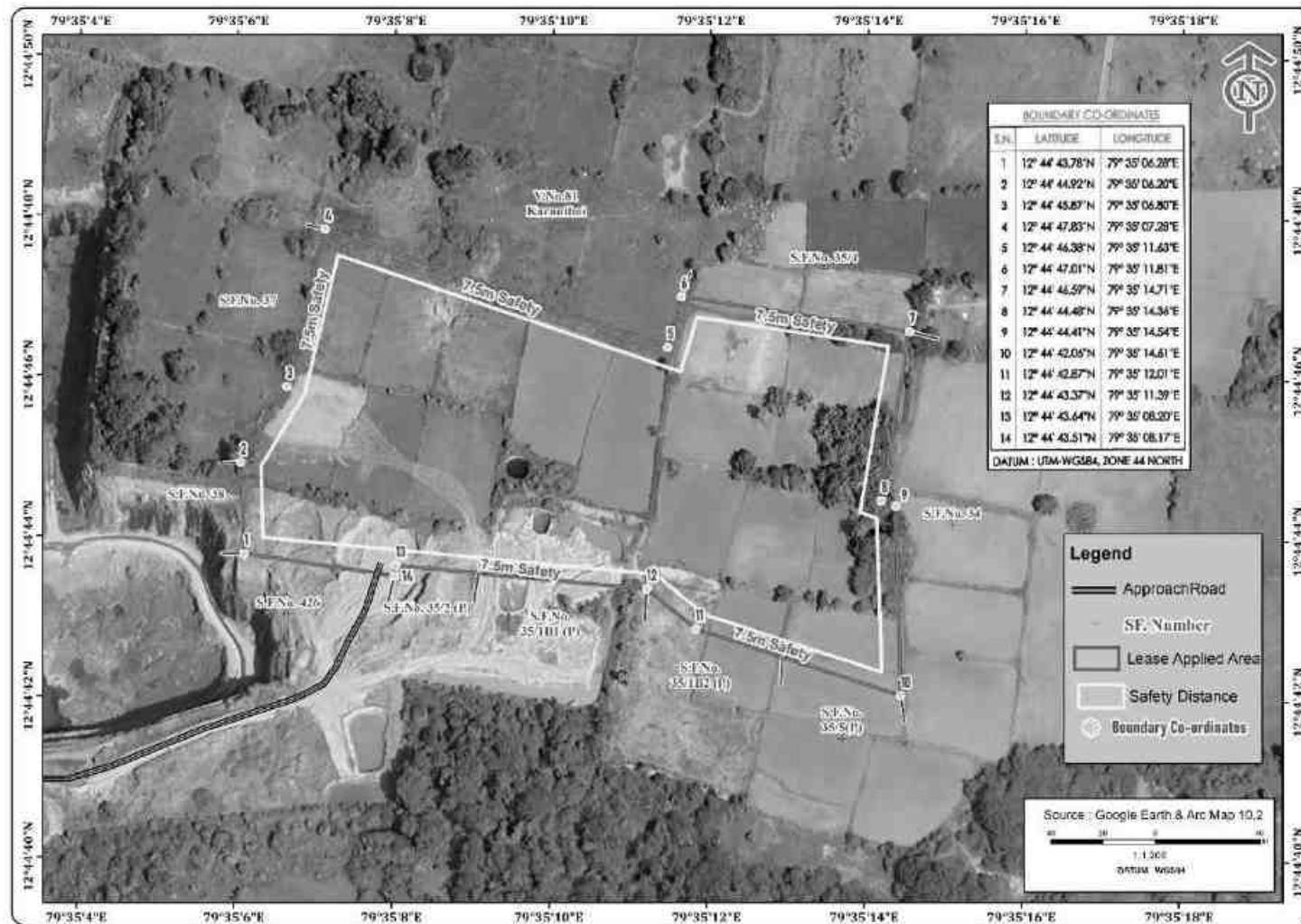
FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA



Project Site Photographs

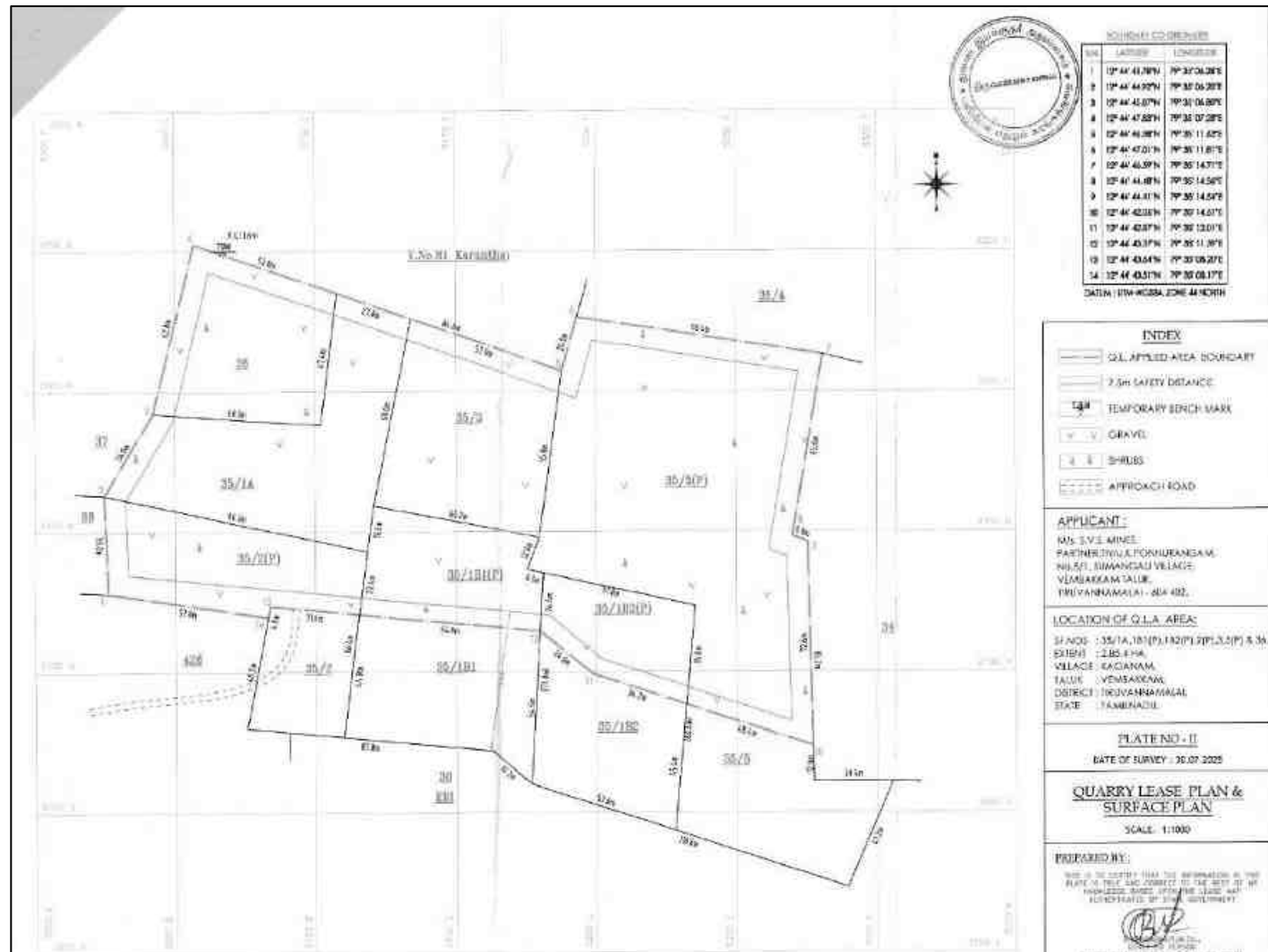
FIGURE 2.2: PHOTOGRAPHS OF GREENBELT & FENCING



FIGURE 2.4: GOOGLE IMAGE OF THE PROJECT AREA

Source: Google Earth Imagery

FIGURE 2.5: QUARRY LEASE PLAN / SURFACE PLANN



Source: Approved Mining Plan

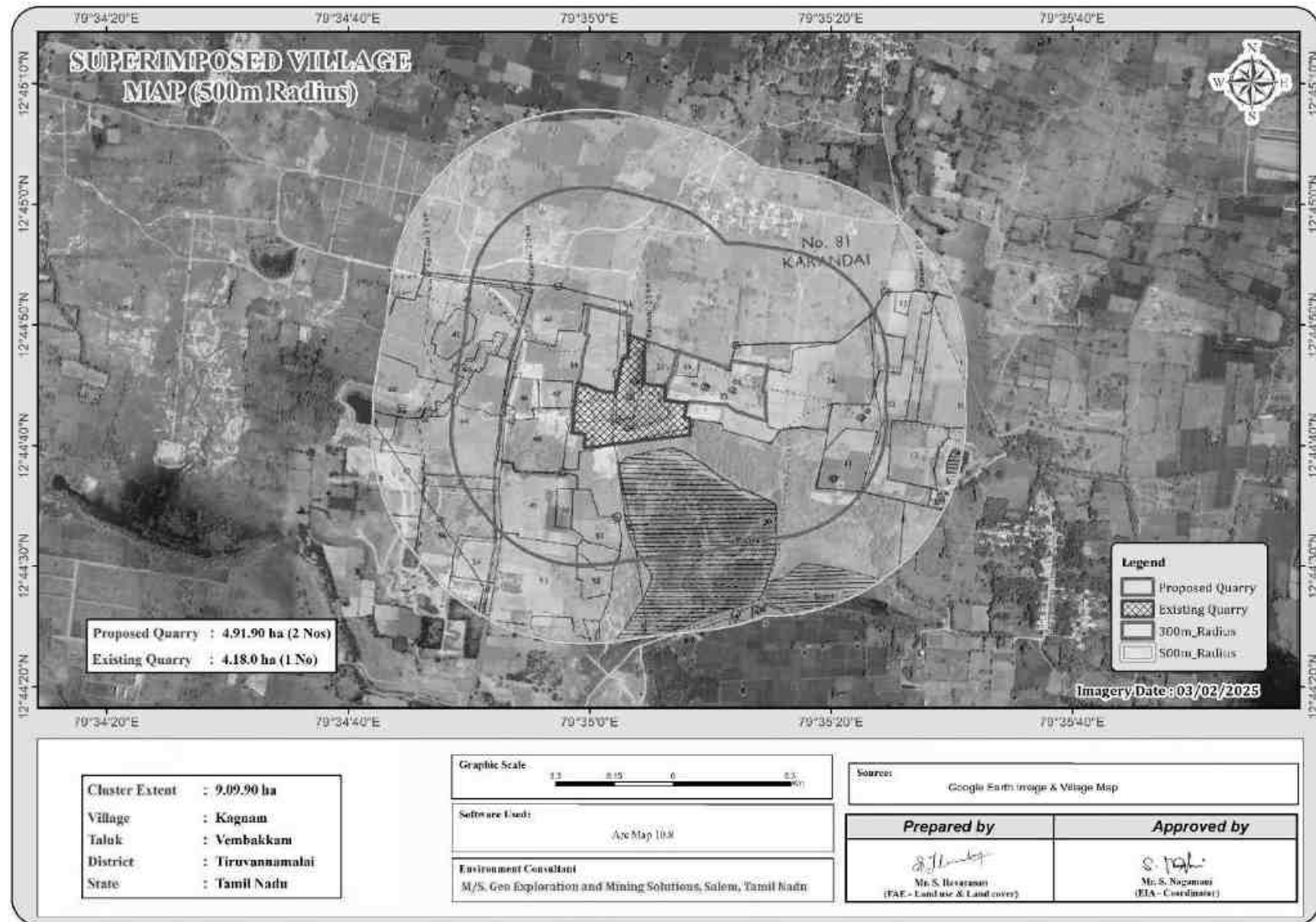
FIGURE 2.6: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

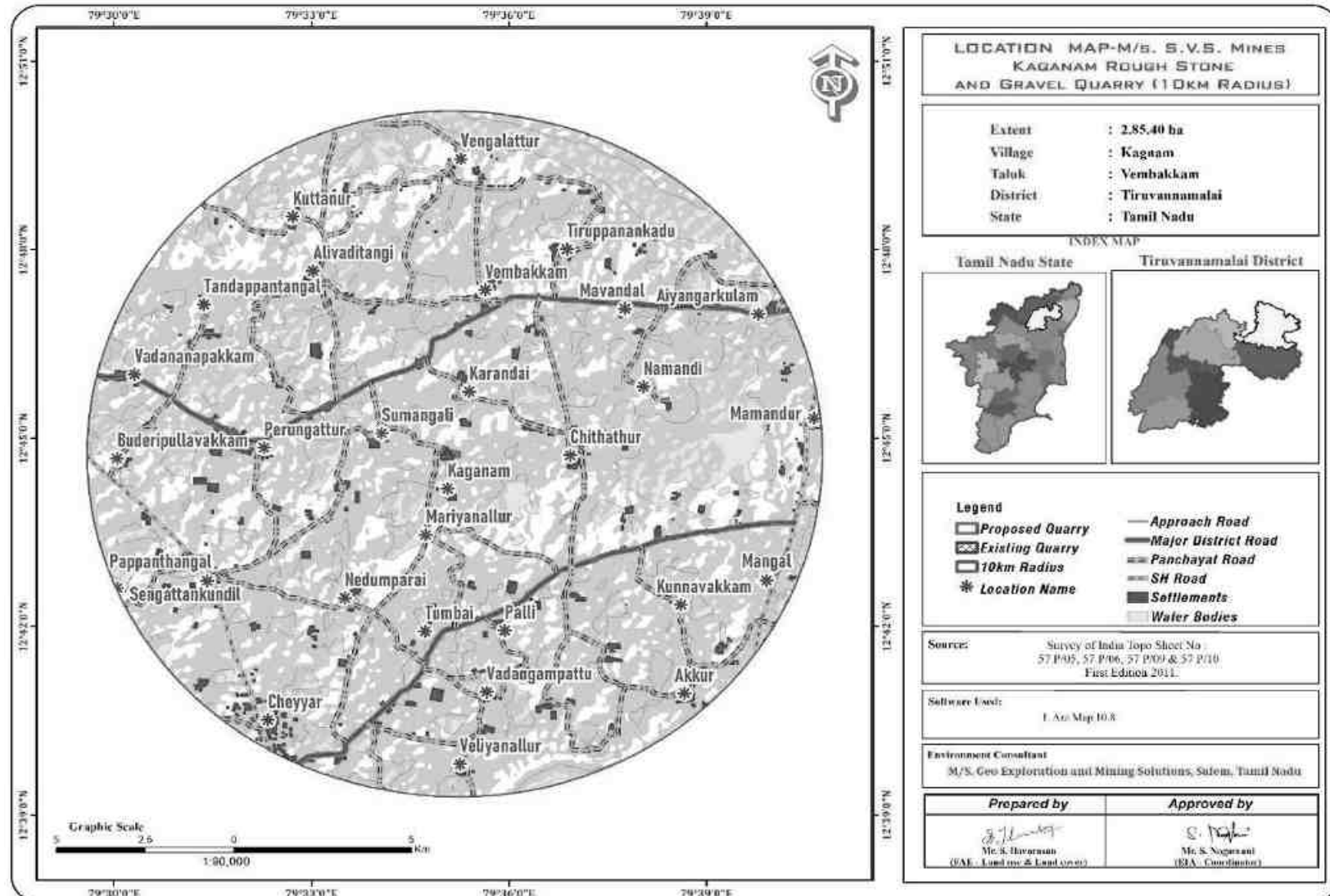
FIGURE 2.7: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

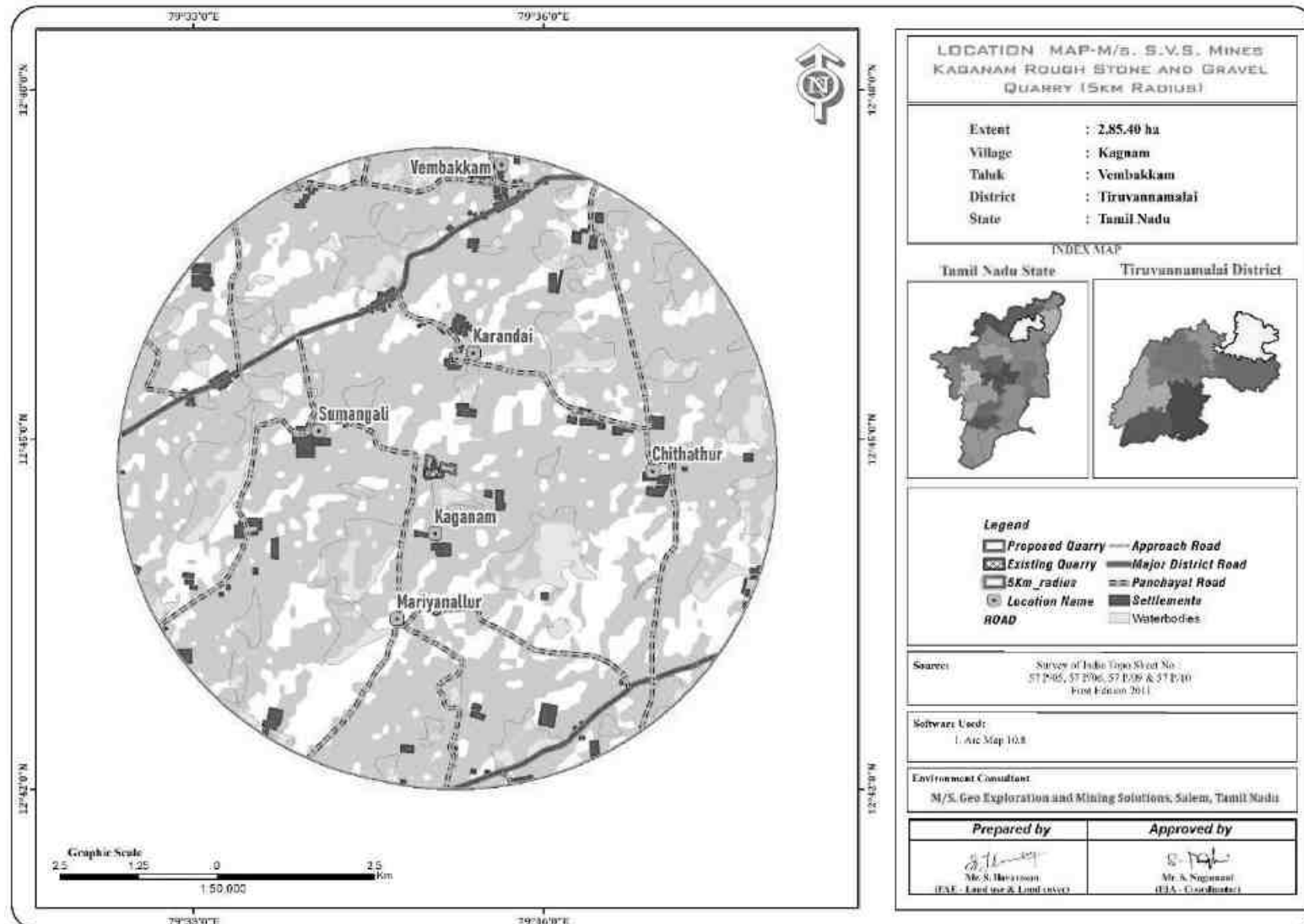
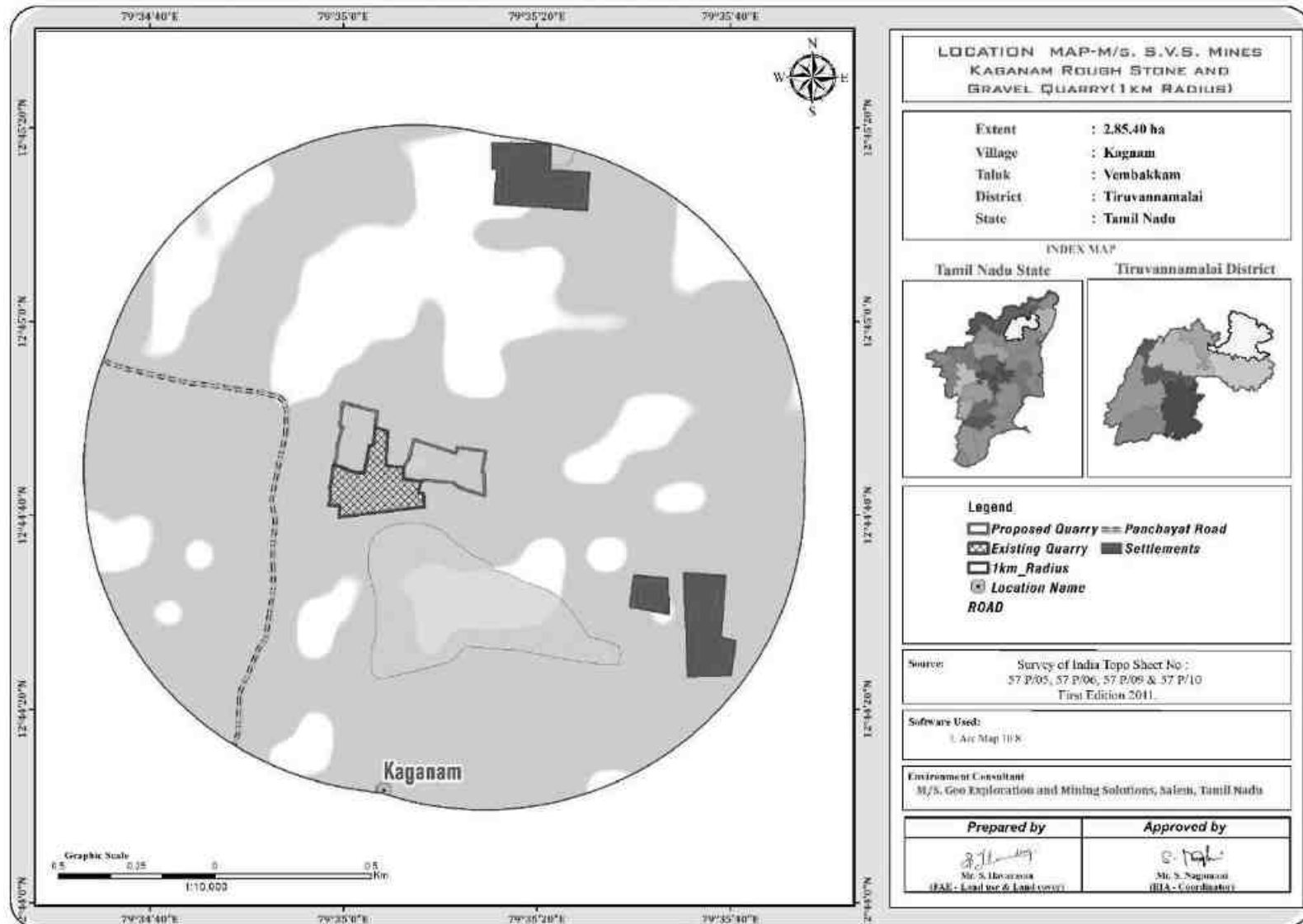
FIGURE 2.8: IMAGE SHOWING SURFACE FEATURES AROUND 5 KM RADIUS

FIGURE 2.9: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS

2.2.1 Project Area

- The project is site specific & no beneficiation or processing in the project site.
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.3: LAND USE PATTERN

Description	Present area (Ha)	Leaving Safety and Benches
		Area at the end of lease period (Ha)
Area under quarrying	Nil	2.20.0
Site Services	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.38.0
Unutilized Area	2.85.4	0.24.4
Grand Total	2.85.4	2.85.4

Source: Approved Mining

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS	
	Rough Stone in m ³	Gravel in m ³
Geological Resources	12,84,300	1,42,700
Mineable Reserves	3,59,080	1,10,245
Production for first five-year plan period	3,59,080	1,10,245
Peak Production	87,645	61,845
Mining Plan Period / Lease Applied Period	5 Years	
Number of Working Days	300 Days	
Production per day	240	123
No of Lorry loads (12m ³ per load)	20	10
Total Depth of Mining	50m (5m Gravel +45m Rough stone) below ground level.	

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

Tiruvannamalai District mainly comprises of rocks of Archaean age. The type of rocks found in the district are Charnockite, Granitic gneiss, Epidote Hornblende Gneiss, Amphibolite, Pyroxenite, Dunite, Migmatites, Banded Magnetite Quartzite, Shale and Clay. Dolerite dykes (Black Granite) are also noticed cutting across the country rocks.

The hard rock terrain comprises predominantly of Charnockite and Khondalite groups and their migmatitic derivatives, supra-crustal sequences of Sathyamangalam and Kolar groups and Peninsular Gneissic Complex (Bhavani Group), intruded by ultramafic-mafic complexes, basic dykes, granites and syenites. The sedimentary rocks of the coastal belt include fluvial, fluvio-marine and marine sequences, such as Gondwana Supergroup (Carboniferous to Permian and Upper Jurassic to Lower Cretaceous), marine sediments of Cauvery basin (Lower Cretaceous to Paleogene), Cuddalore /Pannambarai Formation (Mio-Pliocene) and sediments of Quaternary and Recent age.

The Charnockite Group comprises pyroxene granulite and charnockite. The pyroxene granulite is dark grey, medium grained granulitic rock with typical salt and pepper texture, seen on the weathered surface. It consists of diopside, hypersthene, plagioclase, hornblende, biotite and quartz. Charnockite is the predominant rock in the area. It is grey, medium to coarse grained, greasy looking with foliation seen prominently on the weathered surface. It is

essentially made of smoky or grey quartz, pale grey microcline and hypersthene as major minerals with plagioclase, hornblende and biotite as accessories.

Migmatite Complex is represented by hornblende-biotite gneiss, granitic gneiss and pink migmatite. This Complex is a group of banded felsic rocks of varying mineralogical composition that are formed due to the influx of quartzofeldspathic material into high grade metamorphic rocks. Two types of migmatite are seen in the district, one is grey and the other is pink. Next to charnockite, migmatite gneiss is the second most extensive rock. The migmatite gneiss consists of quartz, K-feldspar, plagioclase, hornblende and biotite in varying proportions.

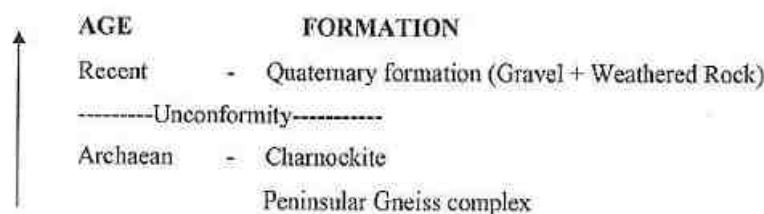
Source: District Survey Report for Minor Minerals Tiruvannamalai District – May 2019.

<https://tiruvannamalai.nic.in/document/district-survey-report-rough-stone/>

Exploration :

No Exploration is required, the Rough stone and Gravel formation is clearly inferred from the existing quarry pit situated on the south side.

The General Geological sequence of the area is given below:



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 areas are plain terrain, The project areas are covered with Gravel formation of 2m thickness; Massive Charnockite formation is found after 2m Gravel formation which is clearly inferred from the existing quarry pit.

2.3.3 Hydrogeology

Cheyyar River which originates from Jawadhu Hills, flows in a southern direction at first, and turns south-east near Chengam after flowing through Polur, Vandavasi and Cheyyartaluk. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyartaluk of Tiruvannamalai district and there after enters into Kancheepuram district. Pennaiyar and South Pennaiyar originate from Nandidurg of Karnataka. They pass through Dharmapuri district and enter southern part of Chengam taluk before entering into Viluppuram district. Finally, the river enters into the Bay of Bengal at Cuddalore. The river is dry for the most part of the year. Water flows during the monsoon season when it is fed by the southwest monsoon in catchment area and the northeast monsoon in Tamil Nadu. A dam has been constructed across this river at Sathanur which is a picnic spot in this district. Sathanur Reservoir provides drinking water to Tiruvannamalai town and the water is used for irrigation when the reservoir is filled with surplus water.

The origin, occurrence and movement of groundwater are controlled by geological setup of a terrain. During the study it is inferred that the entire cluster area is a Hard rock terrain and the low resistance encountered at the depth between 57m, hence it is assumed that the possibility of Ground water occurrence will be below this level and it also proved that this hard batholith above 50m will not encounter any subsurface water.

There is a possibility of seepage water from the surface levels i.e., below 30m, this surface water will be collected in the mine pits and later used for dust suppression and afforestation. In the geophysical study it has been clearly inferred that the depth of the quarrying operation will not intersect the ground water table.

2.2.2.3 Aquifer Systems:

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Tiruvannamalai District.

In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will be appreciable. The sedimentary area which occupies the eastern part of the district along the coastal tract is more favourable for groundwater recharge. Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below.

2.2.2.3 Alluvial Formations

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones.

Tertiary Cuddalore sandstone

Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brackish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations

Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone.

Hard Rock Formations

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

Aquifer Parameters

The transmissivity values of fractured aquifers range from < 1 to $141 \text{ m}^2/\text{day}$ and storativity varies between 2.84×10^{-5} and 8.9×10^{-3} . The transmissivity of sedimentary formation varies from 21 to $748 \text{ m}^2/\text{day}$ and storativity is in the order of 2.75×10^{-3}

.Actual Rainfall in Mm					Normal Rainfall in Mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.5	985

<https://www.twadboard.tn.gov.in/content/tiruvannamalai>

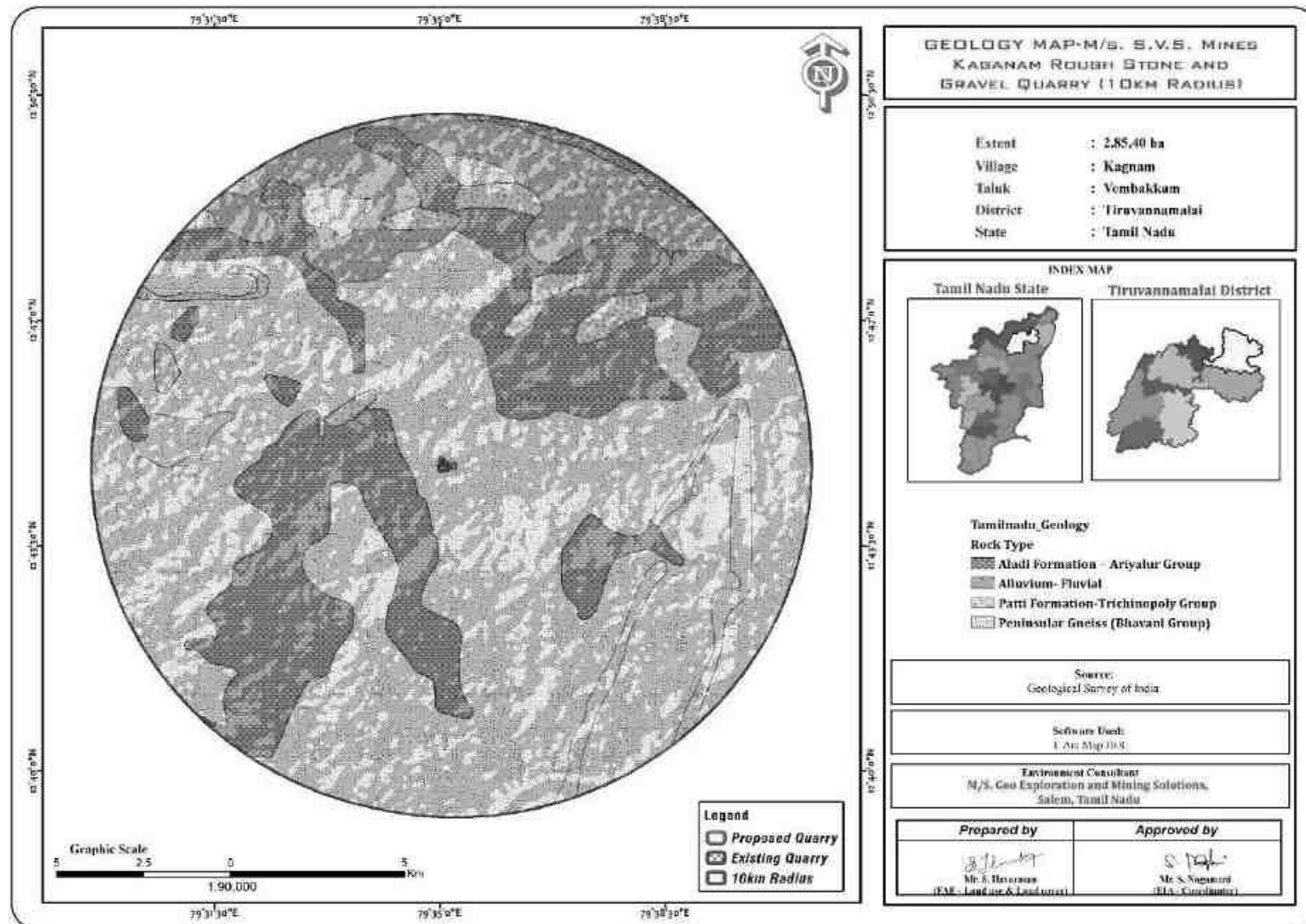
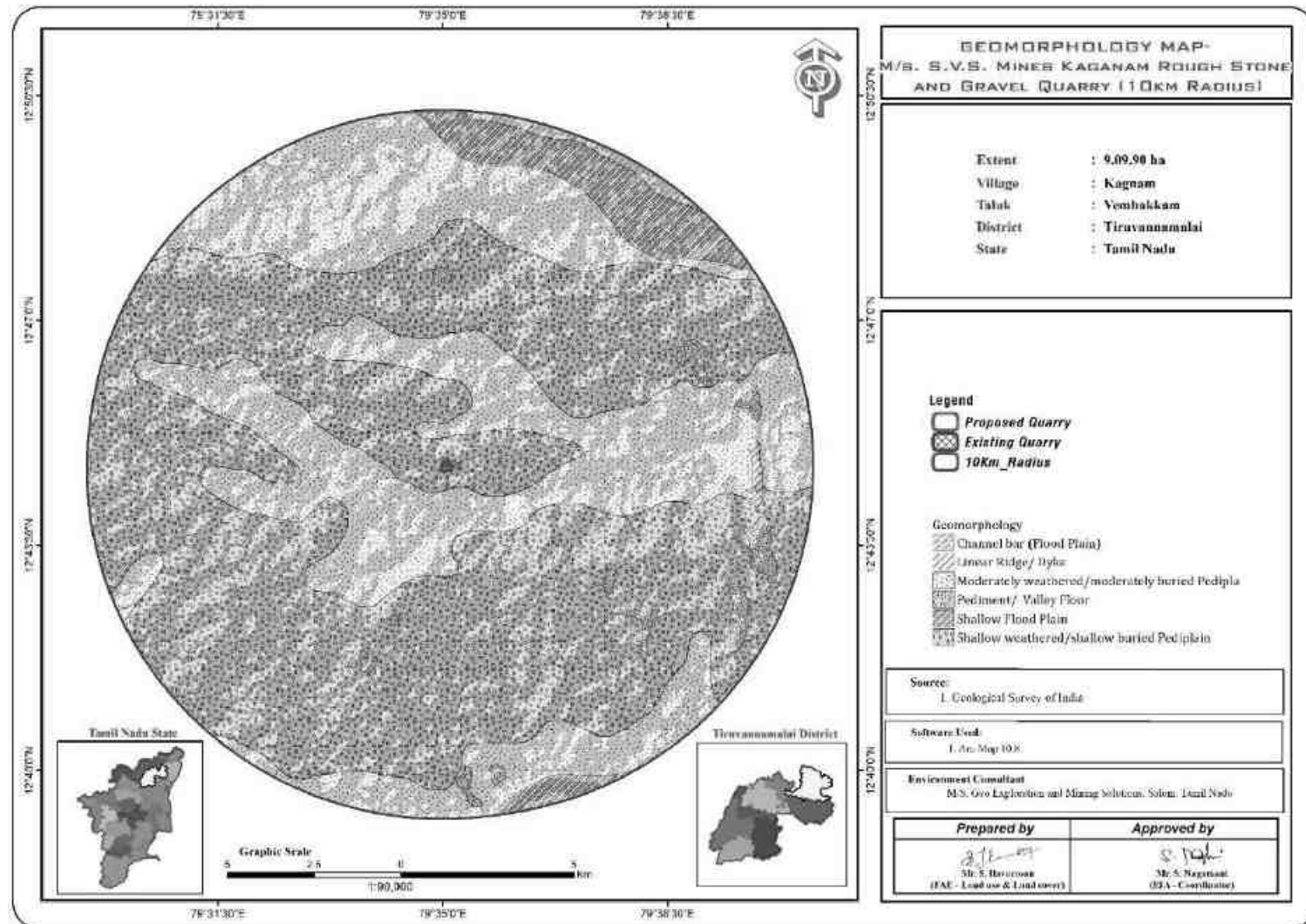
FIGURE 2.10: REGIONAL GEOLOGY MAP

FIGURE 2.11: GEOMORPHOLOGY MAP

2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area. Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.5: RESOURCES AND RESERVES

Description	Rough Stone m ³	Gravel m ³
Geological Resource in m ³	12,84,300	1,42,700
Mineable Resource in m ³	3,59,080	1,10,245
Year wise production for five-year plan period	3,59,080	1,10,245

Source: Approved Mining Plan

TABLE 2.6: YEAR-WISE PRODUCTION PLAN FOR FIVE YEARS

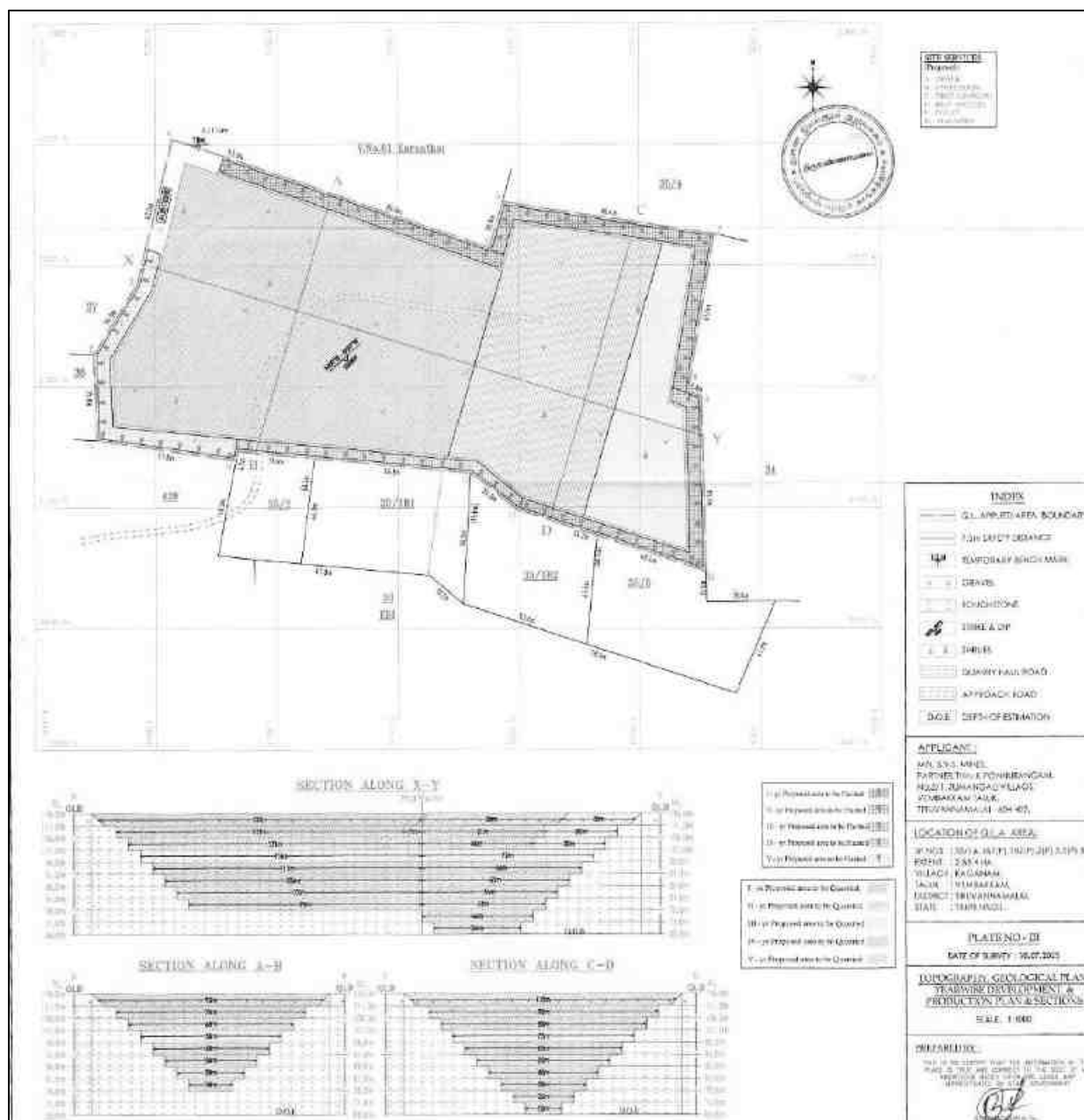
YEAR	ROUGH STONE (m ³)	GRAVEL (m ³)
I	46,410	61,845
II	87,645	31,900
III	87,265	16,500
IV	68,230	-
V	69,530	-
TOTAL	3,59,080	1,10,245

Source: Approved Mining Plan

Disposal of Waste

The overburden in the form of Gravel formation is about 1,10,245m³ up to depth 5m for during this period. 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.

FIGURE 2.12: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS



Source: Approved Mining Plan

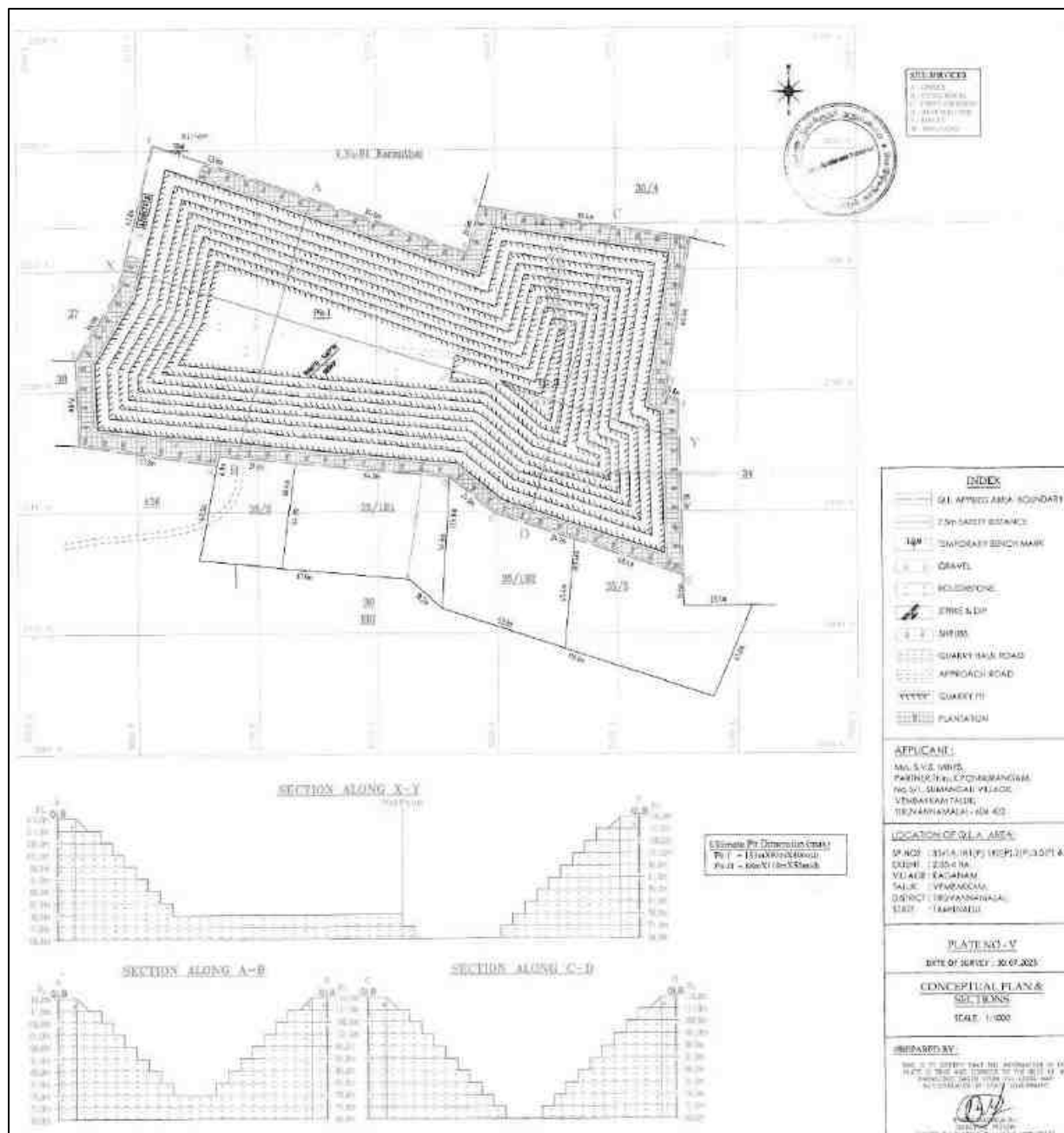
Conceptual Mining Plan/ Final Mine Closure Plan

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.7: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	133	93	40m bgl
II	88	110	50m bgl

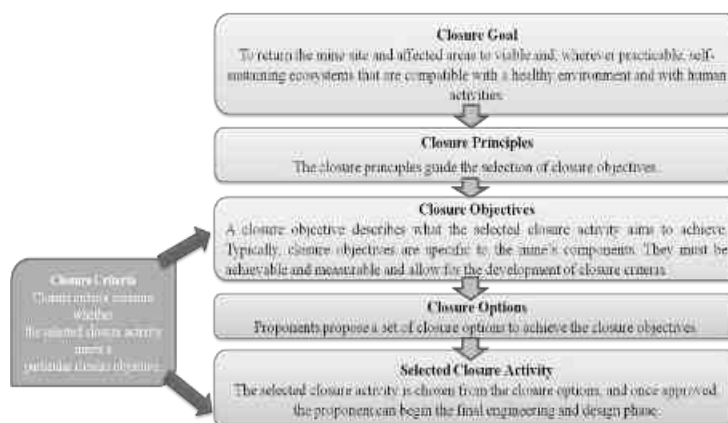
Source: Approved Mining Plan

FIGURE 2.13: CLOSURE PLAN AND SECTIONS

Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

Closure Objectives –



- Access to be limited, for the safety of humans and wildlife.
- The open pit mine workings and pit boundary are physically and geo-technically stable.
- Water quality in flooded pits is safe for humans, aquatic life, and wildlife.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- For flooded pits, in-pit aquatic habitat has been established where practical and feasible.
- Emergency access and escape routes from flooded pits for humans and wildlife are in place.
- Dust levels are safe for people, vegetation, aquatic life, and wildlife.

Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row patterns on the boundary barriers and 1st bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure

2.5 METHOD OF MINING

Opencast Mechanized Mining Method is proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. Bench slope will be maintained as 60°.

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 Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of Rough stone after blasting. 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.

It is recommended to obtain necessary statutory permission from the Department of Geology and Mining for Using Heavy Earth Moving Machineries, Blasting and appointment of Mines Manager etc.,

2.5.1 Drilling & Blasting Parameters

Drilling will be carried out using Jack hammer and compressor, the depth of the hole will be maximum 1.5m. Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	3.5m
Burden	–	2.75 m
Depth of hole	–	5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	110 mm
Peak production Capacity	=	292m ³ of Rough Stone per day
Spacing X Burden X Depth	=	1.2m X 1.0m X 1.5m = 1.8m ³
	=	1.8m ³ X 2.75 (Bulk Density) = 4.95Ts per hole

Hence for the peak production of 292m³ (803Ts) = 134 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 67 kg of Explosives will be utilized maximum considering the peak production

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.

Storage of Explosives –

No proposal for storage of explosives within the project area, the project proponent will made agreement with authorized explosives agencies for carrying out blasting activities and competent person as per DGMS guidelines will be employed for safety and supervision of overall quarrying activities.

The explosives will be sourced from the blasting agency on daily basis and the blasting will be carried out under the supervision of competent qualified Blaster and it will be ensured that there shall be no balance of explosive stock; any balance stock will be taken back by the supplier.

2.5.2 Extent of Mechanization

TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	11	1.2m to 2.0m	Compressed air
2	Compressor	3	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	1	300 HP	Diesel Drive
4	Tippers	3	30 Tonnes	Diesel Drive
5	Water Sprinkling Tanker	1	6000 litres	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities will be constructed as per the Mine Rule after the grant of quarry lease in all the proposed quarries.

2.6.2 Drainage Pattern

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

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported mainly through

Traffic density measurements were performed at two locations

1. Kaganam Panchayat Road
2. Kollivakkam-Perunkattur District Road

Traffic density measurement was 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.2.9: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Kaganam Panchayat Road	1.8Km_South	Panchayat Road
TS2	Kollivakkam-Perunkattur District Road	3.0Km_NW	District Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.10: EXISTING TRAFFIC VOLUME

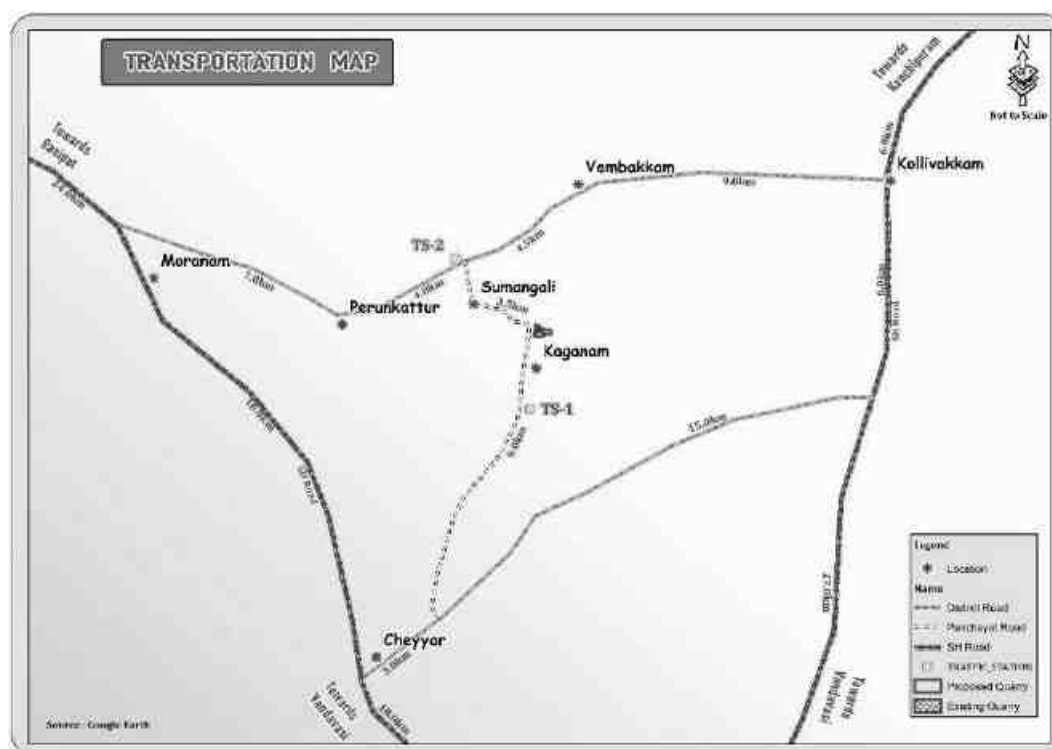
Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	80	240	100	100	120	60	400
TS2	120	360	210	210	240	120	690

Source: On-site monitoring by GEMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

TABLE 2.11: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	54	162

FIGURE.2.14: MINERAL TRANSPORTATION ROUTE MAP**TABLE 2.12: SUMMARY OF TRAFFIC VOLUME**

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Kaganam Panchayat Road	400	54	454	1200
Kollivakkam-Perunkattur District Road	690	54	744	1200

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

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing District Road can handle 1,200 PCU in hour and State Highway Road can handle 1500 PCU in hour hence there will not be any conjunction due to this proposed transportation.

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in any of the proposed project.

2.7 PROJECT REQUIREMENT

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.13: WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Dust Suppression	1.0KLD	From the existing pit or from the water vendors
Green Belt	1.5KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.5KLD	From the existing pit or from the water vendors.
Total	3.0 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. 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 by project proponent.

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 plant.

2.7.3 Fuel Requirement

One Excavator will excavate 25m³ of Broken up Rough Stone per hour and 60m³ of Gravel per hour.

Peak production of Rough Stone = 292m³

Peak production of Gravel = 206m³

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	292m ³ /25m ³ =11.68 Hrs (Rough stone)	22 Ltrs	257
	206/60m ³ = 3.433 Hrs	18 Ltrs	62
Compressor	Working hours per day 3 Hrs	8 Ltrs	24
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			363

The Maximum diesel consumption is around **363** Ltrs per day considering the peak production.

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the total Cost is 4,56,70,000 Lakhs.

2.8 EMPLOYMENT REQUIREMENT:

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mine's regulations, 1961.

TABLE 2.14: PROPOSED MANPOWER DEPLOYMENT

Designation	No of persons
Mines Manager	1
Geologist	1
Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	22
Excavator Operator & Tipper Driver	1
Water Sprinkler Driver	1
Tipper Driver	3
Labour & Helper	3
Cleaner & Co-operator	3
Security	1
Total	38

Source: Approved Mining Plan & Pre-Feasibility report.

2.9 PROJECT IMPLEMENTATION SCHEDULE

The mining operation will commence after the grant of Environmental Clearance, Consent to operate (CTO), Execution of Lease Deed and Obtaining permission from the DGMS (Notice of Opening).

TABLE 2.15: EXPECTED TIME SCHEDULE

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Operate						
3	Execution of Lease deed						
4	Permission from DGMS						
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

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 October 2025 to December 2025 with CPCB guidelines for the following attributes –

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

Environmental data has been collected with reference to cluster quarries by Global Lab and Consultancy Services, – An accredited by ISO/IEC 17025:2017 (NABL).

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The study area has been divided into two zones viz **core zone** and **buffer zone**.

- Core zone is considered as cluster area
- 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 **Post Monsoon season** i.e., **October to December 2025**.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. 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 in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
- 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.
- Air quality Data's were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, 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 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 (2 core & 4 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 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (October to December 2025)	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 Quadrante & 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 Global Lab and Consultancy Services 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.

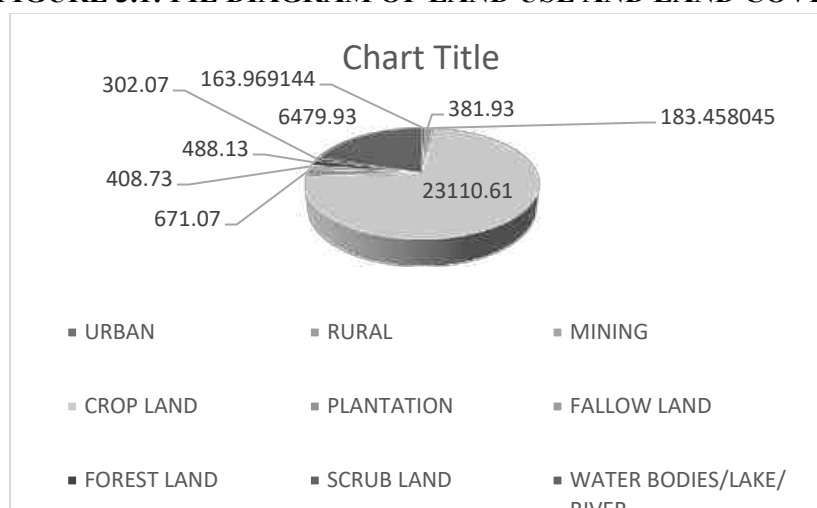
3.1.1 Land Use/ Land Cover

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

		10km Radius		2km Radius	
S.No	CLASSIFICATION	AREA_HA	AREA_%	AREA_HA	AREA_%
	BUILTUP				
1	URBAN	163.9691	0.51	0.00	0.00
	RURAL	381.93	1.19	21.35	1.37
2	MINING	183.458	0.57	58.20	3.74
	AGRICULTURAL LAND				
3	CROP LAND	23110.61	71.79	1166.23	74.88
4	PLANTATION	671.07	2.08	0.00	0.00
5	FALLOW LAND	408.73	1.27	3.95	0.25
	FOREST				
6	FOREST LAND	488.13	1.52	0.00	0.00
	BARREN/WASTE LANDS				
7	SCRUB LAND	302.07	0.94	0.00	0.00
	WETLANDS/ WATER BODIES				
8	WATER BODIES/LAKE/ RIVER	6479.93	20.13	307.77	19.76
TOTAL		32189.88	100.00	1557.50	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER

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 includes crop land 75.14% followed by Built-up Lands – 2.27%, Scrub land – 0.94%, and Water bodies 20.13%.

The total mining area within the study area is 183.458 ha i.e., 0.57%. The cluster area of 9.09.9 ha contributes about 20.16% 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 project area is flat terrain having gentle slope towards South-Western side. The altitude of the area is 116m AMSL. The area is covered by 2m thickness of gravel & followed by massive charnockite which is clearly inferred from the surface outcrops.

3.1.3 Drainage Pattern of the Area

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

3.1.4 Seismic Sensitivity

The proposed project site falls in the seismic Zone III, 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.

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: PHYSIOGRAPHIC MAP 10KM RADIUS

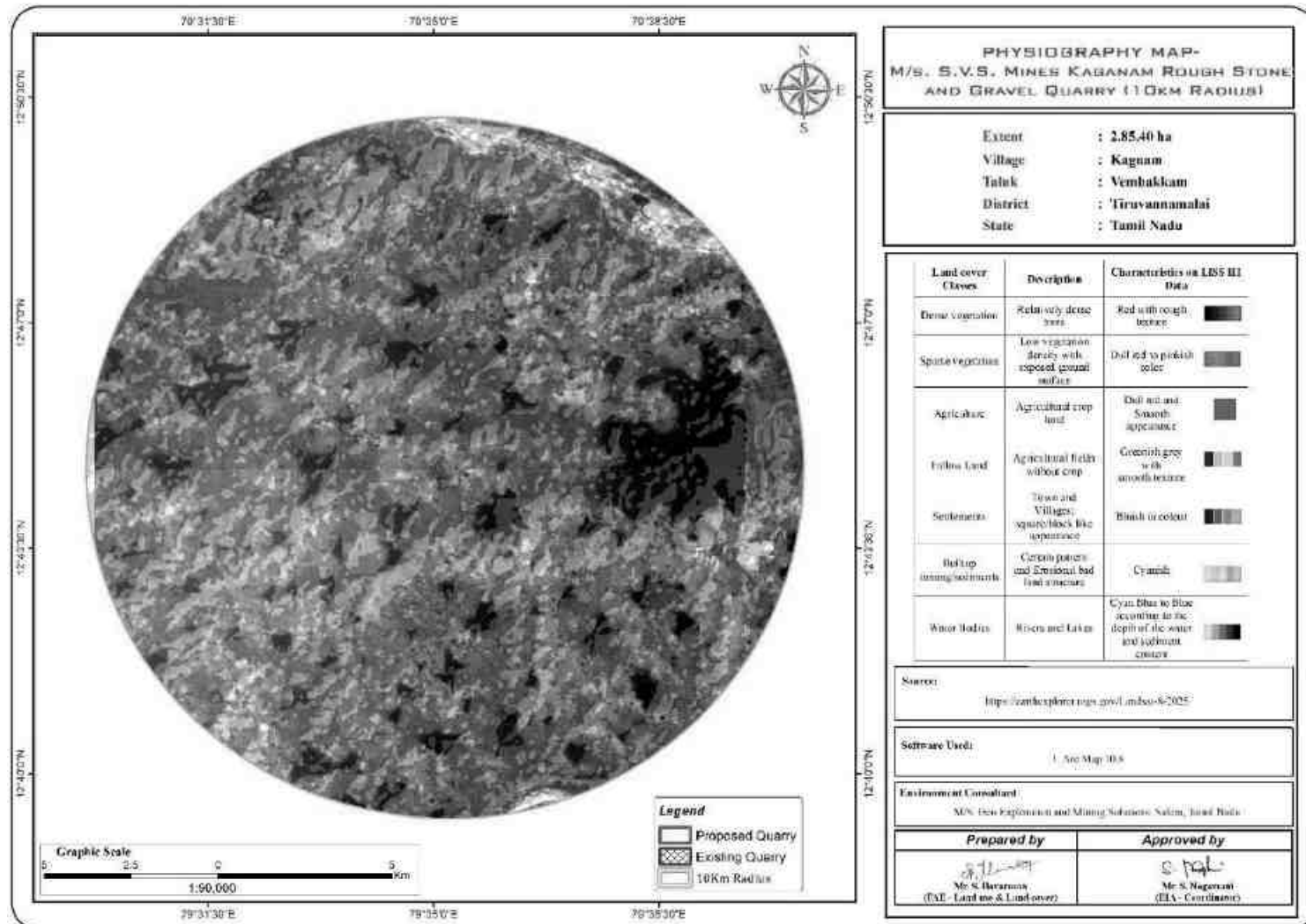


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

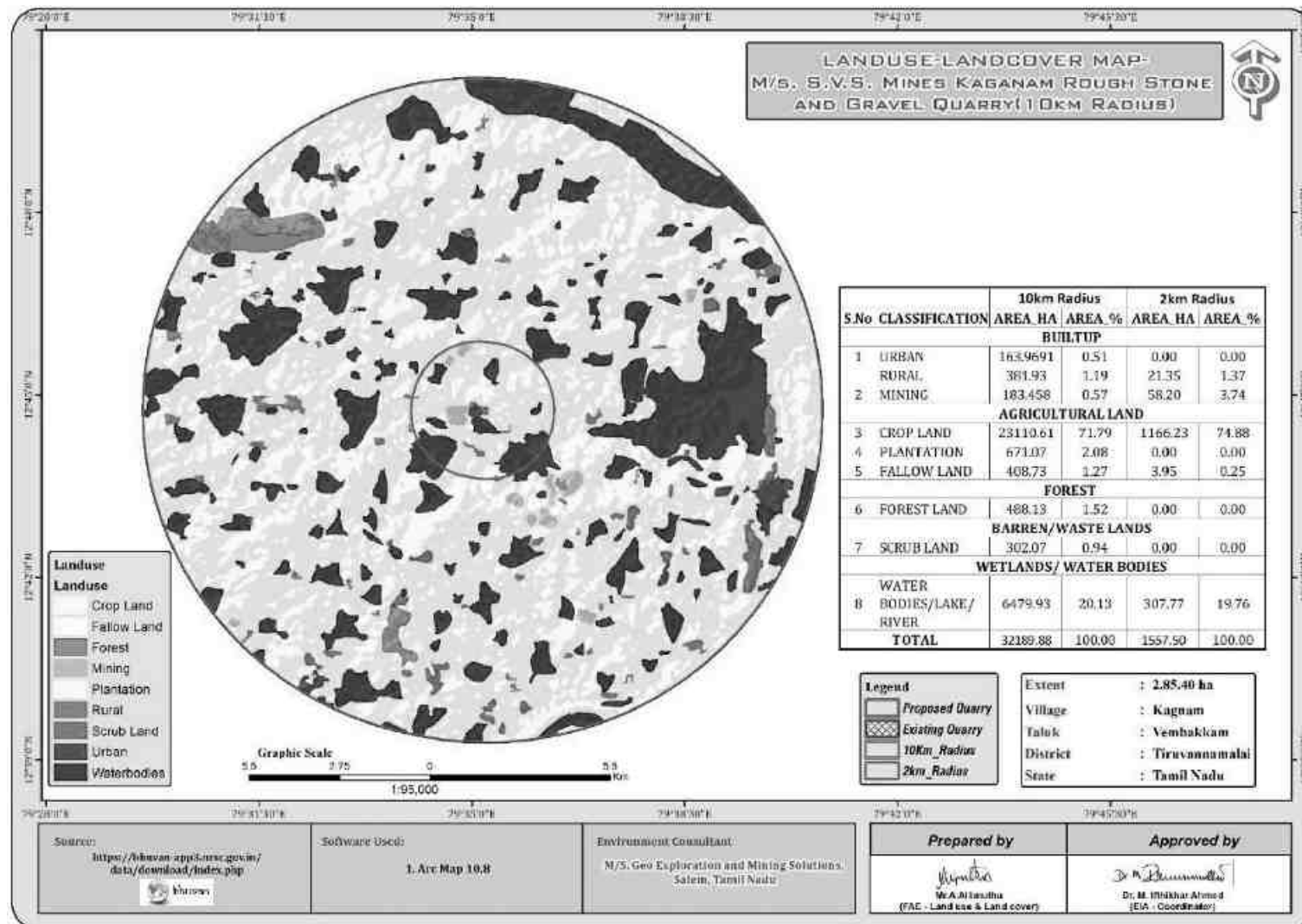


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Karikili Birds Sanctuary Vedanthangal Bird Sanctuary	31km – SE 36.0km - SE
2	Reserve Forest	Thandappanthangal R.F	6.7 Km - NW (Source - TNGIS)
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	Periya Eri	150m South
2	Sitteri	330m SE
3	Kulam	470m East
4	Tank	1.0km SW
5	Mamandur Lake	4.2km SE
6	Palar River	8.5km NE
7	Cheyyaru River	9.5km SE

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 3.5.

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	Core Zone	Project Area	12°44'44.53"N 79°35'11.96"E
2	S-2	Near Habitation (Agriculture)	400m NE	12°45'0.14"N 79°35'16.19"E
3	S-3	Kanagambakkam (Agriculture)	4.5km East	12°44'49.00"N 79°37'43.18"E
4	S-4	Perungattur (Residential)	5km West	12°44'44.18"N 79°32'19.63"E

5	S-5	Alividithangi (Agriculture)	3.5km North	12°46'39.75"N 79°35'18.91"E
6	S-6	Irumanthangal (Barren)	4.6km SE	12°42'27.26"N 79°36'28.22"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services lab 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. Six (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 Global Lab and Consultancy Services 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 are presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

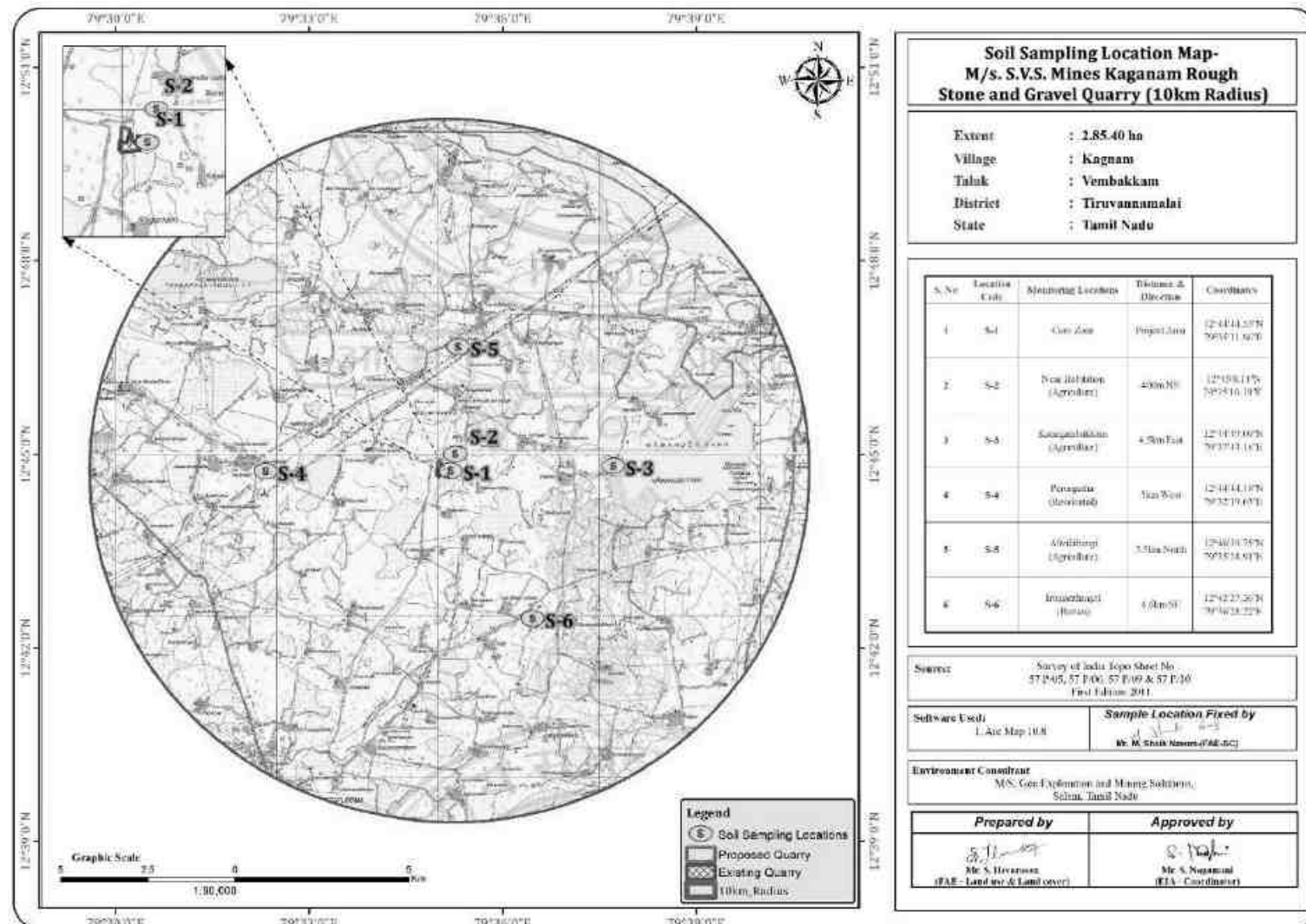
FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

FIGURE 3.6: SOIL MAP

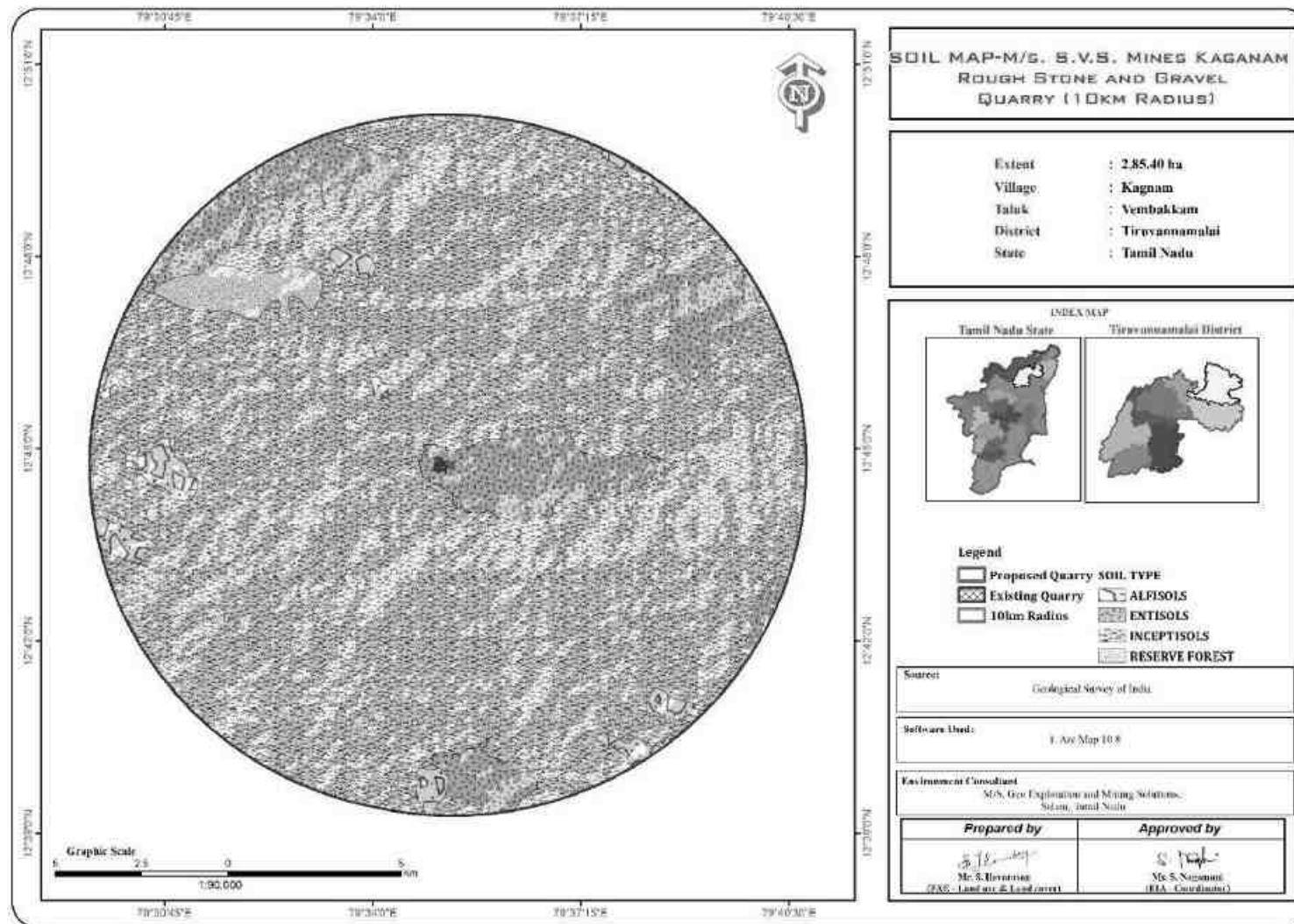


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	S1 Core Zone	S2 Near Habitation	S3 Kanagambak kam	S4 Perungattu r	S5 Alividithan gi	S6 Irumanthang al
1	Available Nitrogen as N	GLCS/SOP/S/029 ;Issue no:02: 2024	kg/ha	326.14	316.70	304.06	476.58	387.08	413.79
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	18.50	16.7	18.0	19.3	14.5	23.50
3	Boron	USEPA-6010D:2014	mg/kg	18.70	9.20	4.97	8.47	6.25	4.25
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.08	1.14	1.16	1.17	1.08	1.20
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	34.79	37.25	35.79	36.17	36.79	39.58
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.4	2.3	3.2	3.7	3.0	1.7
8	Chromium	USEPA-6010D-2014	mg/kg	30.17	0.75	BDL(DL: 0.5)	6.73	15.0	6.50
9	Copper	USEPA-6010D :2014	mg/kg	21.20	13.68	BDL(DL: 0.5)	4.98	6.25	8.0
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	1.75	3.1	3.4	2.1	3.1	4.0
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.95	0.9	1.8	0.8	1.9	2.3
12	Iron	USEPA-6010 D-2014	mg/kg	140.65	34.58	BDL(DL: 0.5)	105.13	6.25	22.0
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	23.19	25.12	BDL(DL: 0.5)	6.73	11.75	18.50
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.30	0.49	0.37	0.42	0.29	0.26
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.52	0.85	0.63	0.73	0.50	0.45
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.11	8.31	8.16	7.90	8.17	7.98
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.16	1.27	1.15	1.01	1.10	1.18
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	419.4	520.6	517.5	491	411.7	395
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.0	4.65	5.32	6.74	8.59	4.28

21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	19.73	26.92	26.74	25.44	68.99	22.39
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	36.71	30.85	38.05	30.14	38.75	33.53
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	43.56	42.23	35.2	44.42	38.75	44.08
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	49.6	49.4	52.4	51.8	48.6	50.6
25	Zinc	USEPA-6010D-2014	mg/kg	39.40	38.81	BDL(DL: 0.5)	11.71	16.25	34.74

Source: Sampling Results by Global Lab and Consultancy Services in association with GEMS

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 (19.73 % to 68.99%) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.08- 1.20 g/cc. The Water Holding Capacity is found to be medium i.e., ranging from 48.6- 52.4 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.90 to 8.31
- The available Nitrogen content range between 304.06 to 476.58 mg/kg
- The available Phosphorus content range between 14.5 to 23.5 mg/kg
- The available Potassium range between 1.01 to 1.27 mg/100g

Observation:

The pH of the Soil indicates that the soil is Neutral and arid region and ideal for plant growth.

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:

Cheyar 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., 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

Two (2) surface water and Four (4) 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	CO-ORDINATES
SURFACE WATER				
1	SW1	Cheyar River	9.5km SE	12°39'36.06"N 79°36'19.45"E
2	SW2	Tank Near Project Area	310m South	12°44'31.85"N 79°35'14.83"E
GROUND WATER				
3	WW-1	Near Project Area	240m NW	12°44'55.10"N 79°35'5.31"E
4	WW-2	Alividithangi	3.5km North	12°46'37.77"N 79°35'18.65"E
5	BW-1	Near Project Area	350m North	12°44'58.24"N 79°35'15.82"E
6	BW-2	Thiruvadirayapuram	3km NE	12°45'12.71"N 79°36'49.73"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

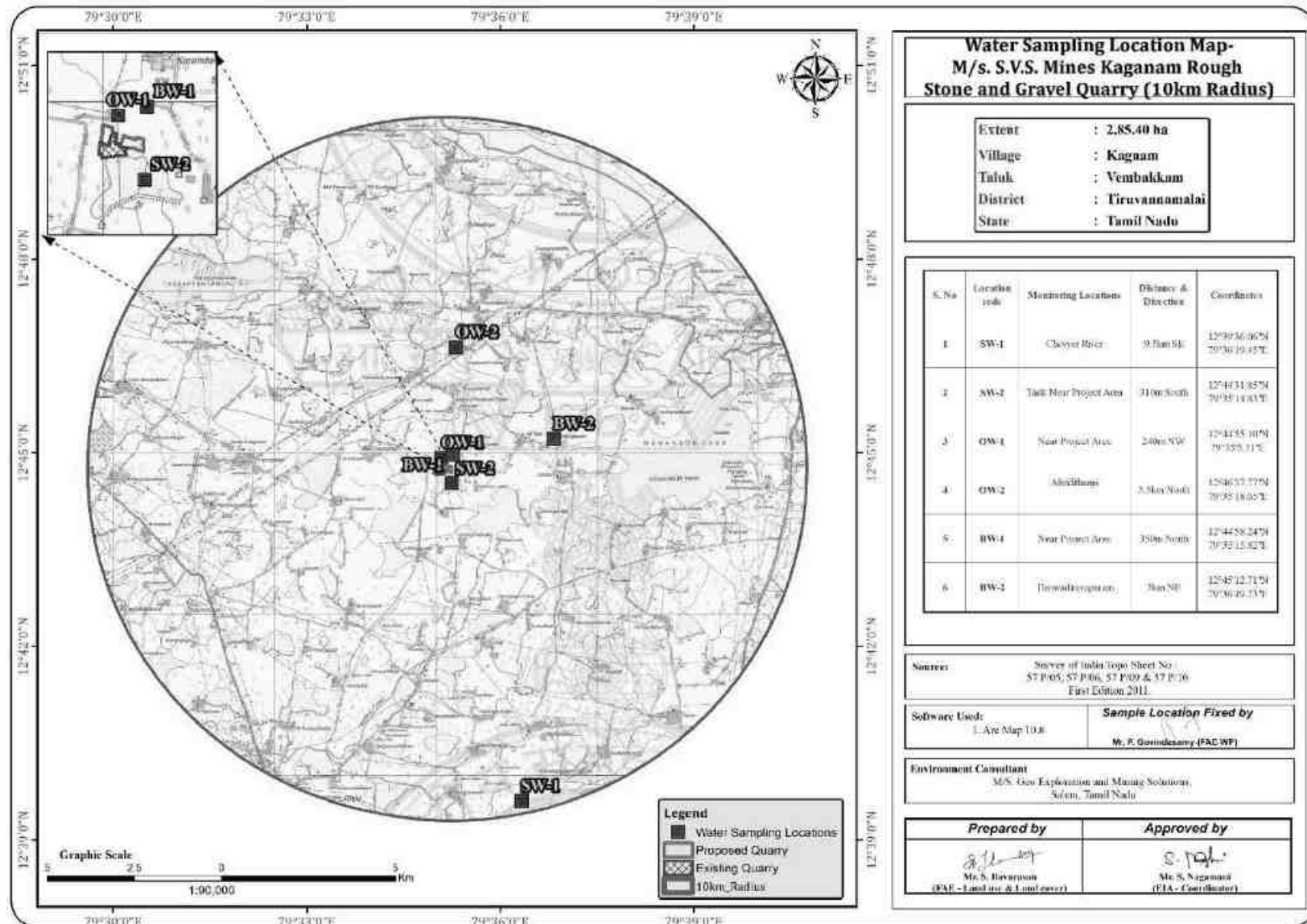
FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.No	Parameters	Units	WW-1 Near Project area	WW-2 Alividithangi	BW-1 Near Project area	BW-2 Thiruvadirayapuram	Acceptable limit	Permissible limit
1	Aluminium	mg /l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.03	0.2
2	Ammoniacal Nitrogen as NH3- N	mg /l	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	0.5	No Relaxation
3	Arsenic as As	mg /l	BDL (DL: 0.002)	BDL (DL: 0.002)	BDL (DL: 0.002)	BDL (DL: 0.002)	0.01	0.05
4	Barium as Ba	mg /l	BDL (DL: 0.01)	0.01	BDL (DL: 0.01)	0.013	0.7	No Relaxation
5	Boron as B	mg /l	BDL (DL: 0.01)	0.044	0.038	0.072	0.5	1.0
6	Cadmium as Cd	mg /l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.003	No Relaxation
7	Calcium as Ca	mg /l	54.51	60.92	59.32	41.68	75	200
8	Chloride as Cl-	mg/l	123.96	131.96	119.96	125.96	250	1000
9	Chromium as Cr	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.05	No Relaxation
10	Color	CU	<1	<1	<1	<1	5	15
11	Copper as Cu	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.02)	0.05	1.5
12	Cyanide as CN	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.05	No Relaxation
13	Electrical Conductivity (EC)	µS/cm	873.3	775	866	830	2000	2000
14	Fluoride as F-	mg/l	0.40	0.28	0.23	0.16	1.0	1.5
15	Free Residual Chlorine as Cl2	mg/l	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	0.2	1
16	Iron as Fe	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.3	No Relaxation
17	Lead as Pb	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.01	No Relaxation
18	Magnesium as Mg	mg/l	23.35	20.43	34.05	25.29	30	100
19	Manganese as Mn	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	0.1	0.3
20	Mercury as Hg	mg/l	BDL (DL: 0.002)	BDL (DL: 0.002)	BDL (DL: 0.002)	BDL (DL: 0.002)	0.001	No Relaxation
21	Molybdenum as Mo	mg/l	BDL (DL: 0.01)	0.012	0.011	0.012	0.07	No Relaxation

22	Nitrate as NO3	mg/l	BDL (DL: 2.0)	BDL (DL: 2.0)	BDL (DL: 2.0)	BDL (DL: 2.0)	45	No Relaxation
23	Odor	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
24	pH	-	7.11	6.96	7.06	6.92	6.5-8.5	No Relaxation
25	Phenols	mg/l	BDL (DL: 0.1)	BDL (DL: 0.1)	BDL (DL: 0.1)	BDL (DL: 0.1)	0.001	0.002
26	Selenium as Se	mg/l	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	BDL (DL: 0.005)	0.01	No Relaxation
27	Sulphate as SO4	mg/l	26.96	52.73	31.79	44.41	200	400
28	Sulphide as S (Iodometric Method)	mg/l	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	BDL (DL: 1.0)	0.05	No Relaxation
29	Total Alkalinity as CaCO3	mg/l	173.72	169.68	193.92	197.96	200	600
30	Total Dissolved Solids (TDS)	mg/l	524	465	520	514	500	2000
31	Total Hardness as CaCO3	mg/l	232	236	288	208	200	600
32	Total Suspended Solids (TSS)	mg/l	4.6	3.4	BDL (DL: 2.0)	BDL (DL: 2.0)	500	2000
33	Turbidity	NTU	<1	<1	<1	<1	1	5
34	Zinc as Zn	mg/l	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	BDL (DL: 0.01)	5	15
35	Escherichia coli	MPN/100ml	Absent	Absent	Absent	Absent	Shall not be detectable in any 100 ml	-
36	Total Coliforms		Present	Present	Present	Present		-

* 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

S.No	Parameters	Units	SW-1 Cheyyar River	SW-2 Tank Near Project Area	Acceptable limit	Permissible limit
1	Aluminium	mg /l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.03	0.2
2	Ammoniacal Nitrogen as NH ₃ -N	mg /l	BDL(DL: 1.0)	BDL(DL: 1.0)	0.5	No Relaxation
3	Arsenic as As	mg /l	BDL(DL: 0.002)	BDL(DL: 0.002)	0.01	0.05
4	Barium as Ba	mg /l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.7	No Relaxation
5	Biochemical Oxygen Demand (BOD) at 27°C for 3 Days	mg /l	7.2	9.0	30	30
6	Boron as B	mg /l	0.054	0.052	0.5	1.0
7	Cadmium as Cd	mg /l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.003	No Relaxation
8	Calcium as Ca	mg /l	62.52	41.68	75	200
9	Chemical Oxygen Demand (COD)	mg /l	30	40.0	250	250
10	Chloride as Cl ⁻	mg/l	129.96	117.96	250	1000
11	Chromium as Cr	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.05	No Relaxation
12	Color	CU	6	6	5	15
13	Copper as Cu	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.05	1.5
14	Cyanide as CN	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.05	No Relaxation
15	Dissolved Oxygen (DO)	mg/l	4.6	4.5	4-6	4-6
16	Electrical Conductivity (EC)	μS/cm	1208	1002	2000	2000
17	Fluoride as F ⁻	mg/l	0.18	0.34	1.0	1.5
18	Free Residual Chlorine as Cl ₂	mg/l	BDL(DL: 1.0)	BDL(DL: 1.0)	0.2	1
19	Iron as Fe	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.3	No Relaxation
20	Lead as Pb	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.01	No Relaxation
21	Magnesium as Mg	mg/l	28.21	26.27	30	100
22	Manganese as Mn	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.1	0.3
23	Mercury as Hg	mg/l	BDL(DL: 0.002)	BDL(DL: 0.002)	0.001	No Relaxation
24	Molybdenum as Mo	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	0.07	No Relaxation
25	Nitrate as NO ₃	mg/l	2.38	2.94	45	No Relaxation
26	Odor	-	Agreeable	Agreeable	Agreeable	Agreeable
27	pH	-	7.61	7.53	6.5-8.5	No Relaxation
28	Phenols	mg/l	BDL(DL: 0.1)	BDL(DL: 0.1)	0.001	0.002
29	Selenium as Se	mg/l	BDL(DL: 0.005)	BDL(DL: 0.005)	0.01	No Relaxation
30	Sulphate as SO ₄	mg/l	44.28	59.10	200	400

31	Sulphide as S (Iodometric Method)	mg/l	BDL(DL: 1.0)	BDL(DL: 1.0)	0.05	No Relaxation
32	Total Alkalinity as CaCO ₃	mg/l	234.32	193.92	200	600
33	Total Dissolved Solids (TDS)	mg/l	725	602	500	2000
34	Total Hardness as CaCO ₃	mg/l	272	212	200	600
35	Total Suspended Solids (TSS)	mg/l	7.2	6.3	500	2000
36	Turbidity	NTU	3.5	3.2	1	5
37	Zinc as Zn	mg/l	BDL(DL: 0.01)	BDL(DL: 0.01)	5	15
38	Escherichia coli	per 100ml	Absent	Absent	Shall not be detectable in any 100 ml	-
39	Total Coliforms		Present	Present		-

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

3.2.4 Interpretation & Conclusion

Surface Water

The pH varied from 7.53 -7.61 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 varied from 602 to 725 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 117.96 to 129.96mg/l. Nitrates varied from 2.38 to 2.94 mg/l, while sulphates varied from 44.28 to 59.10 mg/l.

Ground Water

The pH of the water samples collected ranged from 6.92 to 7.11 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. Total Dissolved Solids were found in the range of 465 to 524mg/l in all samples. Total hardness varied between 208 to 288 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 59-63m bgl. The maximum depth proposed out of proposed projects is 50m (5m Gravel + 45m Rough stone) below ground level.

Ground water levels and Flow Direction based on the Bore well and open well Data's

In general, the ground water movement is based on the gradient ie., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore, the data has been collected in the study area. Water level measured in the ten open well and eight borewells.

The average water level in the open well is varies from = 9.4m to 13.4m bgl

The water level in the bore well is varies from = 64.8 to 68.2m bgl

Based on the water level contour map of the open well and bore well the water flow direction in the particular region is towards North side.

The water level in the area is above 60-65m 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.

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

S.NO	LABEL	LONGITUDE	LATITUDE	Oct 25	Nov-25	Dec 25
1	OW1	79° 35' 05.2998" E	12° 44' 55.0788" N	13.5	14.1	14.7
2	OW2	79° 35' 08.6484" E	12° 45' 14.9829" N	13.8	14.4	15
3	OW3	79° 35' 32.7674" E	12° 45' 07.8449" N	14.1	14.7	15.3
4	OW4	79° 35' 48.6721" E	12° 44' 36.7956" N	14.5	15.1	15.7
5	OW5	79° 35' 13.7848" E	12° 44' 15.4025" N	13.2	13.8	14.4
6	OW6	79° 34' 54.0701" E	12° 44' 08.0605" N	14.6	15.2	15.8
7	OW7	79° 34' 43.5777" E	12° 44' 52.9943" N	14.1	14.7	15.3
8	OW8	79° 34' 15.3552" E	12° 45' 07.2037" N	14.7	15.3	15.9

Source: Onsite monitoring data

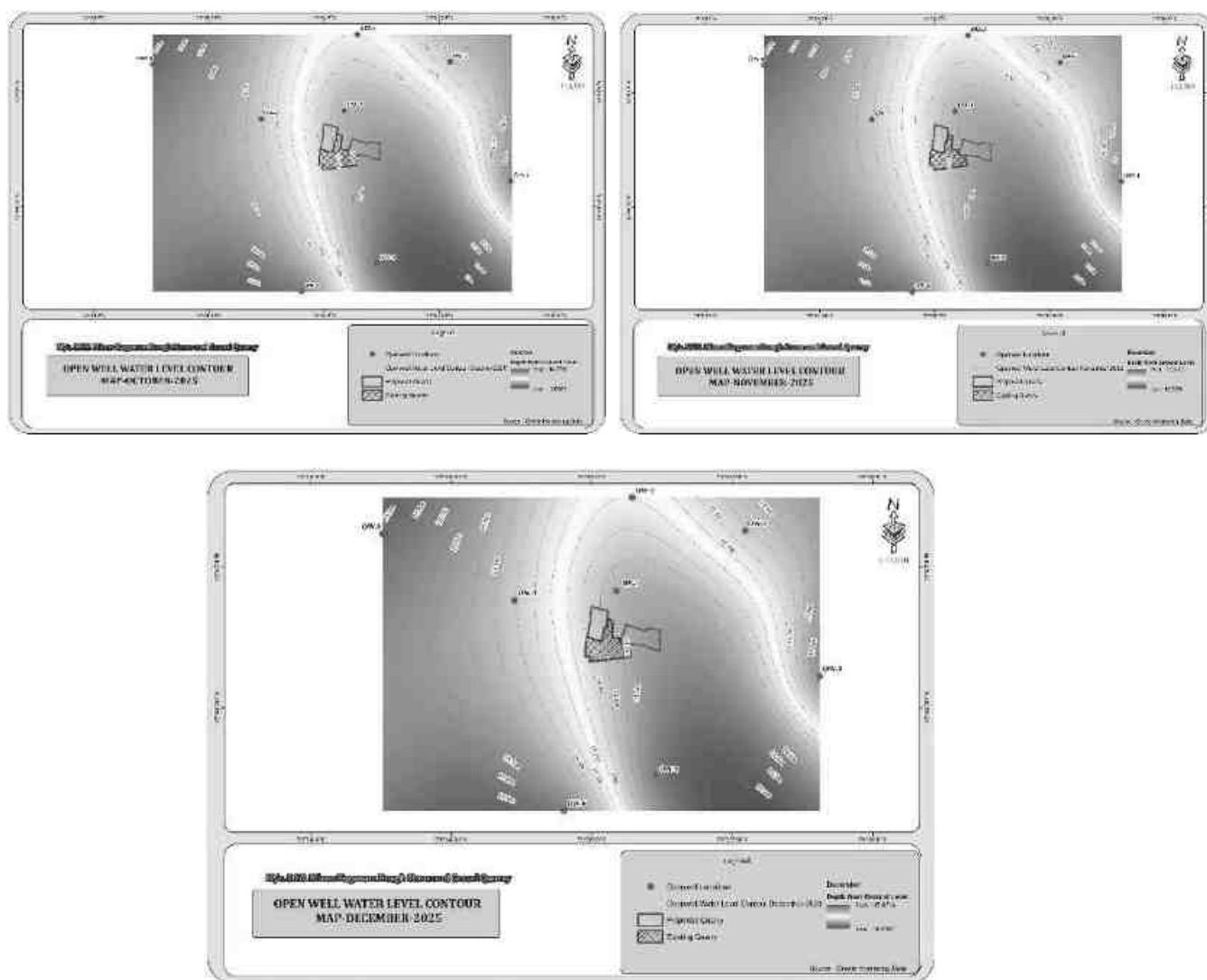
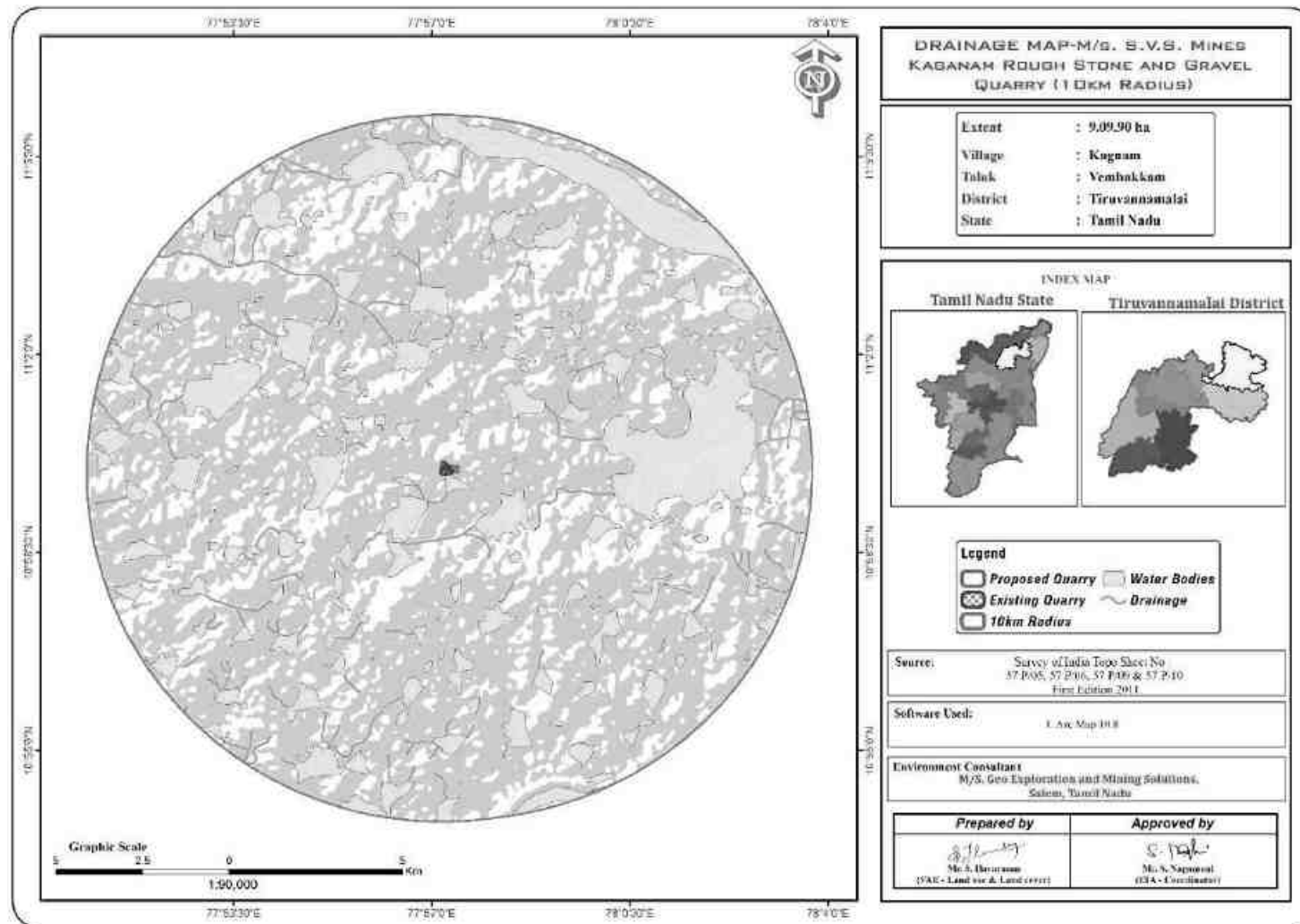
FIGURE 3.9: OPEN WELL CONTOUR MAP OCT TO DEC 2025

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

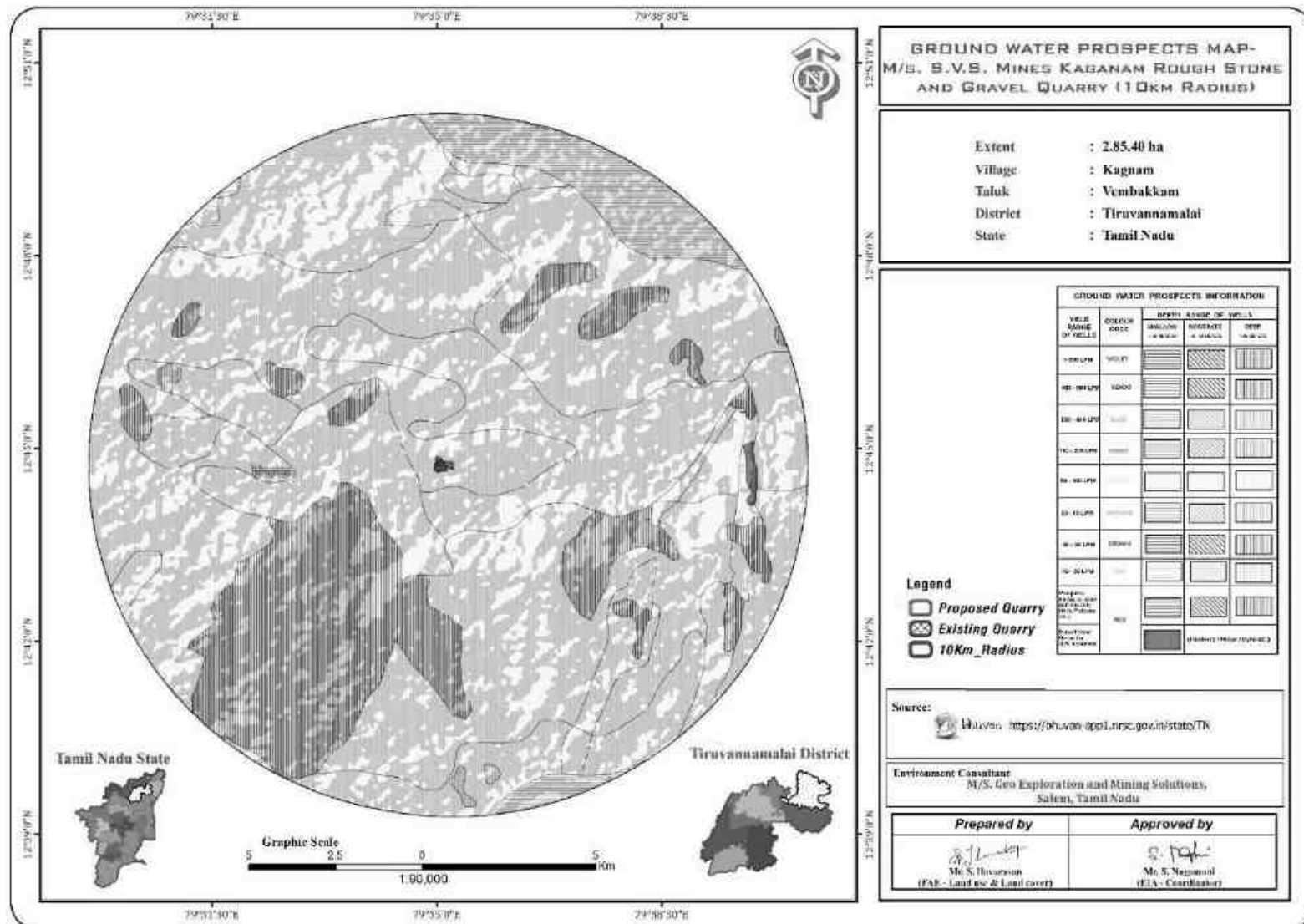
S.NO	LABEL	LONGITUDE	LATITUDE	Oct 25	Nov-25	Dec 25
1	BW1	79° 35' 15.7092" E	12° 44' 58.1210" N	63.2	63.8	64.4
2	BW2	79° 34' 48.8254" E	12° 44' 28.5150" N	64.3	64.9	65.5
3	BW3	79° 35' 02.7335" E	12° 44' 05.6764" N	65.2	65.8	66.4
4	BW4	79° 35' 41.3178" E	12° 44' 26.9468" N	64.8	65.4	66
5	BW5	79° 34' 10.1686" E	12° 44' 58.8490" N	63.8	64.4	65
6	BW6	79° 35' 16.6492" E	12° 45' 15.6063" N	64.2	64.8	65.4
7	BW7	79° 35' 15.7092" E	12° 44' 58.1210" N	63.2	63.8	64.4
8	BW8	79° 34' 48.8254" E	12° 44' 28.5150" N	64.3	64.9	65.5

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – OCT TO DEC 2025

FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

Remarks: it is inferred that the area is dendritic to sub dendritic pattern

FIGURE 3.12: GROUND WATER PROSPECT MAP

Remarks: Water table in the area is 30-80m as per the Bhuvan Data

Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. 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 form 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.

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

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,

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

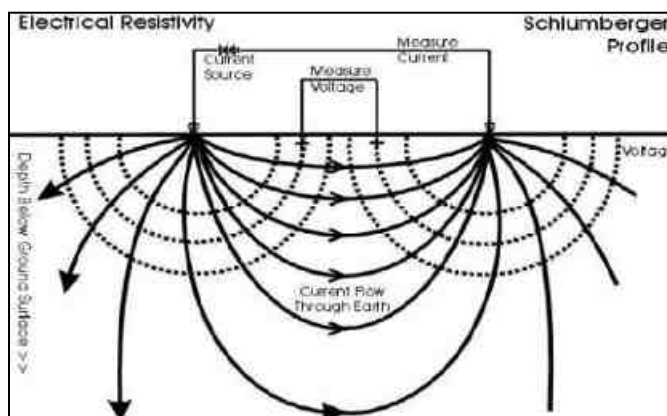
$\emptyset$ = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

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 noise ration can be enhanced by $\sqrt{N}$ where N is the number of stacked readings. This SSR meter in which running averages of measurements $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16/16)]$ 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 60m. The maximum depth proposed out of proposed projects 50m 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.

It is inferred that the existing quarries in the surrounding area reaches maximum of 45m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

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 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.

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 climatic conditions of Tiruvannamalai are characterized by a tropical climate. In Tiruvannamalai, the quantity of rainfall during summers surpasses that of winters. This location is classified as Aw by Köppen and Geiger. The average annual temperature is 27.4 °C | 81.3 °F in Tiruvannamalai. The rainfall here is around 811 mm | 31.9 inch per year.
- ❖ Tiruvannamalai are in the middle of our planet and the summers are not easy to define. The most favored period for a visit is during the months of January, February, March, September, December.
- ❖ In terms of precipitation, the month with the lowest amount of rainfall is February, recording a mere 7 mm | 0.3 inch in its entirety. This denotes an exceptionally dry period within that particular time frame. On average, the highest amount of rainfall occurs during October with a mean value of 154 mm | 6.1 inch.
- ❖ The month that experiences the highest temperatures throughout the year is referred to as May, where an average temperature of 31.3 °C | 88.4 °F prevails. On average, the month of January is considered to be the coldest time of year with temperatures averaging at around 23.3 °C | 73.9 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/tiruvannamalai-24067/>

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.5	985

Source: <https://www.twadboard.tn.gov.in/content/tiruvannamalai>

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

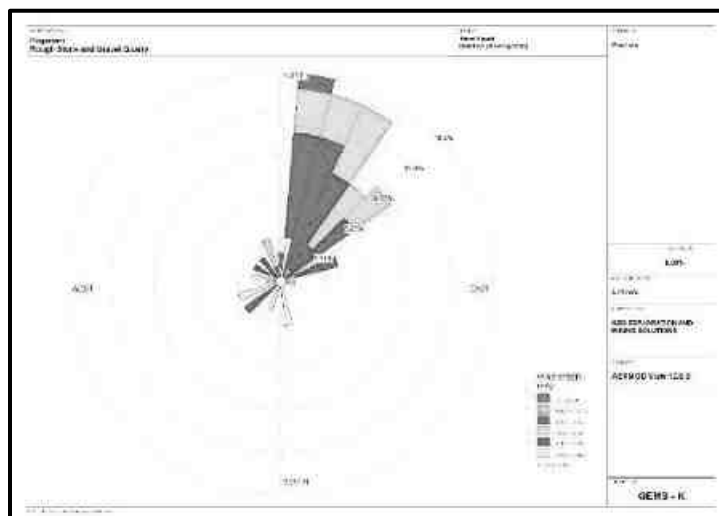
S.No	Parameters		Oct-2025	Nov-2025	Dec-2025
1	Temperature ($^{\circ}\text{C}$)	Max	28.21	27.17	25.86
		Min	25.03	22.37	21.41
		Avg	26.62	24.77	23.63
2	Relative Humidity (%)	Avg	82.7	85.73	84.38
3	Wind Speed (m/s)	Max	4.54	8.6	4.78
		Min	1.29	1.05	2.5
		Avg	2.91	4.82	3.64
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		NE,ENE	NNE,NE	NNE,N

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 985mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Tiruvannamalai. A comparison of site data generated during the three months with that of IMD, Tiruvannamalai Wind rose diagram of the study site is depicted in Figure.

3.13 Predominant downwind direction of the area during study season is -South East to North East.

FIGURE 3.13: WINDROSE DIAGRAM

In the abstract of collected data wind rose were drawn on presented in figure No.3.13 during the monitoring period in the study area

1. Predominant winds were from NE, NNE, ENE
2. Wind velocity readings were recorded between 0.50 to 8.80m/s
3. Calm conditions prevail of about 0.00 % of the monitoring period
4. Temperature readings ranging from 23.63 to 26.62 $^{\circ}\text{C}$
5. Relative humidity ranging from 82.7 to 85.73 %
6. The monitoring was carried out continuously for three months. (October to December 2025)

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
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by Global Lab and Consultancy Services & 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/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than 10µm) PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM _{2.5} (µg/m ³)	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 Seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period October to December 2025. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

The equipment was placed preferably at a height of at least $3 \pm 0.5\text{m}$ 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	AAQ-1	Core Zone	Project Area	12°44'43.97"N 79°35'6.82"E
2	AAQ-2	Near Habitation	400m NE	12°44'59.28"N 79°35'17.63"E
3	AAQ-3	Near Existing Quarry	670m SW	12°44'27.55"N 79°34'51.61"E
4	AAQ-4	Kanagambakkam (School)	4.5km East	12°44'48.25"N 79°37'42.87"E
5	AAQ-5	Perungattur (Residential)	5km West	12°44'44.83"N 79°32'19.63"E
6	AAQ-6	Alividithangi (Residential)	3.5km North	12°46'40.46"N 79°35'18.65"E
7	AAQ-7	Irumanthangal (School)	4.6km SE	12°42'29.71"N 79°36'28.38"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS.

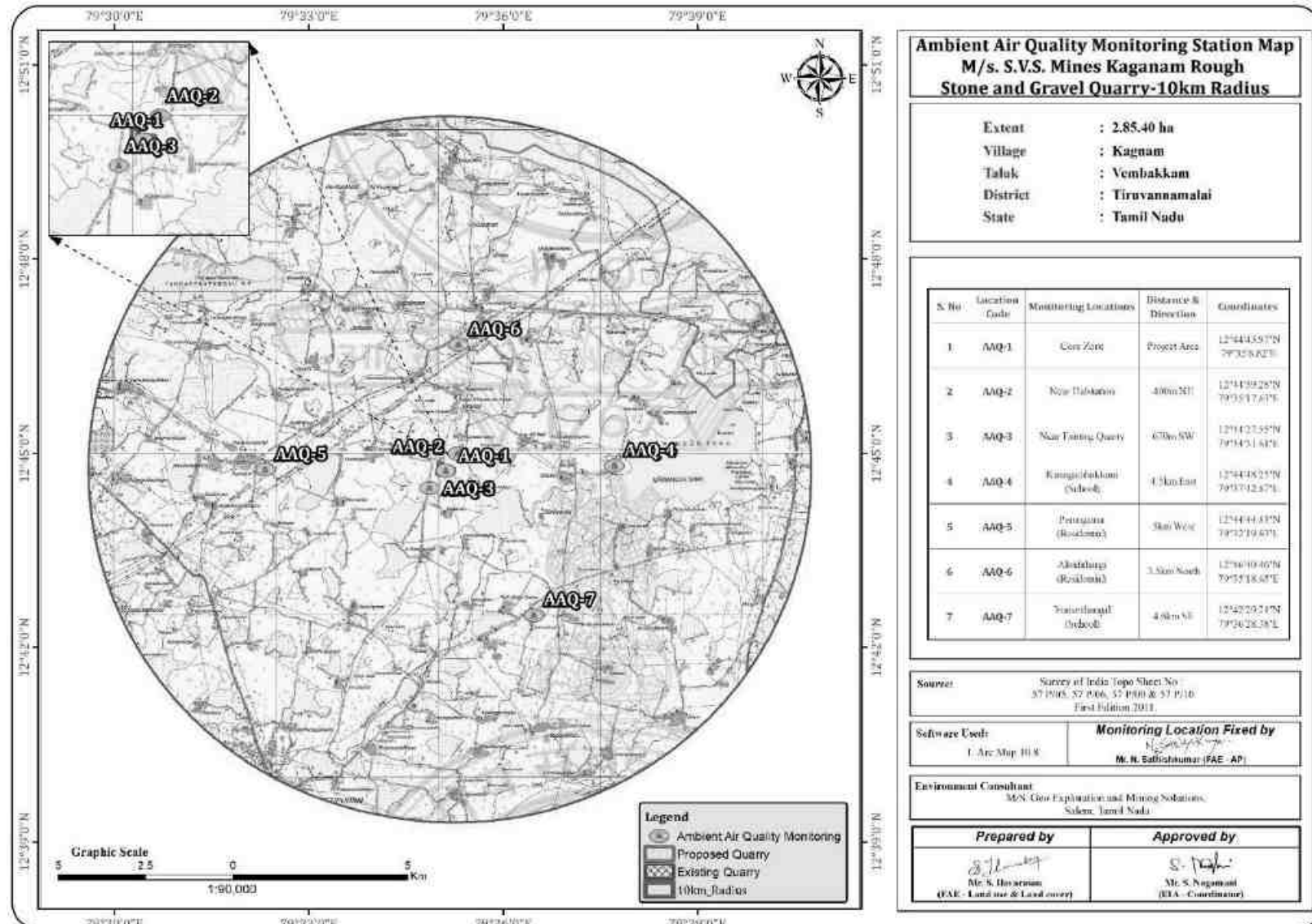
FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

PM₁₀	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	43.6	43.2	43.3	43.3	43.9	43.9	43.4
Minimum	39.4	41.4	40.4	38.9	41.6	40.8	39.8
Maximum	46.0	47.4	47.5	45.5	45.9	46.5	47.6
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM_{2.5}	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	22.5	22.4	22.4	22.3	22.7	22.7	21.9
Minimum	19.1	19.1	19.1	18.7	19.5	19.5	19.1
Maximum	25.8	25.8	25.8	25.8	26.2	25.8	25.8
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	5.5	5.5	5.3	5.3	5.3	5.2	5.6
Minimum	4.4	4.4	4.0	4.3	4.0	4.2	4.5
Maximum	6.6	7.3	7.1	6.6	6.6	6.4	8.8
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.0	21.2	20.9	21.1	21.1	21.2	21.1
Minimum	18.0	18.8	17.1	17.6	18.0	18.6	18.4
Maximum	23.2	24.0	24.1	24.4	24.5	23.7	23.7
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	41.4	19.9	4.6	19.3
4	20 th Percentile Value	41.9	20.8	4.8	19.9
5	30 th Percentile Value	42.8	21.2	5.0	20.2
6	40 th Percentile Value	43.1	21.6	5.2	20.7
7	50 th Percentile Value	43.5	22.5	5.4	21.2
8	60 th Percentile Value	44.1	22.9	5.5	21.5
9	70 th Percentile Value	44.4	23.7	5.6	22.0
10	80 th Percentile Value	44.9	24.1	5.8	22.4
11	90 th Percentile Value	45.7	24.9	6.3	22.9
12	95 th Percentile Value	46.5	25.8	6.6	23.4
13	98 th Percentile Value	47.5	25.8	7.3	24.2
14	Arithmetic Mean	44.2	23.0	5.6	21.6
15	Geometric Mean	44.1	22.9	5.6	21.6
16	Standard Deviation	1.9	2.0	0.8	1.5
17	Minimum	41.4	19.9	4.6	19.3
18	Maximum	47.5	25.8	7.3	24.2
19	NAAQ Norms*	100.0	60.0	80.0	80.0

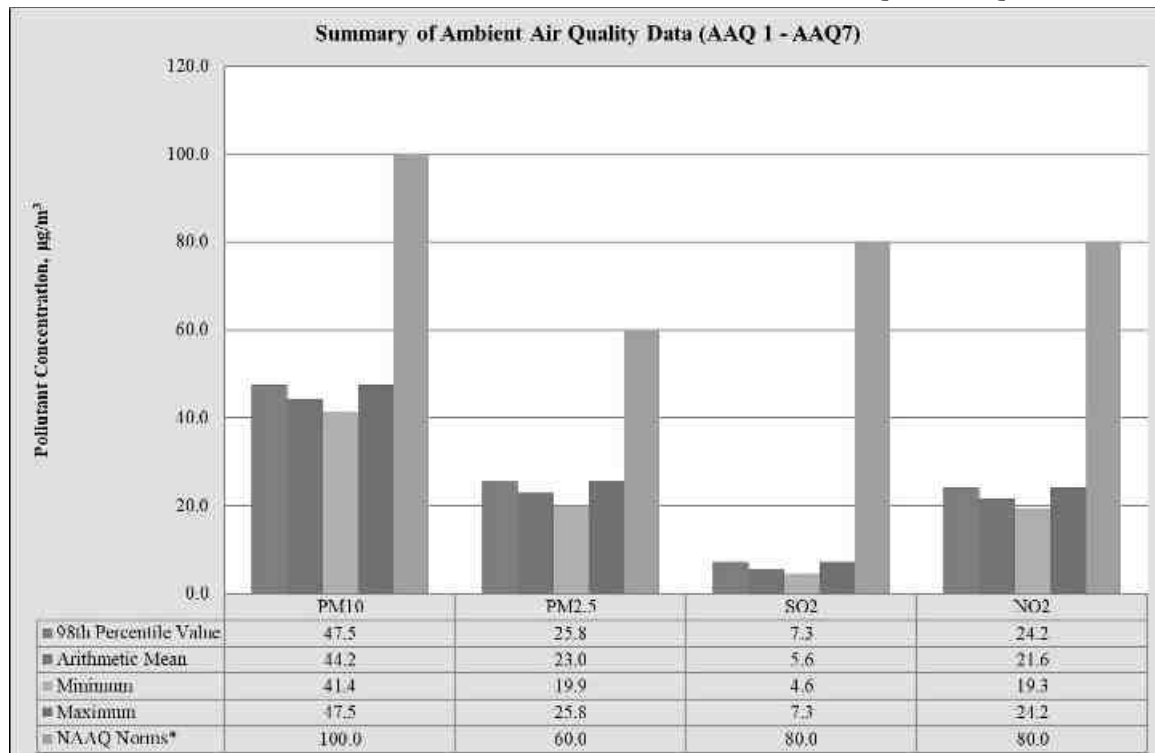
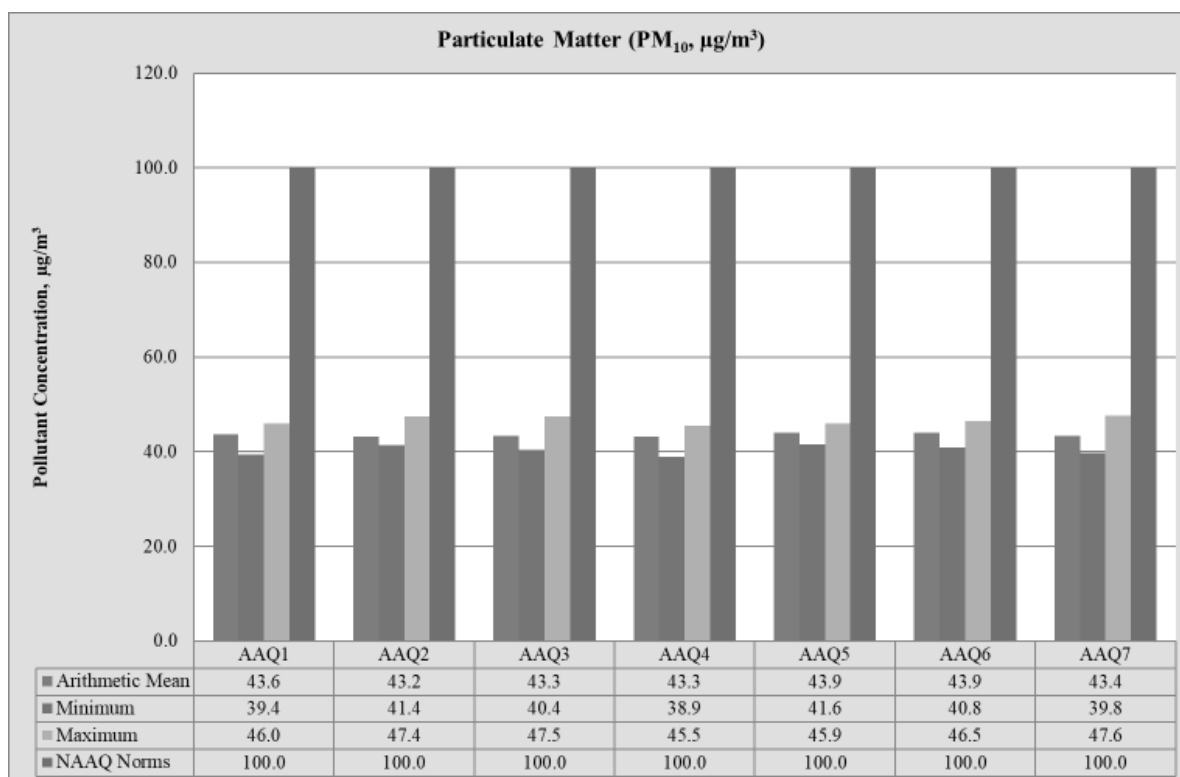
FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7**FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀**

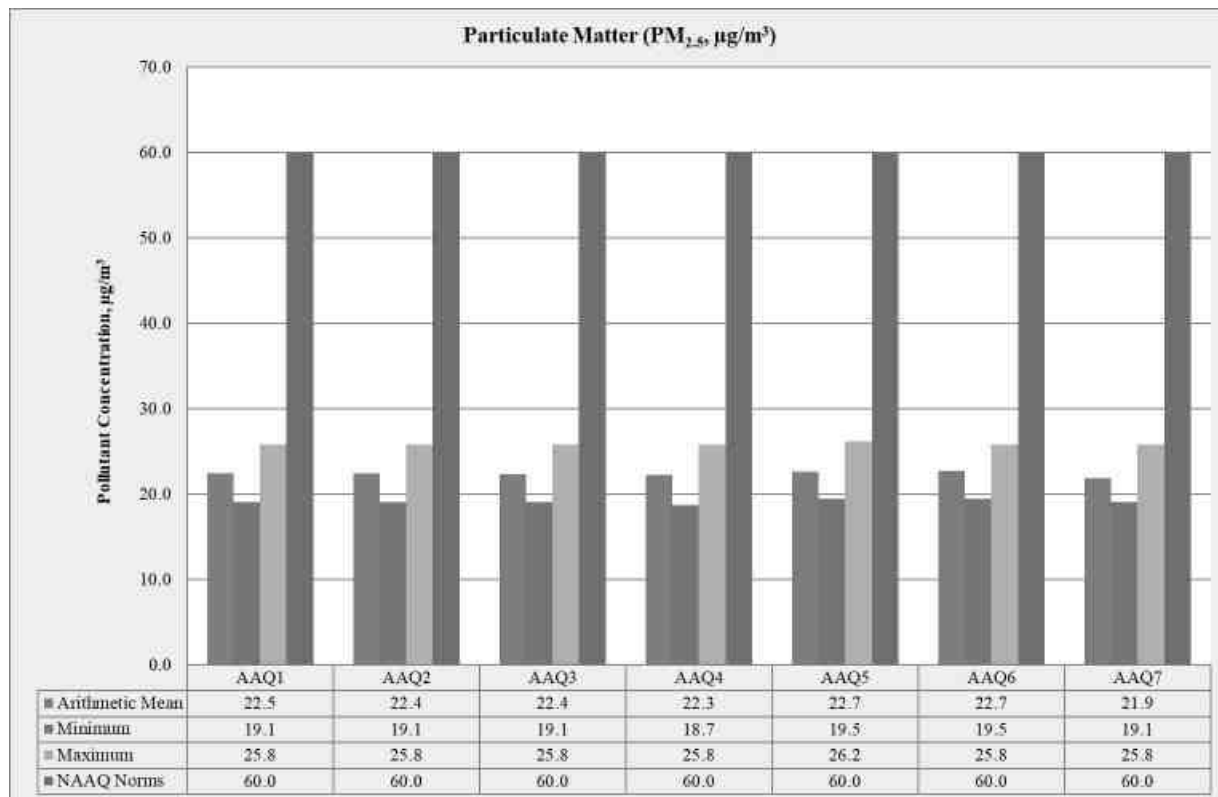
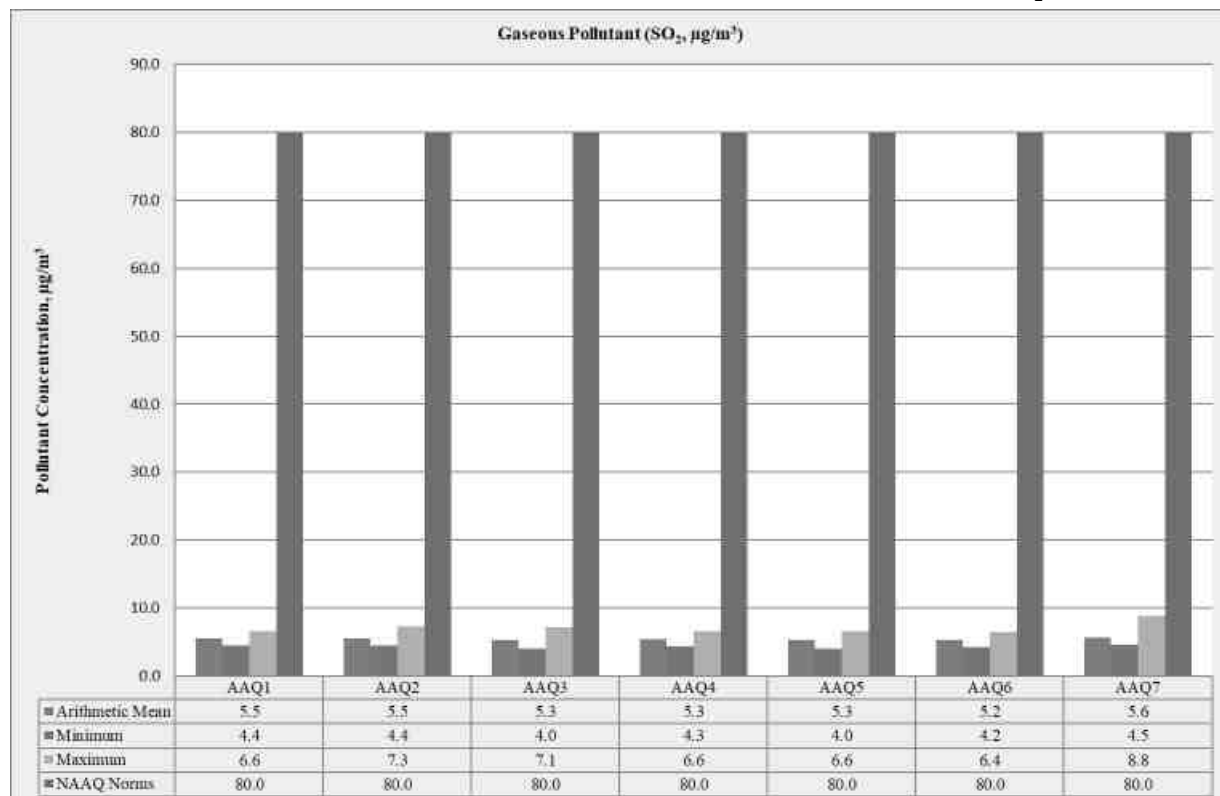
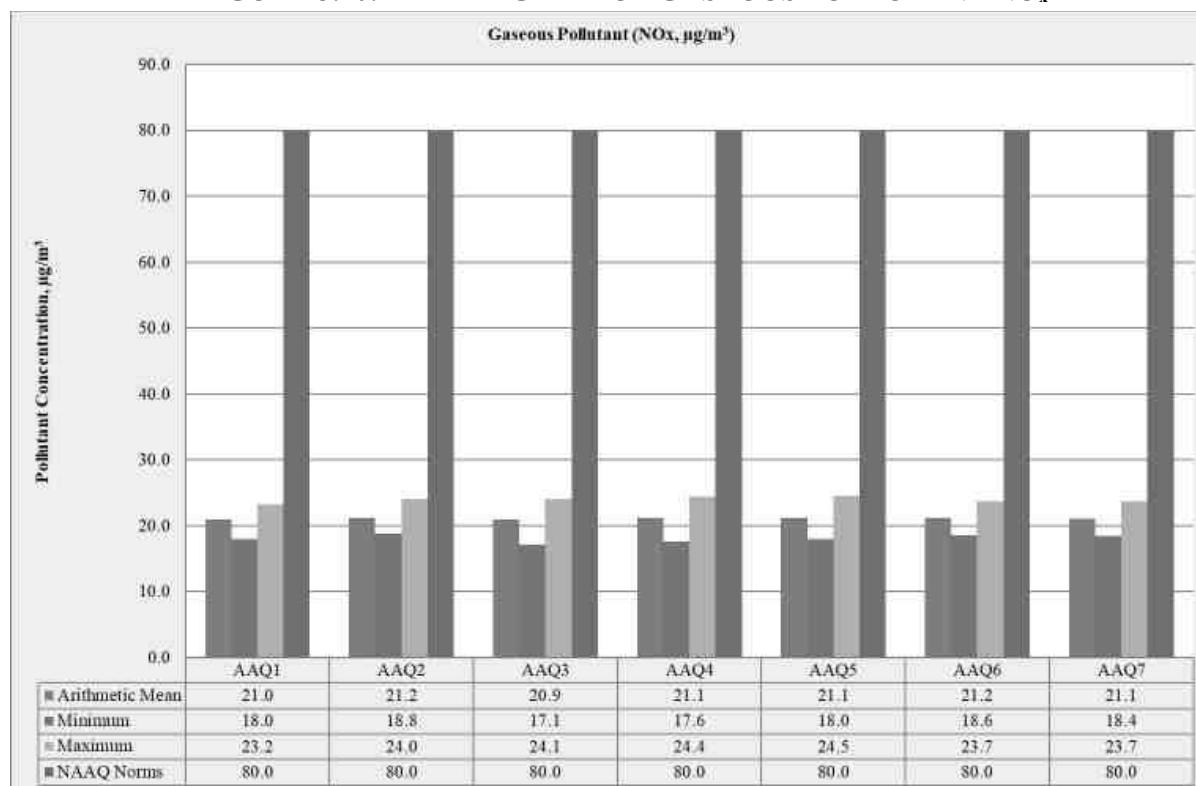
FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}**FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂**

FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 43.2 µg/m³ to 43.9 µg/m³, PM_{2.5} data ranges from 21.9 µg/m³ to 22.7 µg/m³, SO₂ ranges from 5.2 µg/m³ to 5.6 µg/m³ and NO₂ data ranges from 20.9 µg/m³ to 21.2 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

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 measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

- To assess the ambient Noise level in the study area
- Type of noise pollution generated in the core zone
- To predict the temporal changes in the ambient noise level in the area

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 3.20: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area	12°44'46.07"N 79°35'14.23"E
2	N2	Near Habitation	400m NE	12°44'58.97"N 79°35'17.32"E
3	N3	Near Existing Quarry	670m SW	12°44'27.19"N 79°34'51.58"E
4	N4	Kanagambakkam (School)	4.5km East	12°44'47.25"N 79°37'42.32"E
5	N5	Perungattur (Residential)	5km West	12°44'44.64"N 79°32'19.51"E
6	N6	Alividithangi (Residential)	3.5km North	12°46'40.17"N 79°35'18.55"E
7	N7	Irumanthangal (School)	4.6km SE	12°42'29.21"N 79°36'28.35"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS.

3.4.2 Method of Monitoring

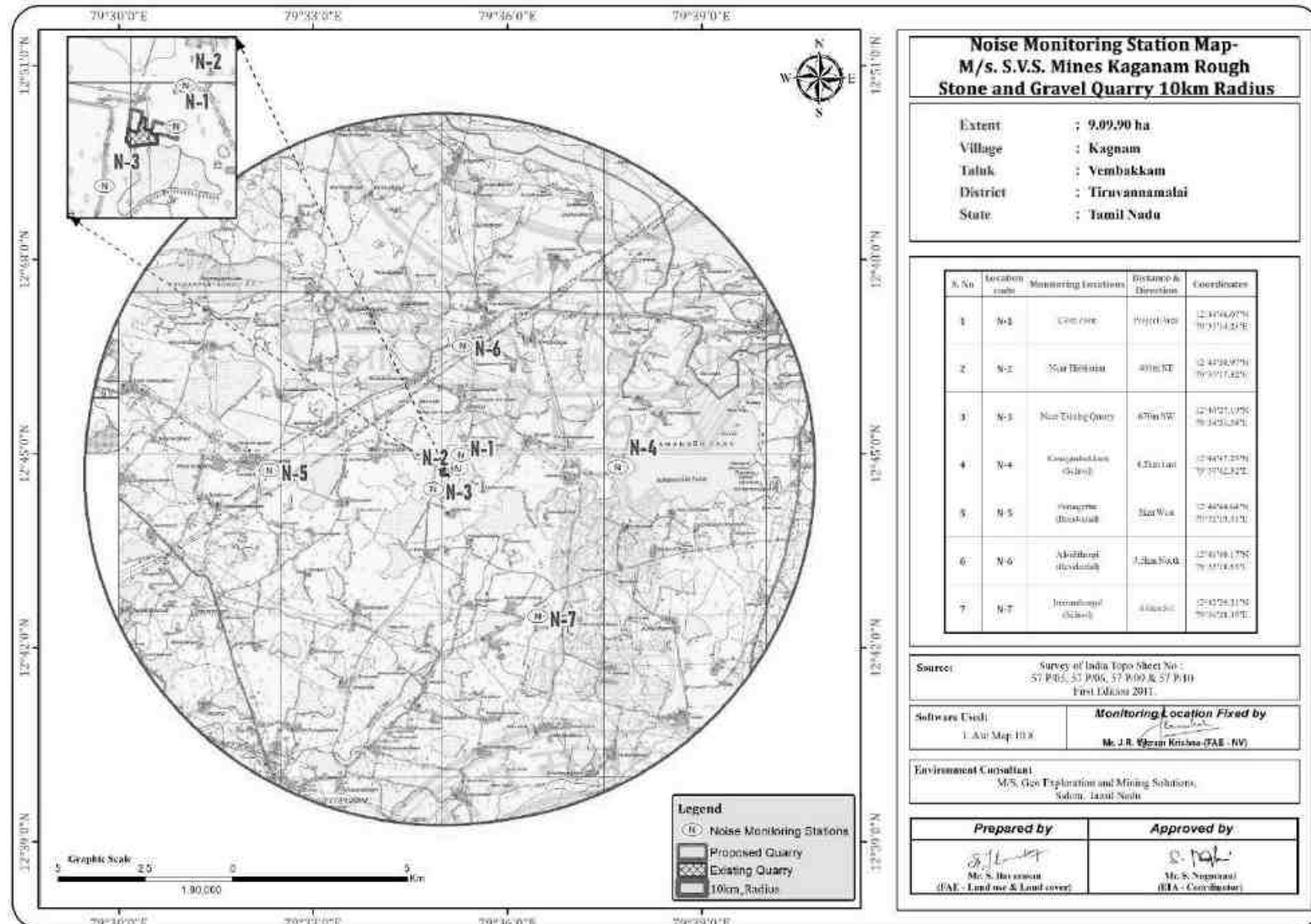
Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by L_{eq} , is used. Equivalent sound level, ' L_{eq} ', 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,

$$L_{eq} = 10 \log L / T \sum (10L_n/10)$$

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 60minutes 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 3.21: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	49.2	36.4	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Habitation	46.0	35.7	
3	Near Existing Quarry	51.1	36.5	
4	Kanagambakkam (School)	47.5	35.5	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
5	Perungattur (Residential)	46.1	36.8	
6	Alividithangi (Residential)	49.3	36.9	
7	Irumanthangal (School)	48.9	36.1	

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

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

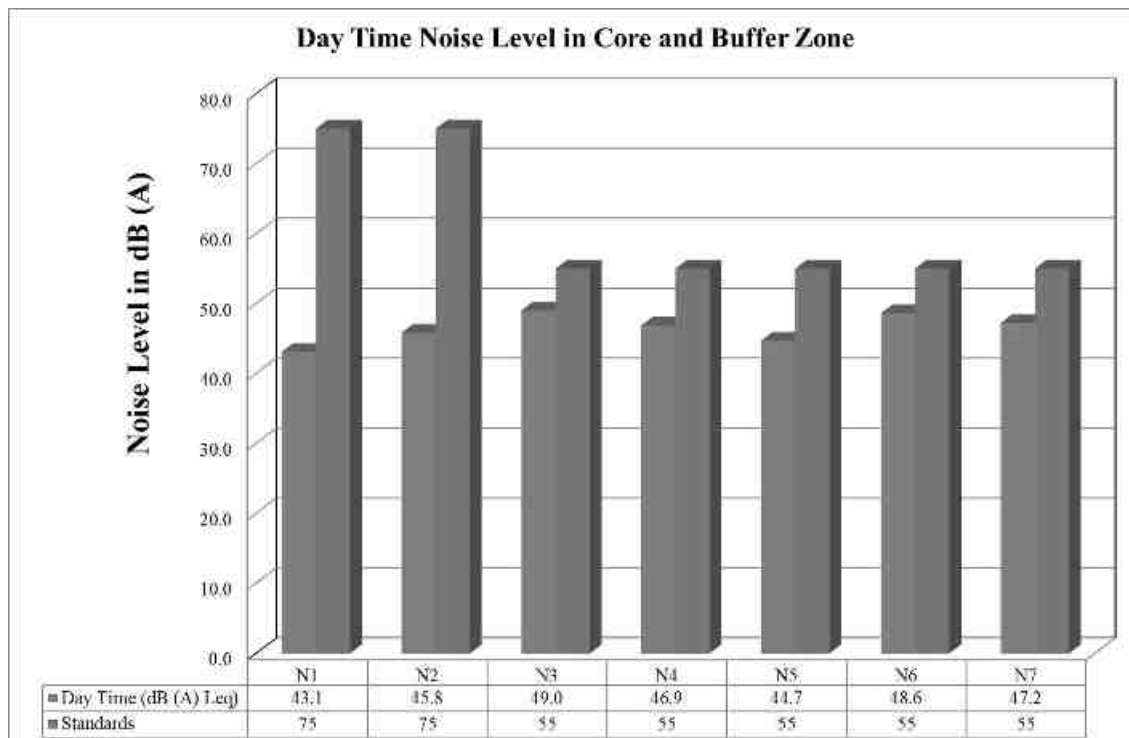
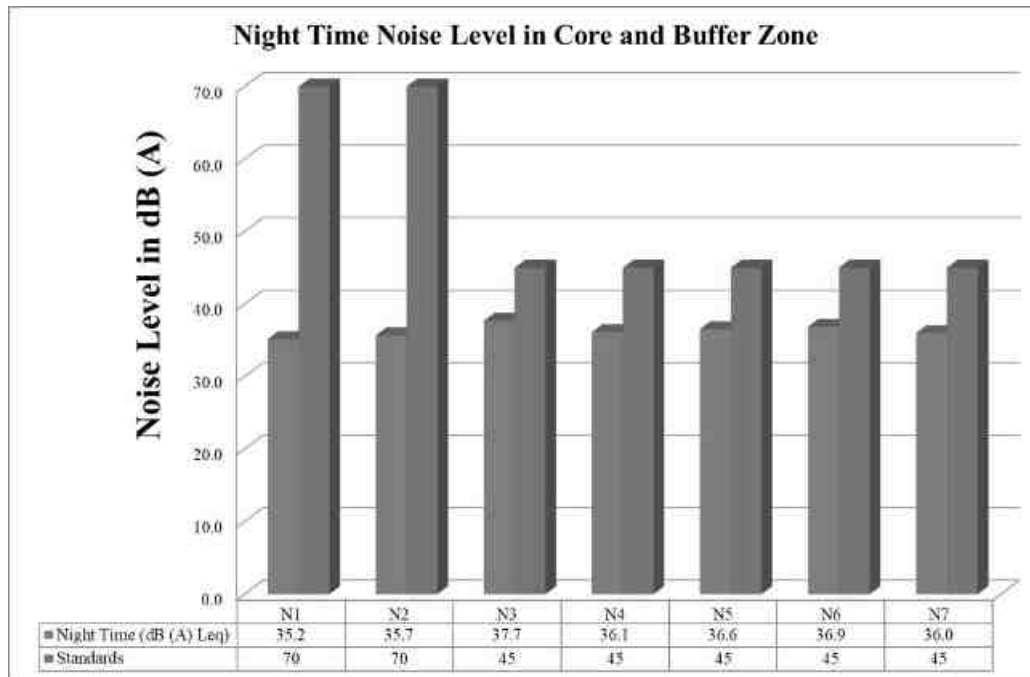


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE

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 43.1-45.8 dB (A) Leq and during night time were from 35.2-35.7 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 44.7 to 49.0 dB (A) Leq and during night time were from 36.0 to 37.7 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5. Biological Environment

3.5.1. Study area Ecology

The core area extent of 4.85.5 Ha 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 a plain terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

- Undertake an intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
- Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- 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.
- To identify the impacts of mining on agricultural lands and how it affects.
- Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
- Devise management & conservation measures for biodiversity.

3.5.2.1. District of Tiruvannamalai

Tiruvannamalai is one of the northern districts of Tamil Nadu with Vellore, part of Chengalpattu and South Arcot districts as northern, southern and western boundaries. It is the administrative headquarters of

Tiruvannamalai District. This district comprises of Tiruvannamalai, Chengam, Polur, Arni, Cheyyar and Vandavasi taluks. It came into existence on 30th September 1989 after the bifurcation of North Arcot district. The district lies between 11.55° and 13.15° North latitude and 78.20° to 79.50° East longitude. Tiruvannamalai District is located in the Northern part of Tamil Nadu with a distance of 190 km from Chennai and 210 km from Trichy. ([Ref-District Industrial Profile Tiruvannamalai 2019-20](#))

3.5.2.2. Forest Types in Tiruvannamalai Forest and Hills

One sixth area of the district is covered by reserve forest and hills which are parts of Eastern Ghats under Jawadhu Hills. The Javadis are the loftiest mountains of the region. They cover the north-western portion of Chengam taluk and the western part of Polur taluk. The general elevation of Jawadhu Hills is 2500 ft. with peaks rising up to 4200 ft. in some parts. Other important peaks of the district are Tiruvannamalai (2668 ft.) and Kalasagiri (2743 ft.). The general slope of the region is from west to east. Total forest coverage is 152810 hec.

3.5.2.3. Floral Study

- The floral survey of the project area is based on field survey of the area.
- The local flora was identified by their morphological observation, such as the size, age and shape of the leaf, flowers, fruits, and their bark features of the stem, and also documented their habitat viz. Trees, Shrubs, Herbs, Grasses, Climbers etc.
- After surveying the core and the buffer areas, a detailed floral inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded.
- Selection of sampling locations was made with reference to topography, land use, vegetation pattern, wind pattern, etc. The observations were taken on natural vegetation, roadside plantations, and non-forest areas (agricultural fields, in plain areas, village wasteland, etc.) for quantitative representation of different species.

3.5.3. 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 ordinales. 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).

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

1. Forest working plan
2. Schedule I to V: Indian Wildlife (Protection) Act, 1972
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

3.5.3.1. Sampling

A stratified simple random sampling procedure was employed to obtain a sample from study area. The study area was further stratified in different land use/ecosystems.

3.5.3.2. Sampling Size

Keeping in mind both random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending up on the area of the proposed site.

3.5.3.3. Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as time resting, feeding, hunting, and daily movements.

3.5.3.4. Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

3.5.3.5. 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.

3.5.4. Part I Field Sampling Techniques (Fauna Sampling)

3.5.4.1. Transect walk – Birds

Eight 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.

3.5.4.2. 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.

3.5.4.3. 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).

3.5.4.4. 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.

3.5.5. Flora Composition in the Core Zone (Primary Survey)

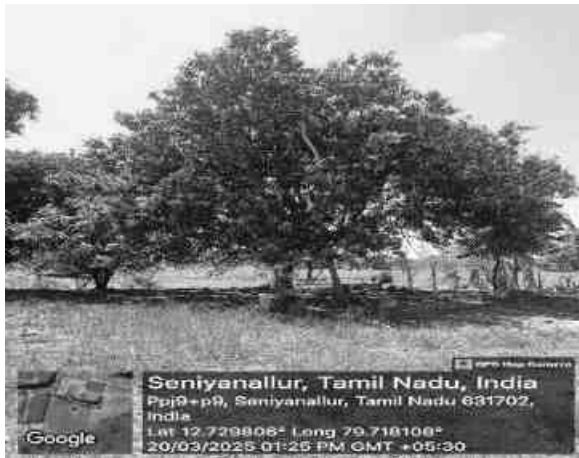
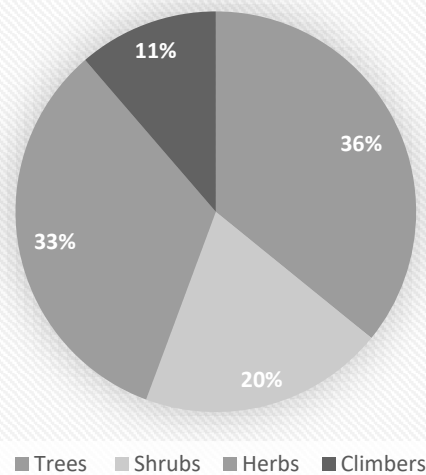
Core zone flora sampling was conducted between 8.00 am to 10.00 am in three locations. The proposed applied area exhibiting plain terrain, so we used quadrat sampling methods. Taxonomically a total of 18 species belonging to 12 families have been recorded from the core mining lease area. Based on the habitat classification of the enumerated plants the majority of species were Herbs 10 followed by Shrubs 3, Trees 5, and Climbers 1. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Asteraceae and Arecaceae are the main dominating species in the study area mentioned in Table No.3.53. No species found as threatened category.

Table. 3.22 Flora in the Core zone of Kaganam Village, Rough stone and gravel quarry (Primary data)

SI. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Eucalyptus	Taila maram	<i>Eucalyptus obliqua</i>	Myrtaceae
3.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
4.	Teak	Theaku	<i>Tectona grandis</i>	Lamiaceae
5.	Mango	Maa maram	<i>Mangifera indica</i>	Anacardiaceae
Shrubs				
1.	Avaram Senna	Avarai	<i>Senna auriculata</i>	Caesalpinioideae
2.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
3.	Indian fig opuntia	Sapathikalli	<i>Opuntia ficus-indica</i>	Cactaceae
Herbs and Grass				
1.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
2.	Indian Acalypha	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
3.	Bermuda Grass	Arugampul	<i>Cynodon dactylon</i>	Poaceae
4.	Pulapoo	Polpola	<i>Aerva lanata</i>	Amaranthaceae
5.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
6.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
7.	Chrismas Bush	Poom pul	<i>Chromolaena odorata</i>	Asteraceae
8.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
9.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
10.	Common Tephrosia	Kolunchi	<i>Tephrosia purpurea</i>	Fabaceae
Climbers				
11.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae

(Sources: Species observation in the field study)

Graph Showing % Distribution Of Floral Life Forms (Core zone)



a. *Mangifera indica*



b. *Tectona grandis*



c. *Tephrosia purpurea*



d. *Eucalyptus obliqua*

e. *Prosopis juliflora*f. *Azadirachta indica*

Flora species observation in the Core zone area

3.5.5.1. Tree survey an around 300m radius

The trees surveys were conducted around 300m radius from the proposed project site. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.37m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Borassus flabellifer*, *Prosopis juliflora*, etc. Please refer the Table No.3.54.

. **Table. 3.23 Tree survey around 300m radius from the proposed project site.**

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelam maram	Vachellianilotica	12
2.	Coconut	Thennai maram	Cocos nucifera	15
3.	Mesquite	Mullumaram	Prosopis juliflora	26
4.	Neem	Vembu	Azadirachta indica	17
5.	Asian Palmyra palm	Panai maram	Borassus flabellifer	10

(Sources: Species observation in the field study)

Table. 3.23 Flora in Buffer Zone of Kaganam Village, Rough stone and gravel quarry, Tiruvannamalai District, Tamil Nadu (Primary data & Secondary data)

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	White Bark Acacia	Vela maram	Vachellia leucophloea	Fabaceae
2.	Indian siris	Vaaga	Albizia lebbeck (L.) Willd	Fabaceae
3.	Blue gum	Thayala maram	Eucalyptus	Myrtaceae
4.	Alangium salviifolium	Azhinja maram	Alangium salviifolium	Cornaceae
5.	Banana tree	Vazhaimaram	Musa acuminata	Musaceae
6.	Neem	Vembu	Azadirachta indica	Meliaceae
7.	Tamarind	Puliyamaram	Tamarindus indica	Legumes
8.	Mesquite	Mullu maram	Prosopis juliflora	Fabaceae
9.	Coral Tree	Kalyana murungai	Erythrina variegata	Papilionoide
10.	Bamboo	Moonghil	Bambusa bambo	Poaceae
11.	Yellow flame tree	Perunkondrai	Peltophorum pterocarpum	Fabaceae
12.	Indian almond	Padam maram	Terminalia catappa	Combretaceae
13.	Asian Palmyra palm	Panai maram	Borassus flabellifer	Arecaceae
14.	Indian ash tree	Odiya maram	Lannea coromandelica	Anacardiaceae
15.	Lemon	Ezhumuchaipalam	Citrus lemon	Rutaceae
16.	Rusty Acacia	Parambai	Acacia ferruginea	Mimosaceae
17.	Mango	Manga	Mangifera indica	Anacardiaceae
18.	Peepal	Arasanmaram	Ficus religiosa	Moraceae
19.	Custard apple	Seethapazham	Annona reticulata	Annonaceae
20.	Chinaberry	Malai vembu	Melia azedarach L.	Meliaceae
21.	Monkey pod tree	Thungumoonchi	Samanea saman	Fabaceae
22.	Teak	Thekku	Tectona grandis	Verbenaceae
23.	Indian gooseberry	Nelli	Emblica officinalis	Phyllanthaceae
24.	Henna	Marudaani	Lawsonia inermis	Lythraceae
25.	Madras thorn	Kudukapuli	Pithecellobium dulce	Fabaceae
26.	Malayan Cherry	Ten Pazham	Muntingia calabura	Muntingiaceae
27.	Pomegranate	Mathulai	Punica granatum	Lythraceae
28.	Jamun Fruit Plant	Naval maram	Syzygium cumini	Myrtaceae
29.	Banyan tree	Alamaram	Ficus benghalensis	Moraceae
30.	Chinese chaste tree	Nochi	Vitex negundo	Verbenaceae
31.	Indian Jujube	Ilanthai	Ziziphus jujuba	Rhamnaceae
32.	Millettia pinnata	Pongam oiltree	Pongamia pinnata	Fabaceae
33.	Coconut	Thennai maram	Cocos nucifera	Arecaceae
34.	Guava	Koyya	Psidium guajava	Myrtaceae

35.	Pala indigo	Pala maram	Wrightia tinctoria	Apocynaceae
36.	Portia tree	Poovarasan	Thespesia populnea	Malvaceae
37.	Drumstick tree	Murunga maram	Moringa oleifera	Moringaceae
38.	Papaya	Pappali maram	Carica papaya L	Caricaceae
Shrubs				
1.	Tanner's cassia	Avaram	Senna auriculata	Fabaceae
2.	Hopbush	Virali	Dodonaea viscosa	Sapindaceae
3.	Castor oil plant	Amanakku	Ricinus communis	Euphorbiaceae
4.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
5.	Indian Oleander	Arali	Nerium indicum	Apocynaceae
6.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
7.	Night shade plan	Sundaika	Solanum torvum	Solanaceae
8.	Broom creeper	Kattukodi	Cocculus hirsutus	Menispermaceae
9.	Solanum pubescens	Malaisundai	Solanum pubescens Willd	Solanaceae
10.	Thorn apple	Oomathai	Datura stramonium	Solanaceae
11.	Shoe flower	Chemparuthi	Hibiscus rosa-sinensis	Malvaceae
12.	Puriging nut	Kattamanakku	Jatropha curcas	Euphorbiaceae
13.	Touch-me-not	Thottalchinungi	Mimosa pudica	Mimosaceae
14.	Chinese chastetree	Nalla nochi	Vitex negundo L	Verbinaceae
15.	Jackal jujube	Suraimullu	Ziziphus oenopia	Rhamnaceae
16.	Malabar catmint	Pei veratti	Anisomeles malabarica	Lamiaceae
17.	Indian mallow	Thuthi	Abutilon indicum	Meliaceae
18.	Bush Morning Glory	Neiveli Kattamani	Ipomoea carnea	Convolvulaceae
19.	Lantana	Unni chedi	Lantana camara	Verbenaceae
20.	Flame of the Woods	Idlipoo	Xoracoc cineia	Rubiaceae
21.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
Herbs				
1.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
2.	Malabar catmint	Peimiratti	Anisomeles malabarica	Lamiaceae
3.	Eggplant	Kathrikkai	Solanum melongena	Solanaceae
4.	Christsmas Bush	Poom pul	Chromolaena odorata	Asteraceae
5.	Aloe barbadensis	Katrashai	Aloe vera	Asphodelaceae
6.	-	Karaiyaan poondur	Lepidagathis cristat	Acanthaceae
7.	Mountain knotgrass	Thengaipoo kirai	Aerva lanata	Amaranthaceae
8.	Prickly chaff flower	Nayuruv	Achyranthes aspera	Amaranthaceae
9.	Bindii	Nerunchi	Tribulus terrestris	Zygophyllaceae
10.	Fish poison	Kolinchai	Tephrosia purpurea	Fabaceae
11.	Ban Tulsi	Melakai poondur	Croton bonplandianus	Euphorbiaceae

12.	Asthma-plant	Amman pacharisi	Euphorbia hirta	Euphorbiaceae
13.	Indian doab	Arugampul	Cynodon dactylon	Poaceae
14.	Spiny amaranth	Mullu keera	Amaranthus spinosus	Amaranthaceae
15.	Chilli	Milakai	Capsicum annuum	Solanaceae
16.	Indian Copperleaf	Kuppaimeni	Acalypha indica	Euphorbiaceae
17.	Marsh barbel	Neermulli	Hygrophila auriculata	Acanthaceae
18.	Yellow-fruit nightshade	Kandakathirika	Solanum surattense	Solanaceae
19.	Asian spiderflower	Naaikaduku	Cleome viscosa L	Cleomaceae
20.	Tomato	Thakkali	Solanum lycopersicum	Solanaceae
21.	White dammar	Mookutipoond	Vicoa indica	Asteraceae
22.	Cleome viscosa	Nai kadugu	Celome viscosa	Capparidaceae
23.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
24.	Digeria muricata	Thoiya keera	Digeria muricata	Amaranthaceae
25.	False daisy	Karisalankanni	Eclipta alba	Asteraceae
26.	Sessile Joyweed	Ponnakanni	Alternanthera sessilis	Amaranthaceae
27.	Field beans	Avarai	Hyacinth Beans	Fabaceae
28.	Common leucas	Thumbai	Leucas aspera	Lamiaceae
29.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
30.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
31.	Indian mint	Karpura valli	Coleus amboinicus	Lamiaceae
32.	Europeanblack nightshade	Manathakkali	Solanumnigrum	Solanaceae
33.	Bright eyes	Nithiyakalyani	Catharanthus roseus	Apocynaceae
34.	Carrot grass	Partiniyam	Parthenium hysterophorus	Asteraceae
35.	Red Spiderling	Mukirattai	Boerhavia diffusa	Nyctaginaceae
Climbers/ Creepers				
1.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
2.	Indian sarsaparilla	Nannaari	Hemidesmus indicus	Apocynaceae
3.	Rosary Pea	Gundumani	Abrus precatorius	Fabaceae
4.	Ivy gourd	Kovai	Coccinia grandis	Cucurbitaceae
5.	Balloon plant	Mudakrttan	Cardiospermum halicacabum	Sapindaceae
6.	Butterfly pea	Sangu poo	Clitoria ternatea	Fabaceae
7.	Pointed gourd	Kovakkai	Trichosanthes dioica	Cucurbitaceae
8.	Bottle Guard	Sorakkai	Lagenaria siceraria	Cucurbitaceae
9.	White pumpkin	Poosanaikkaai	Cucurbitaceae	Cucurbitaceae
10.	Wild jasmine	Malli	Jasminum augustifolium	Oleaceae
11.	Nut grass	Korai	Cyperus rotundus	Poaceae
12.	Cucumis maderaspatanus	Musumusukkai	Mukia maderaspatana	Cucurbitaceae
Grasses				

1.	Windmill grass	Chevvarakupul	Chloris barbata	Poaceae
2.	Jungle rice	Kuthirai vaalKattu arusi	Echinochloa colona	Poaceae
3.	Swollen Windmill Grass	Kondai Pul	Chloris barbata	Poaceae
4.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae
5.	Mauritian Grass	Moongil pul	Apluda mutica	Amaranthaceae

(Sources:

Species observation in the field study

Tamil Nadu state Forest department working plan

Plant resources of tiruvannamalai district tamilnadu India

medicinal plant diversity in tiruvannamalai hill, tiruvannamalai, Tamil Nadu

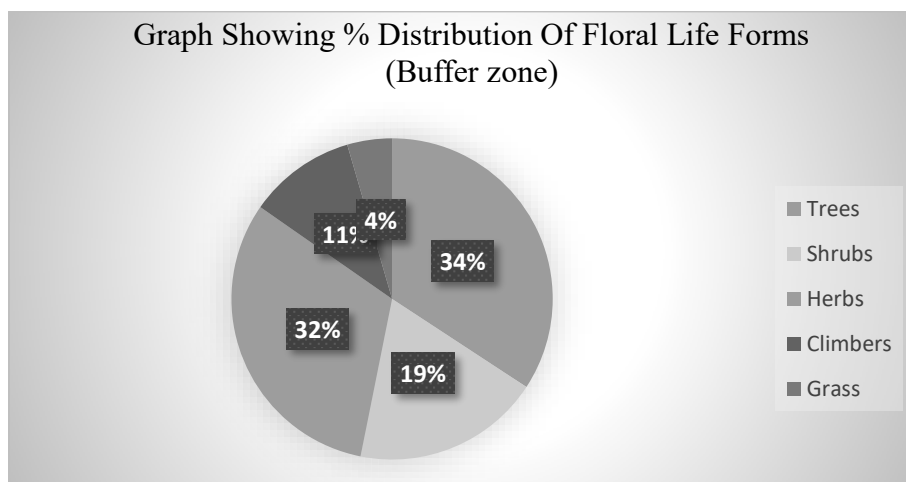
file:///C:/Users/Kishore%20K/Downloads/An_Ethnobotanical_Survey_of_Medicinal_Or%20(1).pdf

3.6. Flora Composition in the Buffer Zone

Buffer zone flora sampling was conducted between 10.00 am to 4.00 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 methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. The area exhibiting plain terrain. so we used quadrat sampling methods. Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/ (existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area and there are 130 species in the buffer zone study area in total, based on records. The floral (111) varieties among them Trees 38, Herbs 35, Shrubs 21, Climbers/Creepers 12, and Grasses 5 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceous is the main dominating species in the study area mentioned in Table No.3.56. 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. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table no 3.56 and their % distribution is shown in Figure no 3.36.

Table. 3.24 Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	38
2	Shrubs	21
3	Herbs	35
4	Climber/Creepers	12
6	Grasses	5
Total No. of Species		111





a. *Lantana camara*



b. *Jatropha curcas*



c. *Calotropis gigantea*



d. *Azardicata indica*



e. *Borassus flabellifer*



f. *Borassus flabellifer*



g. *Mangifera indica*



h. *Cissus quadrangularis*

Fig No: 3.37. Flora species observation in the Buffer zone area

3.6.1. Drainage and Irrigation

3.6.2. Sources of Irrigation

There are no perennial rivers in the district. The district was mostly drained by Cheyyar river, a major tributary of river Palar, originating from the forest area of Jawadhu hills and traveling through Chengam, Polur, Arni and Cheyyar taluks before confluence with river Palar in Kancheepuram district. Other minor streams in the district like, Kamandala Naga Nadhi, Thenpennai, Thuringalaru and Suganadhi were the important seasonal rivers in the district.

Tanks and dug wells were the major sources of irrigation in the district. The district had 604 major tanks (with ayacut of 40 ha. or more) and 1,361 small tanks (with ayacut of less than 40 ha.) There were 1,050 private bore wells, 200 dug-cum-bore wells and 1, 54,415 open wells in the district. Sathanur reservoir is built across the Thenpennai river with an ayacut of 18,882 ha. Benefiting both Tiruvannamalai and Villupuram districts.

3.6.3. Crop Patterns in Tiruvannamalai District

Agriculture is the main occupation in the district. The gross and net cultivated areas were 3, 04,929 and 2, 42,387 ha. respectively. The cropping intensity was 126 per cent and the ratio of net sown area to cultivable area (indicating extent of use of cultivable area) was 67.60 per cent only. Paddy, sugarcane and groundnut were the major crops grown in the district. More details refer- (Source: G-Return 2017-18, Season Crop Report 2015-16.).

3.6.4. Agriculture & Horticulture

3.6.4.1. Agricultural

Agriculture is the main source of livelihood for the people in the district. The district is dependent on seasonal rains for successful agricultural operations. Different crops in dry and wet lands are cultivated in the district. Some of the taluks, in particular, which enjoy irrigation facilities are Tiruvannamalai, Cheyyar, Polur and Vandavasi.

Paddy is the main agricultural crop in this district. In 2017-18, paddy & Cereal was sown in 161709 hectares that was 51.4 percent to the total crop sown area in the district. But, groundnut sown in the district which was 20.3 percent in 63862 hectares.

3.6.4.2. Horticulture

As horticultural crops, different types of fruits and vegetables are grown largely in the district. However, due to hot weather and dry climate, not many horticultural crops are cultivated. More details refer- (Source: G-Return 2017-18, Season Crop Report 2015-16.)

3.6.4.2.1. Medicinal and economic importance

Ethnobotanical survey and documentation of medicinal, field grown, ornamental, and wild plants were carried out in and around Kaganam village, Tiruvannamalai district, Tamilnadu. This study aimed to identify plants collected for medicinal and other purposes by the local people of the village. A total of 17 and more plant species were observed in this study. These plant species, belonging to 12 families are tabulated below.

There is very limited information available regarding medicinal plants used by traditional healers and general people in villages, for treating common ailments and diseases. It is very urgent need for identifying and documenting these valuable resources before they become inaccessible and extinct. Ethnobotanical survey is highly needed for the conservation of plants.

Table. 3.25 Medicinal and economic importance

S.No	Botanical name	Family	Vernacular name
1.	<i>Abrus precatorius L.</i>	Fabaceae	Gundumani
2.	<i>Abutilon indicum (Link) Sweet.</i>	Malvaceae	Thuthi
3.	<i>Acalypha indica L</i>	Euphorbiaceae	Kuppaimeni

4.	<i>Achyranthes aspera L</i>	Amaranthaceae	Naaiuruvi
5.	<i>Aegle marmalos (L.) Corrêa.</i>	Rutaceae	Vilvam
6.	<i>Aloe vera (L.) Burm.f.</i>	Asphodelaceae	Sotrukkatrazhai
7.	<i>Alternanthera sessilis (L.)</i>	Amaranthaceae	Ponnaankanni
8.	<i>Amaranthus spinosa L.</i>	Amaranthaceae	Mullu keerai
9.	<i>Andrographis paniculata (Burm.f.) Wall. ex Nees.</i>	Acanthaceae	Nila vembu, Siriyaa nantai
10.	<i>Azadirachta indica A. Juss</i>	Meliaceae	Vembu
11.	<i>Cissus quadrangularis L</i>	Vitaceae	Pirandai
12.	<i>Citrus medica L</i>	Rutaceae	Elumichai
13.	<i>Eclipta prostrata L.</i>	Asteraceae	Karisalankanni
14.	<i>Justicia adhatoda L.</i>	Acanthaceae	Adathoda
15.	<i>Melia azedarach L</i>	Meliaceae	Malai veambu
16.	<i>Phyllanthus niruri L</i>	Phyllanthaceae	Keezhaneli
17.	<i>Smilax zeylanica L.</i>	Smilacaceae	Kaatukodi

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/ (existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise. No Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner.

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. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive.

Thus, no forest land is involved in any manner. There are no impacts due to this mining activity. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.7. 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 Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in the core area.

3.7.1. Fauna Composition in the Core Zone

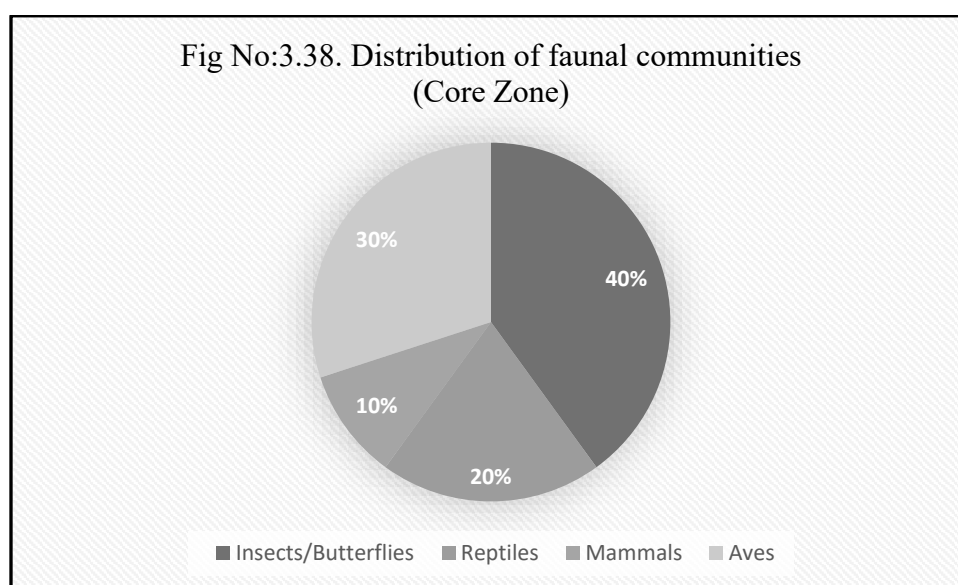
Core zone fauna samplings were conducted between 6.00 am to 8.00 am in three locations. A total of 10 varieties of species were observed in the Core zone of Kaganam Village, Rough stone and gravel quarry (Table No.3.58) among them numbers of Insects/ Butterflies 4, Reptiles 2, Mammals 1, and Avian 3. A total of 10 species have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 6 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 3 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. Details of fauna in the core zone with the scientific name were mentioned in Table No. 3.58.

Table. 3.26 Fauna in the Core zone of Kaganam Village, Rough stone and gravel quarry (Primary data)

Sl.	Common	Family Name	Scientific Name	Schedule WPA1972

No	Name			
Insects/Butterflies				
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV
2.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV
3.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL
4.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL
Reptiles				
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL
Mammals				
1.	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV
Aves				
1.	Black drongo	Dicuridae	<i>Dicrurus macrocercus</i>	Schedule IV
2.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	Schedule IV
3.	Sunbird	Nectariniidae	<i>Cinnyris asiaticus</i>	Schedule IV

(Sources: Species observation in the field study)



3.7.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 6.00 am to 8.00 am and 2.30 pm to 6.30 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. There is no reserve forest present in the project site. 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 are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Red-whiskered Bulbul, Asian Koel, House crow, Black drangos, Crows, Pond heron etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.59. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.60. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.61. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.62. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.63. It is

apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Taxonomically a total of 67 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 25, followed by Butterflies 15, Reptiles 10, Insects 5, Mammals 8, and Amphibians 4. There are four Schedule II species, two species are under the schedule III and thirty-nine species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 25 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds, butterflies, and insects, and four amphibians was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphlyctis hexadactylus*, *Bufo melanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

**Table. 3.27 List of Fauna & Their Conservation Status,
Mammals: (*directly sighted animals & Secondary data)**

SI. No	Scientific Name	Common Name/English Name	Schedule list WPA 1972
1.	<i>Herpestes edwardsi</i>	Indian Grey Mongoose	Schedule II
2.	<i>Mus booduga</i>	Little Indian field mouse	Schedule IV
3.	<i>Bandicota bengalensis</i>	Indian mole-rat	Schedule IV
4.	<i>Mus musculus</i>	House mouse	Schedule IV
5.	<i>Funambulus palmarum</i>	Common Palm Squirrel	Schedule IV
6.	<i>Rattus rattus</i>	Black rat	Schedule IV
7.	<i>Bandicota indica</i>	Rat	Schedule IV
8.	<i>Lepus nigricollis</i>	Indian Hare	Schedule IV

Table. 3.28 Listed birds (Primary data and Secondary data)

SI. No	Scientific Name	Common Name	Schedule list WPA 1972
1.	<i>Alcedo atthis</i>	Common Kingfisher	Schedule IV
2.	<i>Copsychus fulicatus</i>	Indian robin	Schedule IV
3.	<i>Corvus splendens</i>	House crow	Schedule V
4.	<i>Dicrurus macrocercus</i>	Black Drongo	Schedule IV
5.	<i>Halcyon smyrnensis</i>	White-breasted kingfisher	Schedule IV
6.	<i>Bubulcus ibis</i>	Cattle Egret	Schedule IV
7.	<i>Hypsipetes madagascariensis</i>	Black bulbul	Schedule IV
8.	<i>Columba livia</i>	Rock pigeon	Schedule IV
9.	<i>Acridotheres tristis</i>	Common myna	Schedule IV
10.	<i>Psittacula krameri</i>	Rose ringed parakeet	Schedule IV
11.	<i>Coturnix coturnix</i>	Grey quail	Schedule IV
12.	<i>Passer domesticus</i>	House Sparrow	Schedule IV
13.	<i>Pycnonotus cafer</i>	Red vented Bulbul	Schedule IV
14.	<i>Accipiter badius</i>	Shikra	Schedule IV
15.	<i>Cuculus canorus</i>	Cuckoo	Schedule IV
16.	<i>Merops orientalis</i>	Small green bee eater	Schedule IV
17.	<i>Nectarinia minima</i>	Small sunbird	Schedule IV
18.	<i>Ardeola grayii</i>	Pond Heron	Schedule IV
19.	<i>Spilopelia chinensis</i>	Spotted dove	Schedule IV
20.	<i>Egretta garzetta</i>	Little Egret	Schedule IV
21.	<i>Apus apus</i>	Common swift	Schedule IV
22.	<i>Ardea cinerea</i>	Grey heron	Schedule IV
23.	<i>Megalaima zeylanica</i>	Brown-headed barbet	Schedule IV

24.	<i>Eudynamys scolopacea</i>	Koel	Schedule IV
25.	<i>Coracias benghalensis</i>	Indian roller	Schedule IV

Table. 3.29 List of Reptiles either spotted or reported from the study area.
 (*indicates direct observations & Secondary data)

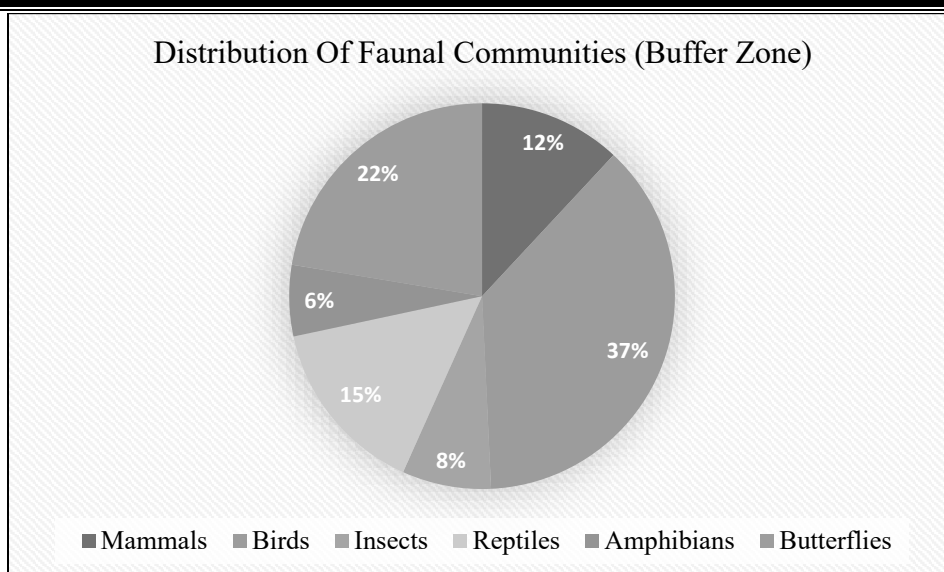
SI. No	Scientific Name	Common Name/English Name	Schedule list WPA 1972
1.	<i>Calotes versicolor</i>	Oriental garden lizard	NL
2.	<i>Hemidactylus flaviviridis</i>	House lizards	Schedule IV
3.	<i>Naja naja</i>	Indian cobra	Sch II (Part II)
4.	<i>Ahaetulla nasuta</i>	Green vine snake	Schedule IV
5.	<i>Ptyas mucosa</i>	Rat snake	Sch IV (Part II)
6.	<i>Bungarus caeruleus</i>	Common krait	Schedule IV
7.	<i>Mabuya carinatus</i>	Common skink	NL
8.	<i>Vipera russeli</i>	Russell's viper	Sch II (Part II)
9.	<i>Nerodia piscator</i>	Fresh water snake	Sch III (Part II)
10.	<i>Groemyda bijuga</i>	Fresh water tortoise	Sch III (Part II)

Table. 3.30 List of insects either spotted or reported from the study area

SI. No	Scientific Name	Common Name	Schedule list WPA 1972
1.	<i>Apis cerana</i>	Indian honey bee	-
2.	<i>Hamitermes silvestri</i>	Termite	NE
3.	<i>Hieroglyphus sp</i>	Grasshopper	NL
4.	<i>Camponotus Vicinus</i>	Ant	NL
5.	<i>Ceratogomphus pictus</i>	Dragonfly	-

Table. 3.31 List of Butterflies reported from the study area and Secondary data

SI. No	Scientific Name	Common Name	Schedule
1.	<i>Papilio clytia</i>	Common mime	-
2.	<i>Euploea core</i>	Euploea core	-
3.	<i>Pachliopta aristolochiae</i>	Common rose	-
4.	<i>Papilio polytes</i>	Common mormon	-
5.	<i>Spialia galba</i>	Indian Skipper	-
6.	<i>Danaus genutia</i>	Common tiger	-
7.	<i>Pachliopta hector</i>	Crimson rose	-
8.	<i>Eurema brigitta</i>	Eurema brigitta	-
9.	<i>Hypolimnas bolina</i>	Hypolimnas bolina	-
10.	<i>Castalius rosimon</i>	Common Pierrot	-
11.	<i>Curetis thetis</i>	Indian Sunbeam	-
12.	<i>Troides minos</i>	Southern birdwing	-
13.	<i>Papilio demoleus</i>	Lime Butterfly	-
14.	<i>Ariadne merione</i>	Common Castor	-
15.	<i>Neptis hylas</i>	Neptis hylas	-



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. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table 3.64.

a. *Calotes versicolor*b. *Corvus splendens*c. *Zizina Otis indica*d. *Ceratogomphus pictus*



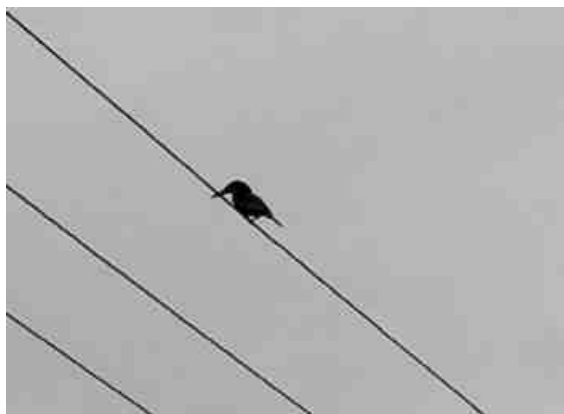
e. *Sympetrum fonscolombii*



f. *Dicrurus macrocercus*



g. *Danainae*



h. *Alcedo atthis*



i. *Picidae*



j. *Psittacula krameri*



k. *Meropsorientalis*



l. *Acridotheres tristis*

Species observation in the field study (Buffer Zone)

Table. 3.32 Description of Flora & Fauna

S. No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-
11.	Invasive Alien species	None	None

3.8. 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. The study region contains a few seasonal bodies of water. There is no aquatic flora and, aquatic faun. 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. Tyche 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.

3.8.1. 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.

3.8.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table No 3.66

Table No 3.33 Description of Macrophytes

Sl. No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	<i>Eichornia crassipe</i>	Water hyacinth	Agayatamarai	NA
2.	<i>Aponogeton natans</i>	Floating lace plant	Kottikizhnagu	NA
3.	<i>Nymphaea nouchali</i>	Blue water lily	Nellambal	LC
4.	<i>Carex cruciata</i>	Cross Grass	Koraipullu	NA
5.	<i>Cyperus exultates</i>	Tall Flat Sedge	Koraikizhangu	LC

Sources: Species observation in the field study

3.8.3. 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 No 3.34 List of Amphibians either spotted or reported from the study area

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Sphaerotheca breviceps</i>	Indian Burrowing frog	Schedule IV
2.	<i>Euphlyctis hexadactylus</i>	Green pond frog	Schedule IV
3.	<i>Bufome lanostictus</i>	Indian Toad	Schedule IV
4.	<i>Euphlyctis cynophlyctis</i>	Skipper	Schedule IV

3.8.4. Fishes

Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; Catla, Mrigal, Ticto barb, Greenstripe barb, Roho and Pool barb etc., Species of fish reported in the study area are given in table 3.68. During the field investigation, all of the lakes were quite dry. Only the lakes gather fish data.

Table No 3.35 Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S. No	Common name	Scientific name	Family
1.	Mrigal	<i>Cirrhinus mrigala</i>	Chordata
2.	Rohu	<i>Labeo rohita</i>	Cyprinidae
3.	Catfish	<i>Siluriformes</i>	Diplomystidae
4.	Greenstripe barb	<i>Puntius vittatus</i>	Cyprininae

Sources:

Invasive Alien Species | IUCN

<https://www.inaturalist.org/places/tiruvannamalai>

<https://ebird.org/region/IN-TN-TV>

https://www.inaturalist.org/check_lists/35268-Tiruvannamalai-Check-List

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, Bhutan and Ceylon. 3. Stone Curlews to Owls. Oxford University Press, Bombay, 327pp.

Bird Life International 2012. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.

3.9. Findings/Results

The assessment was carried out during the Winter season. The inspection day was quite all right 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	Nil
2.	Reserved Forests	Nil
3.	Wildlife Corridors & Routes	No notified wildlife corridors are present in 10 km vicinity.
4.	Wetlands / Water bodies	-
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, endangered, vulnerable, and 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 ecologically sensitive areas or protected areas within the 10 Km radius. Hence no specific conservation for conservation of any RET species or Wildlife is envisaged.

3.10. 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.

3.6 Socio Economic Environment

There is no Approved habitation/ village within the radius of 300m from the project area. 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 Administrative Setup of Tiruvannamalai District

Tiruvannamalai district is divided into 12 taluks. The taluks are further divided into 18 blocks, which further divided into 860 villages. In 2011, Tiruvannamalai had population of 24,64,875 of which male and female were 12,35,889 and 12,28,986 respectively. In 2001 census, Tiruvannamalai had a population of 21,86,125 of which males were 10,95,859 and remaining 10,90,266 were females. Tiruvannamalai District population constituted 3.42 % of total Maharashtra population. In 2001 census, this figure for Tiruvannamalai District was at 3.50 % of Maharashtra population.

There was change of 12.75 % in the population compared to population as per 2001. In the previous census of India 2001, Tiruvannamalai District recorded increase of 7.01 % to its population compared to 1991.

3.6.4 Study area

Kaganam village is situated in Teshil Vembakkam District Tiruvannamalai and in State of Tamil Nadu India. Village has population of 806 as per census data of 2011, in which male population is 422 and female population is 384. Total geographical area of Kaganam village is 452.24 Hectares. Population density of Kaganam is 2 persons per Hectares. Total number of house hold in village is 203.

TABLE 3.37 – POPULATION CHARACTERISTICS AROUND 10KM RADIUS

S.No	Name of the Village	No. of Households	Total Population	Population Male	Population female	SC Population Male	SC Population female	Total Literates Male	Total Literates Female	Total Illiterates Male	Total Illiterates Female
1.	Akkur	754	2896	1454	1442	293	290	1086	862	368	580
2.	Alanthangal	134	541	271	270	0	0	123	86	148	184
3.	Arasankuppam	241	1106	538	568	483	502	361	330	177	238
4.	Arugavoor	374	1547	773	774	346	359	545	413	228	361
5.	Arumparuthi	152	738	367	371	52	63	184	140	183	231
6.	Athi	208	796	425	371	0	0	341	256	84	115
7.	Azhinjalpattu	226	892	426	466	133	153	307	261	119	205
8.	Azhividaithangi	1146	4494	2251	2243	359	373	1619	1215	632	1028
9.	Barathanthangal	131	515	263	252	0	0	204	147	59	105
10.	Booderi	187	764	372	392	0	0	263	199	109	193
11.	Chellaperumpulimedu	130	545	277	268	4	1	194	126	83	142
12.	Chithathur	657	2654	1284	1370	276	311	889	751	395	619
13.	Chozhavaram	340	1316	670	646	312	298	513	428	157	218
14.	Duli	291	1154	579	575	112	108	448	333	131	242
15.	Hariharapakkam	263	1094	565	529	0	0	332	227	233	302
16.	Hasanamapettai	404	1582	807	775	0	0	716	621	91	154
17.	Jaderi	137	530	270	260	1	1	220	123	50	137
18.	Kaganam	203	806	422	384	237	222	294	174	128	210
19.	Kammanthangal	162	645	323	322	0	0	269	228	54	94
20.	Kanagampakkam	55	231	126	105	0	0	97	49	29	56
21.	Karanai	139	677	351	326	345	321	250	176	101	150
22.	Karantthai	221	881	451	430	300	296	384	306	67	124
23.	Kazhivur	433	1714	844	870	188	204	580	455	264	415
24.	Kizhnelli	402	1580	783	797	129	136	502	350	281	447
25.	Kizhnethapakkam	321	1314	656	658	287	287	473	348	183	310
26.	Kodaivampakkam	204	843	404	439	0	0	324	235	80	204
27.	Kunnathur	303	1433	718	715	291	280	526	390	192	325
28.	Kunnavakkam	315	1259	643	616	341	329	487	362	156	254
29.	Kuthanur	846	3509	1780	1729	287	276	1303	849	477	880
30.	Madipakkam	291	1262	625	637	422	419	517	438	108	199
31.	Mahaianampakkam	407	1707	892	815	397	348	701	495	191	320
32.	Mamandur	1021	4287	2155	2132	196	194	1679	1260	476	872
33.	Mangal	174	767	377	390	204	203	297	228	80	162
34.	Marivanallur	131	506	245	261	0	0	179	142	66	119
35.	Melboodri	102	431	230	201	6	3	179	112	51	89
36.	Moranam	612	2512	1275	1237	665	626	1028	846	247	391
37.	Namandi	318	2031	1185	846	283	259	946	485	239	361

38.	Narasamangalam	392	1703	856	847	3	4	613	432	243	415
39.	Nedumpirai	349	1418	706	712	114	113	581	482	125	230
40.	Ozhukkavakkam	62	213	106	107	1	1	94	76	12	31
41.	Paingkinar	628	2678	1363	1315	500	478	1106	905	257	410
42.	Palli	688	2722	1348	1374	590	575	1034	797	314	577
43.	Pandivampakkam	248	937	484	453	181	175	374	290	110	163
44.	Pappanthangal	492	1948	991	957	193	194	763	577	228	380
45.	Perivakoil	132	582	297	285	38	38	210	144	87	141
46.	Perumanthangal	319	1259	629	630	0	0	483	372	146	258
47.	Perumpallam	257	1004	494	510	52	67	354	242	140	268
48.	Perumpandi	12	57	30	27	0	0	14	11	16	16
49.	Perumpulimedu	153	565	288	277	0	0	226	160	62	117
50.	Perungalathur	447	1777	909	868	236	218	736	612	173	256
51.	Perungattur	895	3735	1839	1896	470	471	1488	1267	351	629
52.	Pillanthangal	316	1308	653	655	129	124	464	354	189	301
53.	Pulivarampakkam	373	1673	850	823	522	508	680	509	170	314
54.	Pullavakkam	263	1091	551	540	0	0	374	240	177	300
55.	Ramakrishnapuram	354	1422	694	728	0	0	447	349	247	379
56.	Seleri	150	548	281	267	44	37	218	148	63	119
57.	Sengattankundil	386	1636	819	817	262	269	577	493	242	324
58.	Sirungattur	370	1593	809	784	402	389	605	505	204	279
59.	Siruvelianallur	272	1137	566	571	0	0	461	367	105	204
60.	Sumangali	432	1628	804	824	162	162	559	364	245	460
61.	Thalikkal	136	525	245	280	136	146	182	158	63	122
62.	Thandappanthangal	274	1117	561	556	311	296	422	313	139	243
63.	Thenkazhani	599	2494	1199	1295	0	3	965	777	234	518
64.	Thennampattu	575	2339	1184	1155	321	314	938	617	246	538
65.	Thenpoondipattu	123	525	261	264	161	147	192	123	69	141
66.	Thiruppanamoor	574	2233	1104	1129	510	500	797	660	307	469
67.	Thiruppanangadu	437	1863	870	993	456	453	631	560	239	433
68.	Thiruvadiravapuram	159	631	318	313	0	0	247	211	71	102
69.	Thumbai	166	633	321	312	120	115	240	151	81	161
70.	Umaivalpuram	230	884	437	447	2	1	295	205	142	242
71.	Vada Mavanthal	456	1930	972	958	108	120	760	574	212	384
72.	Vadaelapakkam	34	144	73	71	0	0	53	36	20	35
73.	Vadangampattu	175	644	325	319	0	0	213	153	112	166
74.	Vadapoondipattu	240	969	472	497	305	300	371	326	101	171
75.	Vadathandalam	344	1342	670	672	31	36	505	362	165	310
76.	Velivanallur	357	1538	791	747	211	196	536	359	255	388
77.	Vellakulam	178	830	420	410	77	72	338	259	82	151
78.	Vembakkam	775	3177	1573	1604	307	337	1246	1071	327	533
79.	Vengalathur	543	2315	1159	1156	333	352	878	688	281	468
80.	Vinnavadi	303	1235	601	634	18	20	453	383	148	251

TABLE 3.38– OCCUPATIONAL CHARACTERISTICS AROUND 10KM RADIUS

S.No	Name of the Village	Total Worker Population Male	Total Worker Population Female	Main Working Population Male	Main Working Population Female	Main Cultivator Population Male	Main Cultivator Population Female	Main Agricultural Labourers Population Male	Main Agricultural Labourers Population Female	Non Working Population Male	Non Working Population Female
1	Akkur	845	635	650	401	254	138	118	134	163	186
2	Alanthangal	158	131	141	121	68	61	30	49	17	10
3	Arasankuppam	311	275	219	144	73	80	27	14	89	124
4	Arugavoor	518	411	490	339	154	139	31	142	28	72
5	Arumparuthi	197	204	191	197	87	88	34	34	6	7
6	Athi	255	187	49	18	2	0	6	5	198	161
7	Azhinjalpattu	275	169	106	67	13	3	16	16	167	102
8	Azhividaithangi	1419	1213	458	146	76	30	66	30	955	1061
9	Barathanthangal	166	136	163	132	63	71	18	30	3	4
10	Booderi	238	229	221	98	45	13	124	82	14	122
11	Chellaperumpulimedu	148	101	147	100	60	39	46	49	1	1
12	Chithathur	791	500	694	194	64	4	246	77	89	219
13	Chozhavaram	440	323	418	303	126	67	73	158	22	20
14	Duli	363	303	233	77	29	13	29	22	128	226
15	Hariharapakkam	367	320	360	303	12	9	107	213	5	13
16	Hasanamapettai	504	278	475	248	39	30	9	10	29	29
17	Jaderi	175	168	160	86	22	0	41	35	12	69
18	Kaganam	240	136	225	30	24	1	102	18	14	105
19	Kammanthangal	220	71	214	60	2	1	37	30	6	11
20	Kanagampakkam	84	50	36	16	3	2	0	0	3	2
21	Karanai	235	215	235	215	85	57	79	156	0	0
22	Karanthai	298	281	107	80	33	30	47	41	190	200
23	Kazhiyur	511	500	375	280	93	63	109	144	129	190
24	Kizhnelli	542	437	484	376	152	139	101	148	26	33
25	Kizhnethapakkam	425	373	370	191	94	7	136	136	54	178
26	Kodaiyampakkam	264	253	244	162	71	15	96	136	18	81
27	Kunnathur	406	266	330	131	101	6	79	103	73	131
28	Kunnavakkam	352	205	310	163	47	3	162	143	36	25
29	Kuthanur	1120	920	1113	915	191	156	716	701	3	2
30	Madipakkam	412	355	409	345	220	17	146	308	3	8

31	Mahajanampakkam	553	360	547	345	173	45	116	246	6	15
32	Mamandur	1367	1124	1021	724	371	257	174	297	325	354
33	Mangal	180	29	110	12	6	0	72	5	66	16
34	Mariyanallur	173	170	155	161	22	8	34	83	16	5
35	Melboodri	127	95	112	53	27	2	62	48	15	42
36	Moranam	807	516	757	496	168	102	429	350	43	18
37	Namandi	431	350	430	347	77	60	177	242	1	3
38	Narasamangalam	547	431	540	407	104	84	171	228	7	23
39	Nedumpirai	486	471	82	27	4	1	5	1	125	147
40	Ozhukkavakkam	71	47	68	44	2	2	57	36	3	3
41	Paingkinar	728	392	690	369	85	10	163	248	37	13
42	Palli	870	764	589	398	127	116	99	149	249	296
43	Pandiyampakkam	299	189	286	180	115	66	97	100	11	5
44	Pappanthangal	622	354	617	264	219	140	74	72	5	85
45	Periyakoil	185	172	180	162	95	124	8	27	5	10
46	Perumanthangal	369	346	353	320	10	5	143	285	15	24
47	Perumpallam	308	225	302	221	67	58	55	96	6	4
48	Perumpandi	19	10	4	0	2	0	0	0	15	10
49	Perumpulimedu	176	148	163	97	74	35	42	43	11	49
50	Perungalathur	624	501	111	74	56	13	14	39	510	424
51	Perungattur	1061	875	1019	757	65	17	374	543	40	110
52	Pillanthangal	316	227	199	46	122	16	45	25	104	163
53	Puliyampakkam	507	317	281	134	49	18	49	41	226	181
54	Pullavakkam	339	205	326	119	101	36	127	74	12	86
55	Ramakrishnapuram	449	254	391	90	153	5	94	65	54	154
56	Seleri	105	78	87	61	40	2	8	24	18	17
57	Sengattankundil	501	280	431	257	312	238	9	8	11	15
58	Sirungattur	461	241	421	222	28	2	230	194	33	18
59	Siruveliyallur	352	332	297	111	113	14	62	59	54	216
60	Sumangali	477	376	470	344	113	14	115	268	7	27
61	Thalikkal	132	124	17	7	6	3	1	0	40	23
62	Thandappanthangal	334	323	254	242	82	95	121	123	72	74
63	Thenkazhani	750	627	614	280	92	51	40	75	130	320
64	Thennampattu	742	728	723	708	373	331	198	340	16	10
65	Thenpoondipattu	167	155	165	149	55	53	31	54	2	5
66	Thiruppanamoor	688	559	623	336	210	74	114	161	60	222
67	Thiruppanangadu	557	546	526	480	80	74	224	305	27	62

68	Thiruvadirayapuram	197	161	197	161	92	106	1	0	0	0
69	Thumbai	214	174	212	140	61	12	57	87	1	34
70	Umaiyaipuram	263	241	217	109	122	7	72	102	46	125
71	Vada Mavanthal	561	307	436	247	7	8	149	164	121	49
72	Vadaelapakkam	43	31	43	31	0	1	24	29	0	0
73	Vadangampattu	182	131	176	129	4	0	138	118	6	2
74	Vadapoondipattu	332	267	244	166	162	36	48	73	59	70
75	Vadathandalam	433	231	428	218	68	30	74	96	4	10
76	Veliyanallur	509	440	491	409	239	219	137	169	16	29
77	Vellakulam	252	265	150	119	1	0	92	102	101	143
78	Vembakkam	914	504	812	222	298	91	67	26	100	276
79	Vengalathur	695	607	459	223	184	73	82	83	216	236
80	Vinnavadi	469	477	467	475	305	332	66	99	2	2

3.6.5 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz., health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural economy.

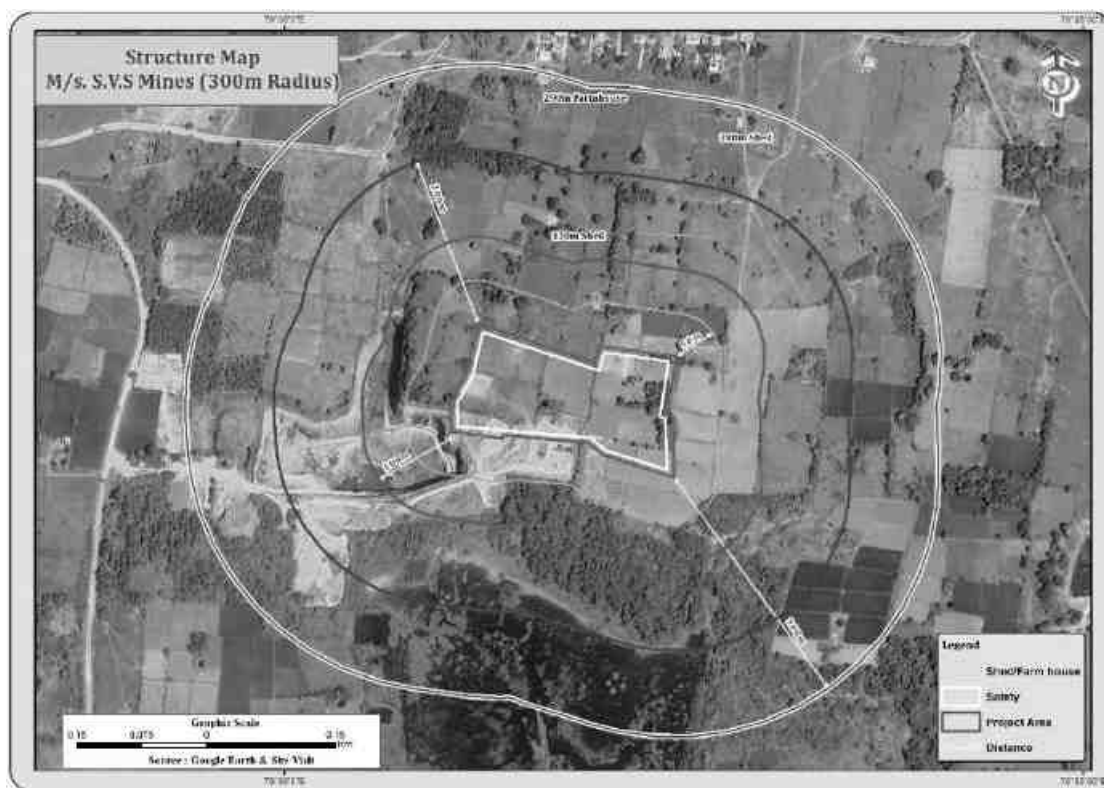
A review of infrastructure facilities available in the area has been given on the basis of field survey. In this study the villages which fall within 10 km radius around the site has been covered. Infrastructure facilities available in the area are presented below.

All basic amenities Education (higher education, colleges, universities, Medical college, Transport facilities, Railway station, Bus station area available in the district headquarters. Tiruvannamalai at a distance of 77km – South west).

3.6.6 Recommendation and Suggestion

- Awareness program should be conducted to make the population aware to get education and a better livelihood
- Health care centre and ambulance facility can be provided to the population to get easy and accessible medical facilities
- 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 youths may be employed.
- Long term and short-term employments can be generated
- Maternity facility should be made available at the place to avoid going too far-off 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 STRUCTURE STUDY WITHIN 300M RADIUS



ENUMERATION OF STRUCTURE 0-300m						
Structure Numbers	Distance & Direction from the project site	Structure Details and Usage Purpose	Type of Structure Structures (Kutch/Brick/Cement/RCC/ Framed Structures)	No.of Occupants	Structure belongs to owner (Yes/No)	Remarks
1	130m - North	Shed	Sheet & Brick Structure	Nil	No	Storage Purposes
2	280m - NE	Shed	Sheet & Brick Structure	Nil	No	Storage Purposes
3	290m – North	Farmhouse	RCC Structure	2 Noa	No	Used to agriculture goods and materials.

3.6.7 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.

The nearby villages within 5kms radius have PHC, Anganwadi school, Post office, Telegram, Government and Private school, bus connectivity besides.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

Environmental impacts both direct and indirect on various environmental attributes due to proposed mining activity will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development.

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 sustainable resource extraction.

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail

- Land environment
- Soil environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Biological Environment

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

4.1 LAND ENVIRONMENT:

4.1.2 Anticipated Impact

- 2.20.0 Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur
- 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 cause the siltation of water course

4.1.2 Mitigation Measures

- The 2.20.0 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will have benefitted by the supply of water
- About 1,430 Nos of trees will be planted in the lease area and approach road will retain the eco system
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap 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.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

- Removal of vegetation cover
- Soil Erosion in the project site during rainy season due to quarry operation

4.1.5 Mitigation Measures

- Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry. 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 (Silt pond). These trap sediments 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 is no waste anticipated in this Rough Stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact

- The major sources of water pollution normally associated due to mining and allied operations are:
 - Generation of waste water from vehicle washing.
 - Washouts from surface exposure or working areas
 - Domestic sewage
 - Disturbance to drainage course in the project area
 - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.

-
- The sewage from soak pit may percolate to the ground water table and contaminate it.
 - Surface drainage may be affected due to Mining
 - Abstraction of water may lead to depletion of water table
 - 3.0 KLD water will be utilized for the quarrying operation

4.2.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
- Garland drain, settling tank will be constructed along the proposed 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 settling 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 judiciously utilize the rainwater as part of rainwater harvesting system.
- Periodic (every 6 months 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.

4.3 AIR ENVIRONMENT

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 PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) 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.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 9.61.

4.3.2.1 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 Rough Stone. 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.

4.3.2 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), 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 PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts

TABLE 4.1: ESTIMATED EMISSION RATE

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.099257762	g/s
Blasting	Point Source	0.002330434	g/s
Mineral Loading	Point Source	0.046200351	g/s
Haul Road	Line Source	0.002505332	g/s/m
Overall Mine	Area Source	0.062814212	g/s
SO ₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.00149099	g/s
NO _x			
Overall Mine	Area Source	0.000096206	g/s

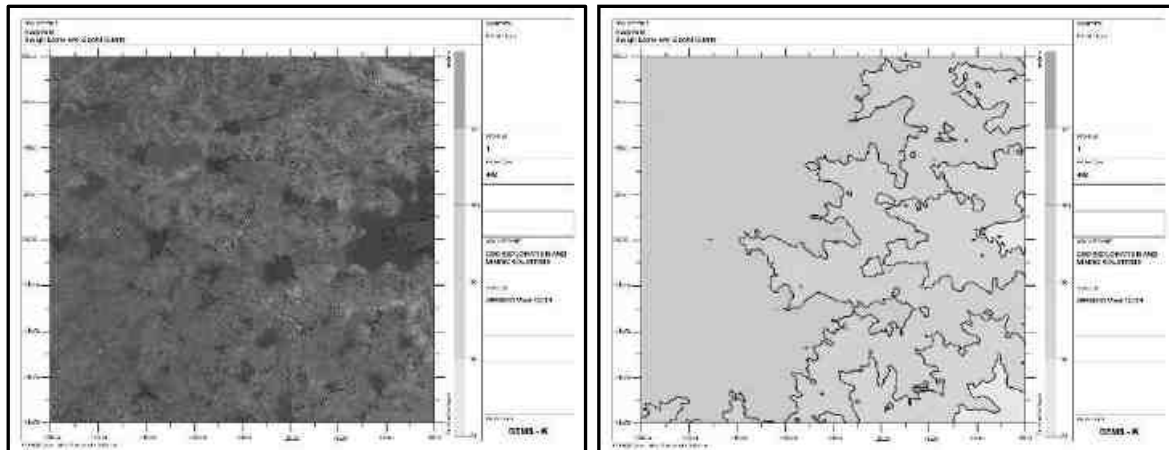
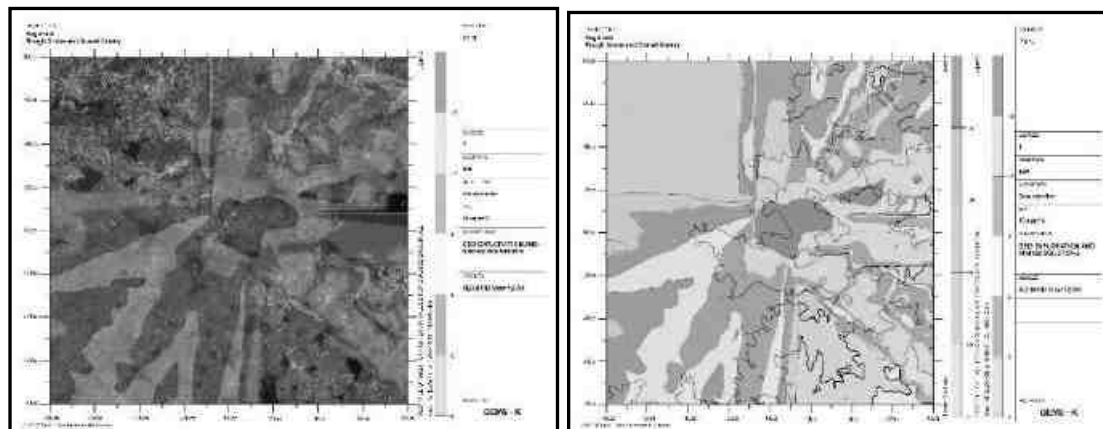
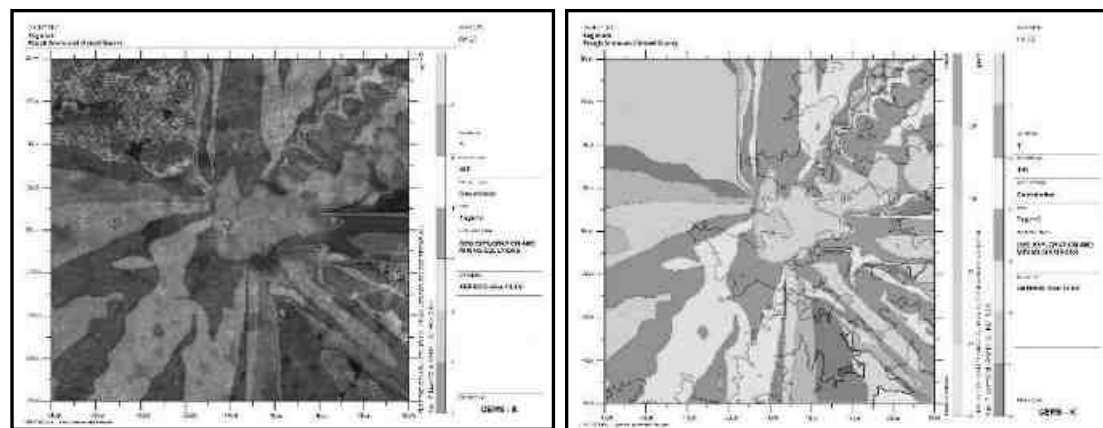
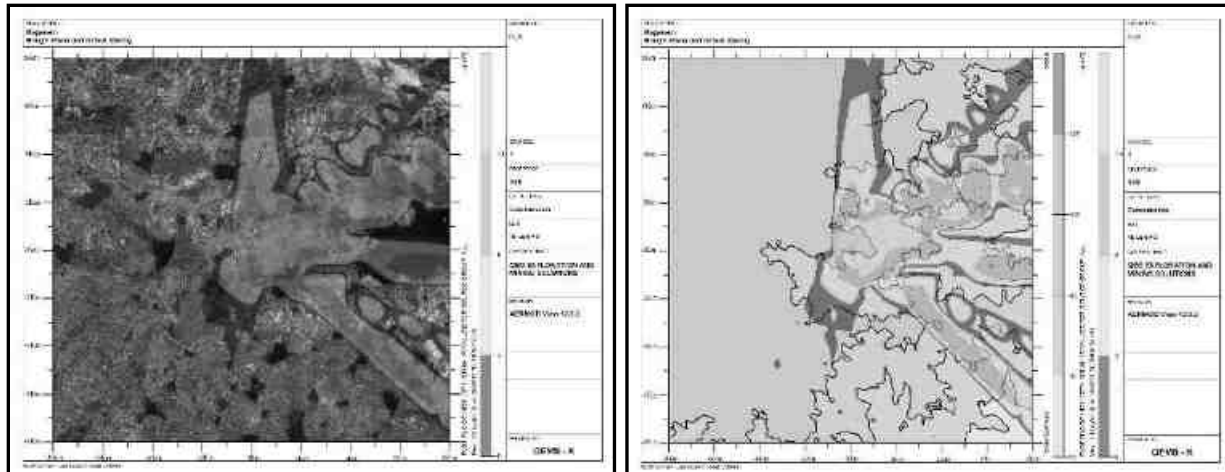
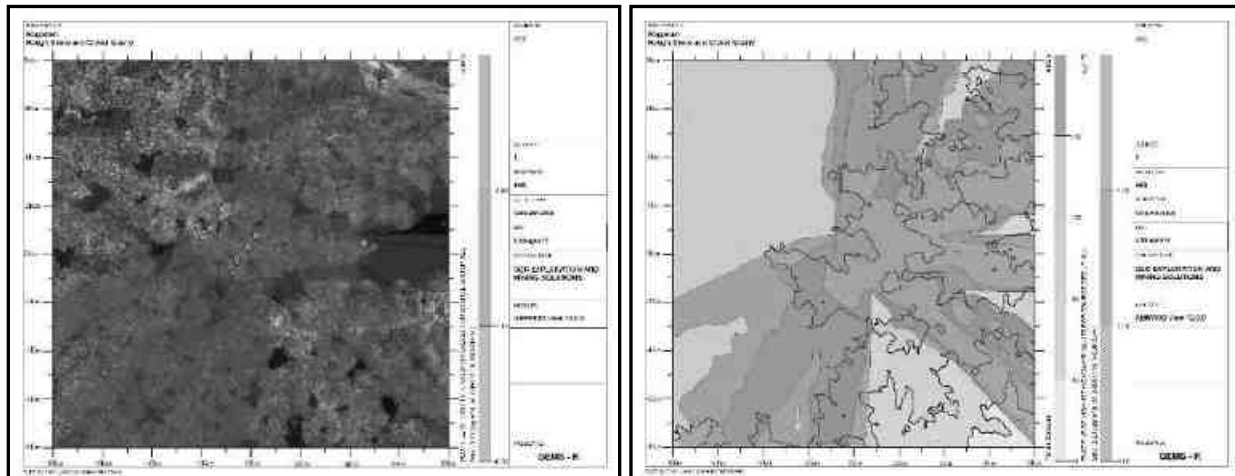
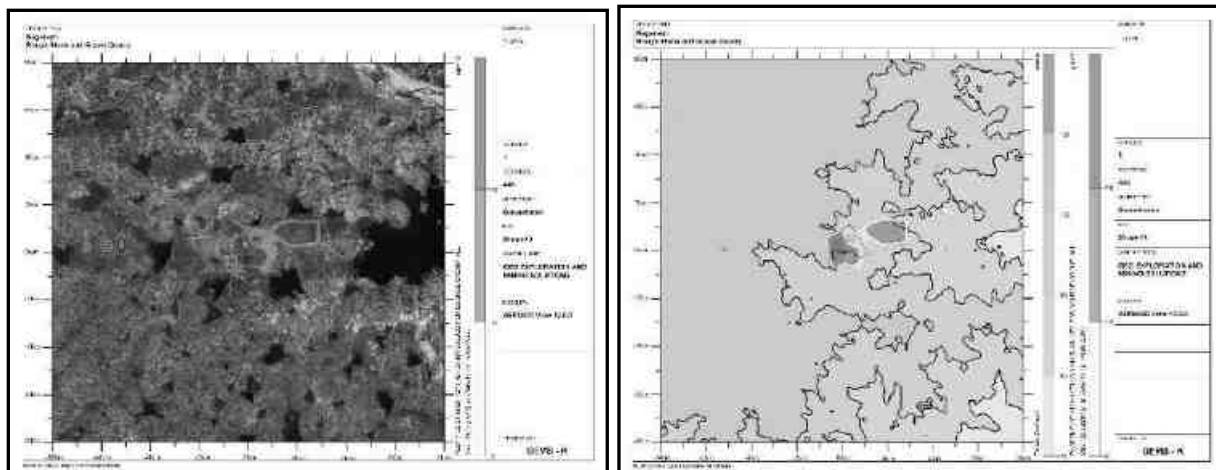
FIGURE 4.1: AERMOD TERRAIN MAP**FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀****FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}**

FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x**FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂****FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**

4.3.2.1 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5}, SO₂ & NO_x (GLC) is given in Table below:

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM₁₀

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	12°44'43.97"N 79°35'6.82"E	-109	-28	43.6	15.65	59.25
AAQ2	12°44'59.28"N 79°35'17.63"E	216	439	43.2	15.23	58.43
AAQ3	12°44'27.55"N 79°34'51.61"E	-575	-543	43.3	14.59	57.89
AAQ4	12°44'48.25"N 79°37'42.87"E	4621	97	43.3	14.00	57.3
AAQ5	12°44'44.83"N 79°32'19.63"E	-5182	-7	43.9	4.50	48.4
AAQ6	12°46'40.46"N 79°35'18.65"E	247	3563	43.9	12.37	56.27
AAQ7	12°42'29.71"N 79°36'28.38"E	2364	-4172	43.4	0	43.4

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³) (5+6)
AAQ1	12°44'43.97"N 79°35'6.82"E	-109	-28	22.5	7.92	30.42
AAQ2	12°44'59.28"N 79°35'17.63"E	216	439	22.4	7.59	29.99
AAQ3	12°44'27.55"N 79°34'51.61"E	-575	-543	22.4	7.22	29.62
AAQ4	12°44'48.25"N 79°37'42.87"E	4621	97	22.3	6.48	28.78
AAQ5	12°44'44.83"N 79°32'19.63"E	-5182	-7	22.7	2.75	25.45
AAQ6	12°46'40.46"N 79°35'18.65"E	247	3563	22.7	5.80	28.5
AAQ7	12°42'29.71"N 79°36'28.38"E	2364	-4172	21.9	0.68	22.58

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value of SO ₂ due to mining (µg/m ³)	Total SO ₂ (µg/m ³) (5+6)
AAQ1	12°44'43.97"N 79°35'6.82"E	-109	-28	5.5	2.29	7.79
AAQ2	12°44'59.28"N 79°35'17.63"E	216	439	5.5	2.27	7.77
AAQ3	12°44'27.55"N 79°34'51.61"E	-575	-543	5.3	2.25	7.55
AAQ4	12°44'48.25"N 79°37'42.87"E	4621	97	5.3	2.23	7.53
AAQ5	12°44'44.83"N 79°32'19.63"E	-5182	-7	5.3	0	5.3

AAQ6	12°46'40.46"N 79°35'18.65"E	247	3563	5.2	2.20	7.4
AAQ7	12°42'29.71"N 79°36'28.38"E	2364	-4172	5.6	0	5.6

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NOX

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Nox ($\mu\text{g}/\text{m}^3$)	Incremental value of Nox due to mining ($\mu\text{g}/\text{m}^3$)	Total Nox ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°44'43.97"N 79°35'6.82"E	-109	-28	21.0	10.42	31.42
AAQ2	12°44'59.28"N 79°35'17.63"E	216	439	21.2	10.10	31.3
AAQ3	12°44'27.55"N 79°34'51.61"E	-575	-543	20.9	9.60	30.5
AAQ4	12°44'48.25"N 79°37'42.87"E	4621	97	21.1	5.58	26.68
AAQ5	12°44'44.83"N 79°32'19.63"E	-5182	-7	21.1	0	21.1
AAQ6	12°46'40.46"N 79°35'18.65"E	247	3563	21.2	4.00	25.2
AAQ7	12°42'29.71"N 79°36'28.38"E	2364	-4172	21.1	0	21.1

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 $\mu\text{g}/\text{m}^3$ for PM₁₀, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Mitigation Measures

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 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-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 –

- 1430 Nos of trees will be planted through this project in the lease area and village roads (Approach Road) 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

4.4 NOISE ENVIRONMENT

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 within 300m radius from the project site. 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.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - A_{e1,2}$$

Where:

L_{p1} & L_{p2} are sound levels at points located at distances r_1 & r_2 from the source.

$A_{e1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

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 4.7: 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

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

The total noise to be produced by mining machineries 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 noise prediction modelling.

TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	41.6	40.7	45.5	41.5	41.1	46.3	43.1
Incremental Value dB(A)	60.1	60.1	46.3	25.6	24.6	27.5	26.7
Total Predicted Noise level dB(A)	60.2	60.1	48.9	41.6	41.2	46.4	43.2

The incremental noise level is found within the range of 60.1 dB (A) in Core Zone and 24.6 – 46.3 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 are within permissible limits of Industrial area (core zone) & 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.).

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise

- 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;
- 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 through training and awareness.
- 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 proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry 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

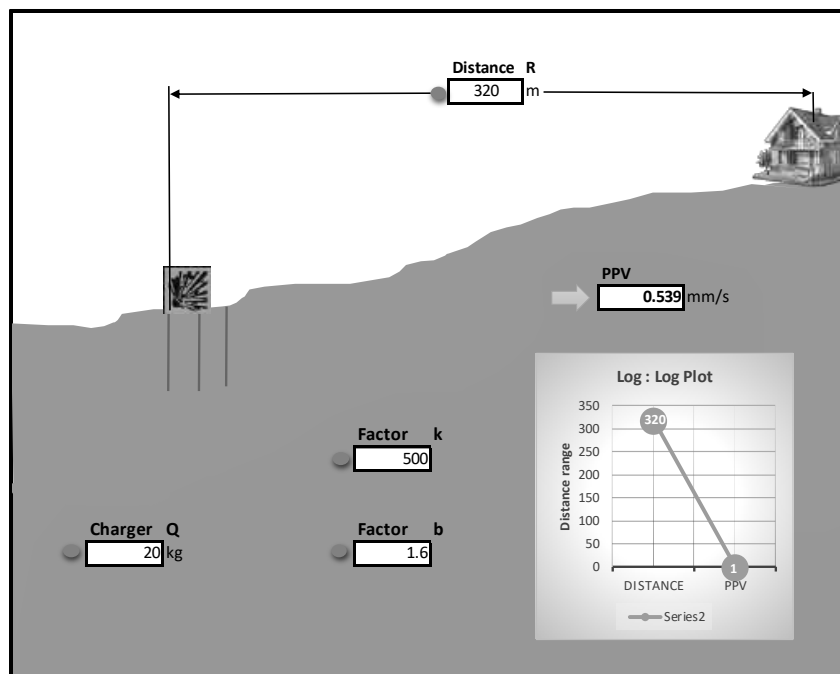
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING

Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
20	320-North	0.539

FIGURE 4.6: GROUND VIBRATION PREDICTION

From the above graph, the charge per blast of 20 kg 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. But the all the project proponents ensure that the charge per blast shall be less than 2kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person 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.

4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site 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.

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

4.5. Impact on the Biological Environment

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settles on neighbouring agricultural land, it is located about 100m on the south west side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

4.5.2 Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

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.

4.5.3.2. 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. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. 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 3 m x 3 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.

4.5.3.4. 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 No 4.1. List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva maram
2	<i>Albizia lebbbeck</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limonia acidissima</i>	Vila maram
6	<i>Syzygium cumini</i>	Naval maram
7	<i>Ficus hispida</i>	Aththi maram
8	<i>Borassus flabellifer</i>	Panai-maram
9	<i>Madhuca longifolia</i>	Illupai maram

(*Source: Term of Reference-ToR)

Table No 4.2. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Syzygium cumini</i>	Naval maram
5	<i>Tamarindus indica</i>	Puliyamaram
6	<i>Mangifera indica</i>	Manga maram
7	<i>Delonix regia</i>	Neruppu Kondrai
8	<i>Cassia Fistula</i>	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.

4.5.4. Anticipated Impact on Fauna

- Noise generation due to vehicle may affect avifauna.

- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.
- There is no National Park, Biosphere Reserve, Wildlife corridors, and Tiger/Elephant Reserve found within 10 km radius of the project site.

4.5.4.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- Topsoil will be used for restoration and suitable surfaces for planted seedlings.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment to the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.3. Impact on Aquatic Biodiversity

- The major river and 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 No. 4.3. Overall Ecological impact assessments of Kaganam Village, Rough stone and gravel quarry, Vembakkam Taluk, Tiruvannamalai District and Tamil Nadu.

S.No	Attributes	Assessment
	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	Nil
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.	No water body near to core zone so the chances of water becoming polluted is low.
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)

TABLE 4.12: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

Sl.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcatoria</i>	Fabaceae	Tamarind, Puliymaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

The 7.5m Safety distance along the boundary has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia, Pinnata will be planted along the Lease boundary and avenue plantation will be carried out in the project site. The rate of survival expected to be 80% in this area. Greenbelt development Plan is given in

TABLE 4.13: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
I	1430	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development and along village roads.	Neem, Vilvam, Panai, Ashokha etc.,

4.6 SOCIO ECONOMIC

4.6.1 Anticipated Impact

- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.
- Approach roads can be damaged by the movement of tippers
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

4.6.2 Mitigation Measures

- 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

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.

4.8 MINE WASTE MANAGEMENT

No waste is anticipated, the entire mined out material will be sold to needy crushers and customers.

4.9 MINE CLOSURE

The ultimate depth of the mine is 50m bgl and the life of the mine is 10 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 2.20.0 Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

Mine closure plan is the most important environmental requirement in mining project. 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.

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, regulatory agencies, 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 mine 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.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost-effective options.

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there is 1 Crusher within the radius of 1km. There are only two mines with in 1km radius including this proposal. Hence this quarry will feed the Rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have 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 in the applied mine lease areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, 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

No alternatives are suggested as all the mine sites are mineral specific

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded 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.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by the project proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to this project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

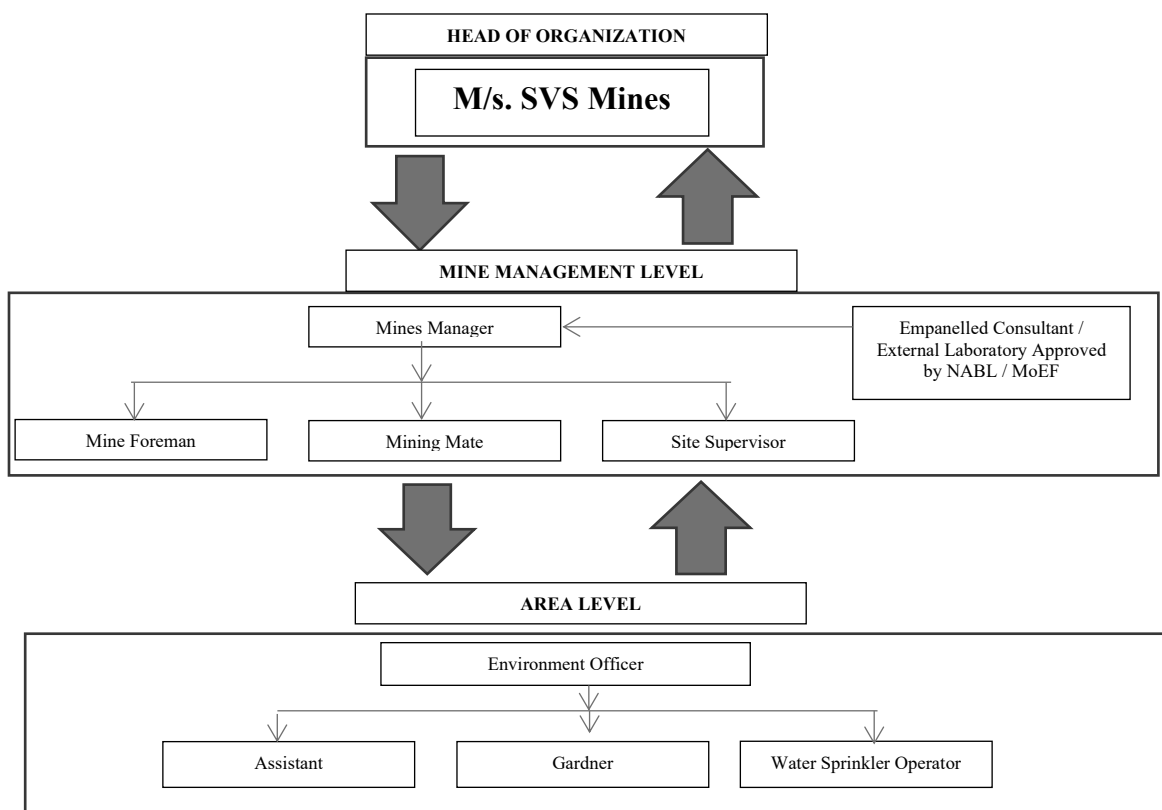
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in this proposed quarry.

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 as compliance status reports. 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 half-yearly and yearly by each proposed project proponent. The half-yearly reports are 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).

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL

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

SI No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of 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 BUDGETARY PROVISION FOR EMP

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 capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 76,000 per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

S.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		

5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 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 Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. 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

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

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

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 whole 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 for all proposed projects. 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 these proposed 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, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; Workers will be sent to the Training in the nearby Group Vocational Training Centre 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 on daily basis 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	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.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/fining of blast holes Vibration due to movement of vehicles	Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting 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 will be distinctly demarcated (by means of red flags)
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle	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 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

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	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.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have 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

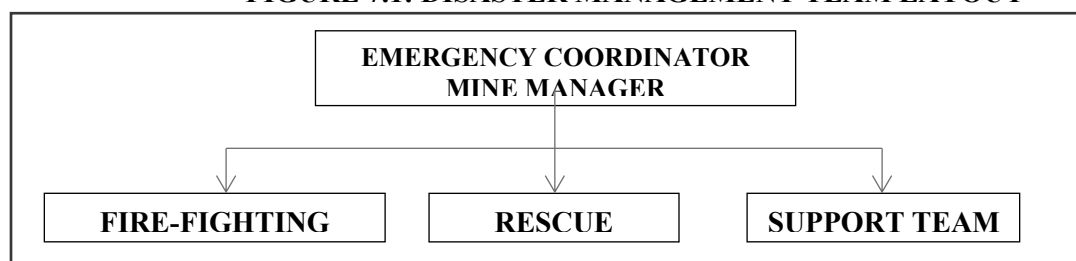
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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. In his absence senior most people available at the mine shall be emergency coordinator till arrival of 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 and shall be located at MECR.

(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 has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

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.

7.4 CUMULATIVE IMPACT STUDY

For easy representation of Proposed and Existing Quarries in the Cluster are given unique codes and identifies and studied in this EIA /EMP Report.

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	M/s. SVS Mines,	Kaganam	35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36	2.85.40	File No.12613 ToR Identification: TO25B0108TN5485882 N Dated:30.09.2025.
P2	M/s. SSS Mines	Kaganam	39/4	2.06.5	ToR Granted
TOTAL EXTENT				4.05.0	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. S. Vadivel	Kaganam	38/1, 2, 39/5, 6, 7 & etc.,	4.18.0	20.09.2021 to 19.09.2031
TOTAL EXTENT				4.18.0 ha	
ABANDONED QUARRY					
Nil					
TOTAL CLUSTER EXTENT				9.09.50	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	M/s. SVS Mines Rough Stone and Gravel Quarry	
S.F. No.	35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36	
Extent	2.85.40 ha	
Village, Taluk and District	Kaganam Village, Vembakkam Taluk, Tiruvannamalai District.	
Land Type	It is a patta lands, S.F.Nos. 35/2, 35/1B1 and 35/1B2 registered in the name of Thiru. Vadivel vide Patta No. 1126 and S.F.Nos. 35/3, 35/5(Part), 35/1A and 36 jointly registered in the name of Thiru. Ponnurangam and Thiru. Vadivel vide patta no. 1353. The Company has obtained consent from the Joint Pattadar for the period of 10 years from the lease execute 21.03.2025 to 21.03.2035.	
Toposheet No	58 P/10	
Latitude between	12° 44' 42.06"N to 12° 44' 47.83"N	
Longitude between	79° 35' 06.20"E to 79° 35' 14.71"E	
Elevation of the area	116m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	50m bgl (5m Gravel + 45m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	12,84,300	1,42,700
Mineable Reserves	3,59,080	1,10,245
Year wise Production for five years	3,59,080	1,10,245
Peak Production	87,645	61,845

Ultimate Pit Dimension	Pit – 1: 133m (L) X 93m (W) X 40m BGL(D) Pit – 2: 88m (L) X 110m (W) X 50m BGL(D)	
Water Level in the region	60-65m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 116m above from Mean Sea level. The area is covered by 4m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.	
Machinery proposed	Jack Hammer	11 Nos
	Compressor	3 Nos
	Excavator with Bucket and Rock Breaker	1 No
	Tippers	3 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	38 Nos	
Project Cost	Rs. 4,37,41,000/-	
EMP Cost	Rs. 19,29,000/-	
Total Project cost	Rs. 4,56,70,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Periya Eri	150m-South
	Sitteri	330m-SE
	Kulam	470m-SE
Greenbelt Development Plan	Proposed to plant 1430 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.0 KLD	
Nearest Habitation	320m – North	
Nearest Reserve Forest	Thandappanthangal R.F – 6.7 Km – NW (Source - TNGIS)	
Nearest Wild Life Sanctuary	Karikili Birds Sanctuary – 31.0 Km – SE Vedanthangal Birds Sanctuary – 36km - SE	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Mine	Thiru. S. Vadivel Rough Stone & Gravel Quarry		
Land Type	Patta Land		
S.F. Nos	38/1,2,39/5,7,48/17,18,19,20,426/2 & 3		
Village	Kaganam Village		
Extent	4.18.0 ha		
Geological Reserves	Rough Stone	Weathered Rock	Gravel
	14,63,000m ³	1,25,400 m ³	83,600 m ³
Mineable Reserves	Rough Stone	Weathered Rock	Gravel
	3,17,870 m ³	65,112 m ³	48,586 m ³
Mining Plan Period / Lease Period	5 Years		
Ultimate Pit Dimension	Pit – I 205 m (L) * 236 m (W) * 40 m (D)		

Toposheet No	57 P/10	
Latitude	12°44'39.81" N 12°44'49.13" N	
Longitude	79°34'58.49" E 79°35'08.35" E	
Machinery proposed	Jack Hammer	7
	Compressor	2
	Hydraulic Excavator	2
	Tippers	5
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	35 Nos	
Total Project Cost	Project Cost	Rs. 88,63,000/-
	EMP Cost	Rs. 1,78,000/-
	Total	Rs. 90,41,000/-

Source: Approved Mining Plan

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

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.16 & 7.17.

TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

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
P1	3,59,080	71,816	240	20
Total	3,59,080	71,816	240	20
E1	3,17,870	63,574	212	18
Total	3,17,870	63,574	212	18
Grand Total	6,76,950	1,35,390	452	38

TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF GRAVEL

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
P1	1,10,245	36,748	123	10
Total	1,10,245	36,748	123	10
PROPOSED PRODUCTION OF GRAVEL				
E1	48,586	16,195	54	5
Total	48,586	16,195	54	5
Grand Total	1,58,831	52,943	177	15

TABLE 7.10: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK

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
E1	65,112	21,704	72	6
Total	65,112	21,704	72	6
Grand Total	65,112	21,704	72	6

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 452m³ per day, overall production of Weathered Rock is 72m³ per day and overall production of Gravel is 177m³ per day with a capacity of 38 trips of Rough Stone per day, 6 trips of Weathered Rock per day and 15 Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel production with 3 years production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 3 mines 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 7.18.

TABLE 7.14: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY “P1”				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.099257762	g/s
	Blasting	Point Source	0.002330434	g/s
	Mineral Loading	Point Source	0.046200351	g/s
	Haul Road	Line Source	0.002505332	g/s/m
	Overall Mine	Area Source	0.062814212	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00149099	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000096206	g/s
EMISSION ESTIMATION FOR QUARRY “E1”				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.094131828	g/s
	Blasting	Point Source	0.001787709	g/s
	Mineral Loading	Point Source	0.044342669	g/s
	Haul Road	Line Source	0.002497531	g/s/m
	Overall Mine	Area Source	0.071359087	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001079918	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000096617	g/s

Source: Emission Calculation

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	44.7
Incremental	14.82
Resultant	59.52
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	20.5
Incremental	6.90
Resultant	27.4
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	6.3
Incremental	1.79
Resultant	8.09
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	21.3
Incremental	9.85
Resultant	31.15
NAAQ Norms	80 µg/ m³

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 quarries 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.

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

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 7.16: 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 P1	48.2	47.3	46.3	55
Habitation Near E1	37.5	48.2	48.3	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 46.3 – 48.3 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 all the 4 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 2 mines 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 nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 4 mines respectively are as in below Table 7.21.

TABLE 7.17: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	320m - North
Habitation Near E1	320m - NE

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 7.18: GROUND VIBRATIONS AT 2 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	20	320m – North	0.539
E1	20	320m – NE	0.539

Source: Blasting Calculations

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 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM 2 MINES

Location ID	Project Cost	CER
P1	Rs. 4,56,70,000/-	Rs.3,00,000/-
E1	Rs. 88,63,000/-	Rs 1,78,000/-
Total	Rs. 5,45,33,000/-	Rs.4,78,000/-

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 as per directions of EAC/SEAC.

- Proposed Projects shall fund towards CER – **Rs 3,00,000/-**

TABLE 7.20: EMPLOYMENT BENEFITS FROM 2 MINES

Description	Employment
P1	38
Total	38
E1	35
Total	35
Grand Total	73

A total of 38 people will get employment due to 1 proposed mine in cluster and 35 people are already employed at existing mine.

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES

CODE	No of Trees proposed to be planted	Area Covered Sq.m	Name of the Species
P1	1430	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Vilvam, Panai, Ashokha etc.,
Total	1430		
E1	2000		
Total	2000		
G.Total	3430		

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Vilvam, Panai, Ashokha etc. in the Cluster at a rate of 3430 Trees Planted over a period of 5 Years with Survival Rate of 80% by proposed quarry.

7.5 PLASTIC WASTE MANAGEMENT PLAN

The project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (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.

Objective –

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

TABLE 7.22: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman
4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

Source: Proposed by FAE's and EC

7.6 CLUSTER MANAGEMENT COMMITTEE

The cluster management committee is proposed to form including of 2 Proposed quarry and 1 existing quarries total extent of the cluster is 9.09.50 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

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	M/s. SVS Mines,	Kaganam	35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36	2.85.40	File No.12613 ToR Identification: TO25B0108TN5485882 N Dated:30.09.2025.
P2	M/s. SSS Mines	Kaganam	39/4	2.06.5	Pending at SEIAA
TOTAL EXTENT				4.05.0	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. S. Vadivel	Kaganam	38/1, 2, 39/5, 6, 7 & etc.,	4.18.0	20.09.2021 to 19.09.2031
TOTAL EXTENT				4.18.0 ha	
ABANDONED QUARRY					
Nil					
TOTAL CLUSTER EXTENT				9.09.50	

STANDARD OPERATING PROCEDURE FOR KAGANAM 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-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

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 through 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.

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and Gravel at Kaganam Village aims to produce 3,59,080m³ Rough Stone over a period of 5 Years and Gravel 1,10,245 m³ for 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

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 38 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the 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.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive 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.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarries are located in Kaganam Village, Vembakkam Taluk and Tiruvannamalai 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 proposed mine.

- 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.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

The proposed mine 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 mine 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

The 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.

CSR Cost Estimation

- CSR activities will be taken up in the Kaganam village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing quarries 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.

Proponent intends to spent Rs 3,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
• Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library	Rs 3,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

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 M/s. SVS Mines will –

- 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 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 –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary 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	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

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 mines office. The quarrying operation is proposed upto a depth of 50 m BGL, the water table in the area is 60-65 m below ground level, hence the proposed project 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 proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling 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

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 assess 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 POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting 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) 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 inbuilt 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 are carried out in the project area and in surrounding villages to assess 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

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

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 1430 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area 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

Year	No. of tress proposed to be planted	Area to be covered	Name of the species
I	1430	The plantation is along the safety distance, village road etc..	Neem, Panai, Vilvam, Ashoka etc.,

Source: Approved Mining plan

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 FOR THE PLANTS AITON

S.No	Botanical Name	Local Name	Importance
1	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
3	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

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 quarries 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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th 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)					

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.
- 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.
- 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 as per Metalliferous Mines Regulation, 1961.

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 10.10: EMP BUDGET FOR PROPOSED PROJECT

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring per annum
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
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 / Compentent 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 made in Operating Cost	0	0
	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 Scheme period (150 Saplings)	Provision made in Operating Cost	0	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	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 check up for workers will be provisioned	IME & PME Health check up 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 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
	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			7,60,000	3,02,000

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years.

Year	Total Cost
1 st	₹ 10,62,000/-
2 nd	₹ 3,17,100/-
3 rd	₹ 3,32,955/-
4 th	₹ 3,49,603/-
5 th	₹ 3,67,083/-

Total Cost for 5 years – **Rs.24.29 Lakhs**

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough Stone and Gravel Quarry project located in S.F. Nos. 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36, Kaganam Village, Vembakkam Taluk and Tiruvannamalai District belongs to M/s. SVS Mines the Project falls in the Cluster category consist of 2 Proposed, 1 Existing Quarries 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.

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 for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”.

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 quarries 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 October 2025 to December 2025 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 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 38 people directly in the proposed projects and indirectly around 70 people.

As discussed, it is safe to say that the proposed quarries are 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 the M/s. SVS Mines Rough Stone and Gravel Quarry (Extent – 2.85.40 ha).

12. DISCLOSURE OF CONSULTANT

M/s. SVS Mines have engaged with 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 for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: info@geoexploration@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	Mr.S.Nagamani	In-house	1	B	GEO	B
2	Mr. J. R. Vikram Krishna	Empanelled	1 38	A B	SHW RH NV	A A A
3	Mr. N. Senthilkumar	Empanelled	31 38	A B	AQ WP RH	A A B
4	Mr. N.Sathishkumar	In-house	-	-	AP	B
5	Mr. P. Govindasamy	In-house	-	-	WP	B
6	Mr. E.Vadivel	In-house	-	-	HG	B
7	Mr. A. Allimuthu	In-house	-	-	SE	B
8	Mr.P.Panneer Selvam	In-house	-	-	EB	B
9	Mr. S.Ilavarasan	In-house	-	-	LU	B
10	Mr.M. Shaik Nawas	In-house	-	-	SC	B

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

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 above-mentioned Functional Area Experts and Team Members prepared the Cluster EIA/EMP for M/s. SVS Mines Rough Stone & Gravel Quarry over an Extent of 2.85.40 ha in Kaganam Village of Vembakkam Taluk, Tiruvannamalai 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/RA 0424 Dated: 25.08.2025

Validity:

Valid till 06.08.2028

ANNEXURE

M/s. SVS MINES ROUGH STONE AND GRAVEL QUARRY

**S. F. Nos.: 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P)
& 36**

**Kaganam Village,
Vembakkam Taluk
Tiruvannamalai District**

Cluster Extent – 9.09.9 Ha

Project Proponent

**M/s. SVS Mines,
Thiru. K. Ponnurangam (Partner)
No.5/1, Sumangali Village,
Vembakkam Taluk,
Tiruvannamalai District– 604 402.**

LIST OF ANNEXURES

CODE	DESCRIPTION	PAGE NO.
P1-SVS mines	COPY OF TERMS OF REFERENCE	1A-22A
	APPROVAL LETTER & 500m RADIUS LETTER	23A-25A
	COPY OF APPROVED MINING PLAN AND PLATES	26A-108A
	COPY OF EXPLOSIVE CERTIFICATE	109A-110A
	COPY OF 300m RADIUS LETTER	117A-118A
E1	COPY OF EXISTING EC COPY	119A-136A
	COPY OF BASE LINE MONITORING DATA	137A-236A
	COPY OF NABET CERTIFICATE	237A



File No: 12613
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 30/09/2025



To,

Thiru. K Ponnuram
M/s. SVS MINES
No. 5/1, Sumangali Village, Vembakkam Taluk, Tiruvannamalai District - 604402. TAMIL NADU.
svsmines2@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 and Gravel quarry lease over an extent of 2.85.40 Ha at S.F.No. 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) & 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu by M/s. S.V.S. Mines - 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/548811/2025, Dated: 21/08/2025.

2. Your application submitted for Terms of Reference dated:21.08.2025.

3. Minutes of the 615th SEAC-1 meeting held on 09.09.2025.

4. Minutes of the 893rd SEAC meeting held on 24.09.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO25B0108TN5485882N
(ii) File No.	12613
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	KAGANAM VILLAGE, Rough Stone and Gravel Quarry Project Belongs to M/s. S.V.S. Mines
(viii) Name of Company/Organization	SVS MINES
(ix) Location of Project (District, State)	TIRUVANNAMALAI, 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 24.09.2025. The 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 **M/s. S.V.S. Mines** 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.

Copy To

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Chairperson, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Tiruvannamalai District.
6. Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Standard Conditions

S. No	Terms of Reference
1.1	<u>Cluster Management Committee</u> 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.

S. No	Terms of Reference
	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. <u>Agriculture & Agro-Biodiversity</u> 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, horticultural 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. <u>Forests</u> 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 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. <u>Water Environment</u> 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

S. No	Terms of Reference
	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: - Hydrothermal/Geothermal effect due to destruction in the Environment. - Bio-geochemical processes and its foot prints including Environmental stress. - Sediment geochemistry in the surface streams. <u>Energy</u> 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. <u>Climate Change</u> 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. <u>Mine Closure Plan</u> 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. <u>EMP</u> 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. <u>Risk Assessment</u> 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. <u>Disaster Management Plan</u> 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/unfavorable 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. <u>Others</u> 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.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	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 Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP should submit an affidavit to follow the scientific formation of benches for 5m *5m properly during mining as per the approved mining plan. 3. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	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: (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

S. No	Terms of Reference
	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. · 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.

S. No	Terms of Reference
	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 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

S. No	Terms of Reference
	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.

4. Seiaa Specific Conditions :

S. No	Terms of Reference
4.1	The Authority noted that the subject was placed in the 615th Meeting of SEAC-I held on 09.09.2025. 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 3,59,080 m³ of Rough Stone & 1,10,245 m³ of Gravel up to the depth of 50m BGL 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 Standard conditions.

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

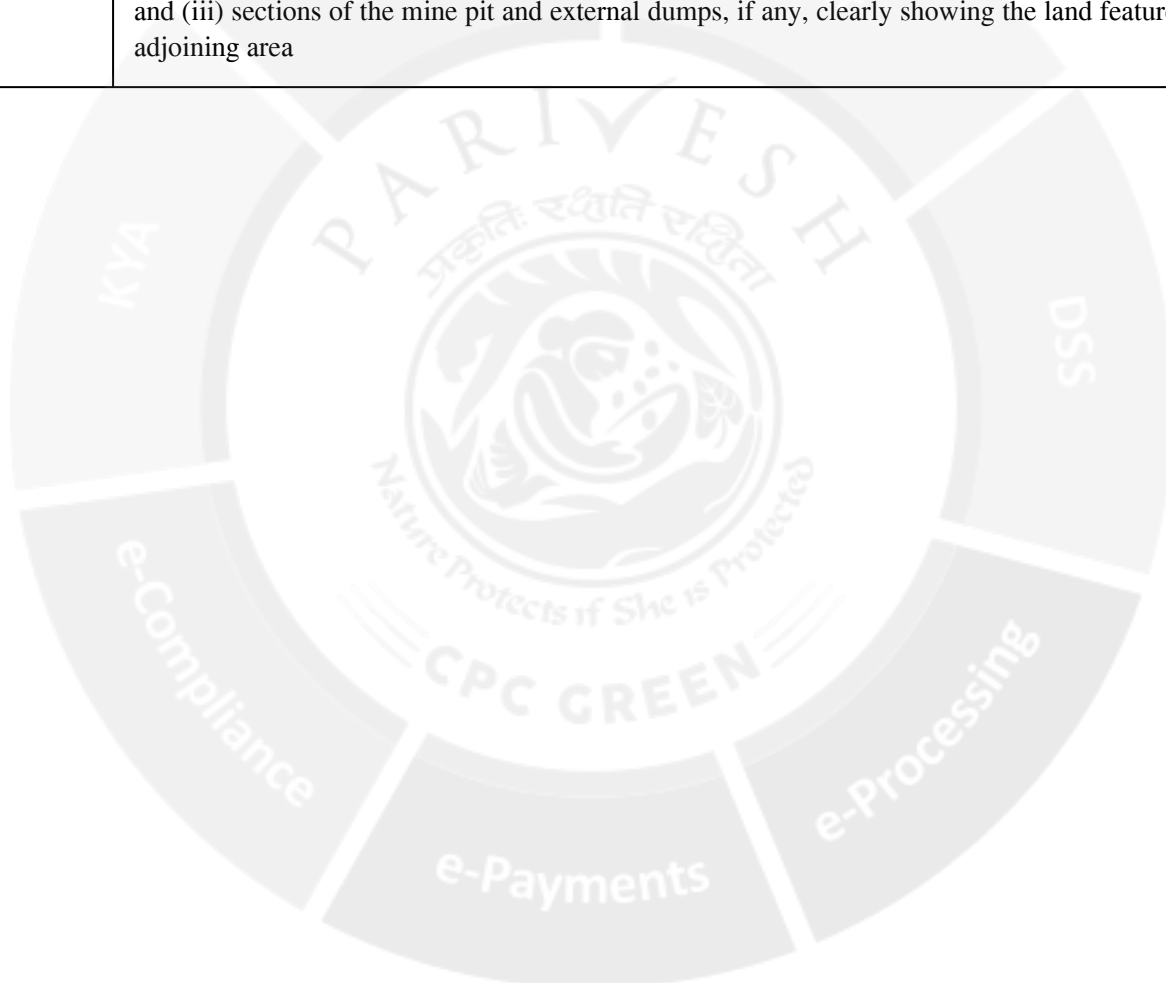
S. No	Terms of Reference
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
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 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
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 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
1.10	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
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 State 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

S. No	Terms of Reference
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. 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
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-

S. No	Terms of Reference
	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 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 State 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

S. No	Terms of Reference
	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 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

S. No	Terms of Reference
	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 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 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 its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through 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 -11013/77/2004-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.

From
Dr.S.Vediappan, M.Sc., Ph.D.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

To
S.V.S.Mines
Tr.K.Ponnurangam (Partner)
No.5/1. Sumangali Village,
Vembakkam Village,
Tiruvannamalai District.

Rc.No.220/Kanimam/2025, dated 11.08.2025.

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone and Gravel - Tiruvannamalai District – Vembakkam Taluk - Kaganam Village Patta land SF.Nos. 35/2, 35/3 & etc., over an extent of 2.85.4 hecsts., – Application preferred by S.V.S.Mines - Precise area communicated – Submission of three copies of draft Mining Plan for approval - Approval accorded - regarding.

- Ref: 1. Application from S.V.S. Mines Partner Thiru.K.Ponnurangam dated 21.03.2025.
2. Precise Area Communication Notice Rc.No.220/Kanimam/2025, dated 29.07.2025.
3. Mining Plan submitted by S.V.S. Mines Partner Thiru.K.Ponnurangam dated 04.08.2025.

S.V.S. Mines Partner Thiru.K.Ponnurangam has preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 2.85.4 hecsts., of Patta land in SF.Nos. 35/2 (0.27.40) (P), 35/3 (0.39.50), 35/5 (1.03.40) (P), 35/1A (0.45.0), 35/1B1 (0.22.40) (P), 35/1B2 (0.16.70 (P) & 36 (0.31.0) Kaganam Village, Vembakkam Taluk, Tiruvannamalai District for a period of 5 (Five years) vide in the reference 1st cited and the precise area has been communicated to the applicant vide in the reference 2nd cited with a direction to submit the approved mining plan and Environmental Clearance.

2. As directed, the applicant has submitted three copies of mining plan for approval vide in the reference 3rd cited. The Mining Plan has been verified in detail and found that it has been 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.

i) The reserves estimated in the mining plan is

Depth in Mts.	Geological Resources			Mineable Reserves		
	Mineral	in Cbm	in Tons	Mineral	in Cbm	in Tons
50m (5m Gravel + 45m Rough Stone)	Rough Stone	1284300	3531825	Rough Stone	359080	987471
	Gravel	142700	285400	Gravel	110245	220490

ii) Year wise production proposed for the **five year period** are as follows:-

Year	Rough Stone Quantity		Gravel Quantity	
	CBM	Tons	CBM	Tons
I	46410	127628	61845	123690
II	87645	241024	31900	63800
III	87265	239979	16500	33000
IV	68230	187633	-	-
V	69530	191207	-	-
Total	359080	987471	110245	220490

3. Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, the mining plan is hereby approved, subject to the following conditions:-

- 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.
- 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.
- The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- 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.
- vi. If anything is found to be concealed in the contents of the mining plan which are required by the mines act or if any proposed for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- vii. All the conditions stipulated in the precise area communication dated 29.07.2025 should be duly complied with.

4. Further, other quarries situated within 500m radial distance are as follows.

Existing Quarries

Name of the Owner	Village & S.F. Nos.	Extent in Hects.	Lease Period	Remarks
S.Vadivel	Kaganam 38/1, 2, 39/5, 6, 7, & etc.,	4.18.0	20.09.2021 to 19.09.2031	Rough Stone Quarry

Abandoned quarries

Name of the Owner	Village & S.F. Nos.	Extent in Hects.	Lease Period	Remarks
NIL				

Present Proposed Quarries

Sl. No	Name of the Owner	Village & S.F. Nos.	Extent in Hects.
1	S.V.S.Mines	Kaganam 35/2, 35/3, 35/5, 35/1A, 35/1B1, 35/1B2 & 36	2.85.0
2	SSS Mines	Kaganam 39/4	2.06.5

Encl: 2 Copies of Approved Mining Plan.


Deputy Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

1. The Chairman, SEIAA,
Tamil Nadu, 3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet, Chennai-15.
2. The Director of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KAGANAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERALS
CONCESSION RULES, 1959)

Patta Land / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 2.85.40 Ha
S.F.NOS. : 35/2(P), 3, 5(P), 1A, 1B1(P), 1B2(P) AND 36
VILLAGE : KAGANAM
TALUK : VEMBAKKAM
DISTRICT : TIRUVANNAMALAI
STATE : TAMIL NADU

FOR

APPLICANT

M/s. S.V.S. Mines,

Thiru. K. Ponnurangam (Partner)

No. 5/1, Sumangali Village,

Vembakkam Taluk,

Tiruvannamalai District,

Tamil Nadu State – 604 402.

PREPARED BY

B. Vengadagiri, M.Sc.,

Qualified Person

(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

No.105, 5th Cross, Alagapuram,

Salem District – 636 008.

Mobile No.: +91 86953 32233.

E-mail ID: vengatb6@gmail.com



ABBREVIATIONS

- 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
- BGL - Below Ground Level
- MT - Metric Tonne

M/s. S.V.S. Mines,
Thiru. K. Ponnurangam (Partner)
No. 5/1, Sumangali Village,
Vembakkam Taluk,
Tiruvannamalai District,
Tamil Nadu State – 604 402.
Mobile No. +91 77088 55810



CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kaganam Rough Stone and Gravel Quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by

B. Vengadagiri, M.Sc.,
Qualified Person

We 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. We request to the Deputy Director, Department of Geology and Mining, Tiruvannamalai District, Tamil Nadu State to make further correspondence regarding the modification of the Mining plan with the said Qualified Person at his following address.

B. Vengadagiri, M.Sc.,
No.105, 5th Cross,
Alagapuram,
Salem District – 636 010.
Mobile No.: +91 86953 32233.

We 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. We will carried out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant
For M/s. S.V.S. Mines,

K. Ponnurangam
(Partner)

Place: Tiruvannamalai
Date: 29.07.2025

M/s. S.V.S. Mines,
Thiru. K. Ponnurangam (Partner)
No. 5/1, Sumangali Village,
Vembakkam Taluk,
Tiruvannamalai District,
Tamil Nadu State – 604 402.
Mobile No. +91 77088 55810



DECLARATION OF THE APPLICANT

The Mining plan and Progressive Quarry Closure Plan in Respect of Kaganam Rough Stone and Gravel Quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared in full consultation with me by.

B. Vengadagiri, M.Sc.,

Qualified Person

We have understood its contents and agree to implement the same in accordance with Laws applicable to Mines and I 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

For M/s. S.V.S. Mines

K. Ponnurangam
(Partner)

Place: Tiruvannamalai

Date: 31.07.2025

CERTIFICATE



Certified that I am, **B. Vengadagiri, M.Sc.**, residing at No.105, 5th Cross, Alagapuram, Salem District - 636 010, holding a Post Graduate 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 Kaganam Rough Stone and Gravel Quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State for **M/s. S.V.S. Mines**, having an Office at No. 5/1, Sumangali Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State – 604 402. 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


(B. Vengadagiri, M.Sc.,)

Place: Salem

Date: 31.07.2025

B. Vengadagiri, M.Sc.,

No.105, 5th Cross,

Alagapuram,

Salem District – 636 010.

Mobile No.: +91 86953 32233.

E-mail ID: vengatb6@gmail.com



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 Kaganam Rough Stone and Gravel Quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared for

M/s. S.V.S. Mines,

Thiru. K. Ponnurangam (Partner)

No. 5/1, Sumangali Village,

Vembakkam Taluk,

Tiruvannamalai District,

Tamil Nadu State – 604 402.

Mobile No. +91 77088 55810

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Coimbatore 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


(B. Vengadagiri, M.Sc.,)

Place: Salem

Date: 31.07.2025

B. Vengadagiri, M.Sc.,

No.105, 5th Cross,

Alagapuram,

Salem District – 636 010.

Mobile No.: +91 86953 32233.

E-mail ID: vengatb6@gmail.com



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 Kaganam Rough Stone and Gravel Quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared for

M/s. S.V.S. Mines,

Thiru. K. Ponnurangam (Partner)

No. 5/1, Sumangali Village,

Vembakkam Taluk,

Tiruvannamalai District,

Tamil Nadu State – 604 402.

Mobile No. +91 77088 55810

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


(B. Vengadagiri, M.Sc.,)

Place: Salem

Date: 31.07.2025

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KAGANAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

INTRODUCTION AND EXECUTIVE SUMMARY:

The Company M/s. S.V.S. Mines, Partner Thiru. K. Ponnuram, having an Office at No. 5/1, Sumangali Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State – 604 402 has entrusted 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 Company has applied for quarrying Rough stone and Gravel over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1(Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District for the period of Five years under rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was examined, Scrutinized, Inspected and processed by the Deputy Director, Department of Geology and Mining, Tiruvannamalai District and passed a precise area communication letter vide **R.C.No.220/Mines/2025, Dated: 29.07.2025** under rule 19 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 Environment Impact Assessment Authority, Tamil Nadu to quarrying Rough stone for the period of Ten years with following conditions (Refer Annexure No. I):

General Condition:

1. The applicant firm should paid the necessary seigniorage fee to the quarried out mineral before transportation as per appendix-II of Tamil Nadu Minor Mineral Concession Rules, 1959.
2. The safety distance of 7.5 meters to the adjacent patta lands and 10 meters to the Government lands should be provided.
3. The applicant firm should use mild explosives with Licenced Blaster approved by the Controller of Explosives without interrupting the adjacent pattadars/ and no encroachment shall be caused to the adjacent patta lands and government lands while quarrying operation.

4. The applicant firm should be submitted the approved mining plan within stipulated time as per Rules.
5. The applicant firm should be submitted the Environmental Clearance obtained from the Environment Impact Assessment Authority for the area applied for quarry lease before grant of the lease.

This Mining Plan along with Progressive quarry closure Plan is prepared in full consent with **M/s. S.V.S. Mines**, Partner Thiru. K. Ponnurangam, having an Office at No. 5/1, Sumangali Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State – 604 402 in respect of Kaganam Rough stone and Gravel quarry over an extent 2.85.40 Hectares of patta lands in S.F.Nos. 35/2(Part), 35/3, 35/5(Part), 35/1A, 35/1B1 (Part), 35/1B2(Part) and 36 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai 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 $\leq$ 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 30.07.2025.

**Short Notes of Mining plan:**

- Village Panchayat - Kaganam
- Panchayat Union - Vembakkam
- Total extent of the lease applied area is 2.85,40 Ha.
- Topography of the area - Flat topography.
- The Estimated Reserves and Resources are given table below (Refer Plate No. III):

Table – 1

Description	Rough stone (MT)	Gravel (MT)
Estimated Geological Resources	35,31,825	2,85,400
Tentative Mineable Reserves	9,87,471	2,20,490
Proposed production schedule for five years	9,87,471	2,20,490
Annual Peak Production	2,41,024	1,23,690

- Proposed Depth of mining = 50m – BGL (5m Gravel + 45m Rough stone)
- Mining Plan period = Five Years.
- It is a fresh lease applied area, at present the area is virgin. Hence, no existing pit.
- Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves Hand Jack hammer is proposed to drilling and slurry blasting with NONEL initiation,
- 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.
- No trees will be uprooted due to this quarry operation.
- The approach road from the main road to quarry will be constructed and same has been maintained in a good condition for the haulage of quarry materials and machineries.
- There is No Export of this Rough stone and Gravel.
- 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 & IC.

- o. The lease applied area is bounded by fourteen corners; the corners are designated as 1 – 14 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.
- p. 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.
- q. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Border*
 - ii) *Critically polluted areas as identified by CPCB,*
 - iii) *Protected area under wild life protection ACT, 1972,*
 - iv) *Notified Eco sensitive areas*
- r. There is no waste anticipated during entire quarry operation. Hence, waste dump is not proposed in the lease applied area.
- s. Around 38 employees are proposed to deploying the quarrying operation.
- t. Total Cost of the project is about **Rs. 4,56,70,000/-**.

1.0 GENERAL INFORMATION

1.1 Name of the Applicant with Address:

Name : **M/s. S.V.S. Mines,**
Partner Thiru. K. Ponnurangam

Address : No. 5/1, Sumangali Village,
Vembakkam Taluk,
Tiruvannamalai District

State with PIN Code : Tamil Nadu State – 604 402.

Mobile No. : +91 77088 55810

Aadhaar No. : 8040 5318 1348 (Refer Annexure No. IX)

E-mail ID : vadivelsvs5@gmail.com.

1.2 Status of the Applicant (Individual / Company / Firm):

The Company is a Partnership firm and the partnership deed executed on 12.11.2020 with two partners under the Indian Partnership act, 1932. Thiru. K. Ponnurangam is one of the Partner and he is an Authorized person to signing all the documents on behalf of the firm (Refer Annexure No. VIII).

**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:

Five years as mentioned in Precise area Communication letter.

1.5 Name and address of the Qualified Person who preparing the Mining Plan:

Name : **B. VENGADAGIRI, M.Sc.,**

Qualified Person (As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : No.105, 5th Cross,

Alagapuram,

Salem District,

State with PIN Code : Tamil Nadu – 636 010.

Mobile No. : +91 86953 32233

Email : vengatb6@gmail.com

(Refer Annexure Nos. X and XI).

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 nearby existing pit. 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 Deputy Director, Department of Geology and Mining, Tiruvannamalai District vide **R.C.No.220/Mines/2025, Dated: 29.07.2025** (Refer Annexure No. I) and was given to us for the preparation of mining plan to meet out the applicant's production schedule.

2.0 LOCATION AND ACCESSIBILITY:**2.1. Details of the area with location map:**

The lease applied area is located about 80km Northeastern side of Tiruvannamalai town, 4.5km Southwestern side of Vembakkam town and 1Km Northeastern side of Kaganam Village.

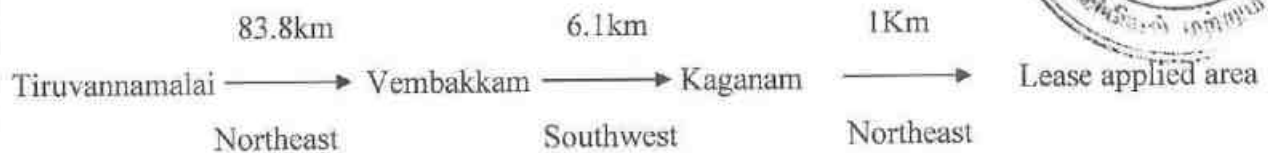
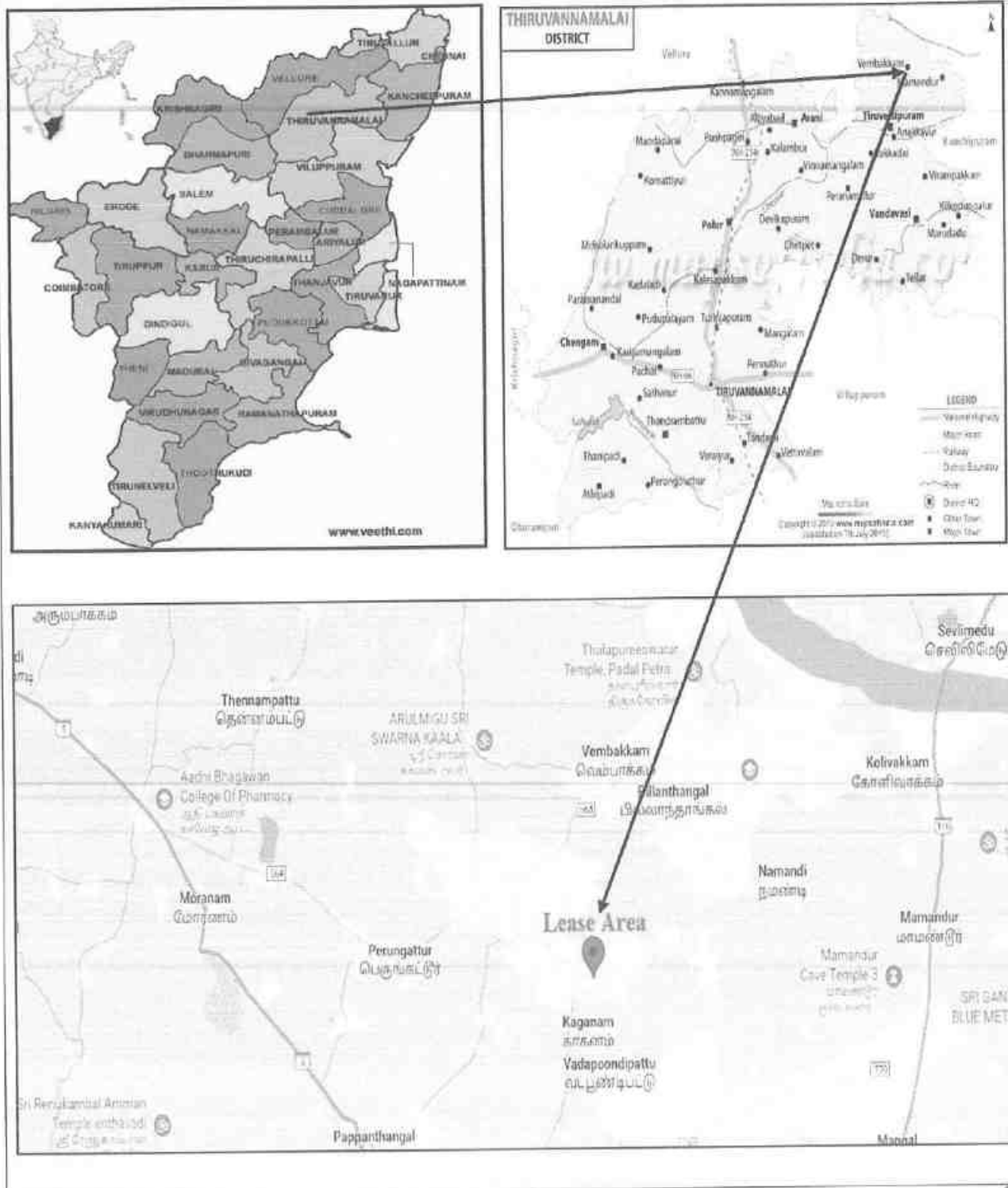
**Location Map of the Lease Applied area**

Table - 2

District	Taluk	Village	S.F. Nos.	Area (Ha.)	Patta Nos.
Tiruvannamalai	Vembakkam	Kaganam	35/2(Part)	0.27.40	1126
			35/3	0.39.50	
			35/5(Part)	1.03.40	1353
			35/1A	0.45.00	
			35/1B1 (Part)	0.22.40	1126
			35/1B2(Part)	0.16.70	
			36	0.31.00	1353
Total				2.85.40	

Source: As per the FMB and 'A' register record furnished by the applicant.

2.2. Classification of the area (Ryotwari/ Poramboke / others):

It 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, S.F.Nos. 35/2, 35/1B1 and 35/1B2 registered in the name of Thiru. Vadivel vide patta No. 1126 and S.F.Nos. 35/3, 35/5(Part), 35/1A and 36 jointly registered in the name of Thiru. Ponnurangam and Thiru. Vadivel vide patta No. 1353 (Refer Annexure Nos. IV to VI). The Company has obtained consent from the Joint Pattadar for the period of 10 years from the lease execute 21.03.2025 to 21.03.2035 (Refer Annexure Nos. VII).

2.4. Existence of public road / Railway line, if any nearby and approximate distance:

The approach road is situated on the Southwestern side, which is connects to the Village Road situated at 370m on the West 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 is will be constructed and the same will be utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Kancheepuram - Chengalpattu which is located at 17km on the Northeastern 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: 58 P/10 Latitude between: 12°44'42.06"N to 12°44'47.83"N and Longitude between: 79°35'06.20"E to 79°35'14.71"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 flat terrain. The gradient of the area towards Southwestern side and altitude of the area is 116m above from Mean Sea Level. The area is covered by 5m thickness of Gravel formation and followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pit.

The Water level in the surrounding area is 60m - 65m below from general ground profile which is observed from the nearby bore wells. The Normal rainfall is about 1020mm.

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 N30°E – S30°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 Tiruvannamalai 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 three sections have been drawn, one section drawn Length wise as (X-Y) and another two cross sections drawn Width wise (A-B & C-D) to cover the maximum area considered for lease upto 50m depth below from the ground profile.

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. 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 50m [5m Gravel + 45m Rough stone]. The total Geological Resources are estimated by area method. The total geological resources are given table below:

TABLE - 3

GEOLOGICAL RESOURCES						
Area m ²	Depth (m)	Geological Resources of Rough stone (m ³)100%	Gravel (m ³)	Bulk Density	Geological Resources of Rough stone (MT)100%	Gravel (MT)
28540	5	-	142700	2	-	285400
	45	1284300	-	2.75	3531825	-
Total		1284300	142700	-	3531825	285400

Estimated Geological Resources of Rough Stone : 12,84,300 m³ / 35,31,825 MT

Estimated Gravel : 1,42,700 m³ / 2,85,400 MT

Geological Resources has been estimated based on the physical investigation and filed survey data.

Tentative Mineable Reserves:

The mineable reserves are estimated after leaving the safety distance and Bench loss.



TABLE - 4

MINEABLE RESERVES							
Section	Bench	Length (m)	Width (m)	Depth (m)	Rough Stone @ (100%) (m ³)	Gravel (m ³)	Bulk Density
XY-AB	I	133	93	5	-	61845	2
	II	126	78	5	49140	-	2.75
	III	121	68	5	41140	-	2.75
	IV	116	58	5	33640	-	2.75
	V	111	48	5	26640	-	2.75
	VI	106	38	5	20140	-	2.75
	VII	101	28	5	14140	-	2.75
	VIII	96	18	5	8640	-	2.75
Total					193480	61845	
XY-CD	I	88	110	5	-	48400	2
	II	81	95	5	38475	-	2.75
	III	76	85	5	32300	-	2.75
	IV	71	75	5	26625	-	2.75
	V	66	65	5	21450	-	2.75
	VI	61	55	5	16775	-	2.75
	VII	56	45	5	12600	-	2.75
	VIII	51	35	5	8925	-	2.75
	IX	46	25	5	5750	-	2.75
	X	36	15	5	2700	-	2.75
Total					165600	48400	
Grand Total					359080	110245	
					165600	48400	
					455401	987471	
					98800	278400	
					123690	123690	

The Tentative mineable reserves have been estimated as 3,59,080 m³ / 9,87,471 MT of Rough stone and 1,10,245 m³ / 2,20,490 MT of Gravel at the rate of 100% recovery upto a depth of 50m (5m Gravel + 45m Rough stone) below from the ground profile.





4.0 MINING:

4.1 Method of mining (opencast / underground):

Open cast Mechanized Mining is being carried out with 5.0 meters vertical bench with 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 General of Mines Safety. If the applicant/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. The relaxation will be applied and obtained after execution of lease deed/ commencement of quarry operation. 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.

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 Drilling, Blasting, Rock breaking, 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 by considerable volume from the parent rock mass by drilling with Hand Jack Hammer and blasting, the liberated Rough stone will be loaded into the Tipper by hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Hydraulic excavators are attached with rock breakers for fragmentation of large boulders to avoid secondary blasting and easy handling of material. 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 the 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.

Year wise Development and Production

TABLE - 5

Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Rough Stone @ (100%) (m ³)	Gravel (m ³)	Bulk Density	Rough Stone @ (100%) Recovery (MT)	Gravel (MT)
I	XY-AB	I	133	93	5	-	61845	2	-	123690
		II	119	78	5	46410	-	2.75	127628	-
	Total					46410	61845		127628	123690
II	XY-AB	II	7	78	5	2730	-	2.75	7508	-
		III	121	68	5	41140	-	2.75	113135	-
	XY-CD	I	58	110	5	-	31900	2	-	63800
		II	51	95	5	24225	-	2.75	66619	-
		III	46	85	5	19550	-	2.75	53762	-
Total					87645	31900		241024	63800	
III	XY-CD	I	30	110	5	-	16500	2	-	33000
		II	30	95	5	14250	-	2.75	39188	-
		III	30	85	5	12750	-	2.75	35063	-
		IV	71	75	5	26625	-	2.75	73218	-
	XY-AB	IV	116	58	5	33640	-	2.75	92510	-
		Total					87265	16500		239979
IV	XY-AB	V	111	48	5	26640	-	2.75	73260	-
		VI	106	38	5	20140	-	2.75	55385	-
	XY-CD	V	66	65	5	21450	-	2.75	58988	-
		Total					68230	-		187633
V	XY-CD	VI	61	55	5	16775	-	2.75	46131	-
		VII	56	45	5	12600	-	2.75	34650	-
		VIII	51	35	5	8925	-	2.75	24543	-
		IX	46	25	5	5750	-	2.75	15813	-
		X	36	15	5	2700	-	2.75	74251	-
		VII	101	28	5	14140	-	2.75	38885	-
	XY-AB	VIII	96	18	5	8640	-	2.75	23760	-
		Total					69530	-	-	191207
Grand Total						359080	110245		987471	-



The Recoverable reserves have been computed as 3,59,080 m³ / 9,87,471 MT of Rough stone and 1,10,245 m³ / 2,20,490 MT of Gravel at 100% recovery for five years upto a depth of 50m below from the ground level (Refer Plate No. III).

The peak production capacity in the quarry is 2,41,024 MT of Rough stone and 1,23,690 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.

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
Maximum material handling on one year (RS 2,41,024 MT + Gravel 1,23,690 MT)	=	3,64,714 MT
Hence maximum lorry loads per day	=	3,64,714 MT/30 MT
	=	12157 lorry loads
	=	12,157/300 Days
Maximum lorry Load	=	41 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	Hand Jackhammer	11	32	1.2m to 2.0m	Air Compression
2	Compressor	3	-	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	Tipper	3	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 awarded quarry lease for five years, the ultimate pit limit (dimension) at the end of this lease period is given below:

TABLE – 7

Pit ID	Length (m)	Width (m)	Depth (m) (Max.)
Pit-I	133	93	40m – BGL
Pit-II	88	110	50m – BGL

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 be carried out by Jack hammer drilling and blasting of shattering effect for loosening the Rough Stone with NONEL initiation. Hand Jackhammer drilling will be proposed for drilling and blasting for splitting the boulders from parent rock mass followed by rock breaker attached with excavator for secondary fragmentation of large size boulders to avoid secondary blasting. 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 hence it optimizes the cost of blasting.

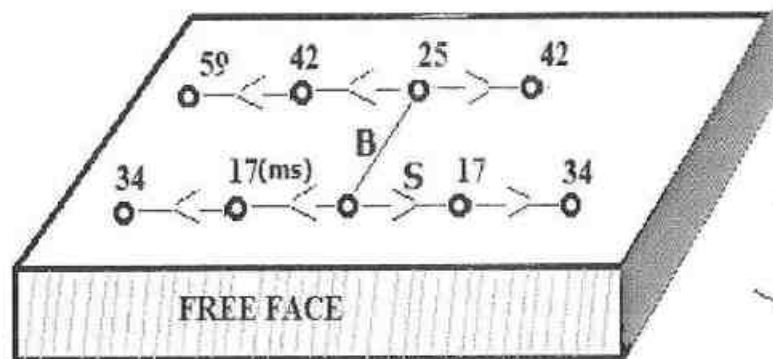
Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Spacing between holes	:	1.0m
Burden for hole	:	0.75m
Diameter of hole	:	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)	=	268 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 with 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. Anyhow, as per day's production schedule the maximum blasting program proposed as given below.

Annual Peak production	= 2,41,024 Tons
No of Holes	= 268 Holes
Yield	= 803 Tons
Powder factor	= 6 Tons/ Kg of explosives
Maximum explosive required	= 134 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.30 – 1.00 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)
134	2	67	134	268	50 (2 Holes)	325	1.383

From the above table, the charge per blast of 67kg 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 twice a day** based on the site condition 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 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 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.

6.0 MINE DRAINAGE:

6.1 Depth of water table (based on nearby wells and water bodies):

The lease applied area consist dendritic drainage pattern. The water table in the area is about 60m - 65m which is observed from the existing private boreholes. The lease applied 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. Anyhow, Garland drain will be constructed along the boundary to prevent surface run-off water entering into the quarry.

TABLE - 9

Type	Distance & Direction	Location
Bore Well	425m Northeast side	12°45'1.06"N 79°35'10.50"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/stacking of waste does not arise.

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 and weathered 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-48) Kancheepuram – Vellore	14.5km – NE																	
2	State Highways	(SH-5) Arcot – Kancheepuram	7.8km – SW																	
3	Railway station	Kancheepuram	17.1km – NE																	
4	Airport	Chennai	69km – NE																	
5	Town	Vembakam	4.5km – NE																	
6	Government School	Tiruppanamoor Govt. School	2.0km – N																	
7	Government Hospital	Chithathur (PHC)	3.4km – E																	
8	Habitation	370m – N																		
9	Reserved Forest	Tandappanthangal Reserve Forest -6.9km - NW																		
10	Water Bodies	Tank – 152m – SW side.																		
11	Defence Installation/ Historical Monuments/ Archaeological	Nil within 500m radius.																		
12	Interstate Boundary	Around 48.3km – NW(KeralaAndhra Pradesh State border)																		
13	Critically Polluted areas identified by the CPCB	Around 39.6km – NW (Ranipet – SIPCOT)																		
14	Protected areas Notified under wildlife (Protection) Act, 1972.	Around 31.2 km – SE (Karikili Birds Sanctuary)																		
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 EB-LT/HT line or Housing area located within 50m radius 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. V.No.81 Karanthai and 35/4 East - S.F.No. 34 South - S.F.Nos. 426, 35/2, 1B1, 1B2 and 5 West - S.F.Nos. 37 and 38																		
19	Adjacent Patta lands / Govt. Land	<table><tr><th>Direction</th><th>Classification</th><th>Safety Distance</th></tr><tr><td>North</td><td>Patta land</td><td>7.5m</td></tr><tr><td>East</td><td>Patta land</td><td>7.5m</td></tr><tr><td rowspan="2">South</td><td>Patta land</td><td>7.5m</td></tr><tr><td>Govt. Land</td><td>10m</td></tr><tr><td>West</td><td>Patta land</td><td>7.5m</td></tr></table> (Refer Plate No. II):		Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	Govt. Land	10m	West	Patta land	7.5m
Direction	Classification	Safety Distance																		
North	Patta land	7.5m																		
East	Patta land	7.5m																		
South	Patta land	7.5m																		
	Govt. Land	10m																		
West	Patta land	7.5m																		

9.2 Employment potential (skilled, semi-skilled, un skilled):**TABLE – 11**

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Mine manager	-	1	1
Geologist	-	1	1
b) Skilled labour			
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
Excavator – Operator	-	1	1
Tipper Driver	-	3	3
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	22	22
c) Unskilled			
Security	-	1	1
Labour & Helper	-	3	3
Co-operator and Cleaner	-	3	3
Total	-	38	38

The proposed output per man shift:

TABLE – 12

Annual Peak Production of Rough stone		2,41,024 MT
No. of days likely to be worked		300 days
Average production per day		803 MT
OMS =	Average Production per day / Average employment per day	803 / 38 = 21.1 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 Vembakkam village which is located about 4.5Km on the Northeastern 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 / person manager / mate will be in charge of first aid and injured person will be taken to the hospital by the Lessee's vehicle. Hospital is available in Chithathur (PHC) located at 3.4km on the Eastern side of the area.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in Lessee'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 / TNPCE Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	i. Topography of the area will change due to mining activity. 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.	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. i. Regular water sprinkling on dust prone area like haul road and other active area to arrest the dust generation. ii. Greenbelt will be developed in the safety zone with thick long leave plants to arrest the fugitive dust and vehicular emissions propagation. 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. Excavated benches shall be developed by planting with grasses and shrubs of local species to prevent soil erosion and landslide.



	c) Propagation of foreign material like polythene bag or undecomposed waste materials dumping.	v. 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. vi. 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. vii. Non-degradable foreign material like polythene bag, Plastic water containers or cool drink containers or 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 and catchment of nearby water bodies will interrupting during rainy season due to modification of topography. ii. Surface water bodies will be contaminated due to dust propagation and machinery and vehicular emissions.	i. The constructed Garland drain all along the boundary barrier will be maintained during entire lease period to prevent surface runoff rain water entering into the pit. ii. Greenbelt will be developed in the safety zone with thick long leave plants to arrest the fugitive dust and vehicular emissions propagation on the surrounding water bodies. 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 waste water will be generated from the quarry activity. Proper drainage will be Maintained to eliminate inundation of working pit during rain from seepage 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/ washing room 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-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.	i. Regular water sprinkling on haul road and dust prone area to arrest the dust generation. ii. Greenbelt will be developed in the safety zone with thick long leaves plants to arrest the fugitive dust and vehicular emissions. 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. Greenbelt will be developed in the safety zone which will act as acoustic barrier to minimize the noise propagation. iii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations. iv. To ensure minimum vibrations and noise due to blasting, NONEL in continuous sequence is proposed. v. 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.

		vi. 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. vii. Regular and proper maintenance of machinery and transportation vehicles shall be ensured. viii. 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, Palm, Calotropis, Prosopis juliflora, Teak, Cocos nucifera, 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 poultry farm and ecological diversity due to noise by drilling, blasting and operation. v. Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, growth ratio and agriculture productivity.	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 Poultry farms and existing ecology. vi. Regular Water sprinkling on haul roads would be reduces the dust propagation, thus avoiding damage to the crops and plants.



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 38 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 (@32% 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.



11.1 Environmental impact assessment statement describing impact of mining on the next Five years:

In the mining plan proposed for a small production of Rough stone and gravel does not involve deep hole drilling and heavy blasting. 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 50m below from the ground profile 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.

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 3800m²) also the applicant proposed to plant 1000 tree saplings in the quarried out top benches and 200 saplings on haul road and maintain at least 2000 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 trees proposed to be planted	Area to be covered (m ²).	Survival (%)	Name of the species	No. of trees expected to be grown
I	260	760	80%	Neem, Pongamia Pinnata, Cordia dichotoma, Mantharai, etc.,	208
II	260	760	80%		208
III	260	760	80%		208
IV	260	760	80%		208
V	260	760	80%		208

11.5 Proposed financial estimate / budget for the project:

Budget Provision for the Mining Plan period:

TABLE – 14

A. Operational Cost / Project Cost / Investment:				Cost (Rs.)
i) Land cost	The Land value as per the Government Guideline land cost is calculated as follows,			35,27,000
	S.F. Nos.	Area (Ha)	Cost / Ha. (Rs.)	
	35/2(Part)	0.27.40	1235500	
	35/3	0.39.50	1235500	
	35/5(Part)	1.03.40	1235500	
	35/1A	0.45.00	1235500	
	35/1B1 (Part)	0.22.40	1235500	
	35/1B2(Part)	0.16.70	1235500	
	36	0.31.00	1235500	
	Total	4.56.5	-	
	Total Land Cost (Round off) = Rs. 35,27,000/- (source : https://tnreginet.gov.in/portal/)			
ii) Machinery cost	The following machineries are proposed to meet out the productions. i. Excavator (1 No.) ii. Rock breaker (1 No.) iii. Tipper (3 Nos.) iv. Compressor (3 Nos.) v. Hand jack hammer and loose tools (11 Nos.)			1,00,00,000 1,00,000 60,00,000 2,25,00,000 5,50,000
	Total			3,91,50,000
iii) Labourers shed	Labour shed will be constructed as semi-permanent structure. The cost is around			5,00,000
iv) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around.			1,00,000
v) Drinking water facility for the labourers	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.			2,14,000

vi) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.	1,50,000
vii) Safety kit	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.	50,000
viii) CCTV arrangements.	Installation of CCTV cameras in the quarry area.	50,000
Total Cost		4,37,41,000

B. EMP Cost:		Cost (Rs.)
1. Environmental Monitoring Program (Air Quality, Water Quality Sampling, Noise and Ground vibration test) Rs. 50,000/ year.		2,50,000
2. Water will be sprinkled in the haul roads by own water sprinklers for dust suppression (1 No.). The cost would be around.		4,00,000
3. Fencing constructed around the lease area to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length 785m x Rs. 300/meter).		2,36,000
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 725m x Rs. 300/meter).		2,18,000
5. First aid room & accessories		50,000
6. Dust extractor unit for Jackhammer (11 Nos.)		2,75,000
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 (1000 saplings x Rs. 200/sapling).	2,00,000
	Greenbelt development will be carried out on haul road; the cost would be around (200 saplings x Rs. 200/sapling).	40,000
Total EMP Cost (B)		19,29,000

Description	Cost (Rs.)
A. Operational Cost	4,37,41,000
B. EMP Cost	19,29,000
Total Project Cost (A+ B)	4,56,70,000

The total cost would be around four crores fifty six lakhs and seventy thousand only.

**12.0 PROGRESSIVE QUARRY CLOSURE PLAN****12.1 Introduction:**

As per guidelines for preparation of mining plan prescribed under Minor Minerals Conservation and Development Rules, 2010 also the entire area is proposed for a short period of Five 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.

- Barbed wire fencing will be constructed around the quarry.
- Benchs will be smoothening.
- Quarry will be closed & sentries will be posted round the clock.
- Green belt development will be maintained.
- 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 at the end of the lease period (Ha)
Area Under Quarrying	Nil	2.20.0
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.38.0
Unutilized Area	2.85.4	0.24.4
Grand Total	2.85.4	2.85.4

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 : **B. VENGADAGIRI, M.Sc.,**
 Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : No.105, 5th Cross,
 Alagapuram,
 Salem District,

State with PIN Code : Tamil Nadu – 636 010.

Mobile No. : +91 86953 32233

Email : vengatb6@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.

- 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**

Part of the Machineries will be engaged on rental basis and remaining 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/ purchased machinery will be selling 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 CPCB and IBM 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.

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 Five 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		
Plantation under safety zone	Nos	260	260	260	260	260	Rs.200 Per sapling	2,60,000
	Cost	52000	52000	52000	52000	52000		
Plantation in quarried out top bench and Haul road	Nos	Haul Road			Benches		Rs.200 Per sapling	2,40,000
		100	100	-	500	500		
	Cost	20000	20000	-	100000	100000		
Barbed Wire Fencing- Already fenced (785 Mtrs)		-	-	-	-	-	Rs.300 Per Meter	2,36,000
Garland Drain (725 Mtrs)		2,18,000	-	-	-	-	Rs.300 Per Meter	2,18,000
Total								9,54,000

13.0 STATUTORY COMPLIANCE TO BE FOLLOWED DURING THE COURSE & CLOSURE OF QUARRY LEASE:

The Applicant after execution of lease deed should 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 periodic 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

B. VENKADAGIRI, M.Sc.,

Qualified Person

Place: Salem

Date: 31.07.2025

**This Mining Plan Is Approved
Subject to the Conditions/Stipulation
Indicated In The Mining Plan Approval
Letter No. 220/mines/2025 Dt: 11.8.2025
Office Of The Deputy Director Of
Geology And Mining, Tiruvannamalai.**

[Signature]
11.8.25
Deputy Director,
Geology and Mining,
Tiruvannamalai.

[Signature]
11/8/25

PHOTOGRAPHS OF THE KAGANAM
ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA





ANNEXURES

நக.எண்.220/கனிமம்/2025

துணை இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக
வளாகம், திருவண்ணாமலை.

நாள். 29.07.2025

குறிப்பாணை

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம் - காகனம் கிராம புல எண்கள். 35/2, 35/3 மற்றும் பலவற்றின் மொத்தப்பரப்பு 2.85.40 ஹெக்டேர் பரப்பில் - சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்கக்கோரி S.V.S.Mines பங்குதாரர், திரு.கே.பொன்னுரங்கம் என்பவர் 5 ஆண்டுகளுக்கு அனுமதிக்கோரி 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்.19-ன் கீழ் விண்ணப்பம் செய்தது - அறிக்கைகள் வரப்பெற்றது - புலத்தணிக்கை செய்யப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்கதிட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்ப்பிக்க கோருதல் - தொடர்பாக.

- பார்வை:**
1. S.V.S.Mines பங்குதாரர், திரு.கே.பொன்னுரங்கம், 5/1, சுமங்கலி கிராமம், வெம்பாக்கம் வட்டம், திருவண்ணாமலை என்பவரின் விண்ணப்பம் நாள். 21.03.2025.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள். 21.03.2025.
 3. வட்டாட்சியர், வெம்பாக்கம் அவர்களின் நக.ஆ1/695/2025, நாள்.30.04.2025.
 4. வருவாய் கோட்ட அலுவலர் (மு.க.பொ.) செய்யார் அவர்களின் நக.அ5/1728/2025, நாள். 02.07.2025.
 5. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) அவர்களின் புலத்தணிக்கை நாள். 17.07.2025.
 6. உதவி இயக்குநர், மாவட்ட நகர் ஊரமைப்பு அலுவலகம், திருவண்ணாமலை அவர்களின் கடிதம் நக.எண்.799/2025/தி.மலை, நாள். 28.07.2025.

பார்வையில் காணும் கடிதங்களின் மீது கனிவான கவனம் வேண்டப்படுகிறது.

2) திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், காகனம் கிராம புல எண்கள். 35/2 (0.27.40) (P), 35/3 (0.39.50), 35/5 (1.03.40) (P), 35/1A (0.45.0), 35/1B1 (0.22.40) (P), 35/1B2 (0.16.70) (P) மற்றும் 36 (0.31.0)

மொத்தம் 2.85.4 ஹெக்டேர் பரப்பில் சாதாரண கல் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கக்கோரி S.V.S.Mines பங்குதாரர், திரு.கே.பொன்னுரங்கம் என்பவர் உரிய ஆவணங்களுடன் 26.02.2025 அன்று விண்ணப்பம் அளித்துள்ளார்.

3. மேற்கண்ட விண்ணப்பம் தொடர்பாக வட்டாட்சியர் செய்யார், வருவாய் கோட்ட அலுவலர் (மு.கூ.பொ), செய்யார், உதவி புனியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) திருவண்ணாமலை ஆகியோர் புலத்தணிக்கை மேற்கொண்டு அளித்த அறிக்கையின் அடிப்படையில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், காகனம் கிராம புல எண்கள். 35/2 (0.27.40) (P), 35/3 (0.39.50), 35/5 (1.03.40) (P), 35/1A (0.45.0), 35/1B1 (0.22.40) (P), 35/1B2 (0.16.70) (P) மற்றும் 36 (0.31.0) மொத்தம் 2.85.4 ஹெக்டேரில் மட்டும் S.V.S.Mines பங்குதாரர், திரு.கே.பொன்னுரங்கம் என்பவருக்கு கிராவல் மண் மற்றும் சாதாரண கற்குவாரி உரிமம் வழங்க ஏற்கனவே குவாரி பணி செய்யாத புலமாக இருப்பினும் மனுதாரரின் கோரிக்கையின்படி 5 ஆண்டு காலத்திற்கு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

5. இயக்குநர், புனியியல் மற்றும் சுரங்கத்துறை, சென்னை அவர்களின் 10.08.2020 நாளிட்ட கடிதத்துடன் இணைத்து வரப்பெற்ற அரசாணை எண்.169 தொழில் துறை (எம்.எம்.சி-1) நாள் 04.08.2020-ன்படி பட்டா புலங்களில் கிராவல், சாதாரண வகை கற்கள் ஆகிய சிறுகனிம உரிமம் வழங்கும் நேர்வுகளில் நடவடிக்கை எடுக்க விதி 19 மற்றும் 33-ல் மாவட்ட ஆட்சியருக்கு வழங்கப்பட்ட அதிகாரம் தற்போது சம்மந்தப்பட்ட உதவி/துணை இயக்குநர் அவர்களுக்கு மாற்றி வழங்க உத்திரவிடப்பட்டுள்ளது.

6. எனவே, வட்டாட்சியர் வெம்பாக்கம், வருவாய் கோட்ட அலுவலர் (மு.கூ.பொ), செய்யார், உதவி புனியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) திருவண்ணாமலை ஆகியோரின் பரிந்துரை, நிபந்தனைகள் மற்றும் மனுதாரரின் கோரிக்கையின் அடிப்படையில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், காகனம் கிராம புல எண்கள். 35/2 (0.27.40) (P), 35/3 (0.39.50), 35/5 (1.03.40) (P), 35/1A (0.45.0), 35/1B1 (0.22.40) (P), 35/1B2 (0.16.70) (P) மற்றும் 36 (0.31.0) மொத்தம் 2.85.4 ஹெக்டேரில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19-ன்படி கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு 5 (ஐந்து) வருட காலத்திற்கு S.V.S.Mines பங்குதாரர், திரு.கே.பொன்னுரங்கம் என்பவருக்கு கிராவல் / சாதாரண கற்கள் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

நிபந்தனைகள்



- 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், அட்டவணை II-ல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்கு சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.
- அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ. மற்றும் அரசு நிலங்களுக்கு 10 மீ. பாதுகாப்பு இடைவெளியும் விட வேண்டும்.
- அனுபவம் வாய்ந்த வெடிபொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடிபொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டாதாரர்களுக்கு எவ்வித இடையூறுமின்றி / அருகிலுள்ள பட்டா மற்றும் அரசு புலங்களில் எவ்வித ஆக்கிரமிப்பும் இன்றி குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- விதிகளின்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை உரிய காலத்திற்குள் சமர்ப்பிக்க வேண்டும்.
- குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

7. மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 41-ன்படி குவாரிப் பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக் கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், விதி எண்.42-ன்படி சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.


துணை இயக்குநர்,

புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

பெறுநர்

S.V.S.Mines

பங்குதாரர் திரு.கே.பொன்னுரங்கம்,

5/1, சுமங்கலி கிராமம்,

வெம்பாக்கம் வட்டம்,

திருவண்ணாமலை.

நகல்.


29/7/25

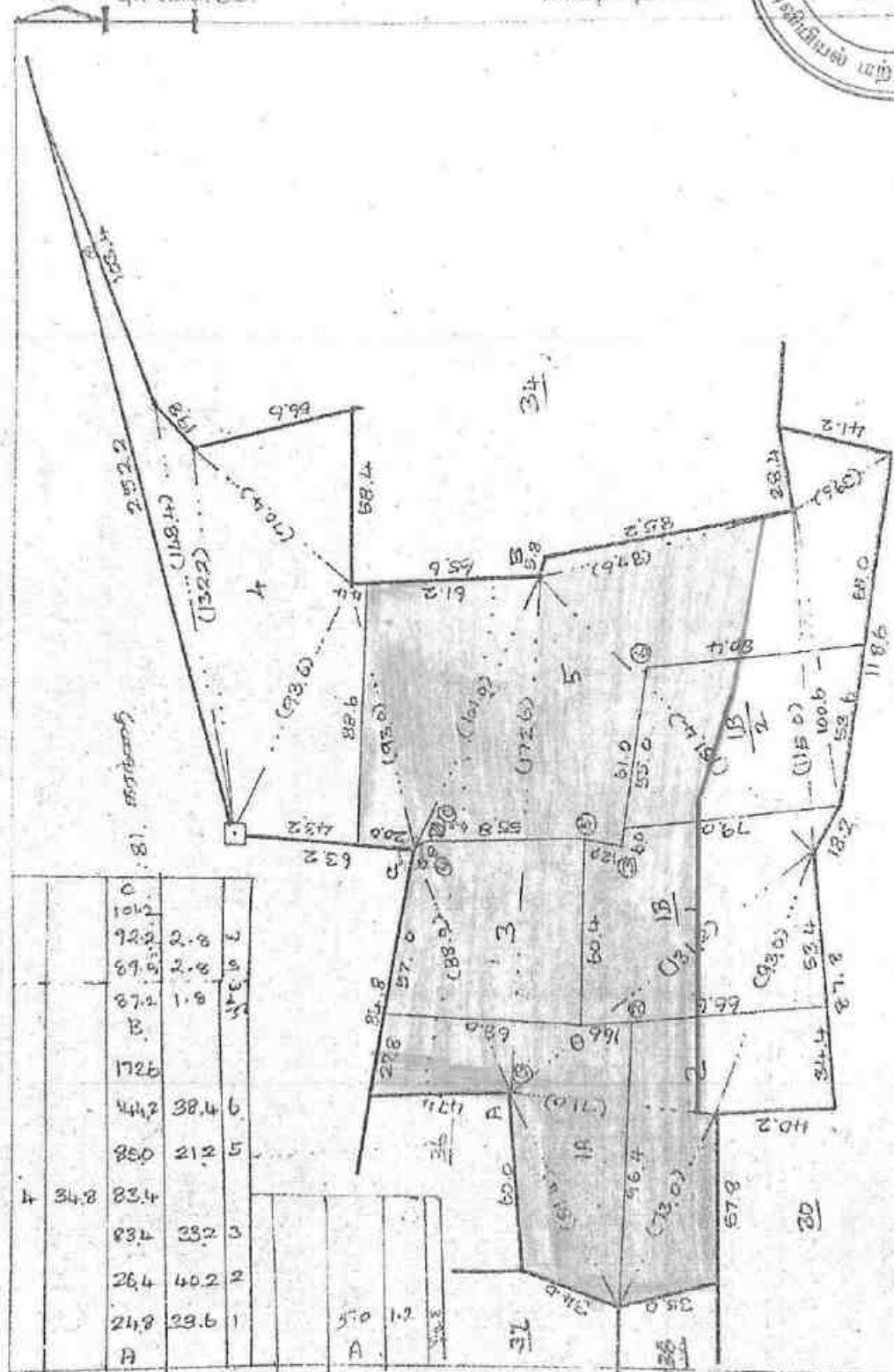
- தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை
- இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை-32.



புது எண். 32

புது எண். 32

புது எண். 32



100	100	100	100
92.2	2.8	2.8	2.8
87.4	1.8	1.8	1.8
1726			
4442	38.4	6	
850	21.2	5	
83.4			
83.4	33.2	3	
26.4	40.2	2	
24.8	29.6	1	

புது எண். 32

புது எண். 32

புது எண். 32



அளவுப்படி

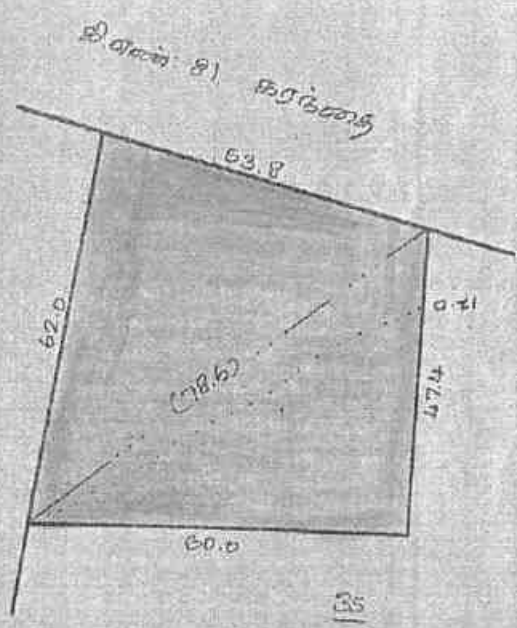
விராமம்
பெயர்: ...

பரப்பு: ...

மாவட்டம்: ...

சா.க.க.ம்
ஏ. 38.5

வட்டம்: ...
புல.எண். 36



பு. ...

அளவு: 1 கி.மீ = 1000 மீ

பு. ...

Scanned with OKEN Scanner

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தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு



மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

வருவாய் கிராமம் : காகனம்

பட்டா எண் : 1353

உரிமையாளர்கள் பெயர்

1. கிருஷ்ணன் எ கிஷ்டப்ப நாயக்கர்

மகன் பொன்னுரங்கம்



2. சுப்பிரமணி

மகன் வடிவேல்



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	
34	1A	0 - 70.50	1.04	--	--	--	--	2024/0103/06/414302- -- --CITHATHUR LAKETANKSUBMERG--- Digitally signed:approved through AutoMutation - 10/06/2024 07:31:00:PM
34	2B	0 - 73.00	1.91	--	--	--	--	2024/0103/06/414302- -- --CITHATHUR LAKETANKSUBMERG--- Digitally signed:approved through AutoMutation - 10/06/2024 07:31:00:PM
35	1A	0 - 45.00	1.84	--	--	--	--	2024/0103/06/448049- ----- Digitally signed:Vadivel A Head Quarters Deputy Tahsildar 04/12/2024 07:27:06:PM
35	3	0 - 39.50	1.03	--	--	--	--	2024/0103/06/448049- ----- Digitally signed:Vadivel A Head Quarters Deputy Tahsildar 04/12/2024 07:27:06:PM
35	5	1 - 32.00	3.46	--	--	--	--	2024/0103/06/414302- -- --WELL--- Digitally signed:approved through AutoMutation

1/6/25, 9:08 AM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமைவாங்கிகள்

36	-	0 - 31.00	0.82	--	--	--		
		3 - 91.00	10.10					



குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/082/01353/70232 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
 2. இத் தகவல்கள் 06-01-2025 அன்று 09:08:20 AM நேரத்தில் அச்சடிக்கப்பட்டது.
 3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

வருவாய் கிராமம் : காகனம்

பட்டா எண் : 1126

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணி

மகன்

வடிவேல்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
35	1B1	0 - 53.50	1.40	--	--	--	--	2019/0103/06/145984- ----- Digitally signed: Ashok Kumar N Zonal Deputy Tahsildar 24/09/2019 06:12:57:PM
35	1B2	0 - 39.50	1.04	--	--	--	--	2019/0103/06/145984- ---CITHATHUR LAKETANKSUBMERG--- Digitally signed: Ashok Kumar N Zonal Deputy Tahsildar 24/09/2019 06:12:57:PM
35	2	0 - 44.00	1.16	--	--	--	--	2019/0103/06/145984- ----- Digitally signed: Ashok Kumar N Zonal Deputy Tahsildar 24/09/2019 06:12:57:PM
		1 - 37.00	3.60					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/082/01126/70260 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 06-01-2025 அன்று 09:11:24 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

வருவாய் கிராமம் : காகனம்

பட்டா எண் : 1353

உரிமையாளர்கள் பெயர்

1. கிருஷ்ணன் எ கிஷ்டப்ப நாயக்கர்

மகன் பொன்னுரங்கம்



2. சுப்பிரமணி

மகன் வடிவேல்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
34	1A	0 - 70.50	1.04	--	--	--	--	2024/0103/06/414302- -- --CITHATHUR LAKETANKSUBMERG--- Digitally signed:approved through AutoMutation - 10/06/2024 07:31:00:PM
34	2B	0 - 73.00	1.91	--	--	--	--	2024/0103/06/414302- -- --CITHATHUR LAKETANKSUBMERG--- Digitally signed:approved through AutoMutation - 10/06/2024 07:31:00:PM
35	1A	0 - 45.00	1.84	--	--	--	--	2024/0103/06/448049- ----- Digitally signed:Vadivel A Head Quarters Deputy Tahsildar 04/12/2024 07:27:06:PM
35	3	0 - 39.50	1.03	--	--	--	--	2024/0103/06/448049- ----- Digitally signed:Vadivel A Head Quarters Deputy Tahsildar 04/12/2024 07:27:06:PM
35	5	1 - 32.00	3.46	--	--	--	--	2024/0103/06/414302- -- --WELL--- Digitally signed:approved through AutoMutation

36	-	0 - 31.00	0.82	--	--	--	--	
		3 - 91.00	10.10					



குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/082/01353/70232 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 06-01-2025 அன்று 09:08:20 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

1434 - ஆம் பசுவியில்

3.6.2016

மாவட்டம்

சென்னை

தில் வரித் திட்டத்தின்படி புலன்களின் விபரம்.					சாகுபடி யாளின் பெயர்.	முதல் புலன்களின் பெயர்.					
(1)	(2)	(3)	(4)	(5)		(7)	(8)	(9)	(10)	(11)	(12)
நில அளவைகள்.	ச.பி.ரி.வி. எண்.	பரப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.	கைப்பற்று தாரகுடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரகுடைய பெயர்.	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளது.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் ஆறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / ஆறுவடை பாண பரப்பு.	உணர்வை பாய்ச்சல் அல்லது விளைச்சல் அல்லது விழுக்காடு.	
35	1A	0440	124	1353	சென்னை (20)	செ					
	3	0395	103	1353	do	செ					
	5	1320	346	1353	do	செ					
26	-	0310	082	1353	do	செ					
35	1B1	0535	140	1126	சென்னை	செ					
	1B2	0395	104	1126	do	செ					
	2	0440	114	1126	do	செ					
					சென்னை நிர்வாக அலுவலர். 38, காகனம் கிராமம். 39, கரந்தை கிராமம். வெம்பாக்கம் வட்டம், தி.ம.நை. மாவட்டம்.						

✓

தி. எஸ். 82. காலகணிதம்.

பாஸ்து

பாஷ்து



1	2	3	4	5	6	7	8	9	10		
								கு.ப.ப.	தொ.புரீஸ்	கு.ப.ப.	
34	2C	34-2C	ர	பு	...	8-3	5	2 62	0 85.0	2 23	71 அ. சிவசுந்தரம் தாயுடு.
	2D	-2D	ர	பு	...	8-3	5	2 62	2 03.5	5 32	116 மு. கிருஷ்ண மூர்த்தி.
	3	-3	ர	பு	...	8-3	5	2 62	0 60.5	1 59	190 கு. சாரதம் மாள்.
								5 81.5	15 22		
35	1A	35-1A	ர	பு	...	8-3	5	2 62	0 45.0	1 18	464 தே. வெங்க டேசன்.
	1B1	-1B1	ர	பு	...	8-3	5	2 62	0 53.5	1 40	455 கா. வரலட்சுமி யம்மாள்.
	1B2	-1B2	ர	பு	...	8-3	5	2 62	0 39.5	1 04	478 ஆ. வேணு கோபால்.
	2	-2	ர	பு	...	8-3	5	2 62	0 44.0	1 16	455 கா. வரலட்சுமி யம்மாள்.
	3	-3	ர	பு	...	8-3	5	2 62	0 39.5	1 03	464 தே. வெங்க டேசன்.
	4	-4	ர	பு	...	8-3	5	2 62	0 85.0	2 23	212 தி. சீனிவாசன்.
	5	-5	ர	பு	...	8-3	5	2 62	1 32.0	3 46	668 473 ஆ. வேணு கோபால்.
								4 38.5	11 50		
36	...	36	ர	பு	...	8-3	5	2 62	0 31.0	0 82	464 தே. வெங்க டேசன்.
37	...	37	ர	பு	...	8-3	5	2 62	0 69.5	1 82	200 ஆ. சீதாராம தாயுடு.
38	1	38-1	ர	பு	...	8-3	5	2 62	0 31.0	0 82	468 மு. வெங்கடா ஜலம்.
	2	-2	ர	பு	...	8-3	5	2 62	1 02.5	2 68	420 கு. ஜா. சாமண ஜலம்.
								1 33.0	3 50		
39	1A	39-1A	ர	பு	...	8-3	5	2 62	0 05.0	0 13	424 கே. ஸ்ரீராமண தாயுடு.
	1B	-1B	ர	பு	...	8-3	5	2 62	0 70.0	1 83	424 கே. ஸ்ரீராமண தாயுடு.
	2	-2	ர	பு	...	8-3	5	2 62	0 52.0	1 37	484 கெ. ஜெயம் மாள்.
	3	-3	ர	பு	...	8-3	5	2 62	0 39.5	1 03	484 கெ. ஜெயம் மாள்.

1	2	3	4	5	6	7	8	9	10	11
							கு. எப். பி. எஸ். கு. எப். பி. எஸ்.			
4	39-4	ர	பு	...	8-3	5	2 62	2 16.5	5 41	490 கோ. சாமநாயகர் நாயுடு. (1) ஆ. கன்வியம் மான் (2).
5	-5	ர	பு	...	8-3	5	2 62	0 29.0	0 76	108 கோ. சாத்தம் மான்.
6	-6	ர	பு	...	8-3	5	2 6	0 24.0	0 63	108 கோ. சாத்தம் மான்.
7	-7	ர	பு	...	8-3	5	2 62	0 19.5	0 51	168 கோ. சாத்தம் மான்.
								4 45.5	11 67	
1	40-பா	ர	பு	...	8-4	6	2 00	0 04.0	0 10	117 ஜா. கிருஷ்ண முத்தி நாயுடு.
2	-பா	ர	பு	...	8-4	6	2 00	0 33.5	0 88	117 ஜா. கிருஷ்ண முத்தி நாயுடு.
3	-பா	ர	பு	...	8-4	6	2 00	0 01.5	0 06	486 கோ. ஜெயசகம நாயுடு.
4	-பா	ர	பு	...	8-4	6	2 00	0 02.5	0 06	326 ஆ. பூங்காவன கவுண்டர்.
5	-பா	ர	பு	...	8-4	6	2 00	0 03.0	0 09	486 பொ. கோ. ஜெய சாமநாயுடு.
6	-பா	ர	பு	...	8-4	6	2 00	0 50.0	1 31	257 ரா. துரைசாமி நாயுடு.
7	-பா	ர	பு	...	8-4	6	2 10	0 44.0	1 15	492 ஜா. கிருஷ்ண முத்தி (1), சாமமுத்தி (2).
8	-பா	ர	பு	...	8-4	6	2 10	0 70.0	1 83	130 வ. குப்புசாமி நாயுடு.
9	-பா	ர	பு	...	8-4	6	2 00	0 21.0	0 58	456 நா. வரத கவுண்டர்.
								2 50.5	6 06	
1A	41-1பா	ர	பு	...	8-4	6	2 00	0 06.0	0 12	55 (54) ச. ஏழுமலை கவுண்டர்.
1B	-1பா	ர	பு	...	8-4	6	2 00	0 33.5	0 67	55 (54) ச. ஏழுமலை கவுண்டர்.
2A	-2பா	ர	பு	...	8-4	6	2 00	0 16.0	0 30	16 பு. அன்ன புரணி.
2B	-2பா	ர	பு	...	8-4	6	2 00	0 24.5	0 48	218 பொ. சுப்பா மணியன்.
2C	-2பா	ர	பு	...	8-4	6	2 0	0 9.0	0 18	16 பு. அன்ன புரணி.
2D	-2பா	ர	பு	...	8-4	6	2 00	0 73.0	0 40	9 க. ஆயர்குப்பன்.



தமிழ்நாடு தமிலநாடு TAMILNADU

21.3.2025

100/-

K. பொன்னுரங்கம்-2
கோவிந்தவாடி

EF 623346
நா.குத்திரன்,
மு.தா.வி., உரிமம் எண்: 9/2005,
24th இலை சார்பதிவு வளாகம்
திருவண்ணாமலை தமிழ்நாடு

குத்தகை பத்திரம்

2025-ஆம் வருடம் மார்ச் மாதம் 21-ம் தேதி திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சுமங்கலி கிராமம், அம்மன் குளத் தெரு, கதவு எண்.1 என்ற முகவரியில் வசித்துவரும் சுப்பிரமணி குமாரர் வடிவேல்-1 கிஞ்சிபுரம் மாவட்டம், கிஞ்சிபுரம் வட்டம், கோவிந்தவாடி, அண்ணா நகர்-1, கதவு எண்.79/3 என்ற முகவரியில் வசித்துவரும் திரு.கிருஷ்ணன் (எ) கிஷ்டப்ப நாயக்கர் அவர்களின் குமாரர் K.பொன்னுரங்கம்-2, ஆகிய நாம் இருவரும் சேர்ந்து எழுதிக்கொண்ட சேர்ந்து எழுதிக் கொண்ட குத்தகை பத்திரம் என்னவென்றால்,

Signature

Signature



M. MURUGAN, M.A., B.L.,
NOTARY & NOTARY PUBLIC
No. 14744/2019
Tiruvannamalai
Tamil Nadu

21.3.2025



நம்மில் 1 நபருக்கு பாத்தியமான இதில் கண்ட சொத்துகளை நம்மில் 2 நபருக்கு கல் குவாரி வழி பாதை, போக்குவரத்து மற்றும் பலதரப்பட்ட பயன்பாட்டிற்காக நம்மில் 2 நபர் கேட்டுக்கொண்டதற்கு நம்மில் 1 நபர் சம்மதிக்கிறார். ஒரு (1) வருடத்திற்கு குத்தகை தொகையாக ரூ.2,000/- (ரூபாய் இரண்டாயிரம் மட்டும்) நம்மில் 2 நபர் நம்மில் 1 வசம் ஒப்படைக்க வேண்டியது. இந்த குத்தகை காலமானது இன்று முதல் அதாவது 21.03.2025 முதல் 21.03.2035 வரையிலான இடைப்பட்ட பத்து (10) வருட காலத்திற்கு 2 உபயோகப்படுத்திக்கொள்ள நம்மில் 1 நபர் சம்மதிக்கிறார். இந்தப்படிக்கு நான் யாருடைய வற்புறுத்தலோ தூண்டுதலோ இன்றி மனப்பூர்வமாய் சம்மதித்து எழுதிக்கொடுத்த குத்தகை ஆவணம் இதுவே ஆகும்.

சொத்து விபரம்

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், காகனம் கிராமம், பட்டா எண்.673-ல் புஞ்சை சர்வே எண்.48/20 0.3 மற்றும் பட்டா எண்.1083-ல் சர்வே எண்.426/2 0.62.50 ஏர்ஸ், சர்வே எண்.426/3 0.124ஏர்ஸ், பட்டா எண். 1126-ல் சர்வே எண்.35/2 0.44ஏர்ஸ், அளவுள்ள இடம் இந்த குத்தகை பத்திரத்திற்கு சம்மந்தப்பட்டதாகும்.

1 நபர்

[Signature]

சாட்சிகள்

1. M. ஜயகோன் S/o மணசுந்தன்

44 பிண்ணாக்கையில்குடி
சிட்டம் (த)

2. சீனிவாசன் S/o ஜயசுந்தன்

125, கையற்குடி
சிவசுந்தரி, கையற்குடி உடம்
திருவண்ணாமலை மாவட்டம் - 604402.

2 நபர்

[Signature]



[Signature] 213 2024
M. MURUGAN, M.A., B.L.,
ADVOCATE & NOTARY PUBLIC
Govt. of India (Regd. No. 14344/2019
No. 239, Mettu Street, Vengikkal,
Tiruvannamalai Tk & DL-606 604.
Cell: 9445416682



தமிழ்நாடு தமிழ்நாடு TAMILNADU

CE 288947

100/-

SVS MINES

B.L. சுவாமிநாதன்,

12-11-2020

SUMANGALI

சுமங்கலி வெங்கலி,

செய்யாடி, கங்கிபுரம் மாவட்டம்.

No.12639/51-7 Dt: 30-3-1992

S.V.S.MINES

PARTNERSHIP DEED

THIS AMENDMENT DEED OF PARTNERSHIP MADE THIS DAY OF 12th Nov 2020 BETWEEN:

1. Mr.S.VADIVEL (Aadhar :418548355909) aged about 30 years, son of Mr.SUBRAMANI now residing at No.1,Amman Kula Street,Sumangali Village,Vembakkam Taluka,Tiruvannamalai Dist -604402, Hereinafter called and referred to as the party of the FIRST PART
2. Mr.K.PONNURANAGM(Aadhar : (804053181348),aged about 55 years,Son of Mr.KRISHNAN ,now residing at No.79/3,Anna Nagar,Govindavadi,Kanchipuram,Kanchipuram Dist-631502,Hereinafter called and referred to as the party of the SECOND PART.

[Signature]

[Signature]



தமிழ்நாடு தமில்நாடு TAMILNADU

₹.100/-

12.11.2020

SVS MINES

SUMANGALI

CE 288946

B.L. சிவகுமார்,

ஸ்டாம்பு வென்டர்,

செய்யாறு, திவாரை மா.

No.12639/91-7 Dt: 30-3-1992

WHEREAS the above parties are carrying on the partnership business of Manufacturing of Blue Metals under the name and style of "S V S MINES" at S.NO.393/2,KARANTHAI VILLAGE,SEMBAKKAM POST,SEMBAKKAM TALUKA,TIRUVANNAMALI DIST, now the partners are decided to shift the Business and Registered office address of the Firm to S.NO.5/1,SUMANGALI VILLAGE,SEMBAKKAM TALUKA,TIRUVANNAMALI DIST -604402, at present the firm does not commenced the business still the preliminary activities are going on .The partners are decided to carrying on the partnership business according to terms and conditions of the partnership deed executed on 12-11-2020.

Whereas the parties to the contract decide to reduce the terms and conditions of partnership into writing.

S. Vachan

2

Sumangali



தமிழ்நாடு தமிலநாடு TAMILNADU

100/-
12.11.2020

S V S MINES
SUMANGALI

CE 288945
B.L. சிவசுமார்,
சுமங்கலி கெண்டி,
செங்கமலை, திருவள்ளூர் மாவட்டம்.
No.12639/91-7 Dt: 30-3-1992

NOW THEREFORE THIS DEED WITNESSTH AS FOLLOWS:

1.NAME OF THE FIRM:

That the name and style of the partnership business shall be "S.V.S MINES" and any other name or names as may be decided by the partners.

2.OBJECT OF THE FIRM:

That the nature of business shall be Manufacturing of Blue Metals and other line or lines of business as may decide by the partners from time to time.

3.COMMENCEMENT OF BUSINESS:

That the partnership hereby constituted has commenced with effect from 12 th day of Nov .2020.

S. Radhakrishnan

3

K. Rajasekaran



amount due to the retiring partner shall be paid within 90 days from the date of his/her retirement.

13. RESPONSIBILITY OF THE PARTNERS:

(i) That no parties shall be responsible for the personal debts of the other Party.

(ii) That the parties shall be just and faithful to each other in transactions relating to the said partnership affairs and shall at all times be responsible to the other in giving a true and faithful account of the business.

(iii) That no party shall without the consent of the others:

A. Hire any person or (except in case of gross misconduct) dismiss any agent or servant of the firm.

B. Draw or accept or endorse any bills of exchange or promissory note on account of the firm

(iv) That no party shall have any right to transfer his or her share(s), duties and responsibility(ies) to any other person.

(v) That no party shall without the consent of the other parties release or compound any debt owing to the firm, diminish security of the firm without recovering the full amount thereof or lend any money or deliver goods belonging to the firm except in the usual course of business of the firm.

(vi) That the parties hereto shall be entitled to modify the above terms among the partners by executing a supplementary deed and any such deed when executed shall have effect, unless otherwise provided, from the first day of the accounting period in which such supplementary deed is executed and the same shall form part of this deed of partnership.

14. No partner shall under any circumstance transfer or encumber share in the firm without the previous consent of the other partners in writing.

15. The partnership shall not be dissolved either by the death or retirement or due to legal incapacity of the partners.

16. The partnership shall be a "PARTNERSHIP AT WILL"

17. This deed partnership shall be effective from 12 - 11 - 2020

18. In respect of matters not provided for in this deed of partnership the parties hereto shall abide by the provisions of the "INDIAN PARTNERSHIP ACT, 1932"

IN WITNESSTH whereof the parties hereto set their hands to these present in the presence of:-

WITNESS:

1. ~~X~~ (A) Cushty S/o Raman
A. Chandiramony
Somenkali village
Kembarkam Taluk

1.(S.VADIVEL)

20 K. O. Jones / 10/10/10
prepared by

6
VAKUUM & CO

M. SIVAKUMAR, B.Com.C.A.,
Income Tax Practitioner.



extent inadmissible shall be born by/debited to the account of the concerned partner.

- (III) That the total remuneration to the working partners as per clause 7(i) in excess of the remuneration admissible under sec.40(b) of the Income Tax Act, 1961 shall be pro-rata apportioned amongst the working partners on the basis of the remuneration drawn by both of them and tax on such inadmissible remuneration shall be born by/debited to the concerned partner.
- (IV) The yearly remuneration payable to the partners shall be due to and credited to their respective accounts at the close of the accounting year when the final accounts of the firm are made up and the amount of the remuneration due to them is determined.

8. **DAWINGS OF THE PARTNERS:**

That the personal drawing shall be made as may be mutually agreed between the partners from time to time.

9. **BORROWINGS:**

That the firm may raise loans from any sources as and when required by mutual consent of all the partners jointly.

10. **ACCOUNTS AND ACCOUNTS CLOSING:**

(i) That the all partners shall maintain and keep the regular accounts, which shall be kept at the place of business for the time being of the partnership and shall be open for inspection to all the partners, who will be entitled to take extracts or notes as desire.

(ii) That on 31 st March every year or any other found to be more convenient, an account shall be taken of the assets and liabilities and profit or losses of the firm. The accounts thus prepared shall be signed by the partners and once signed, shall be binding on them provided that if any manifest error is found therein, such error shall be rectified.

11. **BANK ACCOUNT:**

Bank accounts shall be opened in the name of the firm by both parties in one / more bank/s as may be mutually decided and it shall be operated by any two parties/or as may decided by all the partners, power to operate bank accounts shall include power to Get Term Loans, operate all OD, OCC and any other loan a/cs of the firm.

12. **DISSOLUTION:**

Any partner desiring to retire from the firm shall give one month notice to the other partner. The books of accounts shall be closed, his/her share of profit / loss account up to the date of his/her retirement shall be ascertained and all

[Signature]

[Signature]



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[Signature]

[Signature]



4.REGISTERED OFFICE:

That the principal place of business shall be at No.S.NO.5/1,SUMANGALI VILLAGE,SEMBAKKAM TALUKA,TIRUVANNAMALAI DIST -604402 or any other place or places as may be agreed upon by the partners from time to time.

5.CAPITAL OF THE FIRM:

The capital of the business shall be such amount standing to the credit of the partners' capital accounts from time to time

That the fixed capital of the firm shall be *Rs.20,00,000/- (Rupees Twenty Lakhs only)* contributed by the partners as follows:

1. S.VADIVEL	- Rs.10,00,000/-
2. K.PONNURANGAM	- Rs.10,00,000/-
TOTAL	Rs.20,00,000/-

The capital account shall be increased or decreased as the partners decide from time to time .The rate of interest @ 12% per annum or such rate/s prescribed by the Income Tax Act,1961 or any amendment made thereof which shall payable to the partners on the out standing amount in their capital and current account.

6.PROFIT/LOSS SHARING RATIO:

That the profits and loss if any the firm shall be shared / borne by the partners as follows:

1. S.VADIVEL	- 50%
2. K.PONNURANGAM	- 50%
TOTAL	Rs.100.0%

7.WORKING PARTNERS AND THEIR REMUNERATION:

- (I) Both the parties are to shall manage the affaires of the firm and therefore all are working partners. As per mutual agreement The working partners shall be paid a remuneration @ Rs.10000/- per month each with effect from the date of this deed.
- (II) That the parties hereby agree and declare that if the remuneration paid or payable to any partner is not admissible as a deduction from the income of the firm,pursuant to Sec.40(b) of the Income Tax Act,1961 or any statutory modification or re-enactment thereof,the tax on such remuneration to the

S. Vadivel

4

K. Ponnurangam

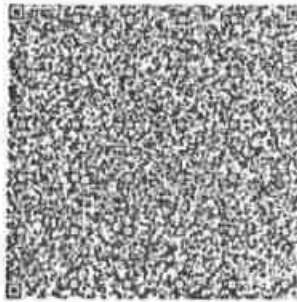


இந்திய அரசாங்கம்
Government of India

இந்திய தனிப்பட்ட அடையாள ஆணையம்
Unique Identification Authority of India

பதிவேட்டு எண் / Enrolment No.: 2193/10856/02222

To
பொன்னுரங்கம் கிருஷ்ணன்
Ponnurangam Krishnan
S/O Krishnan,
NO 79/3,
ANNA NAGAR-1,
VTC: Govindavadi,
PO: Govindavadi,
District: Kancheepuram,
State: Tamil Nadu,
PIN Code: 631502.
Mobile: 9787478225



Signature Not Verified
Digitally signed by Ponnurangam Krishnan
DN: cn=Ponnurangam Krishnan, o=Unique Identification Authority of India, email=P.Krishnan@uidai.gov.in, c=IN

உங்கள் ஆதார் எண் / Your Aadhaar No. :

8040 5318 1348

VID : 9165 6396 3050 3136

எனது ஆதார், எனது அடையாளம்



இந்திய அரசாங்கம்
Government of India



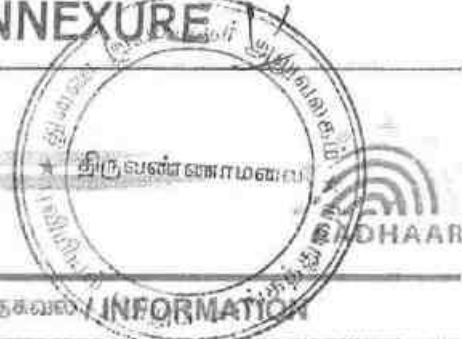
பொன்னுரங்கம் கிருஷ்ணன்
Ponnurangam Krishnan
பிறந்த நாள்/DOB: 10/05/1964
ஆண்/ MALE

ஆதார் என்பது அடையாளத்திற்கான சான்றாகும். குடியியலும், அல்லது பிறந்த தேதிக்கான சான்றல்ல. இது சட்டப்படி, வி. ம. ச. சட்டம், பதிவு செய்யப்பட்ட, வேண்டும் (ஆண்களின் அங்கீகரிக்கப்பட்ட) அல்லது ம. குறியிடப்பட்ட, எ.கே.என். செயற்கை முறையில் உருவாக்கப்பட்டது.
Aadhaar is proof of identity, not of citizenship or date of birth. It should be used with verification (online authentication, or scanning of QR code / offline XML).

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எனது ஆதார், எனது அடையாளம்

ANNEXURE



தகவல் / INFORMATION

- ஆதார் என்பது அடையாளத்திற்கான சான்றாகும். குடியியலும், அல்லது பிறந்த தேதிக்கான சான்றல்ல. பிறந்த தேதி என்பது ஆதார் எண் வைத்திருப்பவனால் சமர்ப்பிக்கப்பட்ட விதிமுறைகளில் குறிப்பிடப்பட்டுள்ள பிறந்த தேதி ஆவணத்தின் ஆதாரம் மூலம் ஆதரிக்கப்படும் தகவலின் அடிப்படையில் அமைந்துள்ளது.
- இந்த ஆதார் கடிதத்தை மட்டும் நியமித்த அங்கீகரிக்கப்பட்ட நிறுவனத்தால் ஆணையன் அங்கீகரிக்கப்பட்ட ஆப் ஸ்டோர்ஸில் கிடைக்கும் மட்டும் ஆதார் அல்லது ஆதார் QR ஸ்கேனர் செயலியை பயன்படுத்தி QR குறியீடு ஸ்கேனிங் அல்லது www.uidai.gov.in-ல் கிடைக்கும் பாதுகாப்பான QR குறியீடு ரீட்டர் செயலியை பயன்படுத்தி சரிபார்க்க வேண்டும்.
- ஆதார் தனித்துவமானது மற்றும் பாதுகாப்பானது.
- ஆதார் பதிவு செய்யப்பட்ட நாளிலிருந்து ஒவ்வொரு 10 வருடங்களுக்குப் பிறகும் ஆதாரில் அடையாளம் மற்றும் முகவரிக்கான ஆவணங்கள் புதுப்பிக்கப்பட வேண்டும்.
- பல்வேறு அரசு மற்றும் அரசு ஈரா பலன்கள் / சேவைகளைப் பெற ஆதார் உங்களுக்கு உதவுகிறது.
- உங்கள் மொனைஸ் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் புதுப்பிக்கவும்.
- ஆதார் சேவைகளைப் பெற mAadhaar செயலியை பதிவிறக்கவும்.
- ஆதார்பயோமெட்ரிக்ஸைப் பயன்படுத்தாதபோது பாதுகாப்பை உறுதிசெய்ய ஆதார்பயோமெட்ரிக்ஸ் வாசுதன்யாக அம்சத்தைப் பயன்படுத்தவும்.
- ஆதார் கோரும் நிறுவனங்கள் ஒப்புதலைப் பெற வேண்டிய கட்டாயம் உள்ளது.
- Aadhaar is proof of identity, not of citizenship or date of birth (DOB). DOB is based on information supported by proof of DOB document specified in regulations, submitted by Aadhaar number holder.
- This Aadhaar letter should be verified through either online authentication by UIDAI-appointed authentication agency or QR code scanning using mAadhaar or Aadhaar QR Scanner app available in app stores or using secure QR code reader app available on www.uidai.gov.in.
- Aadhaar is unique and secure.
- Documents to support identity and address should be updated in Aadhaar after every 10 years from date of enrolment for Aadhaar.
- Aadhaar helps you avail of various Government and Non-Government benefits/services.
- Keep your mobile number and email id updated in Aadhaar.
- Download mAadhaar app to avail of Aadhaar services.
- Use the feature of Lock/Unlock Aadhaar/biometrics to ensure security when not using Aadhaar/biometrics.
- Entities seeking Aadhaar are obligated to seek consent.



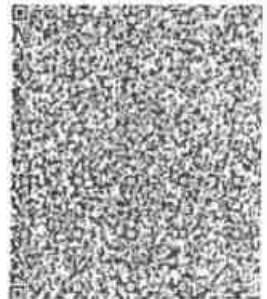
இந்திய அரசாங்கம்
Unique Identification Authority of India



முகவரி:
S/O கிருஷ்ணன், எண் 79/3, அண்ணா நகர்-1,
கோவிந்தவாடி, கோவிந்தவாடி, காஞ்சிபுரம்,
தமிழ்நாடு - 631502

Address:
S/O Krishnan, NO 79/3, ANNA NAGAR-1,
Govindavadi, PO: Govindavadi, DIST:
Kancheepuram,
Tamil Nadu - 631502

Details as on 23/09/2024



8040 5318 1348

VID : 9165 6396 3050 3136

1947 | help@uidai.gov.in | www.uidai.gov

आयकर विभाग

INCOME TAX DEPARTMENT

K PONNURANGAM

KISHTAPPAN

10/05/1964

Permanent Account Number

CEHPP4808L

[Handwritten Signature]

Signature



भारत सरकार
GOVT. OF INDIA



அண்ணாமலைப்

ANNAMALAI



பல்கலைக்கழகம்

UNIVERSITY

அறிவியற்புலம்
FACULTY OF SCIENCE

மே, 2011 இல்

பயன்பாட்டு நிலத்தியல்

பிரிவில்

நடத்திய தேர்வுகளில்

வெங்கடகிரி பா

கூடுதல்

மதிப்பீடுள்ளிகள் 10.00 க்கு சராசரியாக 6.03 பெற்று

இரண்டாம் வகுப்பில்

தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி,

அறிவியல் நிறைஞர்

பட்டம்

பெறுவதற்கு

உரியவர்

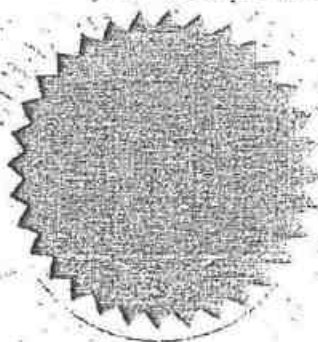
ஆகின்றார்

என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that VENGATAGIRI B has been admitted to the Degree of MASTER OF SCIENCE in APPLIED GEOLOGY, he/she having secured OGPA of 6.03 out of 10.00 been certified by duly appointed Examiners at the Examination held in MAY, 2011 to be qualified to receive the same, and that he/she was placed in SECOND CLASS.

பல்கலைக்கழக முத்திரை பெறுகின்றது

Given under the seal of the University

அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 09/11/2011

துணை தேர்வாளையர் (கல்விசார்ந்து)
Dy. Controller of Examinations (Academic)

Dr. M. R. R. R.

Dr. M. R. R. R. R.
பதிவாளர்
Registrar

Dr. M. R. R. R.

Dr. M. R. R. R.
துணை வேந்தர்
Vice-Chancellor



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 Multicolour Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that Thiru. B.Vengadagiri son of Thiru. Balasubramanian (whose signature is appended) worked in the above mine from 10.07.2012 to 15.08.2018 and is still working. 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's class)
MANAGER (MINES) class
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

(Signature of Candidate)

State the name of the mineral works: Multi Colour Granite

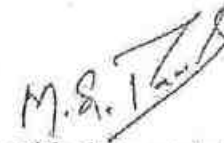


S. No.	Particulars of Practical experience (a)	Place of Experience (b) Opencast	Period of Practical experience (c)		Total Experience (e)		
			From	To	Yrs.	Months	Days
1.	As a trainee in drilling operation	Open cast	10.07.2012	24.10.2013	01	03	16
2.	As a trainee in deep hole blasting operation	Open cast	25.10.2013	31.12.2014	01	02	07
3.	Production incharge quality control and Supervisor of Earth moving Mining Machinery	Open cast	01.01.2015	15.08.2018	3	7	14
GRAND TOTAL					06	1	5
In words : Six years one month ten days					Six	One	five

In below ground working	In open cast working	In all
Nil	Average monthly output 250m ³	250m ³
Nil	Average daily employment 25Nos	25Nos

Note: The average employment is less because this is mechanized mines having deep hole drilling, blasting and Heavy Earth Moving Machineries operation.

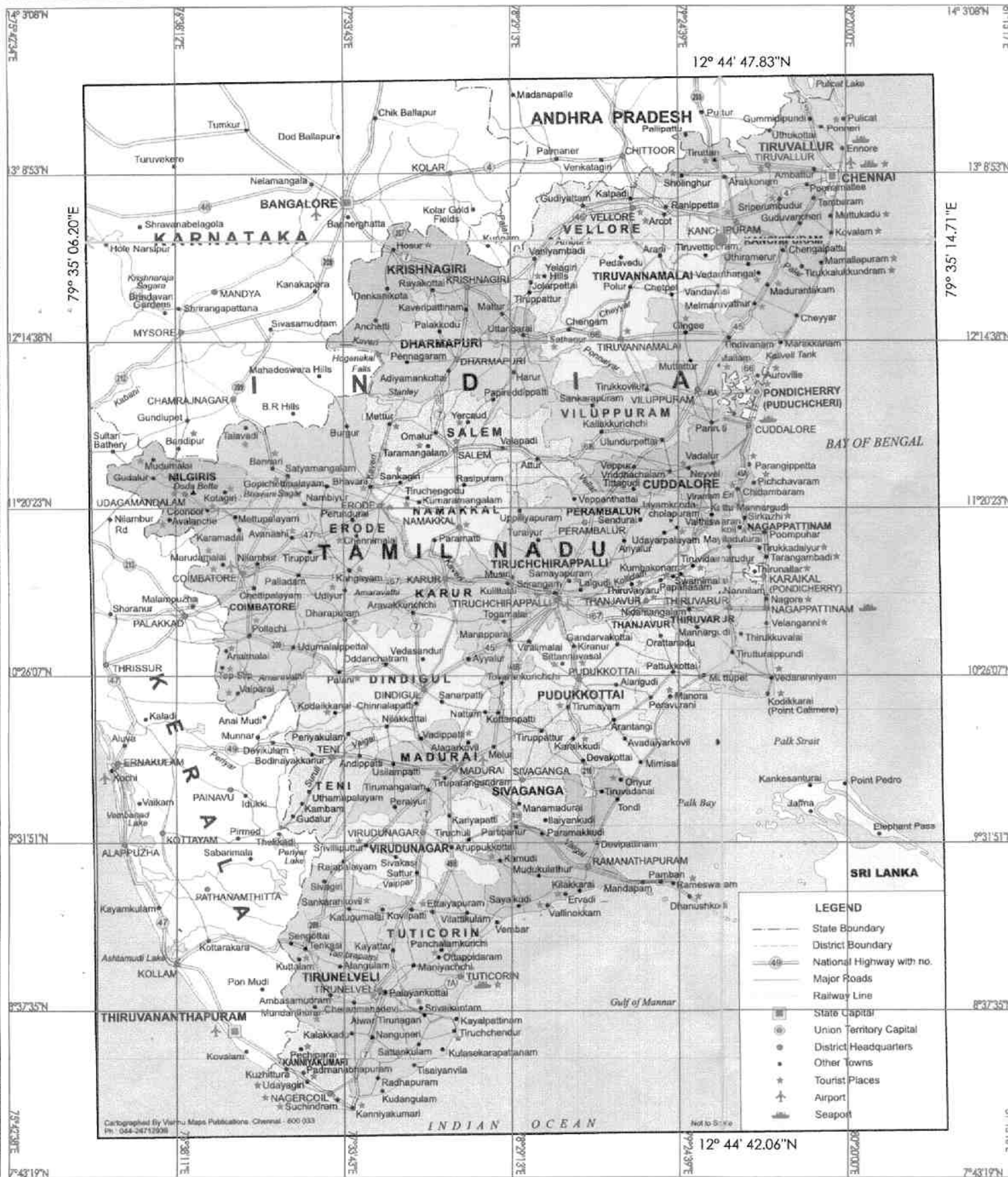

(Signature of Candidate)


(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.



PLATES



INDEX

Q.L.APPLIED AREA: ●

TOPO SHEET NO. : 57 P/10

LATITUDE : 12° 44' 42.06"N to 12° 44' 47.83"N
LONGITUDE : 79° 35' 06.20"E to 79° 35' 14.71"E

APPLICANT :

M/s. S.V.S. MINES,
PARTNER, Thiru.K.PONNURANGAM,
No.5/1, SUMANGALI VILLAGE,
VEMBAKKAM TALUK,
TIRUVANNAMALAI - 604 402.

LOCATION OF Q.L.A AREA:

SF.NOS : 35/1A, 1B1(P), 1B2(P), 2(P), 3.5(P) & 36.
EXTENT : 2.85.4 HA,
VILLAGE : KAGANAM,
TALUK : VEMBAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMILNADU.

PLATE NO - I

DATE OF SURVEY : 30.07.2025

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

(Signature)
B. VENGADAGIRI, M.Sc.,
QUALIFIED PERSON

(UNDER RULE 15(1)(a) and (b) of MCR 2016)

INDEX



12° 50' 13.27"N

79° 29' 34.65"E



12° 39' 16.61"N

79° 40' 46.25"E

Express highway: with toll; with bridge; with distance stone.
Roads metalled: according to importance.
Roads, double carriageway; according to importance.
Unmetalled road, Cart-track, Pack-track with pass, Foot-path.
Streams: with track in bed; undefined. Canal.
Dams: masonry or rock-filled; earthwork. Weir.
River, dry with water channel; with island & rocks. Tidal river.
Submerged rocks. Shoal. Swamp. Reeds.
Wells: lined; unlined. Tubewell. Spring. Tanks perennial.
Embankments: road or rail; tank. Broken ground.
Railways, broad gauge: double; single with station.
Railways, other gauges: double; single with distance stone, do.
Mineral line or tramway. Kiln. Cutting with tunnel.
Contours with sub-features. Rocky slopes. Cliffs.
Sand features: (1) flat. (2) sand-hills (permanent).
Town or Village: inhabited; deserted. Fort.
Huts: permanent; temporary. Tower. Antiquities.
Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves.
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.
Mine. Vine on trellis. Grass. Scrub.
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.
Areas: cultivated; wooded. Surveyed trees.
Boundary, international.
Boundary, state: demarcated; undemarcated.
Boundary, district; subdivision; taluk or taluk; forest.
Boundary pillars: surveyed; unlocated.
Heights, triangulated: station; point; approximate.
Bench-mark: geodetic; tertiary; canal.
Post office. Telegraph office. Overhead tank.
Rest house or inspection bungalow. Circuit house.
Camping Ground. Forest: reserved; protected.
Spaces names: administrative; locality or tribal.
Hospital. Dispensary. Veterinary: Hospital/Dispensary.
Aerodrome. Helipad. Tourist site.
Powerline: with pylons surveyed; with poles unsurveyed.

APPLICANT :

M/s. S.V.S. MINES,
PARTNER, Thiru.K.PONNURANGAM,
No.5/1, SUMANGALI VILLAGE,
VEMBAKKAM,
TIRUVANNAMALAI.

LOCATION OF Q.L.A. AREA:

SF.NOS : 35/1A, 1B1(P), 1B2(P), 2(P), 3.5(P) & 36.
EXTENT : 2.85.4 HA,
VILLAGE : KAGANAM,
TALUK : VEMBAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMILNADU.

PLATE NO - I-A

DATE OF SURVEY : 30.07.2025

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10km RADIUS

SCALE: 1:1,00,000

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

[Signature]
B. VENKATARAMAN, Sec.,
CHARGE PERSON

(UNDER RULE 15(1)(a) and (b) of the Mines Act, 1926)

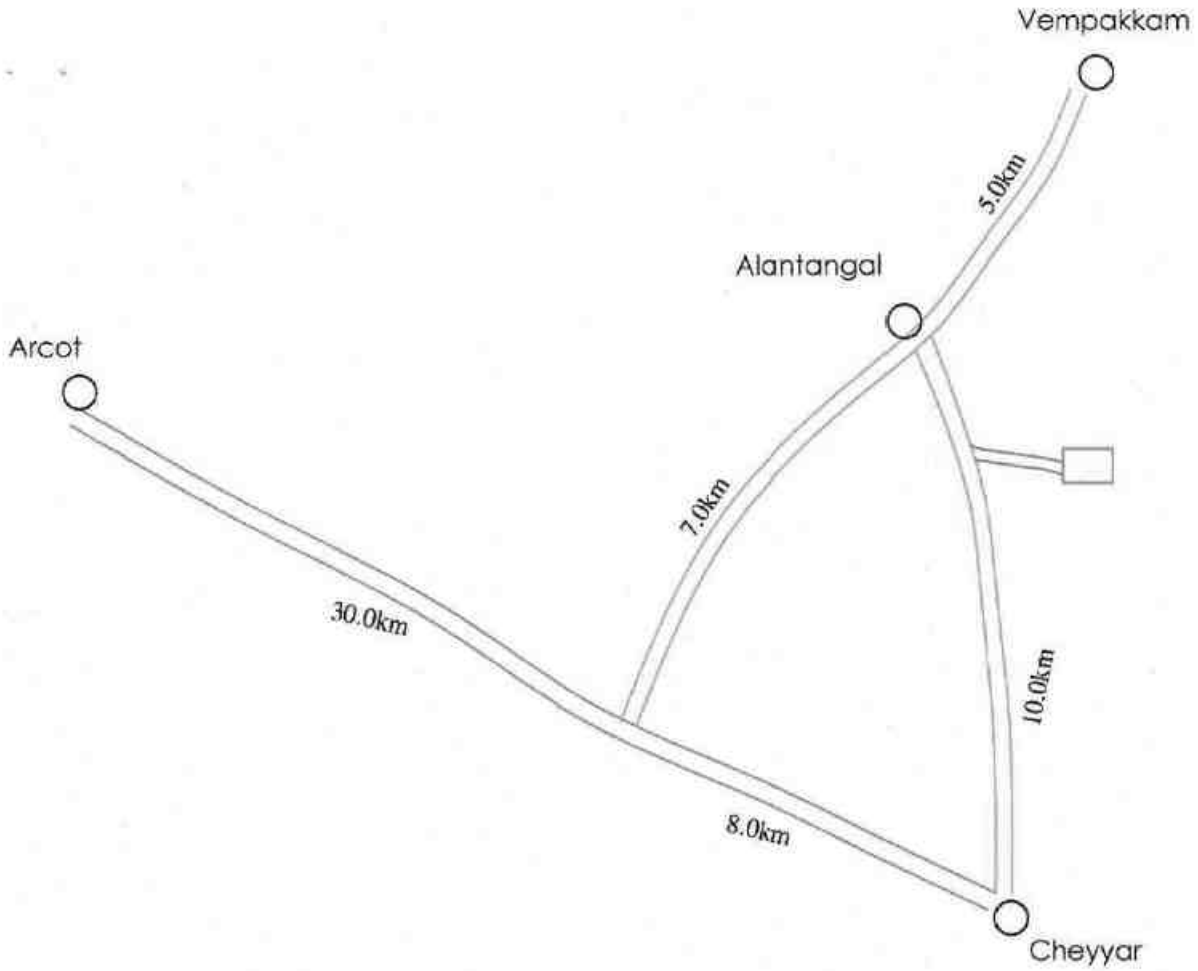
TOPO SHEET NO. : 57 P/10

LATITUDE : 12° 44' 42.06"N to 12° 44' 47.83"N
LONGITUDE : 79° 35' 06.20"E to 79° 35' 14.71"E

10km RADIUS :

Q.L. APPLIED AREA :

PLATE NO : I-C
ROUTE MAP



INDEX

LEASE AREA



SATATE HIGHWAY



PANCHAYAT ROAD



APPROACH ROAD



APPLICANT :

M/s. S.V.S. MINES,
PARTNER, Thiru.K.PONNURANGAM,
No.5/1, SUMANGALI VILLAGE,
VEMBAKKAM TALUK,
TIRUVANNAMALAI - 604 402.

LOCATION OF Q.L.A AREA:

SF.NOS : 35/1A, 1B1(P), 1B2(P),
2(P), 3, 5(P) & 36.
EXTENT : 2.85.4 HA.
VILLAGE : KAGANAM,
TALUK : VEMBAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMILNADU.

SCALE :

NOT TO SCALE

PREPARED BY:

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KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

B. VENGADASIRI, M.Sc.,
QUALIFIED PERSON

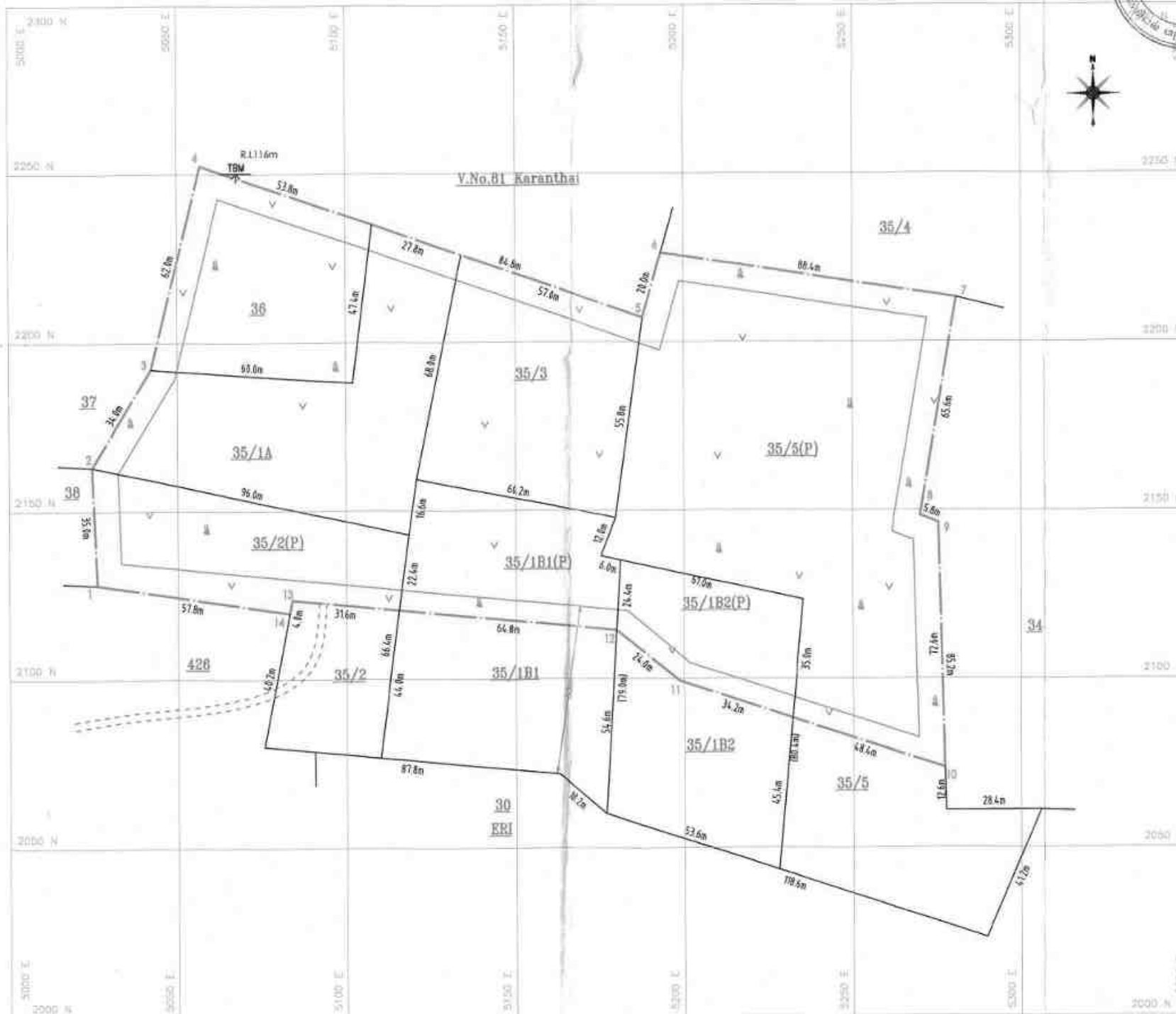
(UNDER RULE 15(1)(a) and (b) of MCR 2016)



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 44' 43.78"N	79° 35' 06.28"E
2	12° 44' 44.92"N	79° 35' 06.20"E
3	12° 44' 45.87"N	79° 35' 06.80"E
4	12° 44' 47.83"N	79° 35' 07.28"E
5	12° 44' 46.38"N	79° 35' 11.63"E
6	12° 44' 47.01"N	79° 35' 11.81"E
7	12° 44' 46.59"N	79° 35' 14.71"E
8	12° 44' 44.48"N	79° 35' 14.36"E
9	12° 44' 44.41"N	79° 35' 14.54"E
10	12° 44' 42.06"N	79° 35' 14.61"E
11	12° 44' 42.87"N	79° 35' 12.01"E
12	12° 44' 43.37"N	79° 35' 11.39"E
13	12° 44' 43.64"N	79° 35' 08.20"E
14	12° 44' 43.51"N	79° 35' 08.17"E

DATUM : UTM-WGS84, ZONE 44 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- SHRUBS
- APPROACH ROAD

APPLICANT :

M/s. S.V.S. MINES,
PARTNER, Thiru. K. PONNURANGAM,
No. 5/1, SUMANGALI VILLAGE,
VEMBakkam TALUK,
TIRUVANNAMALAI - 604 402.

LOCATION OF Q.L.A. AREA:

SF. NOS : 35/1A, 1B1(P), 1B2(P), 2(P), 3.5(P) & 36.
EXTENT : 2.85.4 HA.
VILLAGE : KAGANAM,
TALUK : VEMBakkam,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMILNADU.

PLATE NO - II

DATE OF SURVEY : 30.07.2025

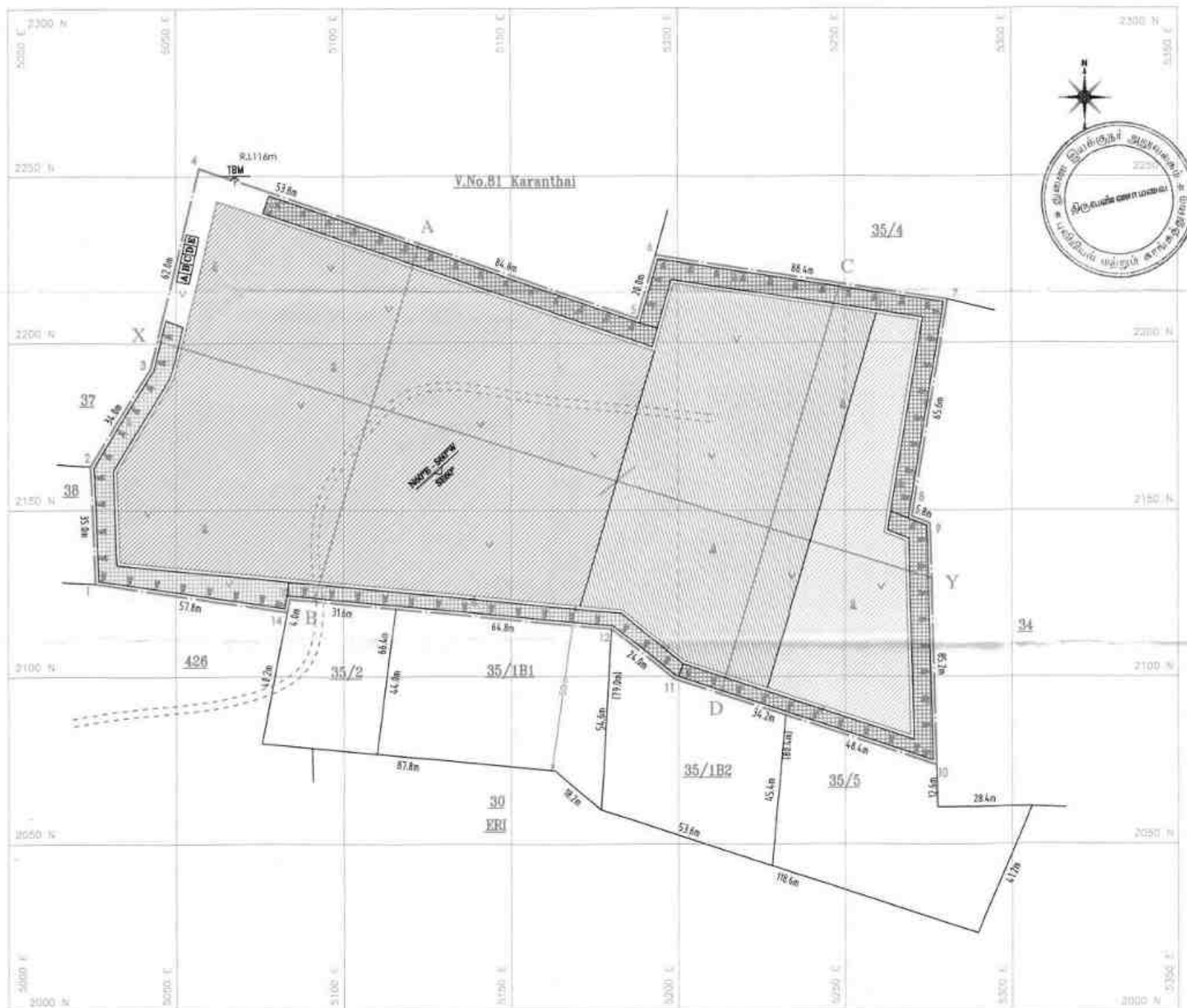
QUARRY LEASE PLAN &
SURFACE PLAN

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

QUALIFIED PERSON
(UNDER RULE 15(1)(a) and (b) of MCR 2016)



SITE SERVICES
(Proposed)
A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHELTER
E - TOILET
M - MAGAZINE

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- STRIKE & DIP
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- D.O.E DEPTH OF ESTIMATION

APPLICANT:

M/s. S.V.S. MINES,
PARTNER, Thiru. K. PONNURANGAM,
No.5/1, SUMANGALI VILLAGE,
VEMBAKKAM TALUK,
TIRUVANNAMALAI - 604 402.

LOCATION OF Q.L.A. AREA:

SF.NOS : 35/1A, 1B1(P), 1B2(P), 2(P), 3, 5(P) & 36.
EXTENT : 2.85.4 HA.
VILLAGE : KAGANAM,
TALUK : VEMBAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMILNADU.

PLATE NO - III

DATE OF SURVEY : 30.07.2025

TOPOGRAPHY, GEOLOGICAL PLAN, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

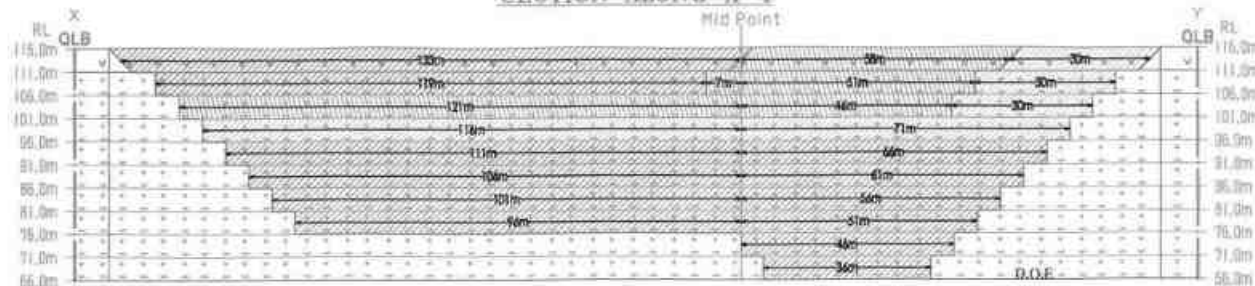
SCALE: 1:1000

PREPARED BY:

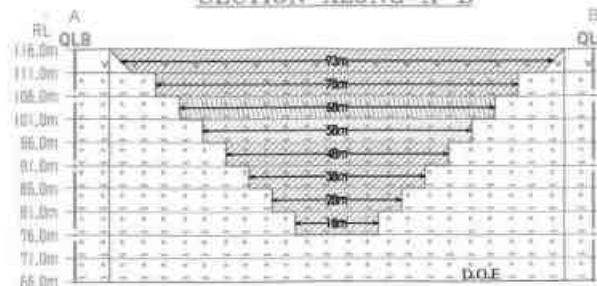
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT.

B. V. S. S. MINES, M. S. S.
QUALIFIED PERSON
(under Rule 15(1)(a) and (b) of MCR 2016)

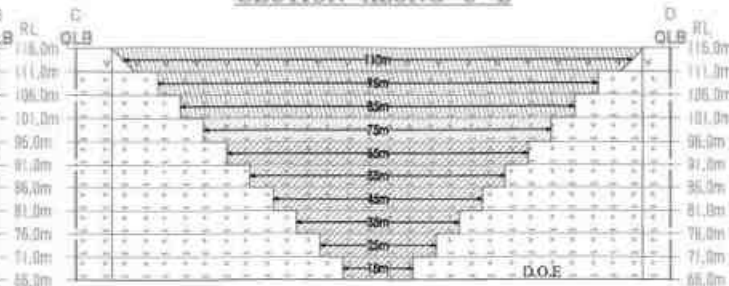
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



- I - yr Proposed area to be Planted
- II - yr Proposed area to be Planted
- III - yr Proposed area to be Planted
- IV - yr Proposed area to be Planted
- V - yr Proposed area to be Planted

- I - yr Proposed area to be Quarried
- II - yr Proposed area to be Quarried
- III - yr Proposed area to be Quarried
- IV - yr Proposed area to be Quarried
- V - yr Proposed area to be Quarried

UDAYAM EXPLOSIVES

No.6/22, Ramani Nagar 2nd Street, Mudichur Road, West Tambaram, Chennai - 600 045.

Cell No: 94440 66373

Proprietor

Date:06.08.2025

J.SIVAKUMAR

To,

M/s. S.V.S. Mines
Thiru. K. Ponnurangam (Partner)
No.5/1, Sumangali Village
Vembakkam Taluk,
Tiruvannamalai District- 604 402

Sub: Regarding blasting work using explosive in your proposed quarry

Sir,

We are having explosive license in Form 22 holding no. E/SC/TN/22/164 (E10462) situate in survey no.4/1, Nattarasampattu Village, Sriperumbudur Taluk, Kanchipuram District, our office functioning at address 6/22, Ramani Nagar 2nd Street, Mudichur Road, West Tambaram, Chennai 600 045.

We are enacting explosive vans for transporting detonators and class:2 separately for our magazine to our work site and well experienced and licensed blasters and shot fired for safe blasting work for 5 years without untoward incident.

We are willing to undertake blasting work on contract basis at your proposed quarry at SF. Nos, 35/2(Part), 3, 5(Part), 1A, 1B1(Part), 1B2(Part) and 36 total 2.85.40 Ha of kaganam Village, Vembakkam Taluk, Tiruvannamalai District.

Thank You,
For UDAYAM EXPLOSIVES


Proprietor

Signature
(For Udayam Explosives)

Enclosure: 1. License copies
2. Blaster license copies
3. E-Van license copies

Print Back



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
 (Formerly Department of Explosives)
 A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
 26 Haddous Road, Nungambakkam Chennai 600006
 Tele: 28281023 Fax: 28284848
 Email: jtccechennai@explosives.gov.in

No:E/SC/TN/25/1426(E113625)

Dated : 14/02/2023

To,
 Udayam Explosives,
 J. Sivakumar, Proprietor/Occupier, M/s Udayam Explosives, No. 6/22, Ramani Nagar, 2nd street, Mudichur Road, West Tambaram
 Town/Village - West Tambaram
 Distt. KANCHIPURAM, State. Tamil Nadu, Pincode-600045

Subject: Road Van for the carriage of Explosives Registration No TN-11/AJ-2563 Licence No.E/SC/TN/25/1426(E113625) granted in Form LE-7 of Explosives Rules 2008 - Renewal regarding

Sir(s),

Reference to your letter No.: 77363 dated: 25/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2028.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounted truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(Manmeet Singh Manhas)
 Dy. Controller of Explosives
 For Joint Chief Controller of Explosives
 South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, KANCHIPURAM (Tamil Nadu) for information.

For Joint Chief Controller of Explosives
 South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>]

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

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GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
(Formerly Department of Explosives)
A & D - Wing, Block I-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtecechennai@explosives.gov.in

No/E/SC/TN/25/1424(E113633)

Dated : 14/02/2023

To,
Udayam Explosives,
J. Sivakumar, Proprietor/Owner, M/s Udayam Explosives No. 6/22, Ranjan Nagar, 2nd street, MUDICHUR Road, West Tambaram
Town/Village - West Tambaram
Distt. KANCHIPURAM, State. Tamil Nadu, Pincode-600045

Subject: Road Van for the carriage of Explosives Registration No TN-11/AJ-2637 Licence No.E/SC/TN/25/1424(E113633) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding

Sir(s),

Reference to your letter No.: 77447 dated: 27/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2028.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounted truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(Manmeet Singh Manhas)
Dy. Controller of Explosives
 For Joint Chief Controller of Explosives
 South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, KANCHIPURAM (Tamil Nadu) for information.

For Joint Chief Controller of Explosives
 South Circle, Chennai

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भारत सरकार | Government of India
वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)
पूर्व नाम: विस्फोटक विभाग | Formerly- Department of Explosives
A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, 2nd Floor, Shastri Bhavan
26 हड्डोडस रोड, नुंगम्बक्कम चेन्नई | 26 Haddous Road, Nungambakkam Chennai 600006
फोन (Phone): 28281023 | फैक्स (Fax): 28284848
ईमेल Email: jsc@chennai.explosives.gov.in

संख्या (No.): E/SC/TN/22/164(E10462)

सेवा में | To,

M/s.UDAYAM EXPLOSIVES Proprietor, Sivakumar,
NO 627, Rantani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai, Town/Village - Chennai
District-CHENNAI, State-Tamil Nadu, Pincode - 600045

दिनांक (Date): 13/03/2023

विषय: Survey No(s)/4/1, ग्राम Nattarasampattu, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/164(E10462) के नवीनीकरण संदर्भ में।
Subject: Possession for Use of Explosives from magazine situated at Survey No(s)/4/1, Nattarasampattu, Dist. KANCHIPURAM, Tamil Nadu - Licence No.: E/SC/TN/22/164(E10462) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका संपर्कित विषय पर पत्र संख्या X दिनांक 25/01/2023 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्रारूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2028 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।
Reference to your letter No.: X dated: 25/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.
अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2028 से पहले इस कार्यालय को भेजे जाएं।
For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2028.

- प्रारूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
Application in Form RE-1 duly filled in and signed.
- एक से पांच वर्ष के अनुज्ञप्ति शुल्क का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office. (Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंचानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter. (Not applicable for fireworks store house)
- सभी ब्लास्टिंग ऑपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग ऑपरेशन करने वाले ब्लास्टर को योग्यता उसी अधिनियम से निर्धारित हो।
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डा.टी.एल.थानुलिंगम | Dr. T. L. THANULINGAM)

उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणचल, चेन्नई | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. जिला मजिस्ट्रेट (District Magistrate), KANCHIPURAM (Tamil Nadu)- सूचना के लिए (for information.)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणचल, चेन्नई | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें।)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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Reason: Licence No.: E/SC/TN/22/164
Location: Chennai [E10462]
Date: 13-03-2023 18:25:48 PM

अनुज्ञापि प्ररूप एल.ई. 3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञापि
Licence to possess : (e) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापि सं. (Licence No.) : E/SC/TN/22/164(E10462)

वार्षिक फीस रूपए (Annual Fee Rs): 6700/-

1. Licence is hereby granted to

M/s.UDAYAM EXPLOSIVES Proprietor: J.Sivakumar (अधिभोगी / Occupier : J.SIVAKUMAR), NO.6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai, Town/Village - Chennai, District-CHENNAI, State-Tamil Nadu, Pincode - 600045

Space for photograph of the licensee or occupier with signature

को अनुज्ञापि अनुदत्त की जाती है।

2. अनुज्ञापिधारी की प्रस्थिति / Status of licensee : Individual

3. अनुज्ञापि निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।
Licence is valid only for the following purpose

possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators, - के उपयोग के लिए

4. अनुज्ञापि विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।
Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

क्र. सं.	नाम और विवरण	वर्ग और प्रभाग	उप-प्रभाग	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1.	Nitrate Mixture	2, 0	0	1800 Kg.
2.	Safety Fuse	6, 1	0	5000 Mtrs
3.	Detonating Fuse	6, 2	0	30000 Mtrs
4.	Detonators	6, 3	0	40000 Nos.

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापि के लिए)
(b) Quantity of explosives to be purchased in a calendar month (applicable for licence under article 3(b) and (c)) :

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापि परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/164(E10462)
दिनांक (Dated) 20/08/1998

25 times as above.

6. अनुज्ञापि परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s), 4/1, ग्राम (Town/Village) : Nattarasampattu

जिला (District)
दूरभाष (Phone)

KANCHIPURAM

पुलिस थाना (Police Station) : MANIMANGALAM

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)
फैक्स (Fax)

7. अनुज्ञापि परिसर में निम्नलिखित सुविधाएं अंतर्निहित हैं।
The licensed premises consist of following facilities.

: Main room, Lobby and Detonators room

8. अनुज्ञापि समय-समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपावधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञापि प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापि की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 / Distance Form DE-2.

9. यह अनुज्ञापि तारीख 31 मार्च 2008 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2008.

यह अनुज्ञापि, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापि की शर्तों का अधिकमन करने या यदि अनुज्ञापि परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहाँ वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 20/08/1998

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 09/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/09/2012
- Change in Postal Address dated : 04/09/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/02/2013
- Change in Postal Address dated : 28/06/2019

नवीनीकरण के पृष्ठान्न के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
13/03/2023	31/03/2028	Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों की गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

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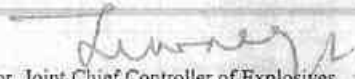
Digitally signed by Dr T L THANJINGAM
Reason: Licence No. : E/SC/TN/22/164
Location: Chennai [E10462]
Date: 13-03-2023 16:25:29 PM

Form DE-2
(See rule 113 of the Explosives Rules, 2008)
(Distance Form to be attached to the licence)

Safety distances required to be kept clear around magazine for high explosives or fire works or factory licence number E/SC/TN/22/164(E10462) in form LE-3 granted to M/s.UDAYAM EXPLOSIVES Proprieter.J.Sivakumar, NO.6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai, Tamil Nadu-.

Type of Structure(s)		Safety distances meters	
Inside Safety Distances(ISD)		M	UM
1	Room or Workshop used in Connection with the Magazine	33	49
2	Any other Explosives Magazine or store House or Factory of the Applicant		
3	Magazine Office		
Middle Safety Distances(MSD)			
4	Magazine Keeper's or Chowkidar's Dwelling house		
5	Railway including Minerals and Private Railways		
6	Canal (in active use) or other navigable water		
7	Dock or Pier or Jetty		
8	Public Highway or Public Road		129
9	Private Road which is PRINCIPAL means of access to a Temple, Mosque, Church, Gurudwara or other places of worships, Hospital, College, School or Factory		
10	River Embankment or Sea Embankment or Public Well		
11	Reservoir or Bounded tank/rope way		
12	Windmillor or Solar panel for Power Generation		
Outside Safety Distances(OSD)			
13	Dwelling House		
14	Govt. and Public Building		
15	Temple, Mosque, Church or Gurudwara or other Places of Worships		
16	Shops, Market place, Public recreation and Sports Ground, College, School, Hospital, Theater, Cinema or other Building where the public are accustomed to assemble		
17	Factory		
18	Buildings or Works used for the Storage in Bulk of Petroleum, Sprit, gas, or other inflammable or hazardous substances		257
19	Building or Works used for Storage and Manufacture of Explosives or of articles which contain Explosives		
20	Aerodrome		
21	Furnace, Kiln or Chimney		
22	Quarry or mine pit head		
23	Power House or Electric Substation		
24	Wireless Station		
25	Warehouse or other Storage Building		
26	Any other Protected works		
Overhead Electric lines			
27	Electric Power over head Transmission Lines above 440V	90	
28	Electric Power over head Transmission Lines upto 440V	15	

The Date : 20/08/1998


For Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 09/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/09/2012
- Change in Postal Address dated : 04/09/2012
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Reason: Licence No. : E/SC/TN/22/164
Location:Chennai (E10462)
Date:13-03-2023 16:24:04 PM

मैगजीन में वर्ग 1, 2, 3, 4, 5, 6, और 7 के विस्फोटकों को बिक्री या प्रयोग हेतु रखने के लिए प्रत्येक एल.ई. 3 (अनुच्छेद 3 (ख) से (ग)) में मुख्य विस्फोटक नियंत्रक या विस्फोटक नियंत्रक द्वारा प्रदान किए जाने वाले अनुज्ञापन सं. E/SC/TN/22/164(E10462) की शर्तें निम्नलिखित हैं।
The following are the conditions of licence number E/SC/TN/22/164(E10462) to possess for sale or use, explosives of Class 1, 2, 3, 4, 5, 6 and 7 in a magazine in Form L.E-3 (articles 3(b) to (c)) granted by Chief controller of Explosives or Controller of Explosives.

- परिसर में किसी भी समय विस्फोटकों की मात्रा अनुज्ञापन योग्य समर्थ से अधिक नहीं होगी।
The quantity of explosives on the premises at any one time shall not exceed the licensable capacity.
- विस्फोटकों के भंडारण के लिए प्रयुक्त होने वाली मैगजीन अनुसूची III और अनुज्ञापन के उपाबंध में विनिर्दिष्ट सुरक्षा दूरी बनाए रखना होगा।
The magazine used for storage of explosives shall maintain safety distance specified in Schedule III and annexure to the licence.
- मैगजीन का प्रयोग उन सभी विस्फोटकों के, जो इस अनुज्ञापन में विनिर्दिष्ट हैं, रखे जाने के लिए और ऐसे रखे जाने से संबंधित आधान या औजार या उपकरणों के रखे जाने के लिए ही किया जाएगा; अन्यथा नहीं।
The magazine shall be used only for keeping all explosives specified in this licence and of receptacles for, or tools or implements for work connected with the keeping of such explosives.
- पैकजों को खोलने का कार्य और विस्फोटकों को तोलने तथा पैक करने का कार्य मैगजीन में नहीं किया जाएगा।
The opening of packages and the weighing and packing of explosives shall not be carried on in the magazine.
- दो या दो से अधिक वर्णन के विस्फोटकों को, जिन्हें मैगजीन में रखे जाने की अनुज्ञा दी जा सकती है, मैगजीन में तभी रखे जाएंगे जब उनमें से प्रत्येक को, ऐसे पदार्थ या स्वरूप का कोई मध्यवर्ती विभाजक लगाकर या उनके बीच ऐसा मध्यवर्ती स्थान छोड़कर, परस्पर पृथक् कर दिया जाए कि किसी वजह से विस्फोटक में लगने वाली आग या होने वाला विस्फोट किसी अन्य वर्णन के विस्फोटक तक न पहुंच सके। परंतु -
(a) 2 (नाइट्रेट मिश्रण), वर्ग 3 (नाइट्रो योमिक) के विभिन्न विस्फोटक, वर्ग 6 प्रथम प्रभाग के अंतर्गत आने वाले सुरक्षा पल्लो और वर्ग 6 प्रभाग 2 के अंतर्गत आने वाले विस्फोटक प्रेरक पल्लो, जिनमें कोई खुला लोहा या इस्पात नहीं है, एक दूसरे के साथ बिना किसी मध्यवर्ती विभाजक या स्थापन के रखे जा सकते हैं।
(b) वर्ग 6 प्रभाग 3 के अंतर्गत आने वाले विस्फोटक प्रेरक अलग रखे जाएंगे।
(c) वर्ग 1 के अंतर्गत आने वाले बारूद को अलग रखा जाएगा।
Two or more description or explosives which may be permitted to be kept in the magazine shall be kept only if they are separated from each other by an intervening partition of such substance or character, or by such intervening space, as will effectually prevent explosion or fire in the one communicating with the other; Provided that -
(d) the various explosives of Class 2 (nitrate-mixture), Class 3 (nitro-compound), safety fuses belonging to Class 6 Division 1 and detonating fuses belonging to Class 6 Division 2 as do not contain any exposed iron or steel, may be kept with each other without any intervening partition or space;
(e) Detonators belonging to Class 6 Division 3 shall be kept separately;
(f) Gun powder belonging to Class 1 shall be kept separately.
- वर्ग 3 (नाइट्रो योमिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात सिवाय अनुज्ञापन प्राधिकारी की विशेष मंजूरी के मैगजीन में नहीं रखा जाएगा।
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of licensing authority.
- वर्ग 3 (नाइट्रो योमिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात मैगजीन में तभी रखा जाएगा जब कि किसी विस्फोटक नियंत्रक ने इसके लिए विशेष मंजूरी दे दी हो।
(i) जब ऐसी मंजूरी दे दी गई हो तो प्रत्येक निरीक्षण पर किसी विस्फोटक नियंत्रक से ऐसा लिखित प्रमाणपत्र अभिप्राय कर लिया जाए जिसमें दी गई मंजूरी के अंतर्गत आने वाली अवधि दर्शित की गई हो और ऐसे प्रमाणपत्र के अनुज्ञापिधारी अपने पास रखेगा और मांग की जाने पर प्रस्तुत करेगा।
(ii) जब कोई विस्फोटक मानक शुद्धता का न रह जाने के कारण या द्रवणीकरण या नाइट्रो ग्लिसरीन या द्रव नाइट्रो योमिक के निकल जाने के बिना प्रकट होने के कारण मैगजीन में भण्डारित किए जाने के उपयुक्त नहीं रह जाता है तो अनुज्ञापिधारी अपने ही व्यय पर ऐसे विस्फोटक के निपटारे के लिए ऐसे निदेशों का अनुपालन करेगा जो मुख्य नियंत्रक या विस्फोटक नियंत्रक जारी करें।
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of the Controller of Explosives.
- When such sanction has been given, a written certificate showing the period covered by the sanction shall be obtained from the Controller of Explosives at each inspection, and shall be kept by the licensee and produced on demand.
- When an explosive owing to its being no longer of standard purity or owing to signs of liquefaction or of exuded nitro-glycerin or liquid nitro-glycerin or liquid nitrocompound is no longer fit for storage in the magazine or store house the licensee shall comply, at his own expense, with such directions as to its disposal as the Chief Controller or Controller of Explosives may issue.
- मैगजीन के भीतरी भाग या उसमें लगी बेंचे, शेल्फ और फिटिंग का इस प्रकार सन्निर्माण किया जाएगा या उन्हें इस प्रकार अंतरित या अवतरित किया जाएगा कि विस्फोटक का किसी लोहे या इस्पात के साथ संपर्क रोका जा सके। भीतरी भाग में लगी बेंचे, शेल्फ और फिटिंग यथासाध्य गिट से मुक्त एवं साफ रखे जाएंगे तथा ऐसे विस्फोटक, जो जल से खतरनाक रूप में प्रभावित हो सकते हैं, इस बात सम्यक सावधानी बरती जाएगी कि वह कोई जल मौजूद न रहे; परंतु किसी लोहे या इस्पात के खुले होने के विरुद्ध सावधानी से संबंधित इस शर्त का वह भाग ऐसे किसी भवन में बाधकर नहीं होगा जिसमें वर्ग 6 (गोला बारूद) के प्रथम के विस्फोटक से गिट कोई विस्फोटक रखा गया है।
The interior of the magazine and the benches, shelves and fittings therein shall be so constructed or so lined or covered as to prevent the exposure of any iron or steel contact with the explosives. Such interior, benches, shelves and fittings shall so far as is reasonably practicable, be kept free from grit and shall otherwise be clean; and in the case of any explosives liable to be dangerously affected by water, due precautions shall be taken to exclude water there from. Provided that so much of this condition as relates to precautions against the exposure of any iron or steel shall not be obligatory in a building in which no explosive other than explosive of the 1st Division 6th (Ammunition) Class is kept.
- यदि तड़ित चालक का परीक्षण विस्फोटक नियंत्रक करता है तो अनुज्ञापिधारी ऐसे परीक्षण के लिए विहित फीस का संदाय करेगा यदि परीक्षण असमाधानकारी साबित होता है तो उतनी ही फीस अनुज्ञापिधारी द्वारा पश्चात्तर्ती प्रत्येक परीक्षण के लिए तब तक दी जाती रहेगी जब तक कि परीक्षण अधिकारी तड़ित चालक को समाधानप्रद घोषित नहीं कर देता परंतु किसी एक परीक्षण के लिए देय फीस किसी एक दिन के दौरान किसी चालक के लिए गए सभी परीक्षणों के लिए प्रभार्य होगा।
परंतु यह और कि यदि दो या अधिक तड़ित चालक एक ही मैगजीन से संबंधित हैं तो ऐसे सभी चालकों के परीक्षण के लिए फीस ऐसी किसी फीस से अधिक नहीं होगी जो किसी एक तड़ित चालक के परीक्षण के लिए हर स्थिति में विहित की गई है।
If the lightning conductor is tested by the Controller of Explosives, the licensee shall pay the fees prescribed for text. In the event of the test proving unsatisfactory, the same fees shall be payable by the licensee for each subsequent test until the lightning conductor is passed by the testing officer as satisfactory. Provided that the fees payable for a single test shall be charged for all tests made on a conductor during any one day.
- Provided further that where two or more lightning conductors are attached to one and the same magazine, the fee for the testing of all such conductors shall not exceed the fee prescribed in this condition for testing a single lightning conductor.
- उपयुक्त तथा जब रहित कार्यकरण वस्तु, उपयुक्त जूतों के प्रयोग द्वारा तथा तलाशी लेकर या अन्यथा अथवा ऐसे किसी साधनों द्वारा इस बात सम्यक उपबंध किया जाएगा कि फेक्ट्री परिसर में अग्नि, दियासलाई अथवा ऐसी कोई वस्तुएं या पदार्थ, जिससे विस्फोट हो सकता है या आग लग सकती हो, किन्तु इस शर्त के कारण ऐसी संरचना, स्थिति या स्वरूप में किसी कृत्रिम बत्ती का प्रवेश वर्जित नहीं है जिससे आग लगने या विस्फोट होने का खतरा न हो।
Due provisions shall be made, by the use of suitable working clothes without pockets, suitable shoes and by searching or otherwise or by such means, for preventing the introduction into danger area of the factory premises of fire, Lucifer matches or any substance or article likely to cause explosion or fire, but this condition shall not prevent the introduction of an artificial light of such construction, position or character as not to cause any danger of fire or explosion. Provided that so much of this condition as applies to the exclusion of iron or steel, shall not be obligatory in a building in which no explosive other than an explosive of the 1st Division of the 6th (Ammunition) Class is kept.

11. अनुज्ञापिका प्रारूप आर.ई.-3 और आर.ई.-4 या आर.ई.-5, जैसी स्थिति हो, में सभी विस्फोटकों का अभिलेख और लेखा रखेगा और विस्फोटक नियम, 2008 के अधीन प्राधिकृत किसी भी अधिकारी के समक्ष उसके द्वारा ऐसा करने की मांग की जाने पर स्टॉक पुस्तक और अभिलेख प्रस्तुत करेगा। स्टॉक पुस्तक विहित प्रोफार्मा में पृष्ठ संख्यांकित होगी।
The licensee shall keep records and accounts of all explosives in Forms RE-3 and RE-4 or RE-5, as the case may be, and exhibit the stock books and records to any of the officers authorised under the Explosives Rules, 2008 whenever such officer may call upon him to do so. The stock books in the prescribed proforma shall be page numbered.
12. परिसरों में कोई परिवर्तन या तबदीली अनुज्ञापन प्राधिकारी के पूर्वानुमोदन बिना नहीं की जाएगी और अनुज्ञापिका ऐसी किसी शर्त का अनुपालन करेगा जो इस निमित्त अनुज्ञापन प्राधिकारी विनिर्दिष्ट करे।
No changes or alterations shall be carried out to the premises without prior approval of the licensing authority and the licensee shall comply with any condition that may be specified by the licensing authority in this behalf.
13. मैगजीन सभी समयों पर अच्छी मरम्मत की स्थिति में बनाई रखी जाएगी (या अच्छी हालत में बनाई रखी जाएगी)। यदि किसी कारणवश किसी विस्फोटक के भण्डारण के लिए मैगजीन अनुपयुक्त हो जाती है तो अनुज्ञापिका इस बात की सूचना अनुज्ञापन प्राधिकारी को तुरंत देगा।
Magazine shall at all times be kept in state of good repair (or maintained in good condition). The licensee shall report to licensing authority forthwith, if the magazine becomes unfit for storage of any explosives for any reason whatsoever.
14. मैगजीन का अनुज्ञापिका इन नियमों के नियम 24 के उप-नियम 3 के अनुसार त्रैमासिक विवरणी प्रस्तुत करेगा।
The licensee of the magazine shall submit quarterly return as per sub-rules (3) and (4) of rule 24 of these rules.
15. यदि सुरक्षा दूरी का कोई अधिक्रमण होता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को आवश्यक सलाह और कार्यवाही के लिए तुरंत दी जाएगी।
Any encroachment of the safety distance shall be immediately communicated to the licensing authority for necessary advice and action.
16. यदि कोई विस्फोटक विनष्ट हुआ अथवा अनुपयोगी जाया जाता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को, सलाह प्राप्त करने के लिए, तुरंत दी जाएगी।
The licensing authority shall be immediately informed for advice if any explosive is found deteriorated or unserviceable.
17. विस्फोटकों के पैकेटों के चट्टे इस प्रकार लगाए जाएंगे कि कम से कम एक व्यक्ति भण्डार किए गए सभी पैकेजों की हालत की जांच करने और प्रत्येक पैकेज की विनिर्माण विशेषियों को पढ़ने के लिए उनके बीच से होकर आ जा सके।
The explosive packages shall be stocked in such a way so as to allow movement of at least one person to check the condition of all packages stored and to read the manufacture particulars of each package.
18. तडित चालकों की भूमि के लिए प्रतिरोध यथासंभव न्यूनतम होगा और किसी भी दशा में 10 ओह्म से अधिक नहीं होगा।
The resistance of the lightning conductor to earth shall be as low as possible and in no case be more than 10 ohms.
19. मैगजीन के चारों ओर 15 मीटर की दूरी के अंतर्गत कोई शुष्क घास या झाड़ी या जलनशील सामग्री नहीं रहने दी जाएगी।
A distance of 15 meters surrounding the magazine or store house shall be kept clear of dried grass or bush or flammable materials.
20. विस्फोटकों के प्रत्येक पैकेट की, जब उसे मैगजीन के भीतर लिया जा रहा हो, ठीक दशा जानने के लिए परीक्षा की जाएगी।
Every package of explosive at the time of bringing inside the magazine shall be examined for its sound condition.
21. किसी मैगजीन/भण्डारगृह में किसी एक समय में चार व्यक्तियों से अधिक को नहीं रहने दिया जाएगा।
Not more than 4 persons shall be allowed inside the magazine or store house at any one time.
22. विस्फोटकों के खाली पैकेजों को शीघ्रतया वहां से हटा दिया जाएगा और नष्ट कर दिया जाएगा।
Empty packages of the explosives shall be removed at the earliest and destroyed.
23. अनुज्ञापिका और कर्मचारियों को परिसर के भीतर आपातकाल के दौरान की जाने वाली प्रक्रियाओं से अवगत होना चाहिए।
The licensee and the employee shall be conversant with procedure to be taken during the emergency within the premises.
24. निरीक्षण या नमूना अधिकारी को सभी युक्तियुक्त समयों पर अनुज्ञापन परिसर में अबाध रूप से पहुंचने दिया जाएगा और यह सुनिश्चित करने के लिए कि अधिनियम और इन नियमों के उपबन्धों और सुरक्षा स्थितियों को सम्यक्तः अनुपालन किया जा रहा है, अधिकारी को प्रत्येक सुविधा प्रदान की जाएगी।
Free access to the licensed premises shall be given at all reasonable times to any inspecting or sampling officer and every facility shall be afforded to the officer for ascertaining that the provisions of the Act and these rules and the safety conditions are duly observed.
25. यदि अनुज्ञापन प्राधिकारी या विस्फोटक निर्यंत्रक अनुज्ञापिका को अनुज्ञापन परिसरों या मशीनरी, द्रव या उपकरण में ऐसी कोई मरम्मत या परिवर्तन या परिवर्तन करने या सफाई को लागू करने को लिखित रूप में सूचित करता है जो परिसर के अंदर या बाहर या व्यक्तियों की सुरक्षा के लिए आवश्यक है, अनुज्ञापिका सफाई को निष्पादित करेगा और विनिर्दिष्ट अवधि के भीतर अनुपालन रिपोर्ट ऐसे प्राधिकारी को देगा।
If the licensing authority or a Controller of Explosives informs in writing, the holder of the licence to execute any repairs or to make any additions or alterations to the licensed premises or machinery, tools or apparatus or carry out recommendations, which are in the opinion of such authority may pose unacceptable risk and so necessary for the safety of either on-site or off-site of the premises or persons, the holder of the licence shall execute the recommendations and report compliance within the period specified by such authority.
26. अनुज्ञापिका मैगजीन में रखने और बिक्री के लिए प्राधिकृत विस्फोटक सूची में उल्लिखित अनुज्ञापन फैक्टरी या कंपनी से प्राधिकृत विस्फोटक / अतिशबाजी या सुरक्षा पत्ती खरीदेगा।
The licensee shall purchase authorised explosives/ fireworks or safety fuse as mentioned in the list authorised explosives from a licensed factory or company for possession and sale from the magazine.
27. निम्न से अधिक ध्वनि स्तर उत्पादित करने वाले अतिशबाजियों पटाखों की बिक्री और रखने के लिए -
(क) जो फटने की जगह से चार मीटर की दूरी पर है, 125 डी.बी. (ए1) या 145 डी.बी. (सी) पी.के. प्रतिबंधित होंगे;
(ख) श्रृंखला (जुड़े हुए पटाखे) को गठन करने वाले व्यक्तिगत पटाखों के लिए उपर्युक्त उल्लिखित सीमा 5 लॉग, 10 (एन) डी.बी. (सी) पी.के. प्रतिबंधित होंगे;
The possession and sale of fire-crackers generating noise level exceeding:
a) 125 dB(A) or 145 dB(C) at 4 meters distance from the point of bursting shall be prohibited;
b) For individual fire-cracker constituting the series (joined fire-crackers), the above mentioned limit be reduced by 5 log10 (N) dB, where N = number of crackers joined together.
28. आग या विस्फोट द्वारा दुर्घटना या नुकसान पटाखों की कमी या चोरी, तुरंत पास के पुलिस थाने और अनुज्ञापन प्राधिकारी और अनुज्ञापन प्राधिकारी के स्थानीय कार्यालय को रिपोर्ट की जाएगी।
Accidents by fire or explosion and losses, shortage or theft of explosives shall be immediately reported to the nearest police station and the licensing authority and local office of the licensing authority.

अतिरिक्त शर्तें / Additional Conditions :

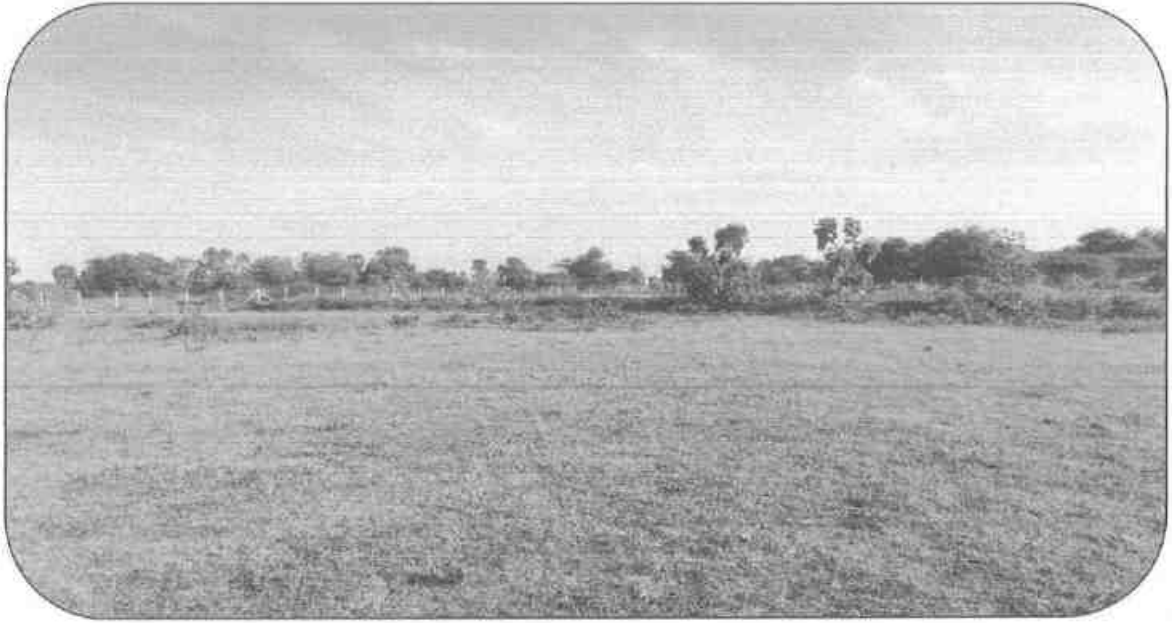
1. अनुज्ञापिका विदेशी मूल के अतिशबाजी को ना प्रदर्शित करेगा, ना रखेगा और ना ही उसकी बिक्री करेगा। The licensee shall not exhibit, possess and sell fireworks of foreign origin.

कृते संयुक्त मुख्य विस्फोटक निर्यंत्रक
For Joint Chief Controller of Explosives
दक्षिणार्चल, चेन्नै | South Circle, Chennai

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by Dr T L THANULINGAM
Reason: Licence No. : E/SC/TN/22/164
Location: Chennai (E10402)
Date: 13-03-2023 16:25:16 PM

TOPOGRAPHICAL VIEW OF KAGANAM
ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA



Name of the Applicant : **M/s. S.V.S. Mines,**
Thiru. K. Ponnurangam (Partner)
Address : No. 5/1, Sumangali Village,
Vembakkam Taluk,
Tiruvannamalai District,
Tamil Nadu State – 604 402.
Mobile No. +91 77088 55810.

Location:

S.F.No. : 35/2(Part), 3, 5(Part), 1A, 1B1(Part), 1B2(Part) and 36
Extent : 2.85.40 Ha.
Village : Kaganam
Taluk : Vembakkam
District : Tiruvannamalai

Signature of the applicant

For M/s. S.V.S. Mines

K. Ponnurangam

K. Ponnurangam
(Partner)

S. K. Srinivas
Village Administrative Officer
நெ.38, காகனம் அலுவலர் கிராமம்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம்.
07.08.2025

சான்ற:-

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் தாலிக்கு.

நெ.38, காகனம் கிராமம். புன்வயல் ஏர்வாடி ராண்கர் 35/A-
0450, 35/1B₁ - (053.5), 35/1B₂ - (039.5) ஏர்வாடி,
35/2 - (0.44.0) ஏர்வாடி, 35/3 - (0.39.5) ஏர்வாடி, 35/5
- (1.32.0) ஏர்வாடி, 36/- (0.31.0) ஏர்வாடி 3.84.5-ல்
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தாது: 38. காகனம்

நாள்: 07. 2. 2025

ச. க. சிவசாமி
கிராம நிர்வாக அலுவலர்
நெ.38, காகனம், நெ.39, கரந்தை கிராமம்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம்.



TMT.P.RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.

Phone No. 044-24359973

Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7894/1(a)/EC.No:4691/2020 dated:21.08.2021

To

Thiru.S.Vadivel
S/o. Subramani
No.1, Amman Kula Street
Sumangali Village & Post
Vembakkam Taluk
Tiruvannamalai District – 604402

Sir/Madam,

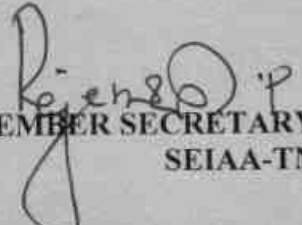
Sub: SEIAA-TN – Proposed Rough stone & Gravel Quarry lease over an extent of 4.18.0Ha by Thiru.S.Vadivel in S.F.Nos.38/1, 38/2, 39/5, 39/6, 39/7, 48/17, 48/18, 48/19, 48/20, 426/2 & 426/3 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District- issue of Environmental Clearance– Reg.

- Ref:**
1. Online Proposal No. SIA/TN/MIN/176228/2020, Dated; 29.09.2020
 2. Application for Environmental Clearance dated: 30.09.2020
 3. Minutes of the 219th SEAC meeting held on 13.07.2021
 4. Minutes of the 453rd SEIAA meeting held on 11.08.2021.

Details of Minor Mineral Activity:-

This has reference to your application second 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.




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1	Name of Project Proponent and address	Thiru.S.Vadivel S/o. Subramani No.1, Amman Kula Street Sumangali Village & Post Vembakkam Taluk Tiruvannamalai District – 604402
2	Location of the Proposed Activity	
	Survey Number	38/1, 38/2, 39/5, 39/6, 39/7, 48/17, 48/18, 48/19, 48/20, 426/2 & 426/3
	Latitude and Longitude	12°44'39.81" N to 12°44'49.13"N 79°34'58.49"E to 79°35'08.35"E
	Village	Kaganam
	Taluk	Vembakkam
	District	Tiruvannamalai
3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel Quarry
	ii. Mining Lease Area	4.18.0 Ha
	iii. Approved quantity	293800cu.m of Rough stone, 65112cu.m of weathered rock & 48586cu.m of Gravel
	iv. Depth of Mining	30m
	v. Type of mining	Opencast Semi-Mechanized Mining Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector with date	Rc.No.217/Kanimam/2019 dated: 03.08.2020
	viii. Mining plan approval by Assistant Director of Geology and Mining with date	Rc.No.217/Kanimam/2019 dated: 09.09.2020
	ix. Mining period	5 Years

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4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	35 Nos.
6	Utilities	
	i. Source of Water :	Water Vendors
	ii. Quantity of Water Requirement in KLD:	4.5 KLD
	a. Domestic & Drinking purpose	1.0 KLD
	b. Green Belt & Dust Suppression	3.5 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	273238Liters of HSD
7	Cost	
	i. Project Cost (excluding EMP cost)	Rs. 84.83Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
	iii. CER Cost	Rs.1.78 lakhs
8	Validity: This Environmental Clearance is granted for the production of 293800 cu.m of Rough Stone, 65112 cu.m of Weathered Rock and 48586 cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.	

Affidavit

The Proponent has furnished affidavit in One Hundred Rupees stamp paper attested by the Notary stating that

I, Thiru.S.Vadivel, S/o. Subramani, No.1, Amman Kula Street, Sumangali Village & Post, Vembakkam Taluk, Tiruvannamalai District – 604402, solemnly declare and sincerely affirm that:

1. I have applied for getting Environmental Clearance to SEIAA, Tamil Nadu for mining lease for mining of Rough stone & Gravel Quarry lease over an extent of 4.18.0Ha by

21 AUG 2021


MEMBER SECRETARY
SEIAA-TN

Thiru.S.Vadivel in S.F.Nos.38/1, 38/2, 39/5, 39/6, 39/7, 48/17, 48/18, 48/19, 48/20,426/2 & 426/3 of Kaganam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu.

I Swear to state and confirm that within 10Km area of the quarry site, I have applied for Environment Clearance, no one of the following is situated.

- Protected areas notified under the wild life(Protection) Act, 1972(NBWL)
- Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
- Eco-Sensitive area as notified.
- Interstate boundaries within 10Km radius from the boundary of the proposed site.

2. We will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost 2.0% of project cost (Rs. In Lakhs)
1. Water Purifier cost and bed facility to the cheyyar dispensary etc.	88.63	1.78
2. If we are instructed by PWD/Competent bodies to desilt the water bodies nearby. I assure to spend out CER cost for desilting /strengthening the bunds of the nearby water bodies		
Total cost Allocation	88.63	1.78

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below:

i) Existing Quarries

S.No.	Name of the Owner	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil

ii) Abandoned Quarries

S.No.	Name and Address of the Lessee	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil



[Signature]
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SEIAA-TN

iii) Present Proposed Quarry

S.No.	Name and Address of the Applicant & Owner	Village & S.F.Nos.	Extent (in Hects)	Classification of land
1.	Thiru.S.Vadivel S/o. Subramani No.1, Amman Kula Street Sumangali Village & Post Vembakkam Taluk Tiruvannamalai District	Kaganam 38/1, 38/2, 39/5, 39/6, 39/7, 48/17, 48/18, 48/19, 48/20, 426/2 & 426/3 of	4.18.0	Patta Lands

iv) Future Proposed Quarries;

S.No.	Name and Address of the Lessee	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil

4. There will not be hindrance or disturbance to the people living on en-route nearby out quarry site while transporting the mined out material and due to mining/quarrying activities.
5. There is no approved habitation village are located within 300m radius from the periphery of our quarry.
6. I swear that Afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in our quarry site.
8. Approach road belongs to local panchayat only and no other private patta roads encountered.
9. I will not engage any child labour in our quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety/protective equipment will be provided to all the labourers working in our quarry.
11. No permanent structures, temples, etc., are located within 500m radius from the periphery of my quarry.



Kejendra P
MEMBER SECRETARY
SEIAA-TN

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 of Geology & Mining, Tiruvannamalai District in his Rc.No.217/Kanimam/2019 dated: 09.09.2020 has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

i) Existing Quarries

S.No.	Name of the Owner	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil

ii) Abandoned Quarries

S.No.	Name and Address of the Lessee	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil

iii) Present Proposed Quarry

S.No.	Name and Address of the Applicant & Owner	Village & S.F.Nos.	Extent (in Hects)	Classification of land
1.	Thiru.S.Vadivel S/o. Subramani No.1, Amman Kula Street Sumangali Village & Post Vembakkam Taluk Tiruvannamalai District	Kaganam 38/1, 38/2, 39/5, 39/6, 39/7, 48/17, 48/18, 48/19, 48/20, 426/2 & 426/3 of	4.18.0	Patta Lands

iv) Future Proposed Quarries;

S.No.	Name and Address of the Lessee	Village & S.F.Nos.	Extent (in Hects)	Lease Period	Remarks
					Nil

Appraisal by SEAC:

The proposal was placed for appraisal in this 219th meeting of SEAC held on 13.07.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions in addition to normal conditions:

1. Restricting the depth of mining to 30m ultimate depth and quantity of 2,93,800cu.m of Rough stone 65112cu.m of weather rock and 48586cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the lake which



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is 12 hectare water spread.

2. Fugitive emission measurements should be carried out during the mining operation at regular intervals once in a month and submit the same to SEIAA.
3. A safety distance of 100m shall be left from the boundary of the Eri.
4. Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures undertaken.
5. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
6. Greenbelt needs to be developed in the periphery of the mines area so that at the closure time the trees would have grown well.
7. Ground water quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
8. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
9. 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.
10. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a 50m safety distance from water body should be left vacant without any activity.
12. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
13. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.




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14. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.
15. 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 monitored by the District Authorities.
16. The recommendation for the issue of environmental clearance is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A.No.186 of 2016 (M.A.No.350/2016) and O.A.No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and 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) and 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).
17. 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.
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.
19. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mining activities.
20. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
21. All the conditions imposed by the Assistant Director, Geology & Mining, Tiruvannamalai District in the mining plan approval and the precise area communication letter should be strictly followed.

Discussion by SEIAA and the Remarks:-

The subject was placed in the 453rd Authority meeting held on 11.08.2021. After detailed discussions, the Authority unanimously accepted the recommendation of SEAC and decided to




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SEIAA-TN

grant Environmental Clearance subject to the conditions as recommended by SEAC & normal condition in addition to the following condition.

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining to 30m ultimate depth and quantity of 2,93,800cu.m of Rough stone 65112cu.m of weather rock and 48586cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the lake which is 12 hectare water spread.
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 furnish the detailed EMP, mentioning all the CER activities for Rs. 1.78Lakhs as committed. All the CER activity shall be carried out before obtaining CTO from TNPCB

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. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. 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.

7. 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.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. 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.
14. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
15. 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.
16. 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.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. 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.




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20. 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.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
- Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - 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.
 - All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. 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.
24. 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.
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
- Retention/ toe walls shall be provided at the foot of the dumps.
 - Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.



[Signature]
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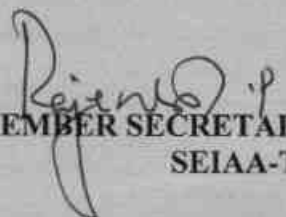
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
29. Concealing the factual data or failure 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.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. 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.
32. 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.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. 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.



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35. 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.
36. 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.
37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. 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.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. 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.
48. 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.
49. 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.




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50. 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.
51. 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.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. 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.
54. 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.
55. 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.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. 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.
58. 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).

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.



[Signature]
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SEIAA-TN

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.

21 AUG 2021


MEMBER SECRETARY
SEIAA-TN

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




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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 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.

SEIAA

MEMBER SECRETARY
SEIAA-TN

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, Tiruvannamalai District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EIA Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.





LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu, India.

Phone: +91 427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1, Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha, S.F.No: 35/2(Part),35(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1 –Core Zone
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9541,9576,9725,9762,10214,10279,10496,10538,10890,10911,11217,11272,11584,11660, 12166,12229,12665,12708,13197,13226,13617,13695,14212,14289,14504,14556.		
Location Coordinates	12°44'43.97"N 79°35'6.82"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m ³)	PM2.5 (µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
29.09.2025	7:00-7:00	44.2	25.8	5.4	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	7:15-7:15	43.3	21.2	4.8	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	7:00-7:00	39.4	19.1	5.8	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	7:15-7:15	43.2	21.2	5.2	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	7:05-7:05	40.9	19.5	5.9	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	7:15-7:15	44.3	23.3	4.8	22.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	7:05-7:05	44.1	23.3	5.8	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	7:15-7:15	44.3	22.8	5.5	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	7:00-7:00	44.1	22.0	6.1	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	7:15-7:15	44.1	23.3	4.4	22.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	7:00-7:00	43.8	23.7	BDL(DL:4.0)	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	7:15-7:15	41.8	19.9	5.5	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	7:05-7:05	43.7	21.2	5.0	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	7:20-7:20	40.9	20.4	6.2	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	7:05-7:05	43.6	22.0	5.9	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	7:20-7:20	42.2	21.2	5.8	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	7:05-7:05	45.4	24.1	5.4	22.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	7:20-7:20	43.8	19.9	4.5	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	7:30-7:30	43.8	22.9	5.1	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	7:40-7:40	44.2	23.7	6.6	23.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	7:00-7:00	44.0	24.1	5.5	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	7:10-7:10	45.2	25.8	5.8	23.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	7:05-7:05	45.0	24.9	5.4	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	7:15-7:15	44.2	22.0	5.1	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	7:00-7:00	46.0	24.5	5.4	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	7:10-7:10	44.3	22.0	6.4	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam (Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85 4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1 –Core Zone
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9541,9576,9725,9762,10214,10279,10496,10538,10890,10911,11217,11272,11584,11660,12166,12229,12665,12708,13197,13226,13617,13695,14212,14289,14504,14556.		
Location Coordinates	12°44'43.97"N 79°35'6.82"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	7:20-7:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	7:20-7:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	7:20-7:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	7:10-7:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	7:05-7:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	7:15-7:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	7:00-7:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	7:10-7:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0



*****End of Report*****

Page 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part), 1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Near Habitation
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9542,9577,9726,9763,10215,10280,10497,10539,10891,10912,11218,11273,11585,116 61,12167,12230,12666,12709,13198,13227,13618,13696,14213,14290,14505,14557.		
Location Coordinates	12°44'59.28"N 79°35'17.63"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	7:30-7:30	45.7+-	24.9	5.8	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	7:40-7:40	44.3	22.8	4.6	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	7:30-7:30	43.1	20.4	5.4	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	7:40-7:40	44.1	25.8	5.5	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	7:35-7:35	44.2	23.3	6.7	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	7:45-7:45	43.1	21.2	4.7	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	7:35-7:35	41.8	19.1	5.8	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	7:45-7:45	41.8	19.9	5.4	18.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	7:30-7:30	46.7	24.1	4.4	24.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	7:40-7:40	41.8	20.8	5.6	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	7:30-7:30	41.6	21.2	4.6	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	7:40-7:40	42.4	21.6	4.8	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	7:25-7:25	47.4	24.5	5.8	22.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	7:50-7:50	44.2	24.5	BDL(DL:4.0)	22.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	7:25-7:25	44.4	23.3	7.3	23.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	7:50-7:50	44.3	23.7	6.1	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	7:25-7:25	41.4	22.9	5.2	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	7:50-7:50	44.7	23.3	4.8	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	8:00-8:00	42.8	21.6	5.8	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	8:05-8:05	45.0	24.5	5.4	23.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	7:30-7:30	41.9	20.4	4.9	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	7:40-7:40	42.9	23.3	5.4	22.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	7:35-7:35	43.9	22.5	5.8	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	7:45-7:45	43.4	21.6	6.1	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	7:30-7:30	42.6	21.2	5.4	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	7:40-7:40	43.3	20.8	5.7	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit





Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu, India.

Phone: +91 427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Near Habitation
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9542,9577,9726,9763,10215,10280,10497,10539,10891,10912,11218,11273,11585, 11661,12167,12230,12666,12709,13198,13227,13618,13696,14213,14290,14505,14557.		
Location Coordinates	12°44'59.28"N 79°35'17.63"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	7:35-7:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	7:45-7:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	7:35-7:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	7:45-7:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	7:25-7:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	7:50-7:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	7:25-7:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	7:50-7:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	7:25-7:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	7:50-7:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	8:05-8:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	7:35-7:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	7:45-7:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	7:30-7:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	7:40-7:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

*****End of Report*****
Page 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9543,9578,9727,9764,10216,10281,10498,10540,10892,10913,11219,11274,11586,11662,12168,12231,12667,12710,13199,13228,13619,13697,14214,14291,14506,14558.		
Location Coordinates	12°44'27.55"N 79°34'51.61"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	8:00-8:00	43.5	25.4	5.7	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	8:10-8:10	42.9	24.5	5.4	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	8:00-8:00	40.4	20.8	5.3	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	8:10-8:10	42.2	20.4	5.8	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	8:05-8:05	43.6	24.5	5.5	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	8:15-8:15	41.9	20.8	4.9	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	8:05-8:05	42.7	22.9	6.3	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	8:15-8:15	43.3	21.6	4.7	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	8:00-8:00	41.4	19.1	7.1	17.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	8:10-8:10	42.9	21.6	4.7	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	8:00-8:00	44.5	24.5	5.0	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	8:10-8:10	46.4	23.7	4.0	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	7:55-7:55	44.4	22.0	5.7	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	8:20-8:20	41.8	21.6	5.3	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	7:55-7:55	42.6	21.2	5.3	22.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	8:20-8:20	41.3	21.6	5.6	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	7:55-7:55	44.5	23.3	5.0	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	8:20-8:20	43.2	21.2	4.6	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	8:30-8:30	41.6	19.9	6.5	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	8:40-8:40	41.8	19.9	4.2	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	8:00-8:00	40.5	19.5	5.2	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	8:10-8:10	44.1	22.0	5.3	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	8:05-8:05	46.0	24.5	5.6	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	8:15-8:15	45.9	25.4	5.3	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	8:00-8:00	47.5	25.8	5.1	24.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	8:10-8:10	45.7	24.54	4.8	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit





Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu, India.

Phone: +91 427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnuram(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area - 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 - Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9543,9578,9727,9764,10216,10281,10498,10540,10892,10913,11219,11274,11586, 11662,12168,12231,12667,12710,13199,13228,13619,13697,14214,14291,14506,14558.		
Location Coordinates	12°44'27.55"N 79°34'51.61"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	8:05-8:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	8:15-8:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	8:05-8:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	8:15-8:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	7:55-7:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	8:20-8:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	7:55-7:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	8:20-8:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	7:55-7:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	8:20-8:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	8:30-8:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	8:40-8:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	8:05-8:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	8:15-8:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	8:00-8:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	8:10-8:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

*****End of Report*****
Page 2 of 2Verified by
L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area - 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 - Kanagambakkam (school)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9544,9579,9728,9765,10217,10282,10499,10541,10893,10914,11220,11275,11587,1166 3,12169,12232,12668,12711,13200,13229,13620,13698,14215,14292,14507,14559.		
Location Coordinates	12°44'48.25"N 79°37'42.87"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	8:30-8:30	41.4	20.4	4.3	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	8:40-8:40	44.7	25.8	4.9	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	8:30-8:30	44.2	21.2	6.5	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	8:40-8:40	41.2	22.8	5.5	21.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	8:35-8:35	42.3	21.2	5.6	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	8:45-8:45	43.3	22.5	4.7	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	8:35-8:35	43.7	21.2	4.5	18.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	8:45-8:45	45.5	23.7	5.2	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	8:30-8:30	44.9	22.5	4.7	23.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	8:40-8:40	38.9	18.7	4.3	17.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	8:30-8:30	44.9	24.1	5.8	24.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	8:40-8:40	43.3	22.0	5.6	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	8:25-8:25	41.2	19.9	4.8	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	8:50-8:50	43.1	22.5	5.2	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	8:25-8:25	41.2	20.4	5.8	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	8:50-8:50	40.7	19.5	5.5	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	8:25-8:25	43.3	22.0	4.7	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	8:50-8:50	45.5	24.1	5.5	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	9:00-9:00	45.2	23.7	6.6	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	9:10-9:10	43.1	23.3	5.3	22.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	8:25-8:25	43.3	21.6	5.5	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	8:35-8:35	43.9	24.5	5.7	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	8:25-8:25	42.8	21.6	5.9	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	8:45-8:45	44.8	24.1	5.3	23.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	8:25-8:25	43.6	22.0	5.3	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	8:35-8:35	44.7	23.7	5.8	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 – Kanagambakkam (school)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9544,9579,9728,9765,10217,10282,10499,10541,10893,10914,11220,11275,11587,1166 3,12169,12232,12668,12711,13200,13229,13620,13698,14215,14292,14507,14559.		
Location Coordinates	12°44'48.25"N 79°37'42.87"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	8:30-8:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	8:40-8:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	8:30-8:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	8:40-8:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	8:35-8:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	8:45-8:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	8:35-8:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	8:45-8:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	8:30-8:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	8:40-8:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	8:30-8:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	8:40-8:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	8:50-8:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	8:50-8:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	8:50-8:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	8:35-8:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	8:45-8:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	8:25-8:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	8:35-8:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0



*****End of Report*****
Page 2 of 2

Verified by
L. SUDHAPRIYA
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu, India.

Phone: +91 427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Perungattur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9545,9580,9729,9766,10218,10283,10500,10542,10894,10915,11221,11276,11588,11664, 12170,12233,12669,12712,13201,13230,13621,13699,14216,14293,14508,14560.		
Location Coordinates	12°44'44.83"N 79°32'19.63"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	9:00-9:00	43.5	21.2	4.9	18.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	9:10-9:10	44.5	21.2	6.4	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	9:00-9:00	44.4	25.8	5.4	23.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	9:10-9:10	44.9	22.8	6.3	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	9:05-9:05	45.2	26.2	5.5	22.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	9:15-9:15	43.5	22.5	4.0	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	9:05-9:05	41.6	19.9	5.5	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	9:15-9:15	44.5	22.5	4.8	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	9:00-9:00	43.2	23.3	4.6	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	9:10-9:10	42.5	21.2	4.2	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	9:00-9:00	44.4	22.0	4.8	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	9:10-9:10	42.2	20.8	5.8	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	8:55-8:55	43.1	19.5	5.1	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	9:20-9:20	43.8	23.3	5.6	22.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	8:55-8:55	45.5	24.1	5.7	24.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	9:20-9:20	44.5	21.6	5.2	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	8:55-8:55	43.5	23.3	5.5	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	9:20-9:20	44.0	22.5	5.8	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	9:30-9:30	44.4	22.5	4.7	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	9:40-9:40	42.4	19.5	5.2	18.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	9:00-9:00	45.9	25.4	4.5	23.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	9:10-9:10	45.6	25.8	6.6	23.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	9:05-9:05	41.7	20.8	6.0	21.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	9:15-9:15	44.8	23.7	6.1	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	9:00-9:00	44.3	24.5	5.2	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	9:10-9:10	44.2	23.3	4.9	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit



Page 1 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

BRANCH OFFICES: CHENNAI (Mobile : +91 70944 53636) & COIMBATORE (Mobile : +91 70944 54646)

145 A



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GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu, India.

Phone: +91 427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area - 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 - Perungattur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9545,9580,9729,9766,10218,10283,10500,10542,10894,10915,11221,11276,11588,11664,12170,12233,12669,12712,13201,13230,13621,13699,14216,14293,14508,14560.		
Location Coordinates	12°44'44.83"N 79°32'19.63"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	9:05-9:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	9:15-9:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	9:05-9:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	9:15-9:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	8:55-8:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	9:20-9:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	8:55-8:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	9:20-9:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	8:55-8:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	9:20-9:20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	9:30-9:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	9:40-9:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	9:05-9:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	9:15-9:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	9:00-9:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	9:10-9:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

*****End of Report*****
Page 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnuramam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 – Alividithangi
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9546,9581,9730,9767,10219,10284,10501,10543,10895,10916,11222,11277,11589,11665,12171,12234,12670,12713,13202,13231,13622,13700,14217,14294,14509,14561.		
Location Coordinates	12°46'40.46"N 79°35'18.65"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	9:30-9:30	42.9	22.0	4.3	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	9:40-9:40	46.0	25.8	5.2	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	9:30-9:30	42.0	21.2	5.2	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	9:40-9:40	43.8	21.6	6.1	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	9:35-9:35	43.0	23.7	5.2	22.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	9:45-9:45	43.7	22.9	4.9	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	9:35-9:35	43.4	21.2	6.2	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	9:45-9:45	46.5	24.1	4.6	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	9:30-9:30	45.4	24.1	5.3	21.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	9:40-9:40	41.9	20.4	5.3	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	9:30-9:30	40.8	19.5	5.1	18.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	9:40-9:40	44.1	22.5	4.3	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	9:25-9:25	44.7	22.9	4.2	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	9:50-9:50	44.8	23.7	4.6	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	9:25-9:25	44.3	23.3	5.7	22.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	9:50-9:50	45.1	22.9	5.1	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	9:25-9:25	45.2	25.4	5.5	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	9:50-9:50	44.4	22.9	6.4	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	10:00-10:00	46.2	24.5	4.7	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	10:15-10:15	45.0	24.9	5.6	23.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	9:25-9:25	42.9	21.6	5.1	21.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	9:35-9:35	43.4	24.5	5.3	22.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	9:35-9:35	44.6	23.3	5.5	22.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	9:45-9:45	43.2	21.2	5.4	21.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	9:25-9:25	41.9	19.9	6.3	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	9:35-9:35	42.9	20.4	4.6	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit



Verified by

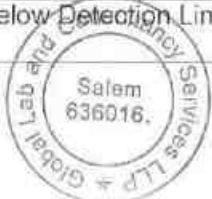
L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1, Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area - 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Alividithangi
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9546,9581,9730,9767,10219,10284,10501,10543,10895,10916,11222,11277,11589,11665,12171,12234,12670,12713,13202,13231,13622,13700,14217,14294,14509,14561.		
Location Coordinates	12°46'40.46"N 79°35'18.65"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	9:30-9:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	9:40-9:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	9:30-9:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	9:40-9:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	9:35-9:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	9:45-9:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	9:35-9:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	9:45-9:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	9:30-9:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	9:40-9:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	9:30-9:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	9:40-9:40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	9:25-9:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	9:50-9:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	9:25-9:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	9:50-9:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	9:25-9:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	9:50-9:50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	9:25-9:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	9:35-9:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	9:35-9:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	9:45-9:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	9:25-9:25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	9:35-9:35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit



*****End of Report*****

Page 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Irumanthangal
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9547,9582,9731,9768,10220,10285,10502,10544,10896,10917,11223,11278,11590,11666,12172,12235,12671,12714,13203,13232,13623,13701,14218,14295,14510,14562.		
Location Coordinates	12°42'29.71"N 79°36'28.38"E		
Report Date	08.01.2026		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
29.09.2025	10:00-10:00	43.7	20.8	5.6	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30.09.2025	10:10-10:10	42.4	19.5	7.2	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06.10.2025	10:00-10:00	44.3	23.7	4.9	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07.10.2025	10:10-10:10	42.8	19.9	4.9	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13.10.2025	10:05-10:05	40.9	19.9	4.6	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14.10.2025	10:05-10:05	41.1	19.9	5.4	18.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
20.10.2025	10:05-10:05	44.1	22.5	5.2	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
21.10.2025	10:15-10:15	43.6	21.2	5.4	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
27.10.2025	10:00-10:00	42.1	20.4	4.5	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28.10.2025	10:10-10:10	41.5	19.9	4.8	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03.11.2025	10:00-10:00	42.9	21.6	4.7	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04.11.2025	10:10-10:10	46.6	24.9	6.6	22.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10.11.2025	09:55-09:55	42.5	20.4	5.1	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11.11.2025	10:15-10:15	45.7	24.1	6.6	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17.11.2025	09:55-09:55	46.7	24.5	5.6	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18.11.2025	10:15-10:15	41.8	20.8	4.9	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24.11.2025	09:55-09:55	42.7	21.2	5.4	22.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25.11.2025	10:15-10:15	42.7	21.6	8.8	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
01.12.2025	10:30-10:30	47.6	25.8	5.3	23.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02.12.2025	10:45-10:45	43.7	22.9	6.1	22.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
08.12.2025	10:00-10:00	43.4	24.1	6.1	22.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09.12.2025	10:10-10:10	41.8	20.8	4.7	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
15.12.2025	10:05-10:05	46.5	24.5	4.5	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16.12.2025	10:15-10:15	39.8	19.1	5.6	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22.12.2025	10:00-10:00	43.1	21.6	5.6	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23.12.2025	10:10-10:10	44.0	24.1	6.5	22.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit



Verified by

[Signature]

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	S.V.S MINES Tr.K.Ponnurangam(Partner), No.5/1,Sumangali Village, Tiruvannamalai District.		
Site Location	S.V.S MINES Rough Stone and Gravel Quarry, Lease Area – 2.85.4 Ha. S.F.No: 35/2(Part),3,5(Part),1A,1B ₁ (Part),1B ₂ (Part)&36, Kanganam Village, Vembakkam Taluk, Tiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Irumanthangal
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/9547,9582,9731,9768,10220,10285,10502,10544,10896,10917,11223,11278,11590,11666, 12172,12235,12671,12714,13203,13232,13623,13701,14218,14295,14510,14562.		
Location Coordinates	12°42'29.71"N 79°36'28.38"E		
Report Date	08.01.2026		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
29.09.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.09.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.10.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.10.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.10.2025	10:05-10:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.10.2025	10:05-10:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.10.2025	10:05-10:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.10.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.10.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.10.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.11.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.11.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10.11.2025	09:55-09:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.11.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17.11.2025	09:55-09:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.11.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24.11.2025	09:55-09:55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.11.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.12.2025	10:30-10:30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.12.2025	10:45-10:45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.12.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.12.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.12.2025	10:05-10:05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.12.2025	10:15-10:15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.12.2025	10:00-10:00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.12.2025	10:10-10:10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0



*****End of Report*****

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Verified by

L. SUDHAPRIYA
Technical Manager



TEST REPORT

ULR-TC606025000015076F

Report Number : GLCS/TR10545/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10545/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.20 - 07.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'46.07"N 79°35'14.23"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	07.20	39.6	56.6	53.68
2	08.20	41.1	55.9	53.03
3	09.20	40.5	54.6	51.76
4	10.20	40.6	55.7	52.82
5	11.20	38.8	60.1	57.12
6	12.20	39.1	57.2	54.26
7	13.20	37.5	54.3	51.38
8	14.20	36.9	56.3	53.34

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Authorised Signatory
L.Sudha Priya
Technical Manager

Note:The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.



for Accreditation

TEST REPORT

ULR-TC606025000015076F

Report Number : GLCS/TR10545/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10545/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.20 - 07.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'46.07"N 79°35'14.23"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	15.20	36.1	56.1	53.13
10	16.20	34.5	55.8	52.82
11	17.20	35.5	53.3	50.36
12	18.20	36.2	51.5	48.62
13	19.20	33.1	40.3	38.05
14	20.20	34.5	41.3	39.11
15	21.20	33.9	46.3	43.53
16	22.20	34.7	37.5	36.32

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000015076F

Report Number : GLCS/TR10545/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10545/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.20 - 07.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'46.07"N 79°35'14.23"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	23.20	33.8	38.5	36.76
18	00.20	34.1	36.6	35.53
19	01.20	33.3	35.1	34.29
20	02.20	34.5	34.9	34.70
21	03.20	32.6	36.9	35.26
22	04.20	33.3	35.8	34.73
23	05.20	32.5	36.6	35.02
24	06.20	38.2	45.6	43.32
		Day Mean dB(A)		49.2
		Night Mean dB(A)		36.4
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F No.92/3A2, Geetha Nagar, Alagapuram Pudur,
Salem - 636 016. Tamil Nadu. India.
Phone Nos.: +91 427 2970 989 / 70944 52628
E-Mail: lab@glcs.in; Web: www.glcs.in



for Accreditation



TEST REPORT

ULR-TC606025000015607F

Report Number : GLCS/TR10546/2025-26

Report Date : 01-12-2025

Customer Provided Details:

Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 2	Attention	Mr.Vadivel
Location Name	Near Habitation	Other Details (If any)	NA

Laboratory Provided Details:

TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10546/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.50 - 07.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'58.97"N 79°35'17.32"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	08.50	39.6	56.6	53.68
2	09.50	40.3	56.5	53.59
3	10.50	41.9	57.1	54.22
4	11.50	39.7	58.5	55.55
5	12.50	40.3	56.6	53.69
6	13.50	41.5	51.5	48.90
7	14.50	42.7	50.9	48.50
8	15.50	40.3	45.5	43.64

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000015607F

Report Number : GLCS/TR10546/2025-26

Report Date : 01-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 2	Attention	Mr.Vadivel
Location Name	Near Habitation	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10546/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.50 - 07.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'58.97"N 79°35'17.32"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	16.50	39.5	45.7	43.62
10	17.50	41.7	46.9	45.04
11	18.50	38.5	39.6	39.08
12	19.50	35.2	38.5	37.16
13	20.50	34.7	38.1	36.72
14	21.50	36.6	37.9	37.30
15	22.50	35.1	36.6	35.91
16	23.50	34.2	37.8	36.36

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 2 of 3

Authorised Signatory
L.Sudha Priya
Technical Manager

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Report Date : 01-12-2025

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Sample Name	AMBIENT NOISE LEVEL MONITORING - 2	Attention	Mr.Vadivel
Location Name	Near Habitation	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10546/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	07.50 - 07.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'58.97"N 79°35'17.32"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	00.50	33.5	39.1	37.15
18	01.50	33.6	37.5	35.97
19	02.50	32.2	36.3	34.72
20	03.50	32.9	36.1	34.79
21	04.50	33.5	35.9	34.86
22	05.50	33.2	37.4	35.79
23	06.50	33.7	38.4	36.66
24	07.50	36.1	59.1	56.11
		Day Mean dB(A)		46.0
		Night Mean dB(A)		35.7
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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S.F No.92/3A2, Geetha Nagar, Alagapuram Pudur,
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Phone Nos.: +91 427 2970 989 / 70944 52628
E-Mail: lab@glcs.in; Web: www.glcs.in



for Accreditation



TEST REPORT

ULR-TC606025000015077F

Report Number : GLCS/TR10547/2025-26

Report Date : 21-11-2025

Customer Provided Details:

Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 3	Attention	Mr.Vadivel
Location Name	Near Existing Quarry	Other Details (If any)	NA

Laboratory Provided Details:

TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10547/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	08.20 - 08.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'27.19"N 79°34'51.58"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	09.20	39.5	58.5	55.54
2	10.20	41.7	60.1	57.15
3	11.20	41.6	61.2	58.24
4	12.20	42.5	63.3	60.33
5	13.20	41.3	58.5	55.57
6	14.20	40.6	59.2	56.25
7	15.20	38.9	57.2	54.25
8	16.20	36.6	60.2	57.21

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000015077F

Report Number : GLCS/TR10547/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 3	Attention	Mr.Vadivel
Location Name	Near Existing Quarry	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10547/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	08.20 - 08.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'27.19"N 79°34'51.58"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	17.20	34.2	58.2	55.21
10	18.20	34.1	55.5	52.52
11	19.20	33.7	52.8	49.84
12	20.20	34.2	36.9	35.76
13	21.20	35.5	37.1	36.37
14	22.20	35.6	36.2	35.91
15	23.20	33.6	40.1	37.97
16	00.20	34.1	39.6	37.67

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Technical Manager

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Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 3	Attention	Mr.Vadivel
Location Name	Near Existing Quarry	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10547/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	08.20 - 08.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'27.19"N 79°34'51.58"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	01.20	35.9	38.1	37.14
18	02.20	35.6	36.9	36.30
19	03.20	34.9	37.1	36.14
20	04.20	33.2	35.9	34.76
21	05.20	32.8	35.8	34.55
22	06.20	32.9	39.6	37.43
23	07.20	35.6	51.6	48.70
24	08.20	36.9	50.3	47.48
		Day Mean dB(A)		51.1
		Night Mean dB(A)		36.5
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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S.F No.92/3A2, Geetha Nagar, Alagapuram Pudur,
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Phone Nos.: +91 427 2970 989 / 70944 52628
E-Mail: lab@glcs.in; Web: www.glcs.in



for Accreditation



TEST REPORT

ULR-TC606025000015608F

Report Number : GLCS/TR10548/2025-26

Report Date : 01-12-2025

Customer Provided Details:

Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 4	Attention	Mr.Vadivel
Location Name	"Kanagambakkam (School)"	Other Details (If any)	NA

Laboratory Provided Details:

TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10548/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	09.50	41.5	55.3	52.47
2	10.50	41.5	56.9	54.01
3	11.50	42.3	54.7	51.93
4	12.50	40.5	55.6	52.72
5	13.50	39.8	56.3	53.39
6	14.50	38.9	54.7	51.80
7	15.50	36.1	55.9	52.93
8	16.50	33.2	52.7	49.74

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP

Page 1 of 3

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Technical Manager

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TEST REPORT

ULR-TC606025000015608F

Report Number : GLCS/TR10548/2025-26

Report Date : 01-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 4	Attention	Mr.Vadivel
Location Name	"Kanagambakkam (School)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10548/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	17.50	34.2	53.9	50.94
10	18.50	32.8	52.8	49.83
11	19.50	31.4	51.4	48.43
12	20.50	33.1	37.1	35.55
13	21.50	32.6	36.6	35.05
14	22.50	33.9	35.2	34.60
15	23.50	32.1	36.3	34.69
16	00.50	33.4	37.4	35.85

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



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Authorised Signatory
L.Sudha Priya
Technical Manager

Page 2 of 3

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TEST REPORT

ULR-TC606025000015608F

Report Number : GLCS/TR10548/2025-26

Report Date : 01-12-2025

Customer Provided Details:			
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Sample Name	AMBIENT NOISE LEVEL MONITORING - 4	Attention	Mr.Vadivel
Location Name	"Kanagambakkam (School)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10548/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	01.50	33.6	39.1	37.17
18	02.50	32.9	36.6	35.13
19	03.50	33.7	37.4	35.93
20	04.50	34.5	36.3	35.49
21	05.50	33.8	36.1	35.10
22	06.50	33.4	37.4	35.85
23	07.50	34.7	40.2	38.27
24	08.50	35.9	49.8	46.96
		Day Mean dB(A)		47.5
		Night Mean dB(A)		35.5
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000015078F

Report Number : GLCS/TR10549/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 5	Attention	Mr.Vadivel
Location Name	"Perungattur (Residential)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10549/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.20 - 09.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'44.64"N 79°32'19.51"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	10.20	41.1	53.6	50.83
2	11.20	40.6	54.2	51.38
3	12.20	39.8	51.6	48.87
4	13.20	40.5	52.2	49.47
5	14.20	38.5	50.3	47.57
6	15.20	40.1	51.2	48.51
7	16.20	37.6	49.6	46.86
8	17.20	36.9	45.5	43.05

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 1 of 3

Authorised Signatory
L.Sudha Priya
Technical Manager

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for Accreditation

TEST REPORT

ULR-TC606025000015078F

Report Number : GLCS/TR10549/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 5	Attention	Mr.Vadivel
Location Name	"Perungattur (Residential)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10549/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.20 - 09.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'44.64"N 79°32'19.51"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	18.20	35.5	46.3	43.64
10	19.20	35.1	42.8	40.47
11	20.20	32.2	40.5	38.09
12	21.20	31.4	39.1	36.77
13	22.20	33.2	39.5	37.40
14	23.20	32.9	36.1	34.79
15	00.20	33.1	36.5	35.12
16	01.20	32.5	37.2	35.46

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 5	Attention	Mr.Vadivel
Location Name	"Perungattur (Residential)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10549/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.20 - 09.20	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°44'44.64"N 79°32'19.51"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	02.20	32.9	38.9	36.86
18	03.20	36.1	38.5	37.46
19	04.20	36.9	39.1	38.14
20	05.20	39.5	39.5	39.50
21	06.20	40.4	49.5	46.99
22	07.20	41.5	48.2	46.03
23	08.20	42.7	51.7	49.20
24	09.20	40.5	52.1	49.38
Day Mean dB(A)				46.1
Night Mean dB(A)				36.8
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F No.92/3A2, Geetha Nagar, Alagapuram Pudur,
Salem - 636 016. Tamil Nadu. India.
Phone Nos.: +91 427 2970 989 / 70944 52628
E-Mail: lab@glcs.in; Web: www.glcs.in



for Accreditation



TEST REPORT

ULR-TC606025000015079F

Report Number : GLCS/TR10550/2025-26

Report Date : 21-11-2025

Customer Provided Details:

Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 6	Attention	Mr.Vadivel
Location Name	"Alividithangi (Residential)"	Other Details (If any)	NA

Laboratory Provided Details:

TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10550/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.50 - 09.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°46'40.17"N 79°35'18.55"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	10.50	41.2	56.3	53.42
2	11.50	42.9	57.1	54.25
3	12.50	40.1	55.5	52.61
4	13.50	35.9	52.6	49.68
5	14.50	37.1	53.9	50.98
6	15.50	36.6	54.8	51.85
7	16.50	35.9	56.2	53.23
8	17.50	34.6	57.1	54.11

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000015079F

Report Number : GLCS/TR10550/2025-26

Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 6	Attention	Mr.Vadivel
Location Name	"Alividithangi (Residential)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10550/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.50 - 09.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°46'40.17"N 79°35'18.55"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	18.50	35.4	51.3	48.40
10	19.50	32.9	50.6	47.66
11	20.50	33.6	49.5	46.60
12	21.50	30.9	42.2	39.50
13	22.50	30.4	41.8	39.09
14	23.50	32.9	38.9	36.86
15	00.50	32.4	36.9	35.21
16	01.50	32.8	39.2	37.09

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 2 of 3

Authorised Signatory
L.Sudha Priya
Technical Manager

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Report Date : 21-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 6	Attention	Mr.Vadivel
Location Name	"Alividithangi (Residential)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10550/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sampling Hours	09.50 - 09.50	Date of Completion	20-11-2025
Sample Receipt Condition	Good	Avg Temperature	- °C
Location Co-ordinates	12°46'40.17"N 79°35'18.55"E	Avg Humidity	- %
Other Details (If any)	NA		

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	02.50	33.6	39.2	37.25
18	03.50	33.5	38.5	36.68
19	04.50	33.1	37.1	35.55
20	05.50	34.9	38.6	37.13
21	06.50	35.5	40.1	38.38
22	07.50	39.6	51.9	49.14
23	08.50	44.5	52.2	49.87
24	09.50	40.6	51.9	49.20
Day Mean dB(A)				49.3
Night Mean dB(A)				36.9
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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GLOBAL LAB AND CONSULTANCY SERVICES LLP

S.F No.92/3A2, Geetha Nagar, Alagapuram Pudur,
Salem - 636 016. Tamil Nadu. India.
Phone Nos.: +91 427 2970 989 / 70944 52628
E-Mail: lab@glcs.in; Web: www.glcs.in



for Accreditation



TEST REPORT

ULR-TC606025000015609F

Report Number : GLCS/TR10551/2025-26

Report Date : 01-12-2025

Customer Provided Details:

Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 7	Attention	Mr.Vadivel
Location Name	"Irumanthangal (School)"	Other Details (If any)	NA

Laboratory Provided Details:

TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10551/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	11.20	39.5	60.3	57.33
2	12.20	37.5	59.5	56.52
3	13.20	35.6	56.3	53.33
4	14.20	34.3	55.5	52.52
5	15.20	33.6	49.5	46.60
6	16.20	34.6	51.8	48.87
7	17.20	34.9	50.6	47.71
8	18.20	35.2	51.6	48.69

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP

Page 1 of 3

Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000015609F

Report Number : GLCS/TR10551/2025-26

Report Date : 01-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 7	Attention	Mr.Vadivel
Location Name	"Irumanthangal (School)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10551/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	19.20	33.6	49.5	46.60
10	20.20	33.5	46.2	43.42
11	21.20	33.1	39.5	37.39
12	22.20	34.9	38.6	37.13
13	23.20	33.1	38.1	36.28
14	00.20	34.6	36.6	35.71
15	01.20	33.6	37.1	35.69
16	02.20	33.9	36.9	35.65

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Page 2 of 3

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TEST REPORT

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Report Number : GLCS/TR10551/2025-26

Report Date : 01-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District-	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District-
Sample Name	AMBIENT NOISE LEVEL MONITORING - 7	Attention	Mr.Vadivel
Location Name	"Irumanthangal (School)"	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3075/2025-26	Sampled by	Laboratory
Sample Code	GLCS/10551/2025-26	Sampling Method	GLCS/SOP/N/014
Sample Description	-	Sample Receipt Date	23-10-2025
Sampling Date	21-10-2025 - 22-10-2025	Date of Analysis	20-11-2025
Sample Receipt Condition	Good	Date of Completion	20-11-2025
Sample Quantity	1.0 No	Other Details (If any)	NA

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	03.20	34.1	37.5	36.12
18	04.20	33.5	38.1	36.38
19	05.20	33.9	37.6	36.13
20	06.20	36.9	42.9	40.86
21	07.20	38.2	49.5	46.80
22	08.20	39.4	53.9	51.04
23	09.20	40.2	54.6	51.74
24	10.20	39.5	55.6	52.70
		Day Mean dB(A)		48.9
		Night Mean dB(A)		36.1
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000016686F

Report Number : GLCS/TR12181/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - PROJECT AREA	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12181/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	07.40	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.53"N 79°35'11.96"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	326.14
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	18.50
3	Boron	USEPA-6010D:2014	mg/kg	18.70
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.08
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	34.79
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.4
8	Chromium	USEPA-6010D-2014	mg/kg	30.17

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 1 of 4

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016686F

Report Number : GLCS/TR12181/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - PROJECT AREA	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12181/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	07.40	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.53"N 79°35'11.96"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	21.20
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	1.75
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.95
12	Iron	USEPA-6010 D-2014	mg/kg	140.65
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	23.19
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.30
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.52

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Technical Manager

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TEST REPORT

ULR-TC606025000016686F

Report Number : GLCS/TR12181/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - PROJECT AREA	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12181/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	07.40	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.53"N 79°35'11.96"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.11
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.16
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	419.4
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.0
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	19.73
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	36.71
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	43.56
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	49.6

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016686F

Report Number : GLCS/TR12181/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 1	Attention	Mr.Vadivel
Location Name	CORE ZONE - PROJECT AREA	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12181/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	07.40	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.53"N 79°35'11.96"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	39.40

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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TEST REPORT

ULR-TC606025000016687F

Report Number : GLCS/TR12182/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 2	Attention	Mr.Vadivel
Location Name	Near Habitation (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12182/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	08.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'0.14"N 79°35'16.19"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	316.70
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	16.7
3	Boron	USEPA-6010D:2014	mg/kg	9.20
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.14
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	37.25
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.3
8	Chromium	USEPA-6010D-2014	mg/kg	0.75

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 1 of 4

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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Sample Name	SOIL - 2	Attention	Mr.Vadivel
Location Name	Near Habitation (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12182/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	08.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'0.14"N 79°35'16.19"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	13.68
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.1
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.9
12	Iron	USEPA-6010 D-2014	mg/kg	34.58
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	25.12
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.49
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.85

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Page 2 of 4

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Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 2	Attention	Mr.Vadivel
Location Name	Near Habitation (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12182/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	08.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'0.14"N 79°35'16.19"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.31
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.27
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	520.6
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.65
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	26.92
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	30.85
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	42.23
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	49.4

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

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Report Number : GLCS/TR12182/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 2	Attention	Mr.Vadivel
Location Name	Near Habitation (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12182/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	08.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'0.14"N 79°35'16.19"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	38.81

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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TEST REPORT

ULR-TC606025000016688F

Report Number : GLCS/TR12183/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 3	Attention	Mr.Vadivel
Location Name	Kanagambakkam (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12183/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'49.00"N 79°37'43.18"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	304.06
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	18.0
3	Boron	USEPA-6010D:2014	mg/kg	4.97
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.16
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	35.79
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	3.2
8	Chromium	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)

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Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016688F

Report Number : GLCS/TR12183/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 3	Attention	Mr.Vadivel
Location Name	Kanagambakkam (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12183/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'49.00"N 79°37'43.18"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	BDL(DL: 0.5)
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.4
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	1.8
12	Iron	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.37
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.63

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Report Number : GLCS/TR12183/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 3	Attention	Mr.Vadivel
Location Name	Kanagambakkam (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12183/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'49.00"N 79°37'43.18"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.16
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.15
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	517.5
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	5.32
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	26.74
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	38.05
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	35.2
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	52.4

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016688F

Report Number : GLCS/TR12183/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 3	Attention	Mr.Vadivel
Location Name	Kanagambakkam (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12183/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.10	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'49.00"N 79°37'43.18"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

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L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

Note:The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.



TEST REPORT

ULR-TC606025000016685F

Report Number : GLCS/TR12184/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 4	Attention	Mr.Vadivel
Location Name	Perungattur (Residential)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12184/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.45	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.18"N 79°32'19.63"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	476.58
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	19.3
3	Boron	USEPA-6010D:2014	mg/kg	8.47
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.17
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	36.17
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	3.7
8	Chromium	USEPA-6010D-2014	mg/kg	6.73

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016685F

Report Number : GLCS/TR12184/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 4	Attention	Mr.Vadivel
Location Name	Perungattur (Residential)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12184/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.45	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.18"N 79°32'19.63"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	4.98
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	2.1
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.8
12	Iron	USEPA-6010 D-2014	mg/kg	105.13
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	6.73
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.42
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.73

Note : BDL - Below Detection Limit, DL - Detection Limit,



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L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016685F

Report Number : GLCS/TR12184/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 4	Attention	Mr.Vadivel
Location Name	Perungattur (Residential)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12184/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.45	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.18"N 79°32'19.63"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.90
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.01
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	491
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	6.74
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	25.44
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	30.14
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	44.42
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	51.8

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Technical Manager



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TEST REPORT

ULR-TC606025000016685F

Report Number : GLCS/TR12184/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 4	Attention	Mr.Vadivel
Location Name	Perungattur (Residential)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12184/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	09.45	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'44.18"N 79°32'19.63"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	11.71

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

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Technical Manager

Page 4 of 4

*****End of Report*****

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TEST REPORT

ULR-TC606025000016684F

Report Number : GLCS/TR12185/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 5	Attention	Mr.Vadivel
Location Name	Alividithangi (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12185/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.05	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'39.75"N 79°35'18.91"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	387.08
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	14.5
3	Boron	USEPA-6010D:2014	mg/kg	6.25
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.08
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	36.79
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	3.0
8	Chromium	USEPA-6010D-2014	mg/kg	15.0

Note : BDL - Below Detection Limit, DL - Detection Limit,



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L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016684F

Report Number : GLCS/TR12185/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 5	Attention	Mr.Vadivel
Location Name	Alividithangi (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12185/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.05	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'39.75"N 79°35'18.91"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	6.25
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.1
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	1.9
12	Iron	USEPA-6010 D-2014	mg/kg	6.25
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	11.75
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.29
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.50

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L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016684F

Report Number : GLCS/TR12185/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 5	Attention	Mr.Vadivel
Location Name	Alividithangi (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12185/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.05	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'39.75"N 79°35'18.91"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.17
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.10
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	411.7
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	8.59
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	68.99
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	38.75
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	38.75
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	48.6

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016684F

Report Number : GLCS/TR12185/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 5	Attention	Mr.Vadivel
Location Name	Alividithangi (Agriculture)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12185/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.05	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'39.75"N 79°35'18.91"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	16.25

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

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L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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TEST REPORT

ULR-TC606025000016683F

Report Number : GLCS/TR12186/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 6	Attention	Mr.Vadivel
Location Name	Irumanthangal (Barren)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12186/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.30	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°42'27.26"N 79°36'28.22"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	413.79
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	23.50
3	Boron	USEPA-6010D:2014	mg/kg	4.25
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.20
5	Cadmium	USEPA-6010 D-2014	mg/kg	BDL(DL: 0.5)
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	39.58
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	1.7
8	Chromium	USEPA-6010D-2014	mg/kg	6.50

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Technical Manager

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TEST REPORT

ULR-TC606025000016683F

Report Number : GLCS/TR12186/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 6	Attention	Mr.Vadivel
Location Name	Irumanthangal (Barren)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12186/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.30	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°42'27.26"N 79°36'28.22"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	8.0
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	4.0
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	2.3
12	Iron	USEPA-6010 D-2014	mg/kg	22.0
13	Lead	USEPA-6010D-2014	mg/kg	BDL(DL: 0.5)
14	Manganese	USEPA-6010 D-2014	mg/kg	18.50
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.26
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.45

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 2 of 4

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TEST REPORT

ULR-TC606025000016683F

Report Number : GLCS/TR12186/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 6	Attention	Mr.Vadivel
Location Name	Irumanthangal (Barren)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12186/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.30	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°42'27.26"N 79°36'28.22"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.98
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.18
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	395
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.28
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	22.39
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	33.53
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	44.08
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	50.6

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016683F

Report Number : GLCS/TR12186/2025-26

Report Date : 18-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SOIL - 6	Attention	Mr.Vadivel
Location Name	Irumanthangal (Barren)	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12186/2025-26	Sampling Method	GLCS/SOP/S/014
Sample Description	Powder	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.30	Date of Completion	18-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°42'27.26"N 79°36'28.22"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	34.74

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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for Accreditation

TEST REPORT

ULR-TC606025000015257F

Report Number : GLCS/TR12187/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000016344F

Report Number : GLCS/TR12187/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL(DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
5	Biochemical Oxygen Demand (BOD) at 27°C for 3 Days	IS 3025 (Part 44): 2023	mg/l	7.2
6	Boron as B	IS 3025 (Part 57): 2021	mg/l	0.054
7	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
8	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	62.52

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 1 of 5

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016344F

Report Number : GLCS/TR12187/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2023	mg/l	30
10	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	129.96
11	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
12	Color	IS 3025 (Part 4): 2021	CU	6
13	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
14	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL(DL: 0.01)
15	Dissolved Oxygen (DO)	IS 3025 (Part 38): 1989 (Reaffirmed 2019)	mg/l	4.6
16	Electrical Conductivity	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	μS/cm	1208

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Authorised Signatory
L.Sudha Priya
Technical Manager

Page 2 of 5

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TEST REPORT

ULR-TC606025000016344F

Report Number : GLCS/TR12187/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Fluoride as F-	GLCS/SOP/W/015; Issue no :02: 2024	mg/l	0.18
18	Free Residual Chlorine as Cl ₂	IS 3025 (Part 26): 2021	mg/l	BDL(DL: 1.0)
19	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL(DL: 0.01)
20	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
21	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	28.21
22	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL(DL: 0.01)
23	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.002)
24	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 3 of 5

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016344F

Report Number : GLCS/TR12187/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	2.38
26	Odor	IS 3025 (Part 5): 2018	-	Agreeable
27	pH	IS 3025 (Part 11): 2022	-	7.61
28	Phenols	IS 3025 PART 43 SECTION 1: 2022	mg/l	BDL(DL: 0.1)
29	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.005)
30	Sulphate as SO4	IS 3025 (Part 24) SECTION 1: 2022	mg/l	44.28
31	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL(DL: 1.0)
32	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	234.32

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Authorised Signatory
L.Sudha Priya
Technical Manager

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ULR-TC606025000016344F

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Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 1	Attention	Mr.Vadivel
Location Name	Cheyyar River	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12187/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	10.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°39'36.06"N 79°36'19.45"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	725
34	Total Hardness as CaCO3	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	272
35	Total Suspended Solids	IS 3025 PART 17: 2022	mg/l	7.2
36	Turbidity	IS 3025 (Part 10): 2023	NTU	3.5
37	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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TEST REPORT

ULR-TC606025000015258F

Report Number : GLCS/TR12188/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.1 °C
Location Co-ordinates	12°44'31.85"N 79°35'14.83"E	Avg Humidity	50.8 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000016345F

Report Number : GLCS/TR12188/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'31.85"N 79°35'14.83"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL(DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
5	Biochemical Oxygen Demand (BOD) at 27°C for 3 Days	IS 3025 (Part 44): 2023	mg/l	9.0
6	Boron as B	IS 3025 (Part 57): 2021	mg/l	0.052
7	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
8	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	41.68

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Authorised Signatory
L.Sudha Priya
Technical Manager

Page 1 of 5

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TEST REPORT

ULR-TC606025000016345F

Report Number : GLCS/TR12188/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'31.85"N 79°35'14.83"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2023	mg/l	40.0
10	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	117.96
11	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
12	Color	IS 3025 (Part 4): 2021	CU	6
13	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
14	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL(DL: 0.01)
15	Dissolved Oxygen (DO)	IS 3025 (Part 38): 1989 (Reaffirmed 2019)	mg/l	4.5
16	Electrical Conductivity	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	μS/cm	1002

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016345F

Report Number : GLCS/TR12188/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'31.85"N 79°35'14.83"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Fluoride as F-	GLCS/SOP/W/015; Issue no :02: 2024	mg/l	0.34
18	Free Residual Chlorine as Cl ₂	IS 3025 (Part 26): 2021	mg/l	BDL(DL: 1.0)
19	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL(DL: 0.01)
20	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)
21	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	26.27
22	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL(DL: 0.01)
23	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.002)
24	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



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L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016345F

Report Number : GLCS/TR12188/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'31.85"N 79°35'14.83"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	2.94
26	Odor	IS 3025 (Part 5): 2018	-	Agreeable
27	pH	IS 3025 (Part 11): 2022	-	7.53
28	Phenols	IS 3025 PART 43 SECTION 1: 2022	mg/l	BDL(DL: 0.1)
29	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.005)
30	Sulphate as SO4	IS 3025 (Part 24) SECTION 1: 2022	mg/l	59.10
31	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL(DL: 1.0)
32	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	193.92

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Authorised Signatory
L.Sudha Priya
Technical Manager

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for Accreditation

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Report Number : GLCS/TR12188/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	SURFACE WATER - 2	Attention	Mr.Vadivel
Location Name	Tank Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12188/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	11.20	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'31.85"N 79°35'14.83"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	602
34	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	212
35	Total Suspended Solids	IS 3025 PART 17: 2022	mg/l	6.3
36	Turbidity	IS 3025 (Part 10): 2023	NTU	3.2
37	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL(DL: 0.01)

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for Report

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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TEST REPORT

ULR-TC606025000015268F

Report Number : GLCS/TR12189/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.3 °C
Location Co-ordinates	12°44'55.10"N 79°35'5.31"E	Avg Humidity	50.6 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000016346F

Report Number : GLCS/TR12189/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'55.10"N 79°35'5.31"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL: 0.01)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	54.51
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	123.96

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016346F

Report Number : GLCS/TR12189/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'55.10"N 79°35'5.31"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL: 0.01)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	873.3
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.40
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL: 1.0)
16	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)

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L.Sudha Priya
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Report Date : 12-12-2025

Customer Provided Details:			
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Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'55.10"N 79°35'5.31"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	23.35
19	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL: 2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.11

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Technical Manager

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Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'55.10"N 79°35'5.31"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL: 0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.005)
27	Sulphate as SO4	IS 3025 (Part 24) Section 1: 2022	mg/l	26.96
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL: 1.0)
29	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	173.72
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	524
31	Total Hardness as CaCO3	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	232
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	4.6

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For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



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Report Number : GLCS/TR12189/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12189/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.00	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'55.10"N 79°35'5.31"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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for Accreditation

TEST REPORT

ULR-TC606025000015269F

Report Number : GLCS/TR12190/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.5 °C
Location Co-ordinates	12°46'37.77"N 79°35'18.65"E	Avg Humidity	50.8 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000016347F

Report Number : GLCS/TR12190/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'37.77"N 79°35'18.65"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.01
5	Boron as B	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	0.044
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	60.92
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	131.96

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016347F

Report Number : GLCS/TR12190/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'37.77"N 79°35'18.65"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL: 0.01)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	775
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.28
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL: 1.0)
16	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016347F

Report Number : GLCS/TR12190/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'37.77"N 79°35'18.65"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	20.43
19	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.012
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL: 2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	6.96

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 3 of 5

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016347F

Report Number : GLCS/TR12190/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'37.77"N 79°35'18.65"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL: 0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.005)
27	Sulphate as SO4	IS 3025 (Part 24) Section 1: 2022	mg/l	52.73
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL: 1.0)
29	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	169.68
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	465
31	Total Hardness as CaCO3	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	236
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	3.4

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016347F

Report Number : GLCS/TR12190/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	WELL WATER -2	Attention	Mr.Vadivel
Location Name	Alividithangi	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12190/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.25	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°46'37.77"N 79°35'18.65"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)

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for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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TEST REPORT

ULR-TC606025000015270F

Report Number : GLCS/TR12191/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.9 °C
Location Co-ordinates	12°44'58.24"N 79°35'15.82"E	Avg Humidity	51.0 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

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TEST REPORT

ULR-TC606025000016348F

Report Number : GLCS/TR12191/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'58.24"N 79°35'15.82"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
5	Boron as B	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	0.038
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	59.32
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	119.96

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016348F

Report Number : GLCS/TR12191/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'58.24"N 79°35'15.82"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL: 0.01)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	866
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.23
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL: 1.0)
16	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016348F

Report Number : GLCS/TR12191/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'58.24"N 79°35'15.82"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	34.05
19	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.011
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL: 2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.06

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 3 of 5

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016348F

Report Number : GLCS/TR12191/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'58.24"N 79°35'15.82"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL: 0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	31.79
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL: 1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	193.92
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	520
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	288
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL: 2.0)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016348F

Report Number : GLCS/TR12191/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 1	Attention	Mr.Vadivel
Location Name	Near Project Area	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12191/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	12.50	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°44'58.24"N 79°35'15.82"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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TEST REPORT

ULR-TC606025000015271F

Report Number : GLCS/TR12192/2025-26

Report Date : 25-11-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/M/SOP/05
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	24-11-2025
Sample Receipt Condition	Good	Avg Temperature	25.2 °C
Location Co-ordinates	12°45'12.71"N 79°36'49.73"E	Avg Humidity	50.4 %
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
A. Sathishkumar
Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000016350F

Report Number : GLCS/TR12192/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'12.71"N 79°36'49.73"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL: 1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.013
5	Boron as B	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	0.072
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	41.68
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	125.96

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000016350F

Report Number : GLCS/TR12192/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'12.71"N 79°36'49.73"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.02)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL: 0.01)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	830
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.16
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL: 1.0)
16	Iron as Fe	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)

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For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016350F

Report Number : GLCS/TR12192/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
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Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'12.71"N 79°36'49.73"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	25.29
19	Manganese as Mn	GLCS/SOP/W/62 Issue No:1: Date:10.09.2022	mg/l	BDL (DL: 0.01)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.012
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL: 2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	6.92

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L.Sudha Priya
Technical Manager



TEST REPORT

ULR-TC606025000016350F

Report Number : GLCS/TR12192/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnurangam (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'12.71"N 79°36'49.73"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL: 0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.005)
27	Sulphate as SO4	IS 3025 (Part 24) Section 1: 2022	mg/l	44.41
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL: 1.0)
29	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	197.96
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	514
31	Total Hardness as CaCO3	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	208
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL: 2.0)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager



for Accreditation

TEST REPORT

ULR-TC606025000016350F

Report Number : GLCS/TR12192/2025-26

Report Date : 12-12-2025

Customer Provided Details:			
Issued To	SVS MINES Tr.K.Ponnuram (Partner) No:5/1, Sumangali Village Tiruvannamalai District	Site Address	SVS MINES ROUGH STONE GRAVEL QUARRY Lease Area: 2.85.4Ha, SF.No:35/2(P),3,5(P), 1A/B1(P), 1B2(P) and 36, Kanganam Village, Vembakkam Taluk Tiruvannamalai District
Sample Name	BOREWELL WATER - 2	Attention	Mr.Vadivel
Location Name	Thiruvadirayapuram	Other Details (If any)	NA
Laboratory Provided Details:			
TRF No.	TRF/3497/2025-26	Sampled by	Laboratory
Sample Code	GLCS/12192/2025-26	Sampling Method	GLCS/SOP/W/028
Sample Description	Liquid	Sample Receipt Date	20-11-2025
Sampling Date	19-11-2025	Date of Analysis	20-11-2025
Sampling Hours	01.10	Date of Completion	12-12-2025
Sample Receipt Condition	Good	Location Co-ordinates	12°45'12.71"N 79°36'49.73"E
Other Details (If any)	NA		

Sl.No.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL: 0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



for Report

For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration and Mining Solutions, Salem

No. 17, Advaita 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.